U.S. AFRICA COMMAND

COORDINATING SUPPORT TO ENABLE AFRICAN
GOVERNMENTS TO BUILD SECURITY, DEVELOPMENT,
DIPLOMACY AND PROSPERITY

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Features

6 An important part of the maritime strategy is building mutual trust, respect and confidence through sustained relationships with African nations. This effort is explored with a look at the missions of U.S. Africa Command and the Combined Joint Task Force-Horn of Africa.

Cynthia Gonsalves, acting director of the DDR&E's Office of Technology Transition talks about the Defense Department tools for rapidly transferring technology to industry and into DoD programs of record. **14**

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29 Commander, U.S. Southern Command Adm. James Stavridis discusses the SOUTHCOM mission: conducting multinational military exercises, security assistance programs, human rights educational programs, sensible technology sharing, anti-terrorism information sharing and assistance, humanitarian aid, state and city partnerships … and a wide variety of other programs in cooperation with countries in the Caribbean, Central America and South America.

Navigation Guide

Cover - JINJA, Uganda – Gunnery Sergeant Frederick Sloan, Master Sergeant Ronnie Leonard and Gunnery Sergeant Michael Hussey (from left to right), assigned to 4th Anti-Terrorism Battalion based in Bessemer, Alabama, stand with Ugandan Brigadier General Silver Kayemba, chief of training, Uganda People's Defense Forces at the Non-Commissioned Officer's Academy during a visit January 20-25. The Marines provided familiarization with the roles and responsibilities of non-commissioned officers as well as NCO selection, education and development. The familiarization event is part of the U.S. Defense Department military-to-military contact program and is supported through units such as those assigned to U.S. Marine Corps Forces Europe. U.S. AFRICOM photo.

LOME, Togo Africa Partnership Station volunteers, Navy Petty Officer 1st Class Philip Phillips (right), and Petty Officer 2nd Class Matthew Rishovd, stack boxes of humanitarian items and food onto a truck January 29. The boxes are being shipped to malnourished children in Togo as part of Project Handclasp. Through Africa Partnership Station and Project Handclasp, the crew of the high speed vessel Swift delivered more than 100,000 meals while in Togo. Department of Defense photo by Petty Officer 2nd Class Elizabeth Merriam.

Editor's Notebook

The focus for this issue is maritime security — a foundation for national security and economic well-being. But these objectives can only be reached through stability operations and coalition cooperation on a global scale.

To this end, U.S. Navy and joint forces are projecting a forward presence with a preeminent combat capability, thus promoting deterrence and building confidence and trust with nations worldwide.

Working with the U.S. Department of State, USAID, coalition partners and many interagency organizations, U.S. Africa Command, Combined Joint Task Force – Horn of Africa and Africa Partnership Station help build stability by promoting security cooperation through a multifaceted approach: humanitarian aid and disaster response, providing peacekeeping military-to-military training, promoting human rights, and sponsoring medical and health care programs in African nations.

In the maritime domain, AFRICOM will help African nations improve their maritime security where illegal fishing, piracy and smuggling are dangerous threats to the sovereignty and economic development of many African nations.

In the U.S. Southern Command area of operations, the needs are no less urgent, piracy, poverty, unequal wealth distribution, social exclusion, corruption, narco-terrorism, urban crime and illicit trafficking plague many of the nations of the Caribbean and Central and South America and threaten their stability and economic development.

By implementing the National Strategy for Maritime Security and working with many federal and interagency partners and engaging the countries of Latin America, USSOUTHCOM is tackling these challenges by helping Latin American nations strengthen their security to enable an environment conducive to enduring prosperity, said the USSOUTHCOM Commander, Adm. James Stavridis.

Maritime security can be enabled by innovative technology, said Adm. Stavridis. The admiral describes the need for inexpensive deployable technologies for surveillance and detection, planning, sensors, radar, collaboration and "persistent precision-guided intelligence" in this issue of CHIPS.

Ultimately, ships, operators and command centers need "global maritime vessel transparency" because world prosperity and security depend on free use of the seas.

Joining in the discussion about innovative technology are Ms. Cynthia Gonsalves, acting director of DoD's Office of Technology Transition and Mr. Dennis Bauman, the Joint Program Executive Officer for JTRS.

Finally, the CHIPS staff participated in the Space and Naval Warfare Systems Command's exhibit at West 2008 in February where many of the game-changing technologies developed by the SPAWAR team were demonstrated. Thanks to those readers who stopped by to say hello.

Welcome new subscribers!

Sharon Anderson

DAKAR, Senegal – In this file photo from November 2007, crew members aboard the U.S. Navy's Africa Partnership Station (APS) man the rails in preparation for their humanitarian assistance and training programs in Senegal and several other countries in West and Central Africa. On April 2, 2008, the APS revisited Dakar, Senegal, to provide training for more than 100 members of the Senegalese Navy and help them enhance maritime safety and security. This visit marks the 15th port stop of the APS. Photo by Petty Officer 2nd Class R.J. Stratchko, U.S. Navy.
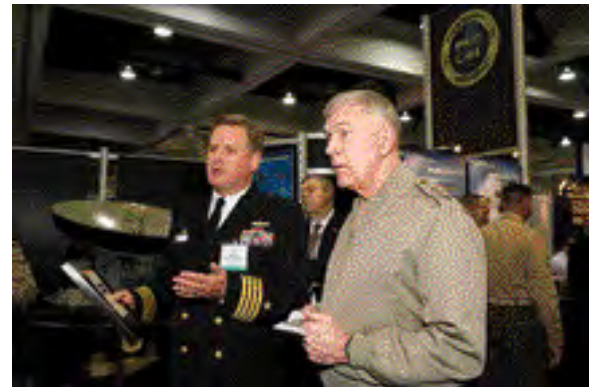
SPAWAR Systems Center San Diego Commanding Officer Capt. Mark Kolheim spoke with the Commandant of the Marine Corps Gen. James T. Conway at the SPAWAR exhibit at the West 2008 conference in San Diego in February. Capt. Kolheim emphasized the center's C4ISR solutions that create decisive effects, knowledge superiority and strategic advantage in the maritime domain.

The theme of this CHIPS issue, maritime strategy, is about applying maritime power to the crucial responsibility of protecting U.S. vital interests in a world that is increasingly interconnected and yet, increasingly uncertain.

Our maritime forces provide security with the ability to deploy quickly and reach difficult locations. With 70 percent of our world made up of water, over 50 percent of the world's population living on or near coastlines, and 90 percent of our commerce sailing across water, our maritime forces also provide the stability that will prevent any disruption to the American quality of life.

Information technology enables our maritime forces to accomplish their mission and we must provide that which is necessary to allow secure information sharing. In the past we've had several efficient, but disparate networks including the Navy Marine Corps Intranet for shore-based users, ONE-NET – the Navy's network for outside of the continental United States, MCEN – the Marine Corps Enterprise Network and ISNS – our shipboard network infrastructure.

NMCI was revolutionary in size and scope, and it raised the bar for the Department's network security. However, as the NMCI contract comes to an end, we must continually look forward and focus on the vision for the Department's future network environment. This future environment includes our transition from NMCI to the near-term Next Generation Enterprise Network (NGEN) in 2010, and then to the long-term Naval Networking Environment (NNE).

The Next Generation Enterprise Network will be the first step in the transition from NMCI and today's networking environment to NNE, which will provide a robust information infrastructure with the capabilities required by the entire Department. NGEN will supply a secure IT infrastructure for naval networking in the continental United States and select overseas locations. The focus of NGEN is to improve reliability, adaptability, security, governance and support to our maritime forces. It will ensure that users have timely access to the information and services they require to accomplish their missions. It will be the naval component of the Global Information Grid, and it will serve as the foundation for the DON's future NNE.

The Naval Networking Environment is envisioned to be a fully integrated enterprise-wide networking environment where data and services are ubiquitously available to DON users. It will ensure that all naval networks, including Consolidated Afloat Networks and Enterprise Services (CANES), the future afloat networking infrastructure, are fully interoperable.

As we prepare for the future, we are taking the steps necessary now for a seamless transition. We are identifying and developing NGEN requirements and planning for acquisition, contracting and transition. We are also continuing our efforts to reduce legacy applications, databases and networks to simplify our current environment and enable our future vision where all networks will be interoperable — afloat and ashore.

In planning for NGEN and NNE, we are also looking at emergent technologies, new ways of fulfilling our mission and addressing the balance between securing our information and making sure that our users have access to data and information when and where they need it.

The NGEN/NNE effort is not only a joint Navy and Marine Corps effort, but leadership from the highest levels of the Department, including the Secretary of the Navy, the Chief of Naval Operations and the Commandant of the Marine Corps, are fully engaged in guiding the NGEN initiative.

There were some challenges during the transition to NMCI, as there is with any change initiative, but it is important to remember that it was the first network of its size to be implemented by an organization. The NMCI challenges are lessons we have learned, and we are ensuring they are addressed as we move forward with NGEN.

We are doing everything we can to make sure the transition to NGEN is as efficient as possible. However, during this transition, we will not lose sight of the current environment. We will continue to work to ensure that the Department's users have reliable access to the information and applications they need to accomplish their missions throughout the transition process. The Department will continue investing in information assurance and network security improvements for NMCI, as these improvements are vital to keeping pace with the dynamic and emerging environment of cyber threats, as well as preparing for the transition to NGEN.

In transitioning our naval network environment, we will be playing our part in ensuring that IT-enabled sea power can be applied around the world to protect our way of life.

Robert J. Carey

U.S. Africa Command

Building mutual trust, respect and confidence through a sustained relationship with African countries

By U.S. Navy Cmdr. Denise Shorey, AFRICOM public affairs

U.S. Africa Command is the Department of Defense's newest regional command. The command will be responsible for U.S. military relations and activities with 53 African nations when it becomes an independent unified command in October 2008.

AFRICOM will assume responsibility for programs and activities on the continent currently managed by three separate commands: U.S. European Command, U.S. Central Command and U.S. Pacific Command, each with its own commander and priorities for operational activities within its assigned area of responsibility.

The development of a single command, AFRICOM, is a Defense Department internal reorganization to help activities run more smoothly across the continent.

The goal is to simplify coordination of U.S. Department of Defense activities in Africa, making them more efficient and effective and facilitating cooperation with partners and regional organizations.

President Bush directed the standup of AFRICOM in February 2007 and gave guidance on the design and structure of the new command. Its first commander, U.S. Army Gen. William E. "Kip" Ward, was confirmed by the Senate in September, and the command reached initial operating capability on October 1, 2007.

"Following my confirmation by the U.S. Senate, AFRICOM became what I call a 'command under construction,'" Gen. Ward said. He is building the command based on three enduring themes.

– BUILD THE TEAM: AFRICOM has the opportunity, vision and determination to redefine how the U.S. military cooperates with and complements the efforts of its U.S., international and non-governmental partners in Africa.

"U.S. AFRICOM will be innovative," Gen. Ward said. "It will include people from other U.S. government organizations, such as the Department of State, the U.S. Agency for International Development and others. The expertise gained from having staff from other U.S. agencies that have decades of working in Af-

LIMBE, Cameroon (Feb. 21, 2008) General William E. Ward, Commander, United States Africa Command, departs the amphibious dock landing ship USS Fort McHenry (LSD 43) after visiting the ship and observing day-to-day operations for Africa Partnership Station (APS). Part of the U.S. Navy's Global Fleet Station, APS provides a platform with the capacity and persistent presence to support sustained, focused training and collaboration on a regional scale to maritime partners in West and Central Africa. U.S. Navy Photo by Petty Officer 2nd Class Michael Campbell.

rica will allow AFRICOM to work smarter. The sum of our efforts as a whole will be greater than the sum of our individual parts."

– Bring ADDED VALUE to the security cooperation activities the command undertakes at the request of its African friends and, in so doing, DO NO HARM to collective and substantial ongoing efforts on the continent. AFRICOM will add value by helping to harmonize U.S. efforts to maximize the effectiveness of our nation's resources that are being dedicated to stability in Africa.

"AFRICOM's success and credibility on the continent has been seen in the programs that currently go on, and it will be seen in the future in terms of how it directly contributes to the stability, security, health, and welfare of the nations, the regional institutions, and the peoples of Africa," Gen. Ward said.

– BUILD PARTNERSHIPS which will enhance the ability of Africans to provide for their own security.

"Our intent is to build mutual trust, respect and confidence through a sustained relationship," Gen. Ward said. "I want African leaders to see AFRICOM as a reliable and consistent partner in helping them achieve greater capacity to address the security challenges they face, as well as be able to export that increased capacity across the continent where it is needed."

Some of the specific activities AFRICOM will support include:

– Peacekeeper training. Under the Department of State-led Africa Contingency Operations Training and Assistance (ACOTA) program, the U.S. military has helped train peacekeepers in 20 countries. Training includes convoy escort, checkpoint and disarmament operations, weapons handling, management of refugees, negotiations and small-unit command skills.

Command and staff training, as well as exercises for battalion, brigade and multinational force headquarters personnel, also are included. HIV/AIDS awareness and prevention training are stressed.

Over the past decade, more than 40,000 troops in Africa have been trained under ACOTA and its predecessor programs. The results have been more capable military forces that have been able to export security elsewhere on the continent.

– Maritime and Air Domain Awareness. The U.S. has developed partnership programs to help African nations on the littoral to improve their maritime security capabilities. Illegal fishing, piracy and smuggling of people and resources are dangerous threats to the sovereignty and economic well-being of many African nations. The command intends to conduct similar efforts in the air domain.

– Professional Military Training and Education. The International Military Education and Training (IMET) program sends African military personnel to different U.S. military service schools for professional military education or training. The amount spent on this program is forecast to increase by about 27 percent over the next three years. Today's IMET graduates are tomorrow's ministers, chiefs of defense and presidents.

"From my observations, the leaders of Africa and its island nations are increasingly demonstrating the will to provide a safe and secure environment for their citizens. My goal as commander of U.S. AFRICOM is to build an enduring organization with regular and sustained engagement that benefits both the citizens of the United States and the citizens of the nations in Africa."

– Commander, U.S. Africa Command Gen. William E. Ward

– Counter-terrorism. Large areas of uncontrolled territory in the Sahel and West Africa, and difficulty guarding the borders in these isolated regions, make it easier for the development and growth of local and transnational terrorist networks. Many transnational extremists have originated from North Africa, and it is believed that transnational networks return to this region for further recruitment, logistics and safe-haven.

U.S. military and State Department-sponsored counter-terrorism training programs assist nine nations in developing effective defenses against these threats. The programs are aimed at

GULF OF GUINEA (Feb. 2, 2008) – Landing Craft Utility (LCU 1655) and the Equatorial Guinea Navy follow in formation behind Africa Partnership Station (APS) flagship USS Fort McHenry (LSD 43) as they pass by the home of Equatorial Guinea President Teodoro Obiang Nguema Mbasogo. As part of the Navy's new cooperative maritime strategy, APS brings the latest training and techniques to maritime professionals in West and Central Africa to address common threats of illegal fishing, smuggling and human trafficking. U.S. Navy photo by Petty Officer 2nd Class R.J. Stratchko.

building regional security capabilities, prompting interoperability and strengthening inter-regional cooperation in the region.

– Medical and health care initiatives. The U.S. is working with African militaries and public organizations on medical and health care initiatives. These include programs designed to help African militaries deal with HIV/AIDS, malaria prevention programs, mine removal programs, and initiatives to build and equip medical facilities, clinics, orphanages and schools. For example, last year, 85 percent of the anti-HIV/AIDS programs conducted by the military of Senegal were funded by the U.S.

A goal of Africa Command is to ensure these programs are well-coordinated on a regional level. By working with U.S. Embassy and USAID teams, the AFRICOM staff will have a better understanding of programs that have high priority within the U.S. government, African nations and the international community.

"Now is the right time for U.S. AFRICOM. The African continent's economic, social, political and military importance in global affairs has grown tremendously," Gen. Ward said. "From my observations, the leaders of Africa and its island nations are increasingly demonstrating the will to provide a safe and secure environment for their citizens. My goal as commander of U.S. AFRICOM is to build an enduring organization with regular and sustained engagement that benefits both the citizens of the United States and the citizens of the nations in Africa.

We have the opportunity, vision, and determination to redefine how the U.S. military cooperates with and complements the efforts of its U.S., international, and non-governmental partners in Africa."

For more information about U.S. Africa Command, please visit the command's Web site at www.africom.mil. CHIPS

Congratulations to the 2008 IM/IT Excellence Award and Federal 100 Award Winners

By the DON CIO Communications Team

Congratulations are in order for individuals and teams throughout the Department of the Navy. The DON Chief Information Officer presented DON Information Management/Information Technology (IM/IT) Excellence Awards Feb. 5, 2008, during the DON IM/IT Conference in San Diego, Calif. Additionally, Federal Computer Week announced its 2008 Federal 100 Awards, which were presented at an awards gala March 24, 2008.

2008 IM/IT Excellence Awards

The DON IM/IT Excellence Awards, presented by the DON CIO, recognize superior quality of IM/IT projects and teams and individuals helping to transform the Navy and Marine Corps through information technology. Congratulations to the following award winners:

● Col. Eric L. Rolaf, commanding officer of the Marine Corps Network Operations and Security Center (MCNOSC), for significant achievement and leadership of the MCNOSC and defense of the Marine Corps Enterprise Network.

● Lt. Cmdr. Darrell Nealy, deputy assistant chief of staff (ACOS) N6, Strike Force Training Pacific, for his leadership throughout the waterfront and expertise in communication systems and capabilities.

● Naval Facilities Engineering Command Hosting Consolidation and Navy Marine Corps Intranet (NMCI) Migration Team for providing efficient, integrated, secure hosting and continued user access to systems, including those providing logistics support to 3,400 Seabees deployed in the global war on terrorism.

● Navy Enterprise Resource Planning (ERP) Team, for the design, development, testing, training and initial implementation of the Navy ERP System that is modernizing and standardizing the processes the Navy uses to manage its people, programs, finances, supply chain and maintenance.

● DON Next Generation Enterprise Network (NGEN) Requirements Task Force, for dedication and determination in gathering, analyzing and prioritizing requirements for NGEN, the follow-on to NMCI, scheduled for implementation in 2010.

● Naval Personnel Development Command and Navy Individual Augmentee (IA) Combat Training Center Support Team, for developing the IA community of practice as the authoritative source for disseminating and gathering information to and from Sailors ordered as IAs.

● Office of Naval Research (ONR) Corporate E-mail Archive Project Team, for advancing ONR's ability to manage large volumes of e-mail easily and effectively, extend e-mail storage capabilities, and use knowledge and document management tools to assist in research and eDiscovery efforts.

Federal 100 Awards

The Federal 100 Awards, presented by Federal Computer Week Magazine, honors leaders from government, industry and academia who have made a significant contribution to the government's use of IT. Congratulations to the following winners from the Department of the Navy:

● Mr. Robert J. Carey, DON CIO, for IT leadership across the Department of the Navy.

● Brig. Gen. George J. Allen, DON Deputy CIO (Marine Corps), for IT leadership throughout the Marine Corps.

● Col. Eric L. Rolaf, also a DON IM/IT Excellence Award winner. As the commanding officer of MCNOSC, he is charged with the operation and defense of the Marine Corps Enterprise Network.

● Mr. Ron Rosenthal, program manager for the Navy ERP Program and the senior civilian responsible for executive direction over Navy ERP. The Navy ERP Team also won a DON IM/IT Excellence Award.

● Mr. Floyd Groce, team lead for the DON Enterprise Licensing initiative and co-chair of the DoD Enterprise Software Initiative (ESI) Working Group. The DoD ESI is a joint initiative to leverage the Defense Department's buying power for licensing commercial software and developing a business process for Information Technology Asset Management.

● Col. Monte E. Dunard, Director of the Marine Corps Center for Lessons Learned. He is responsible for ensuring that the experience gained by Marines in combat operations and exercises is captured, documented and rapidly distributed throughout the Marine Corps to enhance doctrine, tactics, techniques, procedures and Marine Corps warfighting functions.

● Michael Jacobs, the DON chief technology officer, responsible for enterprise architecture, standards and data management. He is also the Director of the DON NGEN Strategy and Concept of Operations Task Force. The NGEN team also won a DON IM/IT Excellence Award. CHIPS

Top, the DON CIO Robert J. Carey with the DON Next Generation Enterprise Network (NGEN) Requirements Task Force. Bottom, Mr. Carey with the Navy Enterprise Resource Planning (ERP) Team. The DON IM/IT Excellence Awards were presented Feb. 5, 2008, during the DON IM/IT Conference in San Diego, Calif.

The next DON IM/IT Conference is scheduled for June 16-19, 2008, at the Virginia Beach Convention Center, Virginia Beach, Va. Please go to the DON CIO Web site at www.doncio.navy.mil for information.

Combined Joint Task Force-Horn of Africa

Defense, Diplomacy and Development

The Horn of Africa contains some of the most volatile areas in the world, countries ravaged by poverty, instability, violence, human rights violations, natural catastrophes and piracy. But the Combined Joint Task Force-Horn of Africa, under the leadership of the State Department and supported by the U.S. Agency for International Development (USAID), is working to promote regional stability and economic development in this troubled area in partnership with local governments, humanitarian organizations and international agencies.

The area of concentration includes: Djibouti, Ethiopia, Eritrea, Kenya, Seychelles, Somalia, Sudan, Tanzania, Uganda, Comoros, Mauritius, Madagascar and Yemen.

CJTF-HOA, a unit of U.S. Central Command (USCENTCOM), is about seven years old. The idea behind its standup is that poverty and violence breed not only extremism, but drug and human trafficking, illegal arms dealing, oppression and ignorance. Promoting peace and prosperity in this culturally diverse area of rival tribes, languages and customs is a tall order, but CJTF-HOA is staffed with professionally trained subject matter experts.

Navy Rear Adm. Philip H. Greene

To this end, U.S. Joint Forces Command (USJFCOM) led an annual CJTF-HOA Mission Rehearsal Exercise (MRX) at its Joint Warfighting Center in Suffolk, Va. The MRX, held in January, and also supported by USCENTCOM, trained personnel to conduct joint operations using realistic scenarios. Most of the scenarios are taken from real-life situations and are recommended by personnel already stationed in the region.

More than 300 participants including Standing Navy Joint Command Element staff and individual augmentees, subject matter experts from USCENTCOM and several interagency organizations, participated. Multinational participation included representation from Djibouti, Republic of Mauritius, United Kingdom and France.

Army Col. Dan Grymes

Army Brig. Gen. Sanford "Skip" Holman

The mission of the CJTF-HOA is to prevent conflict, promote regional stability and protect coalition interests in East Africa and Yemen through humanitarian assistance, disaster relief, consequence management and civic action programs.

CHIPS spoke with Army Col. Dan Grymes, USJFCOM Joint Warfighting Center operations officer, the new Commander CJTF-HOA Rear Adm. Philip H. Greene and Deputy Commander CJTF-HOA Army Brig. Gen. Sanford "Skip" Holman at a media opportunity during the MRX Jan. 16, 2008. *(Col. Roosevelt Barfield assumed the duties of deputy commander CJTF-HOA in March 2008.)*

Col. Grymes: Our efforts here at the Joint Warfighting Center support the training of the next CJTF-HOA commander and the nucleus of his staff. The Horn of Africa area is vast and diverse. There are 13 countries spanning an area equivalent to two-thirds of the land mass of the continental United States. The success of our efforts in the region will depend upon an integrated approach that combines diplomacy, development and defense.

Rear Adm. Greene: My staff and I have been involved in the predeployment workups the last four months. It has been a rich experience, we have taken advantage of the iteration of training that the previous two Navy staffs received over the last couple of years and built on the lessons learned and experience from the staffs that have preceded us. The reason we have had such value out of this is because of three important elements.

One is Joint Forces Command, and the experienced team that exists here. From the existing CJTF-HOA staff, we were able to bring back 20 to 30 of the existing members to be with us during different parts of the training program. For the mission rehearsal exercise that is going on right now, we had many of the key individuals that reside in leadership positions to impart their view of what's happening on the ground in Djibouti and

the region. That mix of individuals with the new has been very helpful to have ground truth and to blend that with the Joint Forces Command training team.

The third piece is the Senior Mentor Program. I have a retired lieutenant general from the Marine Corps that works in conjunction with me and with the Joint Forces Command training team and with our staff to add value from a commander's experience perspective.

Those three combinations serve as a catalyst to build our knowledge base and gel my team.

On the philosophical side, our main mission in the Horn of Africa and East Africa region is to develop partnerships and forge relationships. It is key for us to do that in the context of what we call the 3Ds, which are development, defense and diplomacy.

Those all serve to support the end states that are important: increasing security, improving stability and enabling sovereignty as we partner with our African counterparts. We are there because they want us to be there. It is about Africans having ownership over the challenges they face and how we are helping them.

Clearly, our success is built around how we develop the capacity and capability for the Africans to be security contributors,

HOL HOL, Djibouti – During a dedication ceremony for the completion of the renovation project at the Hol Hol primary school in Djibouti, local children perform a dance to entertain the crowd. U.S. Navy photo by Petty Officer 1st Class Scott Cohen.

which aids in their greater regional stability, stimulates their economies and social development, and contributes to helping us understand those elements that fuel extremism.

Q: Since you will be working with nongovernment organizations and charities, is the communications infrastructure sufficient to meet your needs?

Rear Adm. Greene: Great question. Our communication efforts are positive and robust. I mean this in the context of how we work within the interagency environment and how we work with the regional international organizations and how that contributes to opening doors for opportunities with nongovernmental organizations.

In particular, USAID is the conduit that is available for us to work closely with when opportunities present themselves with a nongovernmental organization. Our efforts to mature the interagency relationships and our partnering with international regional organizations and finding opportunities with non-governmentals are growing as CJTF-HOA continues to be an enduring part of our engagement effort in East Africa and the Horn of Africa.

Like every relationship, as time goes on, you see how you can increase the benefits of partnering with resources that have mutual objectives in terms of humanitarian assistance, cooperation and engagement.

Q: How do you see the balance between the two main missions of CJTF-HOA, one is the development side and the other is counterterrorism. Do you pursue counterterrorism only through the development side? Or do you expect to be engaged in kinetic or special ops?

Brig. Gen. Holman: You used a good word — balanced. The development side, we emphasize with drilling wells and building schools. We are trying to counter terrorism in that manner. We are on a military base, and like any military base, we are able to facilitate other types of operations, but we do not have any active counterterrorism mission. That's not our lane.

Our focus is on theater security cooperation and enhancing the capability and capacity of the nations that we have relationships with and giving them the ability to provide counterterrorism support.

Rear Adm. Greene: Let me follow along with that and offer you the view as I see it. The lines of effort that we pursue go across, for example, the military-to-military training side, theater security cooperation from a regional context, and then engagement and cooperation as we look to the civil affairs. All create a greater level of understanding. We certainly are there to forge relationships and to build a partnership where the capacity and capability of our African friends can be increased in the area of security and stability.

Q: What do you see as the impact of the creation of AFRICOM (U.S. Africa Command) on the effort in Djibouti? General, what sort of vibrations are you getting from the 13 countries in your AOR?

Brig. Gen. Holman: I can't speak as an expert on the different countries, but in the interactions we have had with the military side of the house, they understand the purpose of AFRICOM, and why we are using that change in management of military activities on the continent.

Since we have built relationships with them, and we interact with them on civil affairs and mil-to-mil training, we are able to have more in-depth discussions about AFRICOM. We are able to explain to them how complex our operations are when we have to interact with three different COCOMs (combatant commands).

With AFRICOM, we get better support because there is a COCOM focused on their needs as opposed to having to compete with other regions, for example, CENTCOM, EUCOM and PACOM . There have been staff talks between CENTCOM, EUCOM and AFRICOM to facilitate a smooth transition.

It's [AFRICOM] a new type of command, and it is different than the other combatant commands.

Q: Could the admiral talk about any impact that he sees from AFRICOM standing up during his tenure? When are you going and how long is your tour?

Rear Adm. Greene: We will be heading over in the next couple of weeks and my tour is a year long. I am very excited about it and looking forward to the challenge. It is an opportunity for all of us to make a positive contribution.

There is great synergy between what CJTF-HOA does now and what we are about and what AFRICOM represents as a combatant commander.

Q: What role do training simulation technologies or other types of technology play in this exercise?

Col. Grymes: We do not use simulation for this exercise. We have replicated all the command and control systems and mechanisms that the units will find once they take responsibility in CJTF-HOA. We have taken great pains to make sure that they train with what they will operate with.

For simulation, we use scenario events and injects, a political,

military, informational, or economic problem that the CJTF-HOA staff must resolve. We use the Joint Training Experimentation Network (JTEN) of Joint Forces Command for communication, which helps us connect to all our training partners.

Rear Adm. Greene: The way the mission rehearsal exercise is being presented has been creative. The information architecture, in terms of command and control, closely replicates the way the actual joint operation center is set up back in Djibouti. People are getting familiar with the information architecture and the command and control in that context.

We have role-player dynamics here, which are healthy and add realism to different scenario events that unfold during the mission rehearsal exercise. That is across the spectrum of the ambassadors that are in country, the Office of the Secretary of Defense (OSD), the Joint Staff, the COCOMs, interagency, USAID and the State Department, if necessary.

This all adds a level of realism and a sense of urgency that creates the right atmosphere for the best training. We also brought back a sampling of liaison officers from East African countries, which makes us a combined joint task force. That is helpful because our folks get to interact with those LNOs and, in this case, a LNO from Djibouti and a LNO from the island of Mauritius.

Q: What will you be doing that prepares you for this mission?

Rear Adm. Greene: Some [scenarios] may involve requests from ambassadors to respond to humanitarian assistance incidents, for example, a flood or other forms of natural disaster response. That requires communications between the embassy, Main State (U.S. Department of State), OSD and the CJTF staff.

Some are security-related matters, how do we address camp force protection issues given increased security events. Some are senior level engagement and how we best present our issues and lay out our objectives so that we can get interplay in building relationships and developing partnerships.

Q: What is the skill set within the task force?

Rear Adm. Greene: Great question. As we develop the staff composition, which is a joint staff, the services try to do a good scrub of the individuals that are being assigned to the billets to see if they possess a level of knowledge, in particular, in areas across the spectrum of civil affairs or if they have had an interagency tour in Washington and experienced the dynamics of working with the Department of State, the Joint Staff or OSD.

As we build the talent base, which is a Reserve/active mix, particularly at the leadership level, there is a strong effort to look at the backgrounds of individuals so that we can maximize the skill sets they have.

My most recent assignment was at U.S. Naval Forces Europe and Africa, where I was the director for strategy, policy and resources. I spent most of my effort focused on West and Central Africa delivering our maritime security and safety policy and working with Africans and with interagency and international regional organizations. This base of experience that I developed working on West and Central Africa issues, from a maritime safety and security perspective, is very helpful as we look to East Africa and the CJTF-HOA mission set.

The Combined Joint Task Force–Horn of Africa, or CJTF-HOA, conducts unified action in the combined joint operations area of the Horn of Africa to prevent conflict, promote regional stability, and protect coalition interests to prevail against extremism.
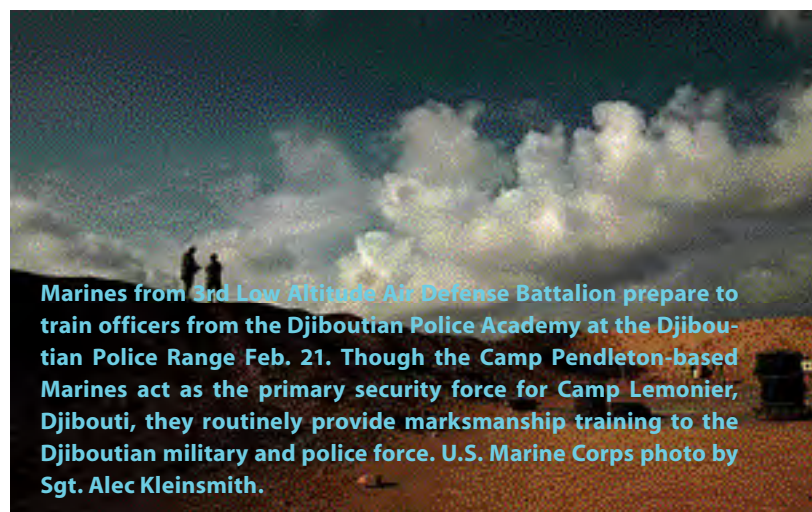
Marines from 3rd Low Altitude Air Defense Battalion prepare to train officers from the Djiboutian Police Academy at the Djiboutian Police Range Feb. 21. Though the Camp Pendleton-based Marines act as the primary security force for Camp Lemonier, Djibouti, they routinely provide marksmanship training to the Djiboutian military and police force. U.S. Marine Corps photo by Sgt. Alec Kleinsmith.
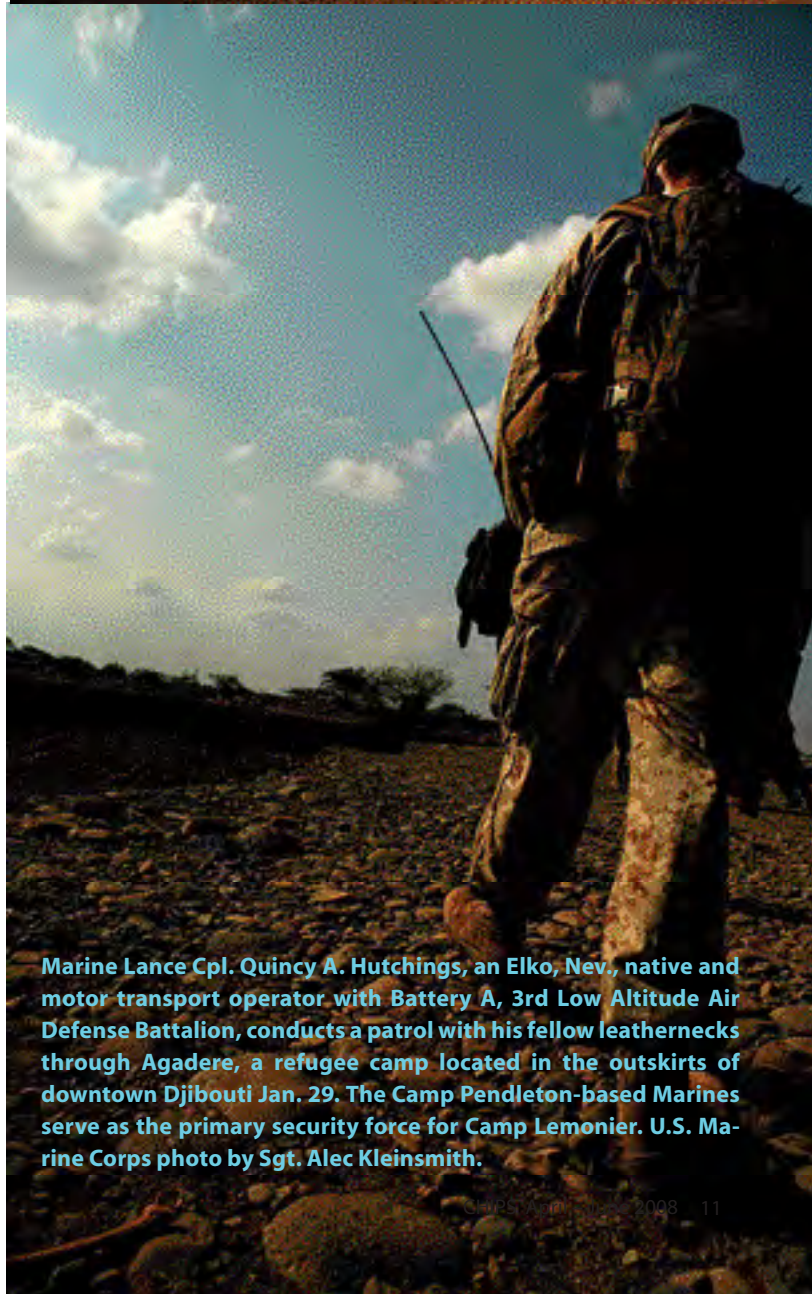
Marine Lance Cpl. Quincy A. Hutchings, an Elko, Nev., native and motor transport operator with Battery A, 3rd Low Altitude Air Defense Battalion, conducts a patrol with his fellow leathernecks through Agadere, a refugee camp located in the outskirts of downtown Djibouti Jan. 29. The Camp Pendleton-based Marines serve as the primary security force for Camp Lemonier. U.S. Marine Corps photo by Sgt. Alec Kleinsmith.

Q: Do you have anyone on your staff with language skills?

Rear Adm. Greene: We do have people with language skills. I also have a political adviser, assigned from the Department of State, who speaks French and has spent some time in East Africa. Most recently, my political adviser was the Charge d'Affaires for the ambassador. When he was back in Washington for several weeks, Dr. Kathleen List stood in for him.

I also have a development adviser, a former USAID employee, on my staff that complements the political adviser. In addition to that, I have French members, U.K. members and liaison officers from 13 of the African countries.

I have a blend of expertise and perspective that enables me to be most effective.

Q: Do you hope to work with the African military to standardize procedures for military operations as well as humanitarian assistance?

Rear Adm. Greene: As the Africans develop their capability and capacity to solve their challenges, they will be solving African problems using African resources. Certainly, we would like to have procedures in place that will allow them to work with each other as well as working within their own country.

The African Union plays an important roll in terms of being a catalyst, and hopefully an effective one in the future, for helping to focus African resources to address tough challenges, for example, peacekeeping forces in Somalia or Darfur.

Q: I want to ask about three of the major situations in Africa: the situation in Kenya, the situation in Somalia and the situation in Darfur. I would like to know from the general, what the impact of violence in Kenya has been on your operations and what activities you are engaged in with regard to Kenya, Somalia and Darfur. And from the admiral, looking ahead, how important are those regions in regard to the mission?

Brig. Gen. Holman: The aftermath of the elections in Kenya had a regional impact, logistically, as well as emotionally. We had civil affairs and mil-to-mil training ongoing in Kenya. Most of those activities are on military bases, so when it comes to force protection, it was a minimal impact to those missions.

The ambassador dictates the activities, and he has the lead on foreign policy. He is interacting with the president, the ministers and chiefs of defense as well as the senior leadership of CJTF-HOA. We take our lead from the ambassador as well as sharing information we get from host nation key leaders to determine the best way to support them.

When it comes to Somalia, we have no troops in Somalia. We have done some medical and counterterrorism training to help troops deployed to Mogadishu. We have also done some maritime training with Ugandan forces and prepared them to perform port security that Ugandan marines are doing now.

In Darfur, we have a presence with liaison officers and observers to help us keep tabs on what's going on, so we can lean forward in the foxhole and be prepared to provide support if need be.

Q: Admiral, how much of your efforts will be devoted to these situations within the context of the mission?

Rear Adm. Greene: Those are three examples of situations that are important ones. There are others, from the piracy off Somalia to tensions on the Eritrean/Ethiopian border. I think it's important that we are watching all those events. Our objective, a collective objective that we have in conjunction with the State Department and our country team, and with the international organizations and regional organizations, is to participate in developing the partnerships and forging the relationships that help us improve security and stability.

Q: How many people are involved in this mission?

Col. Grymes: We have about 325 personnel involved in the training. There are 37 people that came back from the current staff that are participating in the exercise. We have a structure that helps us control the exercise and cover all the political, military, economic and information aspects. We call that the Joint Exercise Control Group.

We will link up with Admiral Greene and continue training now that he is in charge in theater. He may find that there are things he wants to work on with his staff, and we will assist him, as well as capturing lessons for the next exercise.

"There is a natural synergy between what we are doing on the defense side, what the development side is doing and what diplomacy is all about. With all of us working closely together, we are able to optimize the resources we have and to provide the best kind of assistance and response to help the Africans solve their challenges."

Commander CJTF-HOA Rear Adm. Philip Greene

Q: A number of the things that you mentioned as your mission set fully replicate what the Department of State does with political advisers and development advisers. How do you explain to the African countries what the need is for a group like this?

Rear Adm. Greene: Having political advisers and development advisers on a major staff is a common thing. All our combatant commanders have political advisers, and the insight provided by that perspective is certainly helpful. All of us benefit from that expertise.

In respect to your question, we complement each other's efforts. We are there to support the initiatives of the Department of State and the Office of the Secretary of Defense in terms of capacity building for increasing security and improving stability. We are there at the request of the Africans to support the needs they have in terms of building their capabilities across the spectrum of cooperation, engagement and military-to-military training affairs.

There is a natural synergy between what we are doing on the defense side, what the development side is doing and what diplomacy is all about. With all of us working closely together, we are able to optimize the resources we have and to provide the

best kind of assistance and response to help the Africans solve their challenges.

Q: Admiral, there is a school of thought that says that the military's main job is to engage in kinetic operations and that they are not trained, staffed and equipped for this kind of softer approach. Some people feel that they should not be doing that. Can you comment on how you feel about being engaged in this type of activity and whether you think the military can be effective?

Rear Adm. Greene: I am very proud to be involved in conflict-prevention efforts. If what we are doing, with respect to engaging with our partners on the development side and the diplomacy side, results in conflict prevention, then the investment of our time and efforts will have paid huge dividends.

Make no mistake, for us it is about the conflict prevention piece. We are ensuring that our homeland is protected the best way possible. If we can enhance that through forging relationships, building partnerships, creating capacity so that our African friends are contributors to their secure environment so they can stimulate their own economic and social development, so they can make a better life for their own people, then we will all feel we have done a great thing.

Brig. Gen. Holman: I feel fortunate to be a part of this mission. I spent a year in Iraq doing the kinetic part. I have about nine months of experience with the non-kinetic. In the Army, the training and personnel development objective is full spectrum operations. Most officers get a lot of experience on the kinetic side but not on the non-kinetic side. This has balanced my experience and I feel more capable of dealing with any national security situation I might be thrown into in the future because I have a broader perspective on how to deal with those situations.

The wave of the future is probably to develop troops that have a full career that have a balance between the kinetic and the non-kinetic. We have civil affairs teams, we have well-drillers, and we have combat service support personnel whose skill set matches the non-kinetic mission. They have those dual-use skills that can be used in a kinetic or non-kinetic environment.

Postscript

The new core staff of CJTF-HOA, more than 80 Sailors, deployed Jan. 28. Most will be working out of Camp Lemonier, Djibouti during their one-year deployment, while some will be stationed in partner nations and remote operating bases. The task force will conduct military-to-military training, medical and veterinary civil action projects and other humanitarian missions.

For the past four months, these Sailors have gone through an exhaustive training cycle which included a lecture series on the cultural, religious and ethnic makeup of the region. The training also included two weeks of individual augmentee training at Fort Jackson, S.C., in addition to the MRX, led by USJFCOM. CHIPS

CJTF-HOA – www.hoa.centcom.mil.

AFRICOM's – www.africom.mil

USJFCOM – www.jfcom.mil

The Sheep and the Goat

Once upon a time a goat and a sheep lived together in a lovely house. One day they left their house to eat some grass. When the goat returned, she saw a snake coming out of the house. The snake stopped by the door of the house. It was waiting to eat anything that tried to enter the house.

The goat ran to the sheep, and said, "I saw a snake come out of our house. What will we do?"

The sheep said, "Show me the snake!" They both saw the snake in front of their house, waiting to eat them. They ran away as fast as they could. They came to the monkey's house which was on a banana farm. They asked the monkey for water, milk and a place to sleep. The monkey asked, "What happened to you?"

They answered, "There is a dangerous snake in our house." The monkey felt so sorry for them that he gave them food and water. Then he took them to a nice house made of banana leaves. They thanked the monkey, and they slept.

When they woke up, the monkey said, "I'll let you live in this house with me. We should all stick together, and help each other." The goat and the sheep were happy. They became friends with the monkey, and ever since then, they were strong friends. Together they were safe against any enemy.

Lesson: There is safety in numbers, even when it means very different kinds of people getting along together.

- Somali Folktale

www.hoa.centcom.mil/folktales.asp

Q & A with Cynthia Gonsalves
Acting Director Office of Technology Transition
Office of the Deputy Under Secretary of Defense
(Advanced Systems & Concepts)

As the Acting Director for the Office of Technology Transition (OTT), Ms. Cynthia Gonsalves is responsible for formulating policies and establishing and managing programs that transition advanced technologies from research and development (R&D) to weapons systems in an affordable manner to assist in the commercialization of defense technologies. OTT is federally mandated by Congress under the following authorities: 15 U.S.C. 3710-15, Technology Innovation; 10 U.S.C. 2515, Office of Technology Transition; and 10 U.S.C. 2359a, Technology Transition Initiative.

The CHIPS staff heard Ms. Gonsalves' presentation to the U.S. Joint Forces Industry Symposium in July 2007 and asked her to discuss the critical work of the OTT in accelerating technology into defense systems in December. David Appler, an OTT staff assistant, also joined the discussion in December 2007.

CHIPS: Your presentation discussing the work of the OTT at the USJF-COM Industry Symposium was fascinating.

Ms. Gonsalves: I am in the Office of Technology Transition, which is uniquely positioned in the Defense Department within the Director of Defense Research and Engineering and under the Deputy Under Secretary for Advanced Systems and Concepts. We have the opportunity to have five programs in our office. Some have funding that allows us to work with the private sector and with the Defense Department laboratories in transferring as well as transitioning technology to the private sector and to programs of record.

The programs are: Technology Transfer; Technology Transition Initiative (TTI); Manufacturing Technology Program (ManTech); the Defense Production Act Title III; and North American Technology and Industrial Base Organization (NATIBO).

CHIPS: Are you working with mature technology or technologies that are going to be available 10 to 20 years down the road?

Ms. Gonsalves: We are looking at both areas: at mature technology and at technology innovations. We are trying to accelerate the use of technology, whether it has just been invented, is just ready to go to market, or whether it is technology that we've known about but have not inserted into any of our systems yet. We are looking for innovation and transition pathways.

CHIPS: Would you like to explain the OTT's programs?

Ms. Gonsalves: Certainly, I would love to talk about our programs. The Manufacturing Technology Program is a congressionally authorized program that allows us to invest in production processes that are pervasive across systems, platforms or components where we can scale up the manufacturing process to meet requirements for the Defense Department.

We have several examples of that from the 1950s where we developed the original numerically controlled machine tools all the way through current efforts in fielding of lightweight body armor and composites affordability initiatives. Several things are going on there, and we see this program as a growing one across the department.

For the Defense Production Act Title III Program, we have au-
thority to do some unique things working with the private sector. We can create or expand production capacity for national security needs; we can establish partnerships and provide other incentives to industry.

Under Title III, we can provide engineering support to improve quality and yield. We can make purchases for process validation and qualification tests. We can provide support to develop strategic business and marketing plans for the companies. We can purchase or install production equipment, and we can provide the guaranteed market so that companies have a production capability that they are gearing up to meet.

Some of the things we have done are modernizing the domestic manufacturing capabilities for radiation-hardened electronics, providing technology for laser-protective eyewear to U.S. companies so they can get into production, and we have established a viable production base for silicon carbide substrates where the systems provide higher operating temperatures, greater power handling capability, and higher speed and operating frequency.

Those are two programs and they have tight criteria to apply for — but when we need to use them — they are powerful tools for the Department. One of the programs I talked about at the symposium was the Technology Transition Initiative. With this program, we have about $30 million a year to facilitate the rapid transition of technology from our S&T (science and technology) portfolio into acquisition programs of record.

There are specific criteria. *(See TTI text box on the next page.)* It starts with TTI funding, which accelerates the product transition, and the last criterion is commitment to an acquisition and procurement path. There are weighted criteria with the heaviest weight being commitment to acquisition. This is where I am looking for a commitment from a program office so that if we fund the final stages, qualification or testing, or buy initial product for the program, they will pick it up and buy it into the future.

Your readers may want to know that we will be coming out with a call for proposals the first part of March. (Go to www.acq.osd.mil/ott/tti/ for information.) We are looking for the services and Defense agencies to provide submittals to us.

The TTI program is a joint program. Each of the services, some Defense agencies and U.S. Special Operations Command are allowed to submit a certain number. The services submit 10 pro-

posals, and Defense agencies may submit five for this potential funding. The key thing with the Technology Transition Initiative is that we want to fund technologies having impact for the warfighter. We can only do this by ensuring the commitment to acquisition as the end state.

Another program that I talked about was the Technology Transfer Program. This is new at JFCOM. They are just starting to use CRADAs (Cooperative Research and Development Agreements) and other tools that are available such as Education Partnership Agreements.

Many times in the Defense Department we develop technology and capabilities, and industry, at the same time, develops similar capabilities. We would like to be able to work jointly to leverage each other's resources to take technology to the next level and commercialize it.

The reason DoD is interested in commercializing the technology is [that] we are not in the production business. Private industry is in the production business. We want industry to take our technologies and utilize them. We have made the heavy investment upfront, and we want to be able to buy products incorporating that technology.

We have examples like the Hearing Pill™, Attenuating Custom Communication Earpiece System (ACCES), HemCon Bandages, laser rangefinders, Battlefield Medical Information System-Tactical [BMIST] — and many things that I could go through in more detail with you.

This program is not new; it is something we want to grow — transferring technologies that the DoD has developed to the private sector for mutual application.

We use various capabilities to support technology transfer efforts. One is Partnership Intermediary Agreements. Our Partnership Intermediaries facilitate deals for us with the private sector and coordinate working agreements to develop capability jointly.

We have many success stories from doing this. If you go to www.dodtechmatch.com, you will see many of the success stories from these agreements.

We also have a partnership with an organization called MilTech (www.miltechcenter.com/). We are trying to leverage the Department of Commerce's Manufacturing Extension Partnership Centers (www.mep.nist.gov/). They have about 500 centers across the country to help

Technology Transition Initiative

Once a decision is made to move a technology from the Science and Technology program into acquisition, it often takes two to three years to obtain procurement funding to buy the product. During that time, many technology projects either become obsolete or are canceled due to a lack of funding. To help address this need, Congress established the Technology Transition Initiative (TTI) in 2002 to bridge the gap between demonstration and production of S&T funded technology (10 U.S.C. 2359a).

Key provisions of the code include:
• Accelerate the introduction of new technologies into operational capabilities for the armed forces.
• Successfully demonstrate new technologies in relevant environments.
• The science and technology and acquisition executives of each military department and each appropriate defense agency and the commanders of the unified and specified combatant commands nominate projects to be funded.
• The TTI program manager identifies promising projects that meet DoD technology goals and requirements in consultation with the Technology Transition Council.
• The TTI program manager and the appropriate acquisition executive can share the transition cost. Service/agency contribution can be up to 50 percent of the total project cost. A project cannot be funded for more than four years.

TTI evaluation criteria

To be considered for TTI funding, a project must meet the following criteria:
• Technology developed with S&T funding;
• Product has buyer with funds available to purchase it in later years – commitment to acquisition path;
• Joint focus, preferably joint or multi-service project (two or more services/agencies);
• Demonstrated value to the warfighter;
• Technology mature – TRL 6 or 7;
• Cost sharing between TTI and service/agency is encouraged to leverage funding; and
• Project duration of less than four years.

Business processes for project evaluation
• Technology Transition Council
• Technology Transition Working Group

TTI Successful Transitions

– Semantic Web Network – The SWN is an XML-based content routing system and data mining tool which enhances command and control by delivering more relevant and complete information across the Intel community databases in real-time. The technology matured faster than expected, and is now incorporated into MarineLink which deployed with Marine Expeditionary Force I and II in Iraq.

– Water Purification System/Water Pen Unit – The Defense Advanced Research Projects Agency was funded as a TTI project in FY 2003 and FY 2004 to bridge the gap between DARPA's development funding and scheduled procurement in FY 2005. The miniaturized water-purification system destroys biological and chemical warfare agents, including: anthrax, plague, smallpox and common waterborne pathogens such as bacteria, viruses and protozoa, including E. Coli, Giardia and Cryptosporidium.

For tactical situations in which deployed troops do not have quick and easy access to potable water, the pen allows Soldiers to treat up to 300 liters of any available, non-brackish water source. Mixed oxidants electrochemically generated from common table salt via several small lithium camera batteries kill a wider range of resistant microorganisms.

– Titanium Nitride (TiN) Coating for T-58 Engine Compressor Blades–Marines – TiN coating for the T-58 engine will double compressor life in a sand environment and is projected to save about $56 million in life cycle costs through FY 2012. The airfoils will be installed in nearly 300 new T-58-16A Engine Reliability Improvement Program (ERIP) compressor cores procured for Marine Corps CH-46 helicopters. Installation began in FY 2005.

– Battlespace Terrain Reasoning and Awareness – BTRA is a suite of common, analytic applications designed to provide actionable information for terrain and weather effects using Geographic Information Systems (GIS) data. Such data enable C4ISR and battle command decision-making and mission execution in open and complex environments. Software applications (tactical decision aids) and services include the Commercial Joint Mapping Toolkit, which has 192 joint C4ISR systems.

small firms with manufacturing problems. Using MilTech, we can provide this assistance for small companies. It involves manufacturing and quality assurance assistance, looking at their production line and giving them advice on how it might be better postured to ramp up production capabilities. It includes a variety of things to ensure that we can obtain the capability that we need.

CHIPS: It sounds like a complex process. Are you looking at a 20-year program?

Ms. Gonsalves: Absolutely not! We are trying to accelerate that timeline. We would all like to see something out there today and tomorrow, but reality is that it takes time to do things. For the Technology Transition Initiative, my goal is two years because it fits the DoD budget cycle.

If I have a program manager committing to buy something two years from now, I am willing to put in two years of funding. Other things may take longer. Some of our projects have gone out to four years; the preference is to keep them shorter. Remember, I am not looking at basic research. We are looking at things that are mid-level maturity.

CHIPS: When you talk about these marvelous technologies… are you working with all the services and government labs, not just industry?

Ms. Gonsalves: We have between 80 and 100 laboratory sites in the Defense Department.

CHIPS: Are you working with academia?

Ms. Gonsalves: Absolutely! We work with universities, other federal government laboratories and headquarters-level organizations, all the DoD laboratory structure and the private sector.

CHIPS: There have been observations in the technology press lately that the Defense Department was once the leader in technology; for example, in the development of ARPANET, the origin of the Internet, but that is no longer the case.

Ms. Gonsalves: Our office looks at that in terms of the amount of dollars we are investing in research and development and the amount of dollars the private sector is

DoD Technology Transfer and Transition Programs

Authorized by:
15 U.S.C. 3710-15, Technology Innovation
10 U.S.C. 2515, Office of Technology Transition
10 U.S.C. 2359a, Technology Transition Initiative

Technology Transfer Programs

TechTRANSIT
TechTRANSIT (www.acq.osd.mil/ott/techtransit/) is your access to Department of Defense technology transfer programs policies and resources. TechTRANSIT promotes partnering opportunities between the private sector and defense labs and improved accessibility of technology transfer information and activities.

North American Technology and Industrial Base Organization (NATIBO)
The North American Technology and Industrial Base Organization (www.acq.osd.mil/ott/natibo/) is chartered to promote a cost-effective, healthy technology and industrial base that is responsive to the national and economic security needs of the United States and Canada.

Manufacturing Technology (ManTech)
The Manufacturing Technology Web site is www.dodmantech.com/, your online source of information on the DoD ManTech program and its projects, activities and funding.

Technology Transition Initiative (TTI)
Congress established the Technology Transition Initiative (www.acq.osd.mil/ott/tti/) in 2003 to help bridge the funding gap between demonstration and production of DoD S&T funded technology.

Defense Production Act Title III
The Title III Program (www.acq.osd.mil/ott/dpatitle3/) is a DoD-wide initiative that establishes, maintains or expands a production capability offered for national defense. Management responsibilities include: program oversight and guidance, strategic planning and legislative proposals, approval of new projects, and liaison with other federal agencies and Congress.

putting into research and development. If you look at the trend for the last 20 years, while our DoD R&D budget is increasing, industry is investing significantly more in independent research and development.

We used to fund about 75 to 80 percent of basic research in this country, but DoD is now funding about 20 percent. Industry has picked up the remainder.

Mr. Appler: But that is not just DoD; that goes across the whole federal government. The numbers Cynthia mentioned apply across the whole federal spectrum, including agriculture and energy. Up until the early 1980s, the federal government was the big bill payer in basic and applied research and advanced development in the United States. In that 20-year period, it switched over to the private sector, and

the federal government and private industry traded places.

One major exception is NIH (National Institutes of Health) because Congress made a national commitment to double their research budget. The NIH basic and applied research budget is larger than the rest of the federal government research budget put together. That was a conscious shift.

Let me give you a different perspective. In the 1960s, the Defense Department was probably the biggest bill payer in pushing technology and state-of-the-art communications technology. With the advent of cellular phone technology and Internet technology, the federal government is a small percentage in that total marketplace.

We are not driving that train any more.

We are trying to find ways to see what industry is doing from a commercial point of view to leverage it for DoD. The major investment is taking place in the private sector because that is the major source of income to that industry.

The federal government is not the big bill payer any more so it is harder for us to have a seat at that R&D table.

CHIPS: Are you still seeing innovations from American companies in spite of the controversy claiming that the United States is not graduating enough scientists to be competitive in a global market?

Ms. Gonsalves: That is true. The United States is not producing enough scientists and engineers for our future inventions and economic viability. There are several federal government programs to try to reverse that trend.

If you are interested in that, I suggest that you talk with Dr. Will Rees, Deputy Under Secretary of Defense for Laboratories and Basic Sciences. That organization is the DoD lead on educational programs, but it is a major issue for the federal government when looking at our workforce of the future.

Mr. Appler: A good information resource is the National Science Foundation (www.nsf.gov/). By statutory mandate, it collects a lot of information directly and indirectly through the U.S. Census Bureau and several other agencies on science and engineering data.

The National Science Board (www.nsf.gov/nsb/) does an assessment of science and technology on a biannual basis for the NSF, not just from the government perspective but for the nation as a whole. They write articles and do assessments of U.S. levels of science and engineering versus other countries and levels of education and concentration.

Reports are in a narrative format with the statistical data as a basis of forming conclusions and speculating on trends.

CHIPS: Is there anything else you would like CHIPS readers to know about your programs?

Ms. Gonsalves: I think we could make the use of Technology Transfer Tools more widely available across the Defense Department to leverage the capabilities that we have now. We probably could do a better job of that.

The unique individuals and offices that are using these now are finding that a lot of the return from doing this outweighs any upfront investment we might have done. I would like to see that leveraging capability used more widely.

I am interested in reaching those organizations that might be able to provide proposals to fund through our Technology Transition Initiative and to use the tools in the Technology Transfer toolbox more widely. I think the technology transfer tools offer capabilities that other tools in the Department don't allow.

Mr. Appler: One of the challenges we have in the Defense Department, using communications as the example, is that historically we were driving our own technology agenda for our own R&D investments, and we had one perspective.

One of the focus areas for the Honorable John Young, our new Under Secretary for Acquisition, Technology and Logistics, and many of the people that report to him, is that there is a lot of

good technology in the commercial sector, but it is challenging to find a way to take a commercial technology that was developed for a civilian purpose, unrelated to a military need, and refocus that back into the Defense Department. How can we insert innovative technologies at the right time into DoD systems?

It's a business model that we haven't developed well. We are used to nurturing our own technology and development, and then trying to find a way to utilize it. We are not good at tapping into that non-military market.

The process is there but making the process function effectively is a challenge. When you have a paradigm shift, it is hard to adjust habits, especially something as large as the Defense Department.

CHIPS: I noticed that you do a lot of traveling, Ms. Gonsalves. What is the purpose of your travel?

Ms. Gonsalves: One [purpose] is to tell industry groups about the programs that we have and where we want to work with them. Second, I want to talk with DoD folks about the capabilities we have and ask them to help us identify any barriers that we need to break down to do our jobs better. Third, I want to make sure that the programs in which I am involved are on track and focused to get technology out to the warfighter.

CHIPS: How do you learn about the small companies that you want to help through MilTech?

Ms. Gonsalves: We hear about them in a variety of ways. In some cases, they come directly to our office. Or one of the services or agencies sees technology that is great and they want to go forward, but they have an issue, and they come to find out if we can help to identify a way to overcome that problem. MilTech may have that solution.

I also hear about them from other program offices within the Defense Department. These are usually small companies that have some connection with our program, they are taking our technology to market or they have a contract to do some work for DoD, and it is a capability that we need to deploy now. We have to find the most efficient way to get that capability deployed.   CHIPS

www.acq.osd.mil/ott/tti

Hold Your Breaches!

By Steve Muck

A ll Department of the Navy personnel should continue to increase their level of awareness about properly safeguarding personally identifiable information(PII). To learn more about properly safeguarding PII, go to http://privacy.navy.mil.

The synopsis at right of a recently reported loss or breach of PII highlights common mishandling mistakes made by individuals within the Department of the Navy. Incidents such as this will be reported in each subsequent CHIPS magazine to increase PII awareness. Names have been changed, but details are factual and based on reports sent to the DON Privacy Office.

Lessons Learned
- Compromised PII data can be used by thieves for many years to come.
- Wherever possible, delete Social Security numbers and sensitive personal information from any list, database or e-mail before transmission or storage. SSNs are a critical element for bad guys to use in stealing personal identities.
- Routinely review files and destroy PII by making it unrecognizable when no longer needed.
- With any identity theft, immediately file a police report, contact the Federal Trade Commission Web site (www.ftc.gov/idtheft) and close any accounts that have been tampered with or established fraudulently. The FTC also recommends that you place a "Fraud Alert" on your credit reports and review the reports carefully.

The DON Chief Information Officer Robert J. Carey discussed the importance of protecting PII via podcast. The podcast is available on the DON CIO Web site at www.doncio.navy.mil and on the Navy Privacy Office Web site at http://privacy.navy.mil.

Steve Muck is the DON CIO critical infrastructure protection and privacy team lead.   CHIPS

Are you watching what you store on your computer?

If you collect it, you must protect it!

NAVY PRIVACY OFFICE

Identity theft is real!

For more information visit http://privacy.navy.mil
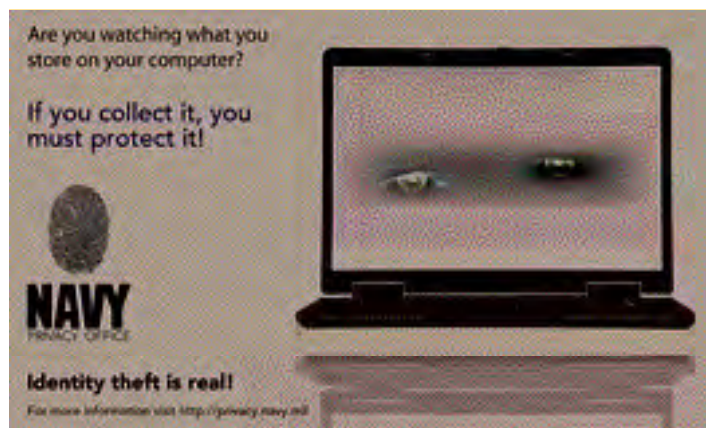
On 5 Jan. 2008, a government employee was notified by the local police department that "someone had stolen his identity and was about to use his credit card to buy a big screen TV at a major department store." Four suspects were arrested when an alert salesperson became suspicious of the purchase.

One of the suspects was in possession of a two-page report dated 1994 containing government employment data. That same individual had in his possession other credit cards, four of which related to additional names in the compromised report. The report contained names, Social Security numbers, date of birth, organization code, position title and other employment related data.

It is unknown how the individual(s) came to be in possession of this hard copy report and whether additional pages of this report have also been compromised.

All affected employees and former employees whose information appears on the compromised list have been notified or are in the process of being notified.

The Naval Criminal Investigative Service (NCIS), the Federal Bureau of Investigation (FBI) and the Secret Service were all involved to some extent in this first of a kind Department of the Navy identity theft incident.

The Defense Acquisition Challenge Program

DAC gives small and medium-sized vendors the opportunity to inject innovative proposals into the Defense market

Authorized by Title 10, U.S.C. Sec 2359b, the Defense Acquisition Challenge Program (DACP), part of the Office of the Deputy Under Secretary of Defense for Advanced Systems and Concepts, provides increased opportunities for the introduction of innovative and cost-saving technologies into Defense Department acquisition programs. It provides an on-ramp to the DoD acquisition system for small and medium vendors: *Seventy percent of projects selected have been small or mid-sized vendors!*

What DACP Can Do

DACP provides oversight and funds for the test and evaluation of technologies that have potential to improve current acquisition programs at component, subsystem or system level. It uses an established network of the services and U.S. Special Operations Command (USSOCOM) liaison offices to more quickly field weapons systems and support technologies.

For innovators, it means faster entry into the defense acquisition system. For the DoD program manager, it means increased technology insertions to improve systems.

Technological developments and operational needs are emerging faster than ever before. Yet the defense programming and budgeting cycles cannot always keep up. On the supply side, many of America's companies generating technological innovations have found it difficult to break into the defense market, especially those classified as small and medium-sized U.S. businesses.

In an effort to remedy the technology-to-programming lag and overcome the "valley of death," the DACP provides opportunities for the increased introduction of innovative and cost-saving commercial technologies or products into existing DoD acquisition programs. Furthermore, the DACP is especially designed to give small and medium-sized companies the opportunity to introduce new technologies and inject innovation into current DoD programs.

To do so, the DACP provides any person or activity, within or outside the DoD, the chance to propose alternatives, known as Challenge Proposals, to existing DoD programs that could result in improvements in performance, affordability, manufacturability or operational capability of the systems acquired by that program. As a result of selecting, testing and inserting the best of these production-ready technologies, the DACP ultimately expands the opportunities for emerging defense suppliers, widens the U.S. defense industrial base, and leverages unique innovations for the benefit of the warfighter.

The Defense Acquisition Challenge Program's objectives are to improve the warfighter's capabilities and reduce expenditures through:
• Rapidly fielding quality military equipment;
• Eliminating unnecessary duplication of research, development, test and evaluation (RDT&E);
• Reducing life cycle or procurement costs;
• Enhancing standardization and interoperability;
• Promoting competition by qualifying alternative sources; and
• Improving the U.S. military industrial base.

U.S. Navy Petty Officer 2nd Class Andrew Ward looks out to provide suppressing fire in support of a training exercise on Fort Knox, Ky., Oct. 20, 2004. Ward is assigned to the Helicopter Combat Support Squadron Six, which is conducting urban assault training in conjunction with SEAL Team Four. U.S. Navy photo by Petty Officer 1st Class Steven Harbour. Military Operations in Urban Terrain (MOUT) simulation training is just one the successful investments that the DACP has made.

DACP aims to address three warfighter priorities including:

✔ Improved Operations
– Effectiveness (lethality, accuracy, endurance)
– Survivability (protection, agility, stealth, medical)
– Force Protection (defensive systems, detection, armoring, chemical-biological defense)
– Sustainability (lighter/combined equipment, longer missions, better batteries)

✔ Direct Warfighter Support
– Logistics (supply chain management in the field, equipment reliability)
– Teaming (network and info-centric operations at the tactical or operational level)
– Surveillance, tagging and tracking (blue and hostile forces tracking, friendly identification)

✔ Warfighter Employment
– Planning capabilities (large unit employment)
– Coordinating capabilities (network/info-centric operations at the strategic level)
– Transport capabilities (getting to and from the fight)
– Operational readiness (equipment availability, maintainability, training)

DACP also provides assistance for other national priorities, as outlined in the Defense Planning Guidance (DPG), available at www.oft.osd.mil/library/library_files/document_129_Transformation_Planning_Guidance_April_2003_1.pdf.

Evaluation Criteria

An initial review of each proposal is performed based on merit and improvements to performance, affordability, manufacturability and operational capability at the component, subsystem or system level of an acquisition program.

DAC focuses on technologies that are ready to transition — technology readiness levels (TRL) 7-9. Further, the proposed technology must be ready for rapid implementation at acceptable cost and without unacceptable disruption of existing capabilities to a current acquisition program of record.

If the proposal passes initial assessment, then a full, independent review is completed by the program office and the prime system contractor using the criteria mentioned earlier that includes an assessment of the cost of implementing the proposal. Consideration is also given to intellectual property rights.

Any person or activity within or outside the DoD interested in participating can submit a DACP proposal along with a quad chart using the templates provided in the BIDS Web site: https://bids.acqcenter.com/ (unclassified only). Classified proposals can be accepted through the mail.

DACP proposals go through two-phase processes.
1. All proposals receive:
   Administrative Review
   Technical Review
   Program Manager Review
   OSD Review

2. Sponsoring government program offices refine the first phase proposal addressing:
   Key performance parameters
   Preliminary test plan
   Cost analysis
   Funding required for test
   Length of evaluation period

A DACP final proposal will need a letter of endorsement with intent to procure, project chart and quad chart. Selection for funding is highly competitive and submitters are notified of the outcome of their proposal evaluation.

In fiscal year 2007, the military services and U.S. Special Operations Command nominated more than 85 projects for Comparative Testing Office (CTO) funding consideration. Each proposed project was carefully reviewed to ensure the mature equipment or technology addressed valid warfighter needs, and to confirm that the U.S. military sponsor had developed a viable acquisition strategy to procure and field the equipment if it tests successfully and offers best value.

Some technology problem solvers for the warfighter include:
• SprayCool™ Counter Targeting System (CTS)/Weapon Surveillance System (WSS) – Provides weight and volume savings over traditional air-cooled systems and operates in harsh environments of high temperature, high humidity and dust with increased reliability. Weight was reduced 80 percent, from 335 pounds to less than 100 pounds.

• Enhanced Gunfire Detection System (EGDS) – Locates snipers in noisy, urban environments by acoustic detection of gunfire/location of origin. It provides relative azimuth, elevation and range to origin of 5-20 mm weapons fire with range to 1,200 meters. EGDS reduces vulnerability to sniper threat in military operations in urban terrain, desert and jungle environments.

• Mini-Combat Trauma Patient Simulation System – Improves the skills of combat medical personnel deployed forward, in mass casualty and triage. More than 3,500 medics and corpsmen have been trained and academic attrition rate of trainees has dropped from 23 percent to 6 percent — testimony to the effectiveness of this training tool.

Solicitation for FY 2009

The Broad Agency Announcement (BAA) for FY 2009 is posted at: www.fedbizopps.gov and https://cto.acqcenter.com/osd/portal.nsf. To submit a proposal you must register on the CTO Portal homepage, then login, go to DAC and follow the instruction set.

CHIPS

Mini-Combat Trauma Patient Simulation System (Army)
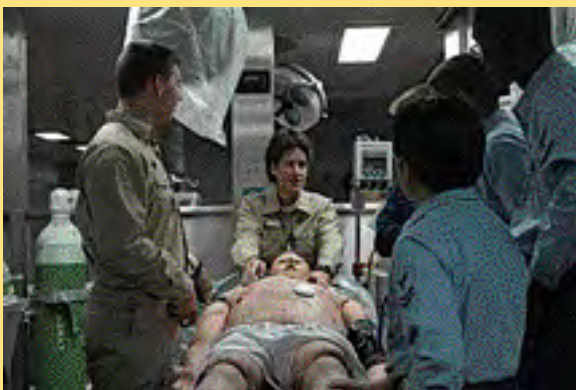
Participants
U.S. Army Research, Development and Engineering Command (RDECOM) Simulation and Training Technology Center (STTC); USNS Mercy; Field Medical Service School (FMSS), Camp Pendleton; Medical Education Technologies, Inc. METI® of Sarasota, Fla.

Status
Completed: first quarter of FY 2005
Change agent for FMSS: trainee attrition rate has dropped from 23% to 6%
Over 300 corpsmen trained per month alongside division doctors and nurses — many deployed
To date: 14 simulators procured by Navy (7 each at Pendleton and Lejeune); 90 systems on contract to Army for fielding at 18 sites worldwide

Technology
Uses the Emergency Care Simulator™ (ECS™) a computerized mannequin driven by sophisticated physiological models
Enhances portability, affordability and ease of deployment with active forces

The So What
Simulates, replicates and assesses battlefield injuries
Monitors movement of casualties on the battlefield
Captures time of patient diagnosis and treatment

DAC Measures/Factoids Since Program Inception

Metrics & Measures (FY03-08)
Interest & DoD Ability to Support
• 1,716 proposals submitted
• 353 endorsed by programs of record/(PEOs/PMs)
• 97 projects awarded (~$146.5M)
• 80 companies from 31 states
• 70% are small or medium enterprise technology providers, not by design or mandate
• Return on Investment (ROI) ~ 9:1
• Based on 14 completed projects used in global war on terror

FY06	FY07	FY08
22 New Starts	18 New Starts	13 New Starts
13 Continuing	16 Continuing	14 Continuing

Summary of DAC Successes:
Additional Examples – Deployed or Deploying for GWOT

– Automated Enhanced Position Location Reporting System (EPLRS) – Navy/MarineCorps. Network IP planning enables one Marine to do in an hour what used to take four Marines a day to accomplish. Deployed tactical release to 900 users within Marine Corps II MEF to Iraq in fall 2005.

– Enhanced Gunfire Detection System (EGDS) – USSOCOM. Acoustic system to detect fire from insurgents. Used April 2005 in Kirkuk, Iraq.

– Weapons Shock Profile Database – USSOCOM. Develops a digital live fire profile for small arms weapon systems. Used at Naval Surface Warfare Center Crane Indiana to more rapidly field weapons.

– Enhancements to Fly-Away SATCOM – Air Force. Keeps remotely operating units connected. Used in the mountains of Afghanistan, Iraqi deserts and support recovery operations for Katrina and Rita.

– Common Tactical Picture Ground Mobile and Air Based Command and Control System – Navy. Provides first-ever on-the-move C2.0 technology for the Marine Corps expeditionary assault vehicle. Deployed to Iraq fall 2004.

– MK-46 Machine Gun Semi-Rigid Ammunition Containers – USSOCOM. Quieter and more durable than hard-material predecessors. Used by SOF worldwide to protect linked ammunition for the M-249 automatic weapon.

– Dismounted Infantry Virtual Simulation for Military Operations in Urban Terrain (MOUT) – Army. Virtual MOUT training system that immerses the warfighter in a networked combat simulation. Realistically prepares for operations in Iraq.

– Second Generation Rail Interface System and Miniature Day/Night Sight – USSOCOM. More reliable, rugged, reduced weight weapon accessories with improved target acquisition. Projected procurement less than $250 million Virtual MOUT described above.

– High Performance Standard Advanced Dewar Assembly II – Navy/Marine Corps. Improves Marine Corps M1A1 tank's thermal imaging in support of Firepower Enhancement Program. Projected procurement is $3 million.

Primary DAC points of contact
OSD Program Office (703) 602-3740
U.S. Army Focal Point (703) 806-0999
U.S. Navy Focal Point (703) 696-4225
U.S. Air Force Focal Point (703) 588-6457
USSOCOM Focal Point (813) 826-1035

E-mail: defensechallenge@osd.mil
Web: https://cto.acqcenter.com/osd/portal.nsf

Funding

	FY03	FY04	Total
DAC	$.190M	$.320M	$.510M
Sponsor	$.025M		

Benefits
RDT&E Cost Savings: $.0525M   Mfg Savings: $.033M
Operating and Support (O&S) Cost Savings: $0.144M annually
Procurement Cost Savings: $1.15M
Fielding Reduction: None
Procurement Potential: $5.95M (17 units +)

The Combat Trauma Patient Simulation forces trainees to assess, stabilize, treat and evacuate their patients. Medics report back that these simulators provide realistic training because they breathe, blink their eyes, have pulses that can be felt and can even simulate death. CTPS electronically "moves" the patient and tracks all treatment at each level of patient care, starting at the point of injury. The CTPS system consists of networked patient simulators, along with a triage capability that allows military medics to train both individually and as a team in the case of mass casualties.

Simulated Battlefield – Combat medics train on a simulated battlefield using the Combat Trauma Patient Simulation system at Fort Sam Houston, Texas, Aug. 10, 2005. The simulators realistically replicate a vast array of conditions to include trauma, weapons of mass destruction and diseases. U.S. Army photo by Sgt. 1st Class Paul Ray Smith.

Serving at the Pointy End of the Spear in the Pacific

SPAWARSYSACTPAC scores high with strong leadership for mission success

By Joanne Newton, SSC San Diego Public Affairs

As an organization under the command of Space and Naval Warfare Systems Center, San Diego, SPAWAR Systems Activity Pacific (SPAWARSYSACTPAC) provides electronics materiel and information technology support, planning, installation design, installation, maintenance engineering, training, technical guidance and assistance. This support is provided to all Naval and Marine Corps forces in Commander, Navy Region Hawaii, New Zealand, Australia, Southeast Asia, the Indian Ocean and the Western Pacific areas.

Leading such a demanding mission requires vision, unrelenting determination, diplomacy and expertise, and traditionally, SPAWARSYSACTPAC officers in charge (OIC) possess all those qualities and more. On Jan. 30, 2008, Cmdr. Andy Gibbons relieved Cmdr. Ben McNeal as OIC of SPAWARSYSFACPAC, Japan.

Guest speaker at the change of charge ceremony was SPAWAR Commander Rear Adm. Mike Bachmann, and in attendance were Commander Task Forces 70 and 75 Rear Adm. Richard Wren, SSC San Diego Commanding Officer Capt. Mark Kohlheim, and new SPAWAR Systems Activity (SSA) Pacific Officer in Charge Capt. Miguel San Pedro.

Rear Adm. Bachmann said, "In Yokosuka, as well as in Sasebo, Okinawa and Seoul, the men and women of SPAWAR Systems Facility Pacific are on the front lines — literally at the pointy end of the spear. That which we in the headquarters and the PEOs (program executive offices) spend a great deal of time talking about, you are doing exceptionally well."

The admiral praised Cmdr. McNeal for his accomplishments, including the Far East production and seat migration efforts for the revitalized ONE-NET infrastructure installation plan. Cmdr. McNeal's efforts resulted in successful installation of more than $10 million of network infrastructure in more than 400 buildings, at nine Far East sites within Japan, Guam, Korea and Singapore.

More than 6,500 users migrated from legacy networks to ONE-NET, and 12 legacy networks were shut down with an annual cost savings of more than $5 million. ONE-NET, is the overseas Navy enterprise network, which is replacing most of the Navy's disparate mini-networks from London to Guam.

Rear Adm. Bachmann stated that Cmdr. Gibbons gained valuable experience as the Pacific Fleet installations manager for PEO Command, Control, Communications, Computers and Intelligence (PEO C4I) in San Diego. He also brings knowledge from a nine-month individual augmentee assignment in Iraq, for which he was awarded the Bronze Star while attached to Joint Crew Composite Squadron One.

Cmdr. Gibbons said that the lessons he learned and his experiences in Baghdad, Iraq, will shape his leadership and the mission of SPAWARSYSFAC Pacific and provide a better understanding of his responsibilities as the Japan OIC.

The Bronze Star Medal is awarded to those who have distinguished themselves by heroic or meritorious achievement or service while engaged in an action against an enemy of the United States. Cmdr. Gibbons was awarded the Bronze Star due

From left, Capt. Miguel San Pedro, Capt. Mark Kohlheim and Cmdr. Paul Herbert, outgoing SSA Pacific OIC.

From left, Cmdr. Ben McNeal, SPAWAR Commander Rear Adm. Mike Bachmann, Capt. Mark Kohlheim and Cmdr. Andy Gibbons, at the podium, speaking about his experiences in Iraq.

to his outstanding dedication to duty during combat operations in Iraq, which contributed to the overwhelming success of Joint Crew Composite Squadron One.

Cmdr. Gibbons said, "We will always ensure our focus remains on the warfighter. We will always bring to bear our experience, our skills, our resources, and our reach-back capability to equip the warfighter with the necessary command, control, communications, computers, collaboration [combat systems] and intelligence tools and information dominance to enable Commander Seventh Fleet to violently execute his operational strategy against any enemy who dares challenge us in this area of responsibility. We will never tire or fail to give our best in these efforts.

"With the guidance of the SPAWAR Command and Naval Sea Systems Command, we will continue to install, support and improve C5I systems that are programmatically mature and technologically superior, while being fiscally responsible." CHIPS

The Joint Tactical Radio System

Competition in production, open standards, software reuse through a repository and a joint governance structure

turn the once struggling program into a winner providing capabilities to warfighters at the tactical edge

The Joint Tactical Radio System, the once troubled Defense Department major acquisition program for developing and procuring software-defined radios, has been revitalized through a new business model that not only saves money, but delivers net-centric cutting edge technology into the Global Information Grid (GIG) for warfighters at the tactical edge. JTRS is actually a family of advanced software-based communications that will replace legacy radio equipment throughout the DoD. It will provide safe and secure Internet-like capabilities and networking for voice, text, audio and video.

In early February, Joint Program Executive Officer for the Joint Tactical Radio System Dennis Bauman and Deputy JPEO for JTRS Howard Pace talked to the media in San Diego, Calif., about how the JPEO-JTRS team is turning the program around. The following is Mr. Bauman's initial address to the media followed by media questions. Mr. Bauman's remarks have been edited for brevity.

My message for you today is that JTRS has changed a lot in the last three years. I am going to convince you that it has gone from a troubled program that was near cancellation to a program that's delivering capability today and is on the path to delivering even greater capability in the not too distant future.

First, I would like to talk about the significance of JTRS. We are in a position where we are enjoying tremendous support from the highest levels of DoD and from Congress. The reason is the importance of JTRS to the Department of Defense.

The DoD is on a path to achieve network-centric capability. The network is important to the way we intend to fight in the future. We have the GIG and a satellite network where we can get out to the command post, but without a capability like JTRS, network-centric warfare stops at the command center.

You can't get to the tactical edge without a capability like JTRS. That capability is more than a cell phone network — we don't have cell towers on the field and we can't use BlackBerry technology for many reasons.

We have to do mobile ad hoc networking from the command center or the command vehicle out to the tactical edge. That is the significance of JTRS. That's why Congress and DoD are so interested in it.

The second reason is that the joint force has traditionally had significant interoperability problems between its various components. JTRS will contribute to the solution to that challenge. We are going to do that by using common software across all the boxes, common waveform software, and it will be interoperable.

The third significant thing about JTRS is that we are going to save money for the Department of Defense. I will talk in more detail about the traditional business model that we have been using in the radio world since World War II to develop and procure radios. We are using a significantly different business model that is more competitive and more open.

Fourth, and not as easily recognized, is to know that we have potential warfare challenges with overhead satellite communications. But JTRS does not rely on SATCOM. JTRS provides voice, video, data and battlefield communications when reachback is not possible.

Three years ago we had a loose federation of five ACAT I programs that were run by the services. They were only loosely federated because it was not a joint entity, and there was no single management structure. Congress got involved and said: you ought to revise the management structure.

The Under Secretary of Defense for Acquisition, Technology and Logistics (USD (AT&L)) at the time was Mike Wynne (who is now Secretary of the Air Force). Secretary Wynne wrote a report to Congress that said we are going to fix JTRS; we are going to stand up a centralized program executive office and have all the program managers report to that PEO and have that PEO report to the USD (AT&L).

That's how JPEO JTRS was born. Secretary Wynne gave me these goals: (1) Deliver the capability that has been promised; (2) Make it a truly joint capability, not service-dominated in any of the parts; and (3) Get us to a more affordable paradigm for acquiring communications and networking in the Department of Defense.

Based on that guidance, we developed

Top, JPEO JTRS Dennis Bauman and Deputy JPEO for JTRS Howard Pace respond to questions during a media roundtable discussion in San Diego, Feb. 6, 2008.

and are now taking a unique enterprise approach. By enterprise, I mean we are looking at rolling out a capability that consists of several different form factors, but the same basic capability for the joint enterprise.

The enterprise approach that we are taking has two fundamental aspects to it — short-term and long-term. Let me talk about these two aspects. Three years ago, when the JPEO was stood up, we did an analysis of where we were and found that each one of the five ACAT I programs was delivering everything at once.

The whole capability that was in the 800-page CDD (Capabilities Development Document) was to be delivered at one time in each of the roll out phases, then called clusters. That's a recipe for disaster in a highly technical development world. We turned all of the clusters into increments. We are now taking an incremental approach. As a result, we have defined Increment I which we are building now. That is a significant subset of what was in this 800-page CDD.

Now we are working with the Joint Staff to define Increment II and to get it funded and resourced. Instead of a big bang in the short-term, we went to an incremental approach.

The second thing we have done is to focus on acquisition fundamentals. In our business, fundamentals are requirements management and discipline. We have defined the requirement for Increment I of JTRS precisely, and we are managing those requirements because requirements growth is a significant contributor to the decline of many complex programs.

Second, we focused on risk management. This is rocket science, *but we have a lot of rocket scientists working on it.* There are a lot of risks when you develop complex technology, but we are identifying those risks and managing them in a two-tier way.

We have traditional program risk management for each of the five ACAT ID *("D" for Acquisition Defense Board and for which the USD AT&L is the Milestone Decision Authority.)* programs. Then we have an enterprise risk approach where we define, identify and mitigate risks for the entire enterprise.

The fundamentals are: requirements management, risk management and contracts management. We believe that you have to manage contracts correctly to get the results that you want. We use Earned Value Management and incentive structures.

The incentive structures across all of our contracts are back-loaded on the fee. As the development goes on and the product becomes more mature and the product is delivered, the vendor earns a fee. Vendors do not get a fee for developing view graphs. Fifty percent of the fee is paid in the last 25 percent of the development. It is very effective.

It is not what is traditionally called a *beauty contest* for an award fee. It is tied to measurable events, and our vendors know what those measurable events are, both in terms of schedule and performance. Vendors like that because they know what they have to do. It is a win-win for both of us.

In the long-term, we looked at the way radio capability was traditionally developed and procured by the Department of Defense. In the past, you would do a full and open competition for System Design and Development (SDD). At the end, you are left with a vendor who has produced the capability. Then you traditionally sole source for that vendor for production, upgrade and sustainment of that capability.

That's the business model that has been used since World War II. The result has been that while we have gotten good capability from our vendors, we have ended up in a sole source position where all the intellectual property is owned and controlled by the vendor. When we want to upgrade and sustain that capability, we have to go back to the sole source vendor. We believe that costs a lot more money. We believe in competition.

We have fundamentally changed the business approach for acquiring this kind of capability. We still do full and open competition for the System Design and Development phase, but we require that at the end of SDD, we qualify two or more sources in production for every product that's developed.

For production, we compete in lots at least annually among multiple vendors. One example is the MIDS (Multifunctional Information Distribution System) Low Volume Terminal (LVT). That is not a software-defined radio; it's a legacy radio that my MIDS program produces. There is also a JTRS MIDS.

The EDMs (engineering development models) on MIDS LVT

Army Maj. Jonathan Studer, Network Enterprise Domain (NED) asset product manager for enterprise network services, demonstrates some of the radios under the JPEO JTRS product line at the West 2008 conference in San Diego, Calif., in February 2008.

were around $600,000 each. The first models that came off the production line were somewhat cheaper, in the $400,000 range. We've competed every year for about six or seven years and driven the cost of those terminals down to $185,000 a terminal.

It's not all through competition, but a significant contributor is that we compete every year in lots. We can award 0-100 percent, but we traditionally award somewhere between a ratio of 60-40 and 70-30 between the two vendors. We are using that model across the board in our enterprise.

The second thing is we want to stay out of a closed proprietary situation. We are obtaining government purpose rights or better on all the software that we are having developed under our contracts. All the software we have developed is open standards-based. It is based on the Software Communications Architecture, or SCA. We have 26 application program interfaces that are rigorously defined and baselined. We have our developers use those 26 APIs and build according to the SCA. The reason to do that is for portability so that later on in the life cycle we can switch out vendors. It is like a plug-and-play approach to the development of software. We didn't invent it, but we use it.

Third, since we obtain government purpose rights or better on all of our software, we place all that software code in a repository and make it available to our vendor base within our contracts. We also make it available to contractors who may not have a contract with or may not be developing products for JTRS.

We have 13 waveforms and three operating environments in that repository — more than 4 million lines of code. We give out *library cards* to our repository to vendors who ask for it based on certain criteria. Number one, vendors have to show that they're going to use it for government purposes. They have to demonstrate that they are going to use it in the government's best interest for government purposes.

Second, they have to agree that if they take software out of the repository and make changes to it, they have to put the changed software back into the repository with government purpose rights so we can share it.

This is not exactly a Linux model, but it is an open model compared to what the Department of Defense traditionally uses. It promotes multiple sources, ease of porting and interoperability. This is our enterprise business model: competition in production, open standards-based, software reuse through the repository and a joint governing structure.

AT&L Secretary Krieg gave me a homework assignment three years ago to propose a model for developing a joint program. This is a joint program, and it has to deliver a joint capability. If you have service-domination of the governing structure, you threaten that interoperability, that jointness.

Joint is difficult. We came back with a recommendation to adopt a corporate model where we have a board of directors. The board of directors is chaired by USD (AT&L) and the vice chairman of the Joint Chiefs of Staff. The PA&E (Office of the Assistant Secretary of Defense, Director for Program Analysis and Evaluation), the OSD (Office of Secretary of Defense) comptroller, the three-star programmers from the services, as well as the service acquisition executives, are on that board of directors.

The beauty is that you have everybody in the room needed to make and enforce a decision. That is not always true with acquisition programs because you have acquisition authority, you have requirements authority, you have resource authority, and each one has its own process. They are parallel processes and they intersect, but they are not necessarily under the control of one entity.

Underneath the board of directors is the JTRS Executive Council or JEC, which I chair along with the J-6 (C4 Systems Directorate) of the Joint Chiefs of Staff. It has a similar parallel structure.

We hold a JEC meeting preparatory to every board of directors meeting quarterly. We have held six or seven of them now, and the structure is well in use and has history. It still is in place as we transition under Secretary Young.

For the long-term, we believe in getting a critical mass of talent in one place, if you are going to take an enterprise approach. To that end, we have moved all the program offices except one, to San Diego. We are close to being done with that. We have here in San Diego a critical mass of acquisition folks and the Space and Naval Warfare Systems Command (SPAWAR) helps us with

Why JTRS is important to the Defense Department

• Brings communications to the tactical edge
• It is born joint and interoperable between the services and legacy radios
• It is network-centric fitting seamlessly into the Global Information Grid
• Its business model promotes competition, saves money and provides best value to customers
• It is based on the Software Communications Architecture which promotes portability for a plug and play environment
• Its government purpose rights software repository saves money on development costs and provides speedier development for software upgrades and use in other Defense acquisition programs

JPEO for JTRS Dennis Bauman with some of the members of the JTRS team at the West 2008 conference exhibit. JTRS is a family of interoperable software-defined radios that provide secure, wireless networking communications capabilities for the joint force.

"Recently, the Army came to us with an order for 39,000 single-channel handheld radios. The Army sent $239 million based on the current price of those radios. We competed on the basis of cost between… two vendors, and we awarded that contract for 39,000 radios and were able to return $104 million to the Army customer."

– JPEO for JTRS Dennis Bauman

this. Second, we have a critical mass of technical people from the government within SPAWAR Systems Center San Diego.

San Diego is the wireless hub of the world so this is an appropriate place to be for our enterprise to tap into, both with industry as well as with academia. Finally, the Federally Funded Research and Development Centers have a presence in San Diego, and they have beefed up their presence to support JPEO JTRS.

I asserted earlier that we have turned this thing around so let me tell you why I think that is the case.

The GMR program, the Ground Mobile Radio, is a four-channel ground radio that goes in vehicles, and it is key to the success of Future Combat Systems because it provides the networking capability in the FCS vehicles.

We re-baselined the contract with our prime, Boeing Corp., and we have delivered greater than 50 pre-EDMs to the Army for experimentation into FCS. They have them in the desert and are experimenting with them running four simultaneous waveforms on the four channels. Any of the four channels will run any of the waveforms because they have a universal transceiver.

The four simultaneous waveforms that we are running on the pre-EDMs are Single Channel Ground and Airborne Radio System (SINCGARS) voice, SINCGARS data, Enhanced Position Location Reporting System (EPLRS) and Wideband Networking Waveform (WNW).

WNW is probably the most complex networking communications waveform that we have ever seen. It's designed to be the tactical backbone for the FCS program, the Army Modular Force and the Marine Corps. The version of WNW that we have operating on those pre-EDMs already has two-megabit per second point-to-point throughput, which is the threshold requirement for the final waveform. We think we are going to get a heck of a lot more than that as we mature this waveform.

We conducted a capstone Critical Design Review in December with individual CDRs on the hardware components. Three years ago, the National Security Agency declared the architecture uncertifiable because of its vulnerabilities. We had to redesign, and the CDR was on that redesign.

HMS, the Handheld/Manpack/Small Form Fit (formerly Cluster 5), is the second ACAT ID program. Our prime is General Dynamics. We have re-baselined that contract, and we have delivered EDMs for several form factors. The primary emphasis here is on building a small module about hockey puck size which contains the core radio for HMS.

Then we reuse that core radio across all the different form factors in HMS that range from the largest being a manpack and the smallest, a hockey puck-sized device that goes on intelligent munitions, sensor fields, mine fields and more. We've delivered many different EDMs and form factors. We have LRIP (Low Rate Initial Production) to begin in October 2009 for Phase I and January of 2011 for Phase II.

The third ACAT I program is MIDS JTRS. MIDS LVT is a box that

goes into tactical fighters and it provides Link-16 TACAN (tactical air navigation). MIDS JTRS is the same form fit box, but it provides four channels, one of the four software definable channels. You can pull out a MIDS LVT and plug in MIDS JTRS in the same hole with the same cable. It is a four-channel software-defined radio. Channel one does Link-16 TACAN.

The capability that is in MIDS LVT is in one of the four channels on MIDS-J and we have three other channels with universal transceivers that are available for other capabilities. A follow-on phase is to add the airborne networking capability into the MIDS-J box. Our initial airborne networking capability is a waveform called TTNT (tactical targeting network technology). F-18s are currently flying with an air worthy MIDS-J terminal, and we have had at least three flights (maybe four by now) doing TACAN.

We are working our way up to Link-16, and it is performing as well if not better than the MIDS LVT can do TACAN. We deliver production transition terminals later this calendar year.

"My bottom line is — JTRS is crucial to the Department of Defense."

– JPEO for JTRS Dennis Bauman

AMF (Airborne, Maritime and Fixed) is the fourth ACAT I program. We completed pre-SDD contracts that went post-PDR using two vendor teams. Lockheed Martin and Boeing primed those two vendor teams. Those contracts are completed. We are fully funded for the follow-on SDD phase. We are in source selection on a full and open competition to do the SDD phase of AMF, and we anticipate an award of that contract later this quarter.

We gave a Milestone B brief to the board of directors at the Dec. 14 meeting, and we are staffing the ADM (Acquisition Decision Memorandum) to get a Milestone B Decision on AMF.

The fifth ACAT I program is the software that is used across the enterprise. It is called NED, Network Enterprise Domain. We delivered version 2.5 of WNW, and we are already at the threshold throughput on that waveform. It increased the number of ad hoc nodes, and we have demonstrated this mobile ad hoc networking where nodes come into and out of the WNW network without preplanning. We're scheduled to deliver 3.0 the beginning of March. Version 4.0, the final version to be fielded, follows that.

The final one we are producing is SRW, the Soldier Radio Waveform, that's a smaller scale networking waveform for stub networking down to the Soldier or sensor level, primarily in HMS. However, it will be resident in GMR to allow the dismounted Soldier, as well as sensor fields and munitions, to gateway into the tactical backbone of a network provided by WNW on GMR. The Defense Advanced Research Projects Agency developed waveforms for SRW.

The Office of the Secretary of Defense for Acquisition, Technology and Logistics approved moving forward with the SDD phase for the Joint Tactical Radio System Airborne Maritime Fixed Station (JTRS AMF) program March 24.

The SDD phase consists of critical design, prototype and engineering model fabrication, initial testing and certification, as well as options for low rate production. In following with the JPEO JTRS enterprise business model for competition in production, the prime contractor Lockheed Martin, will be responsible for qualifying a minimum of two sources for each form factor who will also ensure their JTRS compliance.

Announced in a release by the JTRS Joint Program Office, Lockheed Martin was awarded the $766 million SDD contract March 28 in an open source, best value competition.

AMF JTRS Advantages

• Open system architecture designed to support DoD communications from sea to air

• Modular, scalable design that reduces life cycle costs and enables easy technology insertion

• A software-programmable, multiband, multimode digital radio enabling interoperability across the spectrum of operations

• Increased network situational awareness

• Improved voice, video and data throughputs

• Enhanced security through the use of high assurance Internet protocol-based encryption

The Joint Interoperability Test Command (JITC) testing of the Ground Mobile Radio (GMR) at Fort Huachuca. The GMR is designed for vehicles and is an integral part of the Army Future Combat System for networking. All JTRS-approved radios must be JITC-tested for interoperability with legacy radios, as well as new wave forms. They must also meet National Security Agency security standards. Photo courtesy of Boeing Corp.

NED has delivered nine legacy waveforms that are in our repository and most have been through formal qualifications. Now we are in the process of porting them into a radio box.

Single-channel handheld radios, the old Cluster 5 of JTRS, developed a radio called JEM, the JTRS Enhanced MBITR (Multiband Inter/Intra Team Radio). It was developed under the auspices of U.S. Special Operations Command with a full and open competition. Thales Communications won the competition several years ago.

Thales built the JEM radio, a single-channel, handheld software-defined radio that can instantiate and connect multiple waveforms. It has embedded programmable crypto, certified by NSA, and it has demonstrated interoperability through Joint Interoperability Test Command (JITC) testing. Those are four fundamental JTRS characteristics. That is what we call a 'JTRS-approved radio,' and it passed operational tests a year and a half ago.

Normally, we would have gone into production, sole-sourced to Thales on the old business model, and that was what we planned. Instead of that, we had another competitor on the market, Harris Corp., who had built a similar radio with similar capabilities with its own money. We were aware of that, and in accordance with our business model, we competed production. About nine months ago, we awarded a multiple IDIQ (indefinite-delivery, indefinite-quantity) contract.

It was a full and open competition for any company that could bring in a single-channel JTRS-approved radio that met the fundamentals that I mentioned earlier. We awarded to Thales for the JEM radio and to Harris for the Falcon III handheld.

When we have a service customer who wants to buy a single-channel handheld JTRS-approved radio, we can compete based on best value, cost or any number of factors, or we can sole source if that is what our customer wants to do.

Recently, the Army came to us with an order for 39,000 single-channel handheld radios. The Army sent $239 million based on the current price of those radios. We competed on the basis of cost between those two vendors, and we awarded that contract for 39,000 radios — and were able to return $104 million to the Army customer.

We attribute that directly to the fact that the two vendors had to compete. It pushed the price point of the radio down, and we were able to return about 40 percent of the Army's money.

Our latest delivery orders were for the Air Force. They sent us $55 million, and we returned $29 million based on competition. This example demonstrates the success of JTRS in four ways. First, we are delivering JTRS capability today. These are software-defined radios with embedded crypto, they meet NSA security standards, they are based on the SCA, and they have been shown to be interoperable in JITC testing.

Second, it should be clear that our competitive business model is going to save money. Third, we are achieving demonstrated interoperability. These two radios not only interoperate with each other, they interoperate with legacy radios.

Fourth, we demonstrated that the government doesn't have to pay for all the development. Harris paid for the development of its radio and is getting the payback by competing and earning money in production for a return on what it invested in R&D.

My bottom line is — JTRS is crucial to the Department of Defense.

CHIPS

Q&A with JPEO for JTRS Dennis Bauman and Deputy JPEO for JTRS Howard Pace

Q: Can you talk about the logistics tail? In the competition between vendors, how are maintenance and repair competed?

Mr. Bauman: With everything there are pluses and minuses. When you compete in production, you save a considerable amount of money in purchasing product, but in most cases you need to sustain two different baseline hardware devices. In the case of the single-channel handhelds, we need to sustain both the Falcon III and the JEM radio. That will cost some more money.

In our world, we think we get a much bigger payoff from the savings in the acquisition compared to the logistics tail. Single-channel handhelds now cost less than $3,000. Many times it isn't economically viable to fix them. If we were talking about the Joint Strike Fighter, we would not want to sustain two different aircraft models, but in our radio world, we believe the business case is there to consume them.

Mr. Pace: We also worked with our customer and did a rough business analysis of what the logistics tail would be, and we had a good understanding of that prior to going into the contract. It came out to more of a wash than we ever anticipated.

Mr. Bauman: We are not requiring the customer to compete on our contracts. If the Army decides they do not want to pay for the logistics tail for Falcon III and JEM, they can sole source to either one they want.

The JTRS JPEO is not responsible for procurement dollars. I don't control any procurement dollars. All we do is R&D. Our business model is that we will develop the capability, and then we will put contracts in place for the services to buy from. We will take their money and aggregate orders for quantity discounts, but they have authority over those dollars. Even though we have two competitors, if their business case says that they don't want two different devices, they can sole source.

Mr. Pace: The important thing we need to stress is that we have a single tactical radio purchasing organization for the Department of Defense for the first time. You get economy of scale buys, and you have a single voice to unify industry toward your goals. This is an extraordinary thing. It is the first time it has been done.

Q: You have two radios currently that have single primes. Are there other vendors that will bid?

Mr. Bauman: We have in the model what we call rolling admission capability. Every year we are going to see if there are any other vendors that want to come to the table with a single-channel, JTRS-approved handheld radio. Every year we give an opportunity to industry. We are about to come out with an RFI (Request for Information) on this model. There are two vendors now, but other vendors may want to get into that competition.

Mr. Pace: It is a success not only for radio systems, but there are other capabilities that use our products. Without this kind of approach, you would never be able to synchronize over such large efforts. An example is NLOS (NLOS-LS, Non-Line of Sight – Launch System), being developed by Raytheon through an Army PEO Aviation contract, which is completely separate and distinct from JTRS.

It uses the Soldier Radio Waveform that was pulled from our repository. We also share waveforms with all other kinds of entities. By having this open systems architecture approach that can be shared across multiple industry partners, it has taken away many of the stumbling blocks to software reuse.

Mr. Bauman: It saves money, it promotes interoperability, and gives us flexibility to change vendors for software modules. It helps us sustain a wider vendor base because it allows vendors who might lose in a competition to compete. You don't have to win an SDD contract to compete.

Q: Are there any small businesses involved?

Mr. Bauman: We have an active, vigorous SBIR (Small Business Innovation Research) program. The Department and each of the services siphon off a percentage of every R&D dollar to go into the SBIR program. We get to decide how that money is awarded. Since we have $800 million or so a year in R&D, we get a significant amount from the SBIR program. We have a robust SBIR program, between $10 million and $20 million.

Mr. Pace: There are a lot of small software companies making contributions to these bigger providers, which they could not do if we did not have this open systems model. We want to fuel the competitive environment. We want competition to be the No. 1 ace card for the government when it comes to purchasing tactical radios.

Q: Are any other programs looking to you to help them build a business model for their programs?

Mr. Bauman: A couple of years ago, we worked with the NCES (Net-Centric Enterprise Services) program but mainly in the governance structure. They were trying to set up a joint program under a joint PEO with the Defense Information Systems Agency. They involved us in the early formulation of their strategy.

We are promoting the business model. We are not saying that this is the right model for all DoD in all functional areas. This is not the right model for F-22s or for shipbuilding, but in our size of product and in the industry base that we enjoy, we think it is a win-win enterprise business model for our functional area. It also fills capability gaps. Right now the Joint Staff and Joint Requirements Oversight Council are prioritizing about 18 capability gaps for POM-10, program objective memorandum 2010.

Mr. Pace: JTRS not only provides capabilities — it saves lives — that's why it is so important to DoD and to Congress.

Postscript: A system design and development (SSD) contract for the AMF segment of the JTRS program was awarded to Lockheed Martin March 28, 2008.   CHIPS

U.S. Southern Command

Admiral James Stavridis
Commander, U.S. Southern Command

Admiral James Stavridis, a 1976 distinguished graduate of the U.S. Naval Academy, assumed command of the U.S. Southern Command Oct. 19, 2006. Adm. Stavridis earned a Ph.D. and master of arts in law and diplomacy from The Fletcher School of Law and Diplomacy at Tufts University in International Relations in 1984, where he won the Gullion Prize as outstanding student. He is also a distinguished graduate of both the Naval and National War Colleges.

USSOUTHCOM, located in Miami, Fla., is one of nine unified combatant commands (COCOMs) in the Department of Defense. It is responsible for providing contingency planning, operations and security cooperation for Central and South America, the Caribbean (except U.S. common-wealths, territories, and possessions), Cuba and the Bahamas, and their territorial waters; as well as for the force protection of U.S. military resources at these locations. USSOUTHCOM is also responsible for ensuring the defense of the Panama Canal and canal area.

In February, Adm. Stavridis addressed a luncheon group at a major defense conference in San Diego, Calif., regarding the unique challenges of USSOUTHCOM. The following has been edited for brevity from the admiral's remarks.

Adm. James Stavridis

I'll start with a simple premise: Our shared home is the Americas. You'll note what I didn't say: "America's back yard," or our "front porch" — that's flat out the wrong way to address a hemisphere of tremendous diversity, a land formed by sovereign countries sharing so many common interests and so interdependent in so many ways. It is a house under whose roof live nearly a billion people in relative tranquility.

These common interests are born of the strongest bonds imaginable. The nations of the Americas are tied together by geographic, cultural, economic, political and historical linkages. But despite the power of these linkages, many say the U.S. has neglected Latin America, that we have not paid it the attention, the respect, that it deserves, that we continue to neglect it today… and consequently we are drifting apart (as proposed by Michael Reid in his recent book: *Forgotten Continent: The Battle for Latin America's Soul*).

There's some evidence to support this. Witness the anti-U.S. rhetoric from several capitals in South America, and several respected studies and polls indicate that there is a decline in positive perceptions of the United States. But before we pass judgment on the state of affairs between the U.S., Latin America and the Caribbean … and what the future holds… let's take a moment to explore the linkages, challenges, and … most important … the opportunities that we share to fulfill the promise of the region.

Exploring the Linkages

At U.S. Southern Command, we are re-sponsible for U.S. national security interests through about one half of this hemisphere — 32 countries, 13 territories and 450 million people — across about one-sixth of the Earth's surface. Much of that population has strong cultural ties to the United States.

Within the U.S., approximately 15 percent of our population — more than 40 million citizens — is of Hispanic origin. The U.S. is the second most populous Spanish-speaking country in the world. More Hispanics live in the U.S. today than Canadians in Canada; and, incidentally, their purchasing power is close to a trillion dollars annually.

The nations of the Americas are increasingly connected and interdependent economically. Many of us normally think in terms of East and West when it comes to trade — in terms of Asia and Europe.

But the reality is that almost 40 percent of U.S. global commerce flows north and south — included in that trade is energy. The U.S. imports over half of its oil from the Western Hemisphere, with 34 percent coming from Latin America and the Caribbean in 2005 — much more than the 22 percent imported from the Middle East.

Beyond cultural and economic linkages, perhaps the most important connection we share with the region is a social and political conscience shaped by the common values of respect for democracy and human rights. With one notable exception — Cuba — under the Castro brothers — every sovereign nation in the Western Hemisphere is governed by civilian leadership chosen through free elections.

Addressing the Challenges

Given these linkages, we need to look at the challenges as we work toward what I see as our shared objectives.

First, establishing and strengthening a foundation of security; building social, economic, and political stability on this foundation; and through this stability enabling an environment conducive to enduring prosperity.

An overarching enabler for these challenges is an underlying climate of poverty and inequality. Some 40 percent of the region's inhabitants live in poverty, defined as an income of less than two U.S. dollars per day. Nearly 16 percent subsist in extreme poverty — less than one dollar per day. Couple these poverty figures with the most unequal distribution of wealth for any of the world's regions and a high level of corruption, and you have a breeding ground for insecurity and instability.

Drug trafficking, violent crime and gang activities are the primary security concerns born of this climate. These insidious transnational and adaptive threats directly impact the majority of the region and by their nature cannot be countered by one nation alone. They require cooperative solutions involving a unified, full-spectrum of governmental, international and private sector partnership to adequately address them.

Tragically, we also import another fuel … illegal drugs, which fuel the engines of misery everywhere. Approximately 10,000 U.S. citizens die each year in drug-related incidents traceable to narcotics from this region — a virtual September 11th every four months — and that doesn't include

the death and destruction that follow the drugs on every step of their journey north.

Marching in lockstep with the drug trade is an alarming growth of criminal activity in the region. Violence is now among the five principal causes of death in several countries. The annual homicide rate for Latin America and the Caribbean is among the highest in the world, with 25 homicides per 100,000 people compared to Africa's 22 and the U.S.'s 5.5. In some areas of El Salvador, besieged by gangs, the rate approaches 50 per 100,000.

In Central America, Haiti, Jamaica and major cities in Brazil, gangs and criminal violence are a security priority, with some gang population estimates reaching into the hundreds of thousands. These gangs do not just pose a concern in Latin America; some of the more complex gangs operate regionally and even globally — some with deep reach into the United States.

Throughout the region, the potential for terrorist activity is a concern, and we must look at Latin America and the Caribbean as likely bases for future terrorist threats. Members, facilitators and sympathizers of extremist terrorist organizations are present in many countries. While their activity is primarily linked to fundraising, logistical support and influence building, there are signs of an operational presence and an accompanying potential for attacks.

So far, we've been lucky that profits are the primary motivation for drug traffickers in Latin America and the Caribbean. But if we allow the "streams" of radical idealism and narco-trafficking to cross here in our region, the consequences could be enormous. In fact, the profits from the estimated annual crop of cocaine in just two countries, Colombia and Peru, could fund over 200,000 September 11-type attacks. That's a national security problem on an epic scale!

Fulfilling the Promise

Given these linkages and challenges, let me talk about opportunities… opportunities to fulfill the promise of the Americas. In our context, the word "promise" has two principal meanings. First, a promise can be an agreement. Honest, genuine agreement arising from mutual understanding is the very basis between democratically elected leaders and the governed, for example. The other meaning refers to the "promise of something"

as in the potential to do something vital and important.

I believe that both types of promise are fully appropriate for us in SOUTHCOM. We represent the first kind of promise in that we "promise" to be a good partner with other nations, we promise to pursue better security arrangements, and we promise to face the tough challenges together. And our commitment to this competitive marketplace ties directly to the latter definition: we are very aware of the enormous promise the Americas hold, and what could be realized in a secure hemisphere free of drugs, crime, gangs and terror.

So how do we fulfill these promises? In a region that is not a battlefield, but more like a marketplace, we sling our combat weapons and compete not with Tomahawk missiles, but with ideas. We need to effectively communicate that the U.S. cares about the people of the region — and that we care over the long term. We need to show we are constructively engaged in the security dimension throughout the region. And we need to always emphasize the natural alignment of the shared interests of all the nations of the Americas.

So we're not launching missiles, we're launching ideas through…
• multinational military exercises
• security assistance programs
• human rights educational programs
• sensible technology sharing
• anti-terrorism information sharing and assistance
• humanitarian aid
• state and city partnerships
… and a wide variety of other programs.

We're doing an enormous amount to detect and help interdict narcotics moving through the region, particularly via the Joint Interagency Task Force – South, an interdisciplinary, 11-nation collaboration. We're working particularly closely with our partners in Colombia in an advisory capacity, where democracy has been under attack by narco-terrorists for over 40 years, but the government and people have turned the tide and are winning.

We keep a close eye on Cuba, and are hopeful of a peaceful transition to democracy for the Cuban people soon.

And when we conduct exercises with practically every military organization in the region, we tailor them whenever possible to not only provide training for our team, but for lasting

USSOUTHCOM relies heavily on interagency partners across the U.S. government to help address national security problems in the following areas of focus:

• Poverty
• Unequal wealth distribution
• Social exclusion
• Corruption
• Narco-terrorism
• Crime/urban gangs
• Illicit trafficking
• Forgery/money laundering
• Mass migration
• Natural diseases

Technology Innovation Helps

• The Defense Advanced Research Projects Agency
• Micro unmanned aerial vehicles
• Commercial synthetic aperture radar and electro-optical satellite
• Commercial Light Detection and Ranging (LIDAR)
• Unmanned space vehicles with acoustic and chemical detection

Full spectrum awareness:
• Virtual Regional Maritime Traffic Center
• Relocatable Over-the-Horizon Radar (ROTHR)
• Distributed, netted wireless sensors
• Innovative, long-dwell unmanned sensors

humanitarian benefit to those in need. For example, when we undertake civil engineering and medical training, we construct wells, schools, community centers and clinics. Our medical personnel treat about a quarter of a million patients a year, ranging from routine preventive care to the most serious emergency cases.

Preventing war is more cost effective than waging war

I would like to share with you my thoughts about the future naval force, from a combatant commander's perspective. Let me begin with a concept for multi-faceted humanitarian assistance using innovative force packaging. Think back to March of last year, when President Bush announced the deployment of the hospital ship USNS Comfort on a humanitarian mission to aid the people of Latin America and the Caribbean as part of his initiative on "Advancing the Cause of Social Justice in the Western Hemisphere."

Just a few months ago, the Comfort completed that historic, four-month humanitarian mission… and I'm happy to report that it was an absolutely phenomenal success. Working closely with U.S. Department of Health and Human Services and volunteers from U.S. non-governmental organizations, such as Project Hope and Operation Smile, the crew worked non-stop to provide free health care services to communities in need.

In total, Comfort visited 12 nations in Latin America and the Caribbean. By mission's end, they had completed nearly 400,000 patient encounters, including: treatment of nearly 100,000 people, performing more than 1,000 surgeries and 32,000 immunizations, with over 120,000 pharmaceuticals dispensed.

One data point I'd like to highlight … in a close partnership with the Lion's Club, the Comfort team was able to distribute over 24,000 pairs of eyeglasses.

Imagine the real, life-changing difference that one simple act alone made to each of those individuals — particularly the youth of this region. Give one child the ability to see clearly, and that child can more readily learn …give thousands of children the ability to learn, and you enable an entire generation to prosper!

The Comfort mission was just one, four-month deployment … and it went from drawing board plans to execution in much less than one year at a budget under $25 million. As you can see,

a comparatively small amount of money goes a long way. Moreover, the overall benefit is huge, especially if it leads to greater compassion, understanding and good will that prevent future conflict. The new Maritime Strategy says, "Preventing wars is as important as winning wars." I would add that preventing war is easily 100 times more cost effective than waging war.

With all the challenges we face around the world, there will always be a need for humanitarian operations. Perhaps in our concept of naval operations, we should no longer constrain ourselves to the current force packaging paradigm…carrier, expeditionary and surface strike groups. If we are truly looking for a great way to implement the new maritime strategy, now is the time to give humanitarian missions a permanent, integral place in the spectrum of mission-tailored deployment options. We should develop a new type of deploying group. Call it a Humanitarian Service Group, or HSG.

My second concern: We need more persistent air and maritime domain awareness.

As commander, I am responsible for promoting security cooperation in an area that spans over one-sixth of the globe, 16 million square miles. All but two of the countries in the region have access to the ocean. With vast swaths of under-governed land areas and millions of square miles of sea approaches routinely used by thousands of illicit traffickers, you can easily see that air and maritime domain awareness presents a significant, longstanding challenge.

U.S. Southern Command plays a critical role in implementing the national counter-drug policy. In addition to passive detection and monitoring of potential drug smuggling activities, we provide interception and handover to law enforcement to interdict drug flow … and let's not forget human trafficking and the potential transit of weapons of mass destruction … we must actively support interdiction of those activities, too.

The Joint Interagency Task Force – South, JIATF-South, located in Key West, Florida, is the primary operations center and coordinating point for detection and monitoring to disrupt the flow of illicit narcotics, mostly cocaine, being shipped to the United States via air and maritime smuggling through a 6 million-mile area we call the "transit zone."

Each day, traffickers use more sophisticated communication,

SOTO CANO AIR BASE, Honduras – Awaiting their turn to load onto an Army CH-47D Chinook for their first parachute jump, Honduran soldiers anxiously watch their peers descent from the helicopter which was used as the platform for their first jump. More than 250 Honduran soldiers took their first step toward airborne readiness when they leaped from the back of a U.S. Army helicopter Jan. 24 in a combined jump with U.S. Soldiers here. U.S. Air Force photo by Tech. Sgt. William Farrow. A member of Joint Task Force-Bravo takes a digital image of his new friends during a Feb. 2 hike into the mountains surrounding Comayagua, Honduras. JTF-Bravo personnel delivered more than 2,000 pounds of food to local Hondurans during a Chapel Hike which allows JTF-Bravo personnel the opportunity to see the countryside as well as interact with locals. U.S. Air Force photo by Tech. Sgt. William Farrow.

computer and encryption technology to conceal their operations. We could try to strike at every detection, but we don't have enough assets. Moving our valuable resources at every sniff of a threat won't work, we need fast, flexible and actionable intelligence that helps us pinpoint the locations where our forces and resources can do the most good and with sufficient time to get them there. We need "persistent precision-guided intelligence."

Data we use to gain intelligence about drug trafficking can come from many different sources, including radar, infrared and visual reconnaissance assets, as well as human intelligence and databases compiled by law enforcement and customs services. What we lack in terms of dedicated, national aerial and maritime surveillance, we need to find in small, cheap, but effective deployable surveillance and detection systems with the legs to remain in position for long periods and cover large sectors of air and sea space.

We also need easily deployable technologies that allow all-source fusion, collaborative planning and multiple-node sensor resource management. This is true "technological innovation" and in conjunction with the Navy, we're actively pursuing smart solutions that will ultimately offer ships, operators and command centers "global maritime vessel transparency."

But remember, so much of what we do at U.S. Southern Command requires international partnership. Meaningful partnerships are based on commitment according to fundamental notions of reciprocity, understanding and cooperation. The security cooperation partnerships we seek to build require connectivity, interoperability and a baseline for communicating mutual understanding. The key is to work toward significantly broader mechanisms of mutual trust with our partner nations. To do so, we need to be able to shed the veil of secrecy, on demand, and to share our technology with our partners.

We've been working to expand our technology base for building partnerships — to build upon a long history of friendship and cooperation — especially in a region in which the "war" is largely won by words and trust, not bullets.

And we've found a willing interagency partner in the newly formed Office of Global Maritime Situational Awareness. Now only five months into existence, the OGMSA is working hard to gain traction by identifying needs with practical solutions and recruiting partners to join hands in real-world projects.

A perfect example is an initiative called "Spotlight on the Caribbean." Seeking an integrated approach to implementation of the National Strategy for Maritime Security, the OGMSA has proposed to use the Caribbean region as a "laboratory" for identifying and enabling the widest range of maritime domain awareness applications. With such a large number of international players, a relatively small body of water, a huge amount of commercial traffic, dozens of information sharing agencies, a very large tourism industry, and a wide array of security challenges, the Caribbean basin makes a perfect test bed.

At U.S. Southern Command, our partnership with OGMSA would demonstrate how close we can come to making the Caribbean a showcase for maritime security that parallels or exceeds what we see in the aviation industry.

Spotlight on the Caribbean will push to the limits the concept of creating a "National Maritime Picture." It will open new avenues of communication and challenge all involved to reach out to our regional partners, meeting their needs while meeting ours. Spotlight on the Caribbean will also build on, and enhance, the partnerships already developed through U.S. maritime and air deployments and exercises in this vital region.

I'm excited about this new partnership and the enormous potential it represents.

I'll close with a word that I think is very important …for the Navy … for the Department of Defense …that word is "innovation." We clearly need more of it.

Every speech should quote Lincoln, so I will: "The dogmas of the quiet past are inadequate to the stormy present. The occasion is piled high with difficulty, and we must rise with the occasion. As our case is new, so we must think anew, and act anew."

We live in a world lit by lightning where chaos is more and more the norm. Without thinking hard about the world and our circumstances, we will fail our nation. So I would leave you with Lincoln's words: "the occasion is piled high with difficulty … and as our case is new, so we must think anew, and act anew."   CHIPS

Science & Technology – USSOUTHCOM Science and Technology (S&T) program supports the development of military capability to meet mission requirements. The S&T program conducts activities to support the nation's advanced technology programs, enhance joint capabilities in the theater, and increase interoperability with partner nations. Support to advanced technology programs is accomplished by providing expertise and test venues.

Exercises/Operations – USSOUTHCOM sponsors multinational exercises to increase the capabilities of both the U.S. military and our partner nations. Exercise scenarios include: maritime security, peacekeeping, counterterrorism, illegal migration, illicit trafficking, disaster preparedness and relief, and humanitarian assistance. Examples include PANAMAX, which focuses on the defense of the Panama Canal, and TRADEWINDS, which addresses transnational security threats in the Caribbean.

Human Rights – USSOUTHCOM's Human Rights Division is an institutional statement of the command's commitment to maintain a robust human rights program. No other unified command has established a separate office to monitor and coordinate human rights issues.

The Human Rights Division has five primary responsibilities:
• Advising and reporting on human rights issues;
• Establishing and supporting human rights training programs;
• Ensuring that human rights are integrated into USSOUTHCOM exercises and operations;
• Advancing respect for human rights by supporting regional initiatives;
• Serving as a liaison with other entities working human rights issues, such as the interagency community, international organizations, and nongovernmental human rights organizations (NGOs).

In fiscal year 2007, USSOUTHCOM carried out 100 humanitarian assistance projects in 26 countries with a budget of $13.2 million.

Feeding the Fighting Force

"Our motto is, 'Warfighter Recommended, Warfighter Tested, Warfighter Approved.' Nothing goes in or out of a combat ration unless it has been tasted and tested by warfighters in the field."

– Program Integrator Kathy Evangelos
Combat Feeding Directorate U.S. Army Natick Soldier Research, Development and Engineering Center

By Sharon Anderson

Scientists and engineers are engaged in game-changing technology in the communication, electronic and intelligence fields at the U.S. Army Research, Development and Engineering Command, a major subordinate command of the U.S. Army Materiel Command. Products such as the Special Weapons Observation Remote Recon Direct Action System, the Army SWORDS Trainer, Digital Tactical Holograms and Cold Spray technology are just a small sample of the warfighter and warfighter support innovations they deliver.

RDECOM subordinate elements, U.S. Army Natick Soldier Research, Development and Engineering Center (NSRDEC), U.S. Army Armament Research, Development and Engineering Center, the U.S. Army Research Laboratory and the U.S. Army Simulation and Technology Center, score high in exceeding warfighting requirements with innovative technologies.

In February, RDECOM participated in a major defense technology conference in San Diego with an impressive display of the warfighting technology mentioned above and a variety of *food products*.

Food products are not what usually comes to mind when you are thinking about high-tech Defense programs, but make no mistake, producing quality combat rations is serious science.

RDECOM's joint initiatives include the NSRDEC's Combat Feeding Directorate, which perhaps has the least understood, but one of the most satisfying missions in the Defense Department.

It is rocket science

NSRDEC's Combat Feeding Directorate is located in Natick, Mass., with a team of about 100 engineers and scientists, who are food technologists, food scientists, microbiologists, chemical, electrical and mechanical engineers, and nutritional biochemists. Kathy Evangelos, program integrator, is part of this dedicated team and is both eloquent and passionate about providing troops with meals that are appetizing as wells as nutritionally balanced.

Evangelos talked about the development of food products designed for remote locations, in combat, and for Navy ships at the RDECOM exhibit. She was surrounded by samples of the food products developed and produced for warfighter consumption.

"Now there is so much science that goes into one meal bag; we can put great science and great engineering in all this food, but if the warfighter is not going to eat it, we haven't done our job," Evangelos said.

According to Evangelos food products are rigorously tested, and not just in the lab.

"For the MRE (Meal, Ready-to-Eat) and group rations, we go

Kathy Evangelos explains the process of preserving fresh fruits and vegetables for warfighter consumption in remote areas, in combat and on Navy ships at the West 2008 conference at the San Diego Convention Center Feb. 5, 2008. Photo by Andricka Thomas, RDECOM public affairs specialist.

out to the field annually with warfighters, usually Army or Marines, and we run field tests where we test new components for the MRE and the Unitized Group Rations (UGR).

"We tested 33 new components this year, and the decisions are made based on warfighter feedback. That feedback means scoring at least a six on a nine-point hedonic scale with one being extreme dislike and nine extreme like. It must get a six or higher from warfighters before any item can be put in a meal," Evangelos explained.

"We don't have that 'Father Knows Best' mentality — no more mystery meats and no-name casseroles. It has to be warfighter recommended, tested and approved.

"The items that were tested last year will affect the 2010 date of pack for the MRE. We are planning this year's field tests already and looking for new products that will affect 2011 — the 31st anniversary of the MRE," Evangelos said.

Feedback from warfighters has led to tremendous changes to the MRE. Originally, the MRE had 12 menus, then it was increased incrementally to 24.

"We think it is pretty good, but it really doesn't matter what we think; it matters what warfighters think," Evangelos said.

Food products and menus are planned two to three years ahead of time due to production timelines, but Evangelos said

FSR with the Combi-Oven, or hatchable oven, behind it

Combi-Oven
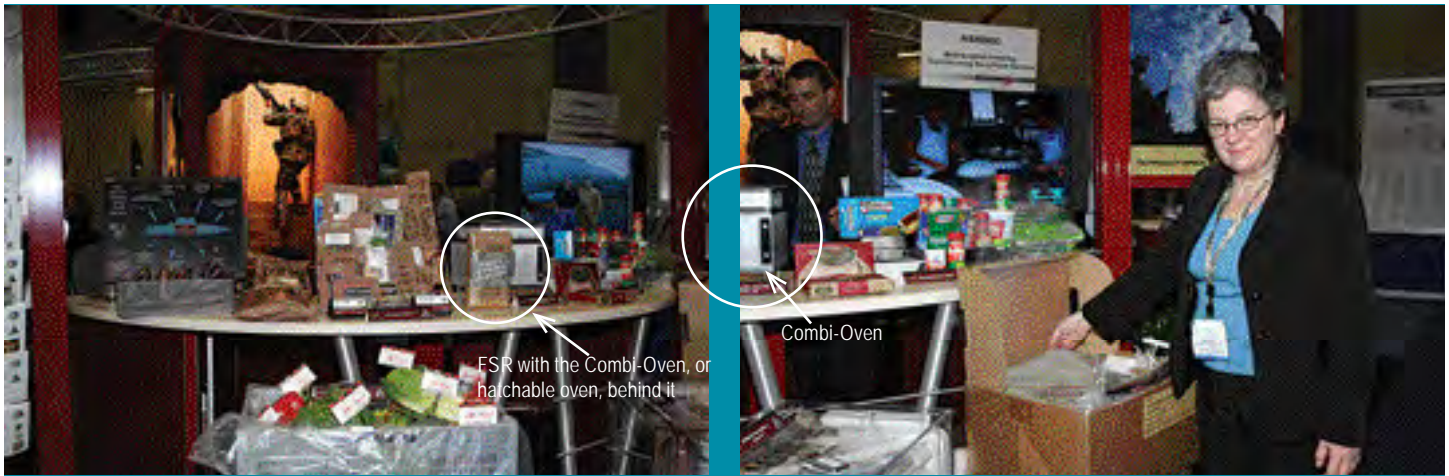
Fresh fruit and vegetables packaged to extend shelf life with the Modified Atmosphere Packaging System. Shown on the table are combat rations including the First Strike Ration. Fielded to Marine Corps troops in March, the high-calorie, high-energy FSR™ is designed for the first warfighters on the ground and the first to fight. Kathy Evangelos demonstrates the Kitchen in a Carton™. This is a group ration that requires no cooking, no fuel, no equipment and no power; each self-contained system is designed to be air-dropped to remote locations, weighs 40 pounds and feeds 18 service members. Warfighters say that the Unitized Group Ration - Express (UGR-E) saves lives because it improves tactical mobility and can be delivered anytime.

the team works hard to keep up with current trends in food tastes and food service. Menu items that are not palatable to warfighters are removed.

"We will have warfighters come up and say, 'Get rid of the ham slice. Get rid of the omelet.' We will say that it is already gone because we are careful to listen to our warfighters. We ask warfighters what they would like to see in an MRE," Evangelos said.

Although, the team strives to produce appealing food products, they are also careful to provide healthy meals for warfighters serving in high operations tempo (OPTEMPO), according to Evangelos.

Combat Rations to Go

"All menus, all rations are approved by the Office of the Surgeon General. We can't have a meal bag full of snacks because warfighters like snacks. It's important that they be nutritionally balanced in terms of appropriate fat, carbohydrate, protein ratios as well as containing all of the micronutrients, all of the vitamins and minerals that are required," Evangelos said.

To demonstrate her point, Evangelos talked about several new innovative combat rations that are soon to be deployed to the field and to Navy ships.

"Our first one is the First Strike Ration (FSR™) to be fielded in March 2008. It's designed for the warfighter that is first on the ground and the first to fight. This is going to become the Marine Corps' new assault ration. Everything that you see here in the display is in this package." *(See page 37 for sample menus.)*

The FSR is a compact ration designed for use during initial periods of highly intense, highly mobile combat operations. The FSR is substantially reduced in weight and cube and enhances warfighter consumption, nutritional intake and mobility. The FSR contains 2,900 calories and can be used alone or to supplement the MRE. The FSR is intended to be consumed during the first 72 hours of combat, according to Evangelos.

Combat rations are designed to be eaten on the move with no preparation required. One of the main components is the shelf-stable pocket sandwich, which now comes in five different varieties such as barbecue chicken and barbecue beef. More varieties will be added as they are developed. The sandwiches are approved for the MRE and are the first sandwiches that do not require refrigeration.

"It is like the Hot Pocket® that you find in the supermarket," Evangelos said.

Other items have pouch designs that have built-in spouts so that warfighters can consume the product right out of the pouch. For example, Zapplesauce is one of the best-liked components, according to RDECOM. The product is made with extra maltodextrin, a complex carbohydrate, for sustained energy release. Maltodextrin is also the key ingredient in the Energy Rich Glucose Optimized beverage mix (known as ERGO), which tastes similar to a sports drink.

"We have other products like caffeinated gum. This one is popular. You are looking at 100 milligrams per chew. That's like a cup of coffee. This drink pouch has an ergonomically designed package that is resealable so that you can tear it open, take water from your hydration system, put it in the bag, zip it closed, shake it up and consume it right out of the pouch," Evangelos said.

"The other new ration used by Navy units – perhaps by SEALs or Seabees – is the Unitized Group Ration – Express (UGR-E). This is what we call Kitchen in a Carton™. This is a group ration and it's designed for warfighters in remote locations or MTT teams, Military Training Transition teams, who typically had hot chow delivered," Evangelos explained.

Usually meals were delivered regularly three times a day for breakfast, lunch and dinner. But insurgents began to notice this pattern. The UGR-E was developed in response to warfighter feedback. Now warfighters say that the UGR-E saves lives because it can be delivered anytime and improves tactical mobility. It requires no cooking, no fuel, no equipment and no power; each self-contained system is designed to be air-dropped, weighs 40 pounds and feeds 18 service members.

"It has four trays of food, an entrée, a starch, a vegetable and a dessert and all the other products needed for a good meal

from trays to trash bags. It even includes serving spoons, snacks, the same drink pouch that you saw in the First Strike Ration and the ever-popular Tabasco® sauce. We tried to put large-sized Tabasco in the UGR-E and the feedback we got from the field was that warfighters wanted their own bottle so we put the small individual bottles in," Evangelos said.

Both the UGR-E and FSR have been extensively field-tested in-country with warfighters, the FSR with the 25th Infantry Division and with the 2nd MEF in Fallujah, and the UGR-E by the 25th Infantry Division. They both went through accelerated development. The UGR-E hit the field in August 2007 and the requirement skyrocketed, according to Evangelos.

"During UGR-E's producibility test in 2006, when we were working on the final details with industry, U.S. Central Command asked for a turkey dinner. We were able to quickly work with Defense Supply Center Philadelphia and switch out some of the menus so instead of chicken breasts or spaghetti, the four trays contained turkey and gravy, mashed potatoes, cornbread stuffing with sausage, and vegetables," Evangelos said. "We were able to provide turkey dinners to the most remote units. That's going to become a yearly requirement."

To heat the Unitized Group Ration - Heat & Serve (UGR-H&S), the warfighter pulls a tab and a saline solution is released to a chemical heater similar to the heater in the MRE.

"We call it a heater on steroids. It is big because it needs to heat a six-pound tray of food, and in about 35 minutes you have a complete hot-cooked meal for up to 18 warfighters," Evangelos said.

New Galley Design

The team also has a number of ongoing initiatives for the Navy. One is the Navy Standard Core Menu. Navy transformation efforts will provide new Navy ships, carriers and submarines with the latest technologically advanced modular food service systems and newly designed ergonomically enhanced galleys.

Future galley designs and configurations will use a total systems approach to incorporate the latest technologically advanced commercial designs and equipment. Additionally, this effort will support future state-of-the-art Navy vessel designs and enable culinary specialists to produce quality food products and services while reducing time, labor and manpower levels.

"The Navy has recently adopted more advanced foods in their menu because future ships will not be designed the same way that the ships today are designed. You don't see as much cooked from scratch. You see more prepared foods. You see that now in some of your casual dining restaurants. Many of the products are pre-prepared, frozen chicken breasts, for example.

"If you look at all the ingredients it takes to make lasagna, and then imagine lasagna day on a carrier with decreased manning, having a frozen product will save considerable labor and accommodate the Navy's reduction in culinary specialists," Evangelos said.

The Navy Standard Core Menu will be standardized across the fleet, and the team has worked with Naval Supply Systems Command to develop the menu and provide solutions for food service onboard ships.

"Right here you see a model of the modular equipment we are designing for submarines. This one happens to be a Combi-Oven™ and on top of it is a griddle that's built in. We call it

Future Galley

Future galley designs and configurations will use a total systems approach to incorporate the latest technologically advanced commercial and/or commercial-modified designs and equipment. Additionally, this effort will support future state-of-the-art Navy vessel designs and enable culinary specialists to produce quality food products and services while reducing time, labor and manpower levels.

Advanced Technologies:
• Advanced Shipboard Modular Refrigeration will provide modular, dual temperature freezer/chill storage with bulk ice-making capability.
• Smart Galley Process Controls will enable the remote monitoring of food service equipment and provide diagnostic and prognostic maintenance.
•Automated Shipboard Dishwashing System will alleviate manpower and labor/time requirements.
• Smart Card inventory management system to improve inventory control and reduce manpower requirements.
• Other efforts are underway to address FF&V and menu requirements.

Capability and Benefits:
• Commonality of food service equipment fleet-wide, resulting in purchase cost reductions and decreased repair and maintenance costs.
• Total systems approach to consolidate food service spaces and functions to optimize resources, diminish galley tasks, reduce redundant equipment, and minimize operating and support (O&S) and total life cycle costs.
• Recommend modern efficient equipment and systems to support galleys on carriers.
• Evaluate galley equipment to support the Navy Standard Core Menu.

Applications:
This effort will support Navy legacy and future ships by consolidating food service space designs and autonomous systems to reduce the overall workload aboard vessels and support the Navy's future optimized crewing requirements.

Comments:
The Combat Feeding Directorate will coordinate efforts with Naval Air Systems, Naval Sea Systems and Naval Supply Systems to incorporate technological advances and upgrades as they become available.

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– Program Executive Office Ships photo

'hatchable' because it comes apart and can fit through a 28-inch hatch. Typically, if you had to install a new oven on a sub, the oven would be delivered to the pier; it would have to be torched, cut in half, to get the pieces down the hatch.

"Once it gets down the hatch, it has to be reassembled, welded back together, and we hope it works right after we have gone through that process, about 500 man-hours. We have worked with commercial industry to design a hatchable system. You are looking at 50 to 75 man-hours to reassemble this once it reaches the pier. That is a tremendous reduction. We have already installed one of these on the USS Philadelphia," Evangelos said.

The Combi-Oven combines three modes of cooking in one oven: steam, circulated hot air or a combination of both. The combi mode is used to re-heat foods and to roast, bake and oven fry. The hot air mode operates as a normal convection oven for baking cookies, cakes and pastries. The combi mode decreases overall cooking times, reduces product shrinkage and eliminates flavor transfer when multiple items are cooked simultaneously.

"We test a lot of state-of-the-art equipment at Natick that will speed things up in the galley and that are easy to clean. For example, we tested an oven that can be cleaned in about 10 minutes. Probably one of the ugliest jobs, besides working in the scullery, is being the guy or gal who has to clean the ovens.

"If you have seen how many ovens there are on a carrier — that is not one of the most pleasant jobs. We had culinary specialists in tears once when they saw how easy it was to clean the oven," Evangelos said.

Combat Feeding Directorate is a joint service program and has been since 1970, Evangelos is quick to point out. The team is now working with Navy Program Executive Office Ships, PEO Subs and PEO Carriers on galley designs for the new DDX destroyer.

"We have evaluated some galley designs for DDX. We are not only looking at modular but more streamlined designs, better flow through, and incorporating new types of automated equipment. Down the road we are looking at things like process control and remote monitoring, where the equipment will actually have diagnostics and prognostics not unlike what you have in your car.

"When it is time for an oil change your car lets you know. In the galley, remote monitoring will allow you to know whether an oven door is open from a remote location and will also tell you when gaskets need to be replaced," Evangelos said.

This capability is designed to work through a local area network or wireless network depending on the ship's systems.

A big leap forward from the K-rations of World War II

Good food is a huge factor in maintaining morale and can contribute to retention and overall satisfaction. According to Evangelos, much research goes into preventing spoilage and providing troops with the freshest food possible. This is no small task since the MRE is required to have a three-year shelf life at 80 degrees. At 100 degrees, it has to last six months. It also has to be stored anywhere in the world from minus 60 to 80 degrees.

The MRE is the standard general purpose ration used by all the services. Each menu has 1,250-1,300 calories, and they are issued three per warfighter per day. Of the 24 menus, there are four vegetarian menus. The team conducts continuous product improvement for the MRE and all combat rations. But boredom

Two Soldiers look at the contents of the First Strike Ration during an evaluation of the FSR at Fort Bliss, Texas, Sept. 4, 2007. Photo by Sarah Underhill.

sets in quickly on deployment so food variety and appeal are paramount to meal satisfaction.

The Natick team is working on some revolutionary food processing technologies to preserve freshness. MREs and UGRs are thermostabilized, processed with heat to destroy microorganisms and enzymes that may cause spoilage.

"They are subjected to a retort which is like a giant pressure cooker. That's the same canning process that was developed by Nicolas Appert for Napoleon over 200 years ago, and those are still the same kinds of cans we buy in the supermarket.

"We are looking at microwave sterilization and high-pressure processing. High-pressure processing has application for the Navy as well. Instead of subjecting products to high heat like you do with thermostabilization, we are subjecting them to lower temperatures and high pressures. Our goal is to achieve full sterilization like any canned commercially available product," Evangelos said.

Right now, high-pressure processed foods that are commercially pasteurized still require refrigeration. The goal for the Natick team is commercial sterilization where food is subjected to up to 130,000 or 140,000 pounds of pressure. That kills the microbes and renders them ineffective and that will render the product commercially sterile.

"We are getting close with commercial industry; we are not doing this alone because we need buy in from industry to petition the Food and Drug Administration on this process. We are not in the business of developing food products that are militarily unique," Evangelos said.

A good way to inject variety into the warfighter diet is fresh fruit and vegetables, what Natick calls FF&V. But FF&V are fragile and generally have a short shelf-life.

"This is a display of good-looking fruits and vegetables. We came upon a new technology by a company called APIO. Smart label technology effectively monitors the carbon dioxide and oxygen ratios both inside the package and outside to extend shelf life.

"Typically, fresh fruits and vegetables are a tremendous morale booster. When the supply ship comes along, especially if you are out to sea and you are having an underway replenishment or

First Strike Ration™

The FSR is designed to improve tactical mobility and meet the maneuver sustainment needs of the joint warfighter during highly mobile, high-intensity operations.

Technology: The FSR takes advantage of major advancements in food processing, preservation, nutrient delivery, and packaging technologies to include innovative methods in intermediate moisture foods, glucose optimization, and novel packaging materials and configurations.

Key Benefits: Enhanced mobility … All components of this lightweight ration are familiar, eat-out-of-hand foods that require little or no preparation by the warfighter. Innovative packaging technologies enable the beverages to be reconstituted and consumed directly from the drink pouch.

Characteristics: The FSR has a minimum two-year shelf life at 80°F and provides about 2,900 calories per day. The FSR has nine meals per shipping container consisting of three each of three different menus.

Menu 1	Menu 2	Menu 3
Filled french toast pocket	Brown sugar cinnamon toaster pastry	Lemon poppyseed pound cake
Bacon cheddar pocket sandwich	Italian pocket sandwich	Honey BBQ beef pocket sandwich
Pepperoni pocket sandwich	Chunk chicken	Albacore tuna
	Tortillas	Tortillas
Jalapeno cheese spread	Peanut butter	Plain cheese spread
Wheat snack bread	Plain cracker	Plain cracker
First Strike!™ mocha bar	First Strike!™ apple cinnamon bar	First Strike!™ mocha bar
First Strike!™ chocolate bar	First Strike!™ cran-raspberry bar	First Strike!™ cran-raspberry bar
Peanut butter dessert bar	Mocha dessert bar	Chocolate banana nut dessert bar
	Fat-free mayonnaise	Fat-free mayonnaise
	Hot sauce	Hot sauce
Accessory Packet A	**Accessory Packet B**	**Accessory Packet C**
Apple cider	Lemon tea	Coffee
		Cream substitute
		Sugar

All menus include (2) ERGO drinks, a sweet BBQ beef snack, a teriyaki beef snack, CHO-enhanced applesauce, salt, matches, caffeinated gum, nut/fruit mix, tissues, zip-lock pouch, towelettes and a spoon.

"It takes a team of dedicated scientists who are really looking out for the warfighters' interest and can produce meals that warfighters will eat."

– Kathy Evangelos

an UNREP as the Navy calls it, sometimes the green vegetables that show up aren't supposed to be green," Evangelos said.

Using the new technology, romaine lettuce can last up to 45 days. Some sensitive commodities like bananas can last up to 15 days. To be able to have a fresh salad, even in a sub, is a tremendous morale booster, according to Evangelos. The system uses a "Smart Crate" to prevent mechanical injury during shipment and polymer membrane technology to create modified atmosphere packaging.

"We have had tremendous success in the lab, and we are doing a four-week test on the USS Ronald Reagan now, looking at MAPS, this Modified Atmosphere Packaging System. We sent some FF&V out with them, and we will be conducting focus groups with culinary specialists and supply folks to see how MAPS performed," Evangelos said.

In fiscal year 2005, NAVSUP spent $26 million on FF&V; more than $3 million in FF&V losses were reported. This technology would significantly reduce loss due to spoilage.

Although extensive testing is done at Natick, products and technologies are tested vigorously in the field.

"We need to put it in the field, whether it is a ration, a new system or new equipment. We need to put it out with the user and let them give it a good 'shake, rattle and roll.' When we are testing equipment at Natick, one of our favorite pieces of equipment is the one that does the shake, rattle and roll that simulates a ship out to sea. We need to see how that piece of equipment will fare when it's tilting 30 degrees," Evangelos said.

The team is working on some other high-risk, high-payoff revolutionary technologies.

"For example, in packaging we are using nanotechnology to incorporate nanoclays to get better barrier properties to prevent moisture and oxygen transmission. We are looking at human performance optimization, and this is one of the first of its kind.

"There is a lot of hype out there [about the value of food supplements]. You can buy all sorts of products and we know some of them have a good science base, but there are many claims made. Those claims need to be scientifically proven.

"We are looking at small organic molecules and nutraceuticals that imply that the extract or food is demonstrated to have a physiological benefit or provide protection against disease. We have seen positive results and statistically significant results in animal models. We are going to be moving into human clinical trials, not only to determine if it helps performance, but [to determine] what are the dosage requirements," Evangelos said.

Because there is potential in the marketplace for some of these food products, such as the UGR-E, the NSRDEC Technology Transfer Office is investigating the UGR-E's value in disaster response.

"We have the National Protection Center that's involved with the Department of Homeland Security and FEMA (Federal Emergency Management Agency). We have demonstrated the item, and we have a lot of good feedback on its potential use in disaster scenarios. We are just beginning that process," Evangelos said.

Evangelos likes to say that she and the Natick team have 2.2 million customers.

"It is fascinating! You look around this exhibit hall and a lot of things here go bang in the night. Food doesn't go bang in the night, and when it comes to food everyone is an expert and everyone has an opinion. It takes a team of dedicated scientists who are really looking out for the warfighters' interest and can produce meals that warfighters will eat." **CHIPS**

Marine Air Ground Task Force C2 and Joint Interoperability

A Portfolio Approach to Delivering Capability to the Warfighter

By Marty Westphal

Command and control is the union of the art and science of war. C2 integration enables commanders to exert their leadership and influence throughout the battlespace and to assess the outcome of that exertion. Both "command" — the human component – and "control" — the scientific and technological component — must be developed in balance and harmonized to deliver holistic capabilities to the warfighter.

We must resist the temptation and allure of technological advances, and the complexity oft times associated with these, as the sole solution to the "Department's unified C2 capability."

Simplicity must be a metric in C2 capability development. By so doing, we will enable commander-centric operations, anytime, anywhere, at every echelon, thus increasing combat capability and mission effectiveness. This objective is only attainable through the collaboration and coordination of joint and service C2 capability development.

> "Commanders and staffs, small unit leaders, individuals and automated systems all perform command and control. Some forms of command and control deal with military science, while others involve the employment of military forces, through strategy, operations or tactics. Both are necessary, usually in some combination. The latter, however, is the highest form of command and control. It is at this level that leadership, the human component of command and control, has its fullest play."
>
> – FORCEnet: A Functional Concept for Command and Control in the 21st Century

The art and science of war ...

C2 is the function that binds all other warfighting functions and enables commanders to extend their influence throughout the battlespace. As a warfighting force, the joint force commander, with Department of Defense assets, possesses unparalleled capability to expend lethal effects. The successful strike against the terrorist al-Zarqawi is an excellent example of our ability to successfully track and hit a high-value target.

The command and control, or decision-making processes, such as adherence to tight rules of engagement, timely estimation of potential collateral damage and fires coordination, are as critical to mission success as the sensors and weapons that prosecute the attack.

Ultimately, the complete doctrine, organization, training, materiel, leadership and education, personnel and facilities (DOTMLPF) C2 capability supports the commander's ability to determine and achieve desired effects across the battlespace — throughout the range of military operations.

Joint command and control – JC2

American armed forces have fought within their domains for most of their history. The Army fought on land, the Navy was the sole combatant at sea, and air warfare was born as a component of the ground fight. However, in the two World Wars that dominated the 20th century, it became clear that "deconflicting" service domains was no longer practical to maximize combat strength and effectiveness.

In post World War II conflicts, coordinated operations became the new standard; operations were planned to achieve common objectives across the services. Today, the norm is joint operations. It is unconceivable that a single service would conduct operations independently.

The cost and complexity of warfighting will only continue to increase, particularly as this nation strives to maintain its technological and training superiority. Consequently, joint, interdependent operations represent the only solution and will rely on the integrated operations and support of all the services and multinational partners. Joint integration must start with joint command and control (JC2) capability determination and prioritization to establish the convergence points for service capability and requirements development, resource allocation and acquisition.

MAGTF C2

The Marine Corps doctrinally defines command and control as "… the means by which a commander recognizes what needs to be done and sees to it that appropriate actions are taken." The basic elements of the C2 system are people, information and the command and control support structure. The Marine Corps' approach to command and control warfighting functional capability development is known as MAGTF C2 or Marine Air Ground Task Force Command and Control.

The MAGTF is comprised of four main elements: Aviation Combat Element (ACE), Ground Combat Element (GCE), Combat Logistics Element (CLE) and the Command Element (CE). The Supporting Establishment (SE), Marine Corps bases and stations, is also referred to as the fifth MAGTF element. The elements of the MAGTF are similar to the functional elements of a joint task force.

But the C2 integration of the various elements within the MAGTF posed a challenge. The unique information requirements of each element had to be addressed individually while providing the MAGTF commander the ability to access information from all, as well as that of the supporting establishment across the enterprise.

The initial objective of MAGTF C2 was to "harmonize" the capabilities associated with each MAGTF element to provide "… an end-to-end, fully integrated, cross-functional set of command and control capabilities that include forward deployed as well as reach-back functions" – as directed by the Marine Requirements Oversight Council.

The Deputy Commandant for Combat Development and Integration (DC CD&I) was given the task of making MAGTF C2 a reality and instituted a capability portfolio management approach to achieve this objective. A four-phased approach was

Figure 1. MAGTF C2 Capability Portfolio Management Integrating Process

MCSC
• Systems Engin Integration
• Systems & Tech Architectures
• Analysis of Alternatives

HQMC, CIO
• Policy & Strategy
• Enterprise Architecture

DC, CD&I
• Concepts
• Capabilities
• Resourcing
• DOTMLPF
• Operational Architectures

Advocates Operating Forces
• Participate in resourcing
• Input to MAGTF Requirements List Prioritization
• Detailed capability requirement definition

adopted. In the first phase, "critical capabilities" were identified, as well as dependencies to other capabilities. A gap and seam analysis was undertaken using a system of systems approach that examined operational architecture mission threads, future warfighting concepts and current doctrine. The critical capabilities were then aligned over time in the Five-Year Defense Plan (FYDP).

The second phase validated integrated architecture artifacts, using operational, systems and technical views mapping to known and approved joint and coalition, Naval, and other service C2 required capabilities and programs of record.

The third phase entailed developing recommendations and gaining subsequent way ahead approval by senior Marine leadership with follow on preparation of required Joint Capabilities Integration and Development System (JCIDS) documentation.

The fourth phase involved capability fielding, monitoring, life-cycle maintenance and assessment. The results of the assessment are then fed back into the process creating an iterative cycle. The cycle would be repeated every two years in coordination with program objective memorandum (POM) development, which would allow adjustments and priority setting by senior leadership based on available resources.

This approach became the basis for Marine C2 capability portfolio management (CPM). MAGTF C2 evolved becoming a strategy to harmonize all aspects of C2 concepts, requirements, training and doctrine. It became an integrating process (see Figure 1) to provide governance and resource prioritization for the C2, communications and networking communities to ensure that the Marine Corps meets the objectives of the strategy across the enterprise.

MAGTF C2 is a system of systems that will provide common, modular and scalable material solutions from the lowest tactical level across the MAGTF at all echelons with reach-back capability across the enterprise.

MAGTF C2 CPM and Implementation

Capability portfolio management was initiated for POM-08 development in 2006. The purpose of capability portfolio management is to coordinate and synchronize Marine Capability Integration and Development; Programming, Planning, Budget-

ing and Execution (PPBE); and acquisition to deliver a complete DOTMLPF capability to warfighters.

This approach required an examination of all current C2 capabilities under development (including programs of record under acquisition), from a holistic, end-to-end DOTMLPF perspective. Once the examination was completed, a coordinated strategy and vision had to be developed to guide capability development and harmonize and prioritize efforts, and to address cradle-to-grave issues as legacy systems ended service life and new systems entered.

Organizational changes within the Combat Development Command occurred to support the new approach. Extensive and continual coordination is crucial between the various Marine Corps deputy commandants responsible for advocating for the MAGTF elements, the Marine Corps Systems Command and the Headquarters Marine Corps directorates for intelligence, and command, control, communications and computer (C4) systems, and/chief information officers (CIO) sponsors.

MAGTF command and control harmonization under capability portfolio management covers C2 and communications capabilities and supporting systems required for "control" functionality.

The Marine Corps PPBE process validates and resources leadership decisions relative to implementation. The CPM process also requires monitoring and integration with other systems and capabilities, such as the Net-Enabled Command Capability (NECC), to ensure joint integration, alignment and convergence.

Ultimately, the primary objective of capability portfolio management is to provide vertical and horizontal DOTMLPF coordination and synchronization across the capability development, budgeting and acquisition processes as well as existing legacy programs of record.

The major programs of record that comprise the MAGTF C2 portfolio were defined, approved by Marine leadership, and documented with Marine Corps Systems Command responsibility for acquisition.

Defining programs was needed to coordinate the fielding of new capabilities and retiring legacy programs across the MAGTF and for determining the development and prioritization of capability sets.

MAGTF C2 CONOPS

The MAGTF C2 concept of operations documents the C2 capability requirements for the Marine Corps over a seven-year period. The CONOPS contains the strategic vision for command and control and the Deputy Commandant for Combat Development and Integration's C2 intent to enable the synchronization of Marine Corps and DoD capability development, resourcing and acquisition processes.

The purpose of the MAGTF command and control CONOPS is to provide the methodology and structure for implementing C2 CPM within the Marine Corps to provide the warfighter with scalable, modular reachback as well as a deployed, turnkey C2 solution needed on the battlefield today and into the future. The CONOPS defines the means for the Marine Corps to migrate from the legacy, stove-piped systems that currently support C2 to a holistic solution of people, processes and technology that support operational needs.

The MAGTF C2 CONOPS describes steps on the path to achieving the MAGTF C2 vision. It contains a "500 Day Plan" to align C2 capability development with the resource process while providing the flexibility to adapt and spiral-in new technologies over the seven-year duration. It lays the foundation for developing and fielding C2 capabilities that will complement the scalable, task-organized nature of the MAGTF and enhance the capabilities of expeditionary maneuver warfare by achieving net-centricity, implementing Naval FORCEnet, and reflecting the principles of the JC2 and Net-Centric Functional Concepts, which recognize the importance of collaboration between experts and decision makers across echelons and functions.

The CONOPS recognizes and addresses the foundational approach to warfighting and C2 articulated in the capstone Marine Corps Doctrinal Publications (MCDP) "Warfighting" and "Command and Control."

Marines accept uncertainty in battle, recognize warfare is a clash of wills between opponents, and that mission orders and an understanding of commander's intent are critical to mission accomplishment. The objective of Marine C2 development is to "unleash the initiative and aggressiveness of subordinates to cope with unforeseen problems and exploit fleeting battlefield opportunities… [At] its fundamental level, Marine command and control leverages technology to provide increased agility and faster more effective decision making."

MAGTF C2 Integrated Capabilities

The MAGTF combat operations center is the focal point of C2 capability and a priority for capability portfolio management. In accordance with the MAGTF C2 CONOPS, "all MAGTF combat operation centers (COCs) will possess a 'common' command and control and communication systems infrastructure."

Individual commanders will still have the ability to configure and display information within their individual COCs to support their decision-making processes. However, the infrastructure, built upon common, modular, interoperable and scalable components, will not change across the command, ground combat, aviation combat and logistics combat elements of the MAGTF.

Also key are common procedures based on comprehensive, robust individual and unit training. Capability Sets (CAPSETS) were developed to deliver integrated MAGTF C2 capabilities across MAGTF echelons. A Capability Set is defined as a grouping of services or capabilities into an operational set of capabilities that is required to support the organizational structure of the MAGTF. It is a "fieldable" increment of capabilities that supports one or more organizational nodes or operational facilities.

HAWRAN, Iraq (Jan. 31, 2008) – Army Staff Sgt. Craig Emery and Lance Cpl. Nathan Ishmael, 3rd platoon, Alpha Company, Marine Wing Support Squadron 372, 3rd Marine Aircraft Wing, investigate a suspicious object found with traces of explosive residue that was found by a military working dog Jan. 31. The suspicious object was discovered during a cache sweep of the Hawran date groves. Photo by Cpl. Scott McAdam.

MAGTF C2 CPM Implementation
✔ Covers C2 Communications Capabilities and Systems
  – Validated and resourced by the Marine Corps PPBE process
  – Approved by Warfighting Investment Program Evaluation Board (PEB)
✔ Requires monitoring and integration with other systems and capabilities
  – Programs of record validated and resourced across other PEBs
  – Ensure joint integration, alignment and convergence
✔ Approximately 50+ programs of record funded in the FYDP
  – Capability Sets (CAPSETS) with required end-to-end components
  – Identified from the various families of systems

MAGTF C2 CAPSETS address the need to support the operational command and control requirements specific to the expeditionary needs of the MAGTF. They represent the primary method to provide an end-to-end, fieldable capability that is tailored to a specific organizational node within the MAGTF, including specific functional requirements. The following is a more detailed explanation of CAPSETS.

- CAPSET I is the Marine Expeditionary Force (MEF)-level combat operation center, or I MEF COC used during Operation Iraqi Freedom
- CAPSET II is the MEF's major subordinate command-level (MSC-level) COC, such as the Marine Aircraft Wing.
- CAPSET III is the regimental, air group and logistic group-level COC.
- CAPSET IV is the battalion and squadron-level COC.
- CAPSET V is the term for C2 requirements below the battalion and squadron-level COC and represents the integration of requirements down to the individual Marine.

Common, modular and scalable CAPSETS will alleviate the need for continual training on disparate systems, as well as reducing maintenance, repair and replacement part costs, and they support the ability to "fix forward." CAPSETS provide a simplified, intuitive user interface to decrease the training required on the system. Training and Education Command (TECOM), the Marine Corps schoolhouse, will receive CAPSETS so that Marines are trained, capable and confident in the C2 environment before going to the operating forces.

Lessons learned from CAPSETS in theater now enable spiral-in DOTMLPF improvements gleaned from the Marines in combat with an emphasis on enhancing CAPSETS capabilities while reducing training requirements. CAPSETS under development are being designed to be deployable at and from the sea for use by Marine Expeditionary Units (MEUs).

What MAGTF C2 Will Deliver

MAGTF command and control is not about technology, it is about supporting commanders and decision makers melding the art and science of C2. War remains a human challenge requiring human solutions. MAGTF C2 is command-centric and focuses on the warfighters serving their information needs in support of decision-making across all MAGTF elements. MAGTF C2 provides capabilities founded on approved joint and Marine Corps warfighting concepts and doctrine, enabled by operational architectures.

MAGTF C2 identifies and connects Marine-unique and specific warfighting capabilities and requirements to Naval and joint initiatives and charts a path to a Marine net-centric capability in the future that is "born joint."

MAGTF C2 capabilities will:
- Link people and information
- Be integrated with joint and coalition forces
- Allow dispersed forces to coordinate all warfighting functions
- Facilitate decentralized decision-making
- Enhance situational awareness at all echelons
- Provide access to theater and national assets
- Provide ability to disseminate information throughout the force and with mission partners
- Support integrated collaborative planning efforts
- Function in any environment – afloat, ashore or on the move

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MAGTF C2 End State

"A born Joint, common, scale-able, modular MAGTF C2 capability, seamlessly employable on the land and at sea, that enhances the lethality and effectiveness of the MAGTF across the range of military operations through better decision-making, collaboration and shared understanding."

Achieving these MAGTF C2 capabilities requires a strong partnership with the designated Joint Command and Control Capability Portfolio Manager (JC2 CPM), U.S. Joint Forces Command.

There are many challenges to realizing MAGTF C2. The JC2 CPM, by addressing C2 challenges common to the entire joint force, including information assurance, data strategy implementation, service oriented architecture (SOA) and net-centric services development, and interoperability with our allies, coalition, and agency partners, will lend support to MAGTF C2 development.

Joint command and control developers must also consider the human dimension of conflict, examine and develop non-technical approaches and solutions as vigorously and aggressively as technological solutions, and "red team" all potential solution sets by constantly scrutinizing and examining vulnerabilities from a joint force perspective.

"The Department must develop a unified C2 capability that can integrate selected information, allowing decision makers at all levels to act in a timely manner…"
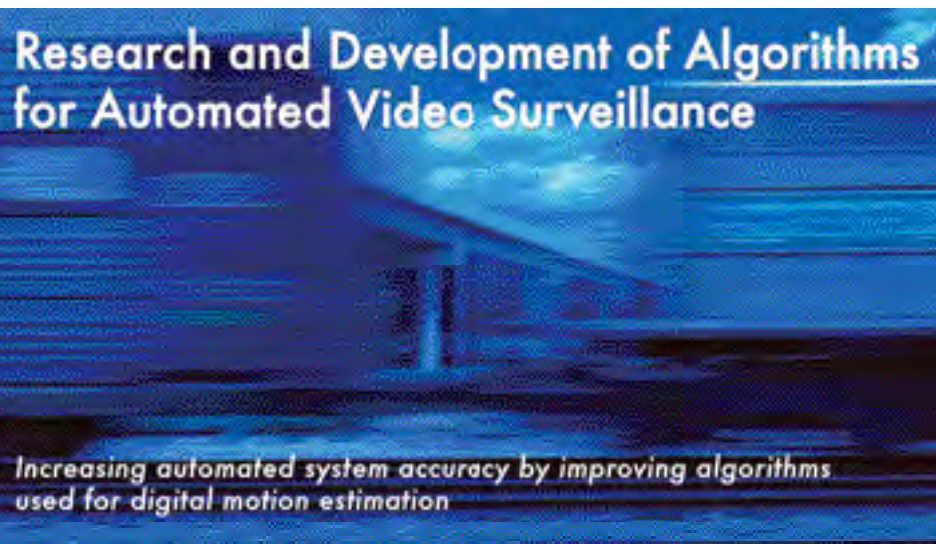
– Defense Strategic Planning Guidance for FY 2006-2011

By so doing, JC2 capabilities portfolio management enables the services to focus on addressing those unique requirements associated with tactical engagements at the edge, such as enabling integrated communications and situational awareness to the squad, thus freeing small unit leaders and Marines to more effectively "shoot, move and communicate."

The ultimate objective of MAGTF C2 is to provide a holistic, end-to-end, turnkey command and control capability to execute commander's intent, facilitate implicit communications, visualize battlespace "reality," promote initiative, enable centralized command and decentralized control, and ultimately accomplish the mission while proliferating decision-makers throughout the battlespace.

Marine Corps Combat Development Command

www.mccdc.usmc.mil

CHIPS

Research and Development of Algorithms for Automated Video Surveillance

Increasing automated system accuracy by improving algorithms used for digital motion estimation

By Space and Naval Warfare Systems Center Charleston

As the use of digital video for surveillance increases, there remains a need to automate and improve these systems, not only to decrease the amount of manpower required to operate surveillance systems, but also to increase their capability. This article details the evolution and improvement of extracting "moving" objects from an original digital video input, such as an AVI or MPEG file.

SPAWAR Systems Center (SSC) Charleston is researching, developing and simulating various algorithms used to automate motion detection in digital video. As the capabilities of digital video surveillance increase, the systems will not only rely on improving hardware, such as processor speed and memory size, but also the use of intelligent computing.

In the past five years, software systems have been developed that allow automated video surveillance that can be performed independently without human analysis. Video motion detection can recognize motion using methods such as block matching, edge detection and optical intensity flow analysis.

Block matching is a standard technique for encoding motion in video compression algorithms. Block matching is a means of correlating a block from the first image with a block of the second. The position at which the first block correlates in the second image is then later used to infer data.

Edge detection uses algorithms to mark the points in a digital image at which the luminous intensity changes sharply. The principle here is that sharp changes in image properties usually reflect important events and changes in the properties of the actions depicted.

The optical intensity flow analysis method uses the optical flow in a selective attention model for object tracking. It focuses on the interested regions of an image. This method uses results for identifying an interesting object and tracks the target using the optical flow information when the identified object moves.

But these methods could be considered obsolete compared to the systems in use today.

Methods of detecting motion are becoming increasingly advanced and are better able to discern content and activities. Companies are using advanced video content analysis to detect moving objects, while suppressing unwanted alarms from misleading sources in the image. This means that the algorithm intelligently adapts to changing lighting and environmental conditions such as rain, snow and leaves blowing in the wind.

Recent advances include sophisticated boundary control, integrated camera panning to automate tracking of the object in motion, and increasingly important, color identification along with gait and motion pattern classification.

The challenge to provide a reliable automated video surveillance system remains; however, because the system is dependent on the digital video and the effects of the environment in that video.

In 2006, SSC Charleston conducted an evaluation of commercial automated video surveillance systems by monitoring a shipping harbor. The environment captured on the video caused the systems to output false alarms. Some of the nuisances found in the testing were caused by the wind blowing leaves on trees, unintentional movement by the camera due to the wind and changes due to light reflection in the moving water.

In 2007, SSC Charleston conducted additional evaluations of automated video surveillance systems paired with night vision technology, such as high performance monochrome, image intensifiers and thermal imagers. Results of the evaluations showed that algorithms needed to be improved.

Using MATLAB® (matrix laboratory) and Simulink® (simulation and model-based design) to model and simulate the algorithms, SSC Charleston is able to test the proficiency of the algorithms before porting them to embedded digital signal processors (DSP).

DSP is a special type of coprocessor designed for performing mathematics. Most DSPs are programmable, which means that they can be used for manipulating different types of information, including sound, images and video.

MATLAB is a high-level technical computing language and interactive environment for algorithm development, data visualization, data analysis and numeric computation.

Using MATLAB, you can solve technical computing problems faster than with traditional programming languages, such as C, C++ and Fortran. You can integrate your MATLAB code with other languages and applications and distribute MATLAB algorithms and applications.

MATLAB allows mathematical functions for linear algebra, statistics, Fourier analysis, filtering, optimization and numerical integration.

Simulink is an environment for multidomain simulation and model-based design for dynamic and embedded systems. It provides an interactive graphical environment and a customizable set of block libraries that let you design, simulate, implement and test a variety of time-varying systems, including communications, controls, signal processing, video processing and image processing.

One specific algorithm that SSC Charleston inspected was the Sum of Absolute Differences (SAD), as detailed

Before and after shot of detecting motion using the SAD algorithm for automated motion detection in digital video. The photo at right is an image from a video. The image at far right is the same image after application of the SAD algorithm. SAD is a summation of the absolute differences between pixels in an image. In this algorithm, each pixel is compared with every pixel from the next image (one frame delay). The sum of these calculations corresponds to a value which can be used to form an output matrix (video) with only the changed (moving) pixels.
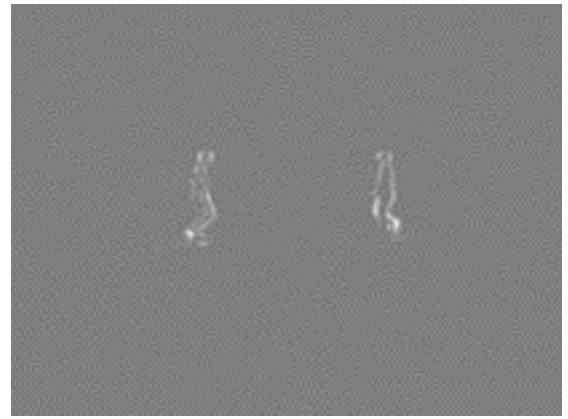
by E.A. Hakkennes of the Delft University of Technology in the Netherlands. SAD is one of the more effective algorithms in current automated video surveillance systems.

SAD is a summation of the absolute differences between pixels in an image. In this algorithm, each pixel is compared with every pixel from the next image (one frame delay). The sum of these calculations corresponds to a value which can be used to form an output matrix (video) with only the changed (moving) pixels. The formula is shown below.

$$SAD(x,y,r,s) = \sum_{i=0}^{i=15} \sum_{j=0}^{j=15} \left| A_{(x+i,y+j)} - B_{((x+r)+i,(y+s)+j)} \right|$$

Where,
(x,y) – position of current block
(r,s) – motion vector

Displacement of current block (A) relative to the block in the reference frame (B).

A model of SAD was created in Simulink. A sample video AVI/MPEG file was used as input and the numbering system was changed from a fixed point 8-bit integer to a 16-bit integer (int16) for compatibility with the SAD algorithm.

Further development is needed to supplement these algorithms using noise filters and supporting functions such as marking, tracking and alerting.

One way to filter out water-caused nuisances is to develop a water classification engine that characterizes the behavior and effects of the natural environment on water.

SSC Charleston is particularly focused on reducing wake detection, so that a more accurate bounding box containing the real object becomes the output, which gives the user a better object size estimation, classification, and other characteristics used to identify an object of interest.

Due to the complex characteristics of the water environment, an algorithm to handle water reflections, shadows, waves and wakes should also be used with the motion detection algorithm.

SSC Charleston is currently investigating new algorithms that use subbands from the frequency domain in addition to the current methods. Subband coding breaks a signal into a number of different frequency bands and encodes each one independently. This decomposition is often the first step in data compression for audio and video signals.

Future video surveillance systems will take advantage of intelligent computing concepts such as the use of state theory and artificial neural networks.

State theory is a theory of absolute time in which the number of states from the first moment in time up to the current moment in time can be counted.

In contrast with Einstein's theory of relativity, in which time is modeled using the real number system, state theory defines a state as a moment in time, a point of time, an instant, and as such has no duration. State theory and binary logic overlap somewhat due to the definition of a statement. In binary logic, a statement is a sentence which is either true or false, but cannot be true and false simultaneously. That is, no statement can be true and false in the same state.

An artificial neural network (ANN), also called a simulated neural network (SNN), or commonly just neural network (NN), is an interconnected group of artificial neurons that uses a mathematical or computational model for information processing based on a connectionistic approach to computation.

In most cases an ANN is an adaptive system that changes its structure based on external or internal information that flows through the network. In more practical terms, neural networks are non-linear statistical data modeling or decision making tools. They can be used to model complex relationships between inputs and outputs or to find patterns in data.

Because of the higher level of analysis and adaptation gained with these two methods, intelligent systems can be developed that will not only be able to characterize objects of interest from nuance; but will also be able to learn and recognize similar objects from the past.

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Analysis and modeling for this work was conducted by Joey F. Pomperada of SSC Charleston. Field work and operational assessment was conducted by Justin Firestone of SSC Charleston.

Development was completed as part of the 2006 SSC Charleston Innovation Program, an ongoing command initiative to assist the warfighter by encouraging professional growth in cutting edge areas of technology and business.

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CAN YOU HEAR ME NOW?
THE FOUR STAGES TO ADDRESSING SPECTRUM SUPPORTABILITY

By Tom Kidd, Director, DON Strategic Spectrum Plans and Policy

Federal regulation and Department of Defense (DoD) and Department of the Navy (DON) policy require that spectrum supportability must be addressed before acquiring communications-electronics (CE) systems and equipment that require use of the electromagnetic spectrum (radio frequencies).

CE equipment of this type is generally referred to as being "spectrum dependent" and includes all radar, unmanned aerial systems, unmanned ground systems, radios, sensors as well as other equipment. The spectrum supportability requirement pertains to organizations, including program offices, commands or organizations, that intend to purchase or lease spectrum-dependent equipment.

Within the DON, the primary purpose for addressing spectrum supportability, besides being mandated by the Office of Management and Budget (OMB), is to ensure that DON spectrum dependent equipment can, in fact, be used by the Navy and Marine Corps.

In the case of spectrum-dependent equipment procured to support forward deployed naval forces, ensuring spectrum supportability is operationally critical to the warfighter.

Although the requirement to address spectrum supportability is clearly stated in many DoD and DON policies, including acquisition and spectrum management policies, the purpose of addressing the methods of determining spectrum supportability is often misunderstood. In general, spectrum supportability is an assessment to ensure a given system or piece of equipment can be supported with radio frequencies within the geographical area in which it is intended to operate.

The complexity of spectrum supportability is dependent upon a number of factors. In the case of spectrum-dependent equipment procured to support forward deployed naval forces, ensuring spectrum supportability is operationally critical to the warfighter.

Ensuring worldwide spectrum supportability is certainly more complicated and requires more lead time than ensuring spectrum supportability solely within the United States. However, since the Navy and Marine Corps conduct training as well as day-to-day sustainment, addressing spectrum supportability within the United States is of no less concern. While the factors affecting spectrum supportability vary, the following provides an overview of the DON's spectrum supportability requirements.

Within the DON, spectrum supportability documentation is initiated by the program office or procuring organization by completing an electronic "DD Form 1494." The form is used to document the technical characteristics of the spectrum-dependent equipment such as the frequency or frequencies of operation, transmitter power and other information.

The acquisition of spectrum-dependent equipment or systems that are being developed by the Navy or Marine Corps requires the submittal of a DD Form 1494 at four stages of development.

• A "conceptual" 1494 (Stage-1) is submitted as early as possible within the development effort.

• An "experimental" 1494 (Stage-2) is submitted before the development of any prototype version of the system or equipment. If supportable, the approval of a Stage-2 1494 generally authorizes limited production for research and experimental purposes. An experimental 1494 should be submitted before Milestone B.

• A "developmental" (Stage-3) 1494 is required by Milestone C and generally authorizes an increase in production, providing that a positive spectrum supportability determination has been made.

• An "operational" (Stage-4) 1494 is submitted before full production. The acquisition of commercial-off-the-shelf (COTS) and non-developmental item (NDI) spectrum-dependent equipment or systems by the Navy or Marine Corps generally begins with the submittal of a Stage-4 1494.

The federal government is transitioning to a Web-based Federal Spectrum Management System (FSMS) developed by the National Telecommunications and Information Administration (NTIA). During the development of FSMS, the NTIA is introducing the Equipment Location-Certification Information Database (EL-CID), which will eventually replace the DD Form 1494 process. The latest release of EL-CID is available for download from the NTIA at www.ntia.doc.gov/osmhome/elcid/.

Within the DON, the Navy and Marine Corps Spectrum Center (NMSC) provides support to Navy and Marine Corps organizations addressing spectrum supportability. Additionally, all systems commands within the naval services have personnel with spectrum supportability expertise. The NMSC can provide these points of contact upon request.

The DD Form 1494 can be downloaded from www.dtic.mil/whs/directives/infomgt/forms/eforms/dd1494-1.pdf.

For more information, e-mail the DON Spectrum Team at DONSpectrumTeam@navy.mil. CHIPS

DON CIO Lean Six Sigma:

Streamlining the Spectrum Supportability Process

By Thomas Kidd and Lois Fairclough

The Department of the Navy Chief Information Officer (DON CIO) has embarked upon a Lean Six Sigma (LSS) project to improve data collection and dissemination for rapidly procured DON spectrum-dependent equipment being introduced into theater for the global war on terrorism (GWOT).

The rapid procurement of communications-electronics (CE) equipment presents significant challenges for deployed Marine Corps and Navy forces. Devices and systems fielded without sufficiently accurate spectrum supportability data often cause radio frequency interference to existing communications, navigation and other mission-critical capabilities.

Rapidly procured CE devices requiring electromagnetic spectrum (radio frequencies) include radios, unmanned aerial and ground systems, and radio frequency jamming devices and systems. Office of Management and Budget Circular A-11, Department of Defense Directive 4650.1 and Secretary of the Navy Instruction (SECNAVINST) 2400.1 require the program office or procuring agent to verify that spectrum-dependent systems are "spectrum supportable."

Current spectrum supportability determination processing can take between two months and two years. A more responsive, streamlined process is needed that provides sufficient spectrum-dependent data to conduct operational assessments that identify spectrum conflicts and assure spectrum access.

Subject matter experts from the DON CIO, Chief of Naval Operations, Headquarters U.S. Marine Corps, Office of the Assistant Secretary of Defense (Networks and Information Integration), Navy and Marine Corps Spectrum Center and U.S. Central Command (CENTCOM) actively participated on this LSS project.

The team identified performance measures and associated metrics related to spectrum supportability that are aligned to the DON objective to provide critical GWOT support. These included:

• Cycle Time Metric: Significantly reduce process cycle time so that it coincides as closely as possible with the timeframe of spectrum-dependent rapid acquisitions (often completed within one to six months of a validated "Urgent Operational Needs Statement" from Operation Iraqi Freedom and Operation Enduring Freedom forces).

• Safety Metric: Reduce the amount of spectrum-dependent systems and equipment entering CENTCOM's area of responsibility without sufficient data.

As the Spectrum LSS Project Team mapped the current "as-is" process, they immediately addressed glaring gaps and overlaps. They identified four "quick wins" to improve the spectrum supportability process and fast track the availability of critical spectrum data to forward deployed naval warfighters, before and during the fielding of rapidly procured spectrum-dependent CE systems and devices. These quick wins are being executed while the project continues.

Quick Win No. 1: A checklist, "Minimum Technical Requirements For Rapidly Procured Spectrum-Dependent Equipment," identifies the minimum technical spectrum requirements that must be identified, known and available before and during the fielding of rapidly procured spectrum-dependent equipment.

This checklist does not eliminate the requirement to complete appropriate spectrum supportability documents such as the DD-1494s. The checklist is available on the DON CIO Web site at www.doncio.navy.mil/.

Quick Win No. 2: Rapid publication of technical data to the Navy's Afloat Electromagnetic Spectrum Operations Program (AESOP) and the Marine Corps' System Planning, Engineering and Evaluation Device (SPEED) databases, before the joint review and federal certification process.

The early dissemination of critical data will enable naval operational forces to perform automated prediction and engineering that will enhance CENTCOM's operational capabilities. It will help mitigate the time lag associated with data injection to spectrum databases, while leveraging existing naval databases that are widely used throughout the Department.

Quick Win No. 3: The addition of language in acquisition policy to mandate contractual requirements to provide technical spectrum data to alleviate excessive wait times associated with data requests to vendors. A requirement statement will be included in the next update of SECNAVINST 2400.1, "Electromagnetic Spectrum Policy and Management."

Quick Win No. 4: Clarifies the requirement to process equipment that uses legacy waveforms or has been issued a Federal Communications Commission identification number through the federal "certification" process. This will reduce DON spectrum engineering workload and result in a streamlined spectrum supportability process to better support the DON acquisition communities.

Like Quick Win No. 1, it does not eliminate the requirement to complete the DD-1494.

Although the LSS project is in the improve" phase of the "define, measure, analyze, improve, control" process, it has not slowed down the execution of the quick wins.

One lesson learned is that LSS empowers a team to challenge the status quo and make a difference. This LSS project is scheduled to complete the "control" phase in May 2008.

The quick wins together with the full LSS project underway have made and will continue to make great improvements to the fielding and supportability of spectrum-dependent communications and electronics equipment that support warfighters.

Mr. Kidd and Ms. Fairclough support the office of the DON CIO. Mr. Kidd is the Director, DON Strategic Spectrum Plans and Policy and Ms. Fairclough provides contractor support specializing in Lean Six Sigma program management and project implementation. They can be reached at DONSpectrumTeam@navy.mil.

Grand Opening for the Distributed Training Center Atlantic

By Sharon Anderson

It's not every day that the Navy opens a state-of-the-art facility for conducting and coordinating live and virtual training with joint and coalition forces, but Feb. 28, onboard Naval Air Station Oceana, Dam Neck Annex, the Distributed Training Center Atlantic (DTCL) officially opened its doors with a ribbon-cutting ceremony.

DTCL is a first-of-its-kind facility created to address the rapidly expanding technical requirements associated with live and virtual training in complex naval exercises. The center is the main Atlantic Fleet hub for the Navy Continuous Training Environment (NCTE), which is comprised of a variety of constructive, virtual and live systems to generate synthetic war games. This center will improve efficiency and interoperability among forces around the world and save taxpayers money by reducing the number of resources needed to prepare and plan for various exercises.

Commander, Strike Force Training Atlantic (CSFTL) Rear Adm. Donald P. Quinn, DTCL leadership and subject matter experts discussed various aspects of the facility, the organization and what they mean to fleet readiness.

"We have done synthetic training for a long time in the Navy. Each organization had its own capability and capacity to do so. We have taken pieces that were spread out and consolidated them in one place. This organization is the East Coast node for Navy Synthetic Training. Using this node, we will hook into the joint system in places like Davis-Monthan Air Force Base, Fort Hood, or in some cases, to reach out to Korea and our coalition partners over in Europe," Rear Adm. Quinn said. "With a high degree of fidelity, we can do training that before we could only do by flying airplanes and driving ships. This is a significant investment; it is a significant success."

Within DTCL, the Joint Exercise Control Center is a reconfigurable environment with a battery of large-screen overhead monitors, rows of computers and the familiar gray raised access flooring that typically hides hundreds of miles of fiber optic and electrical wires and network cables. But during today's demonstration, computers are eerily quiet, most monitors are blank and every seat is empty in the control center.

"The reason you are seeing static displays is that the information we use for our exercises and games is classified secret. We cannot run that particular software in front of you. The static displays you see here are at the unclassified level. During large exercises, we fill every seat in this room," said Robert George, deputy director for the DTCL.

Still, it isn't difficult to imagine the constant hum of electronic beeps in sync with the battle rhythm of the scenario being played out by "white cell" and "red cell" participants or the urgency of responding to a simulated event or adversary in such a high tech setting.

Overhead monitors would display the various elements that equate to situational awareness, such as: network performance, the movement of ground forces, ships and aircraft, weather conditions, intelligence, blue force tracking — any and all information that facilitates decision making at the command level.

"We have been doing large-scale distributed training for

Top, media guests were invited to the grand opening of the Distributed Training Center Atlantic. Above, Commander, Strike Force Training Atlantic Rear Adm. Donald P. Quinn and Distributed Training Center Atlantic Deputy Director Robert George brief guests about the importance of virtual training for joint, coalition and naval forces. At right, DTCL Director Cmdr. Keith Payne talks about the Navy Continuous Training Environment .

about four and a half years — starting with only four support people. Three years ago, the majority of complaints we got were technology related. The training audience spent 80 percent of their time fighting technical and distribution issues. The comments we have been getting the last year and a half is that they are spending 20 percent or less of their time worrying about the technical issues," George said. "Our ultimate goal is to become completely transparent. After we hook the networks up to the ship, they shouldn't even know we exist.

"This table here is called the technical operations lead; it is what I used to do. In the old days, the tech ops lead would be out of his mind — on chat, voice over IP phones and regular phones — trying to solve all these issues. Now it is actually boring because we have overcome almost all of those issues.

"Radio systems are a good example. Historically, our number

Far right, NORFOLK, Va. (Feb. 28, 2008) Electronics Technician 1st Class David McInnis assigned to Commander, Strike Force Training Atlantic, participates in a small-scale demonstration of the Distributed Training Center Atlantic at its grand opening on board Naval Air Station Oceana, Dam Neck Annex. U.S. Navy photo by Mass Communication Specialist Seaman Apprentice Tyler J. Wilson. Above, Assistant Chief of Staff, N9, and head of synthetic training for CSFTL, Odie Ogden, explains the components of fleet synthetic training.
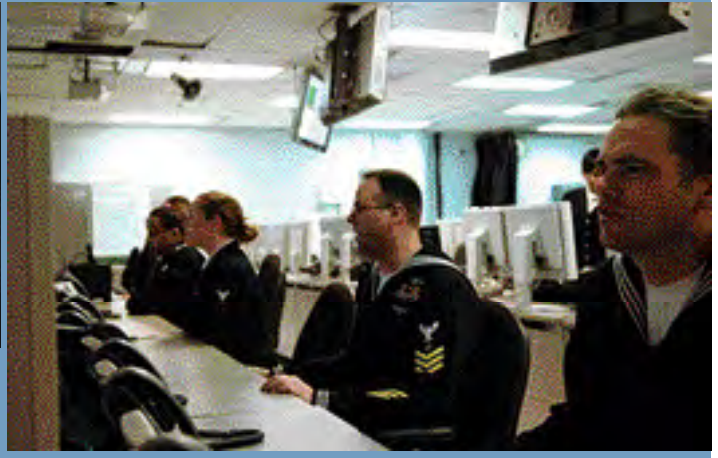
one technical issue was voice communications. We had antiquated systems for UHF line-of-sight comms that were breaking literally every hour. About two years ago, we replaced it all with something called Digital Radio Management System, DRMS, we call it 'dreams.' With the installation of DRMS, we went from voice communications being the number one problem to it being no problem whatsoever," George said.

The need for getting DTCL online was so compelling that George, Cmdr. Keith Payne, DTCL's director, and many DTCL employees worked weekends and after hours painting the facility and installing the raised access flooring. George said all the hard work has been worth it when he sees the benefits it provides to fleet training.

Technology

The Joint Semi-Automated Forces (JSAF), a simulation system sponsored by U.S. Joint Forces Command (USJFCOM), is used to generate entity-level simulations which interact individually in a synthetic environment. Entities include infantrymen, tanks, ships, airplanes, munitions, buildings and sensors. They can be controlled separately or organized into appropriate units for a given mission.

"We distribute the game with a program called JSAF. If you want to look at it as a big video game, everyone here, in their particular area — air warfare, submarine warfare and surface warfare — controls their part of the game. The training audience is on their ship and that's the preferred way of doing business — to have troops on their ships training on their equipment because that is what they are going to be using when they get overseas," Payne said.

"They are seeing everything as they would as if they were deployed in the Arabian Gulf. One mantra we try to use is 'train ashore, validate at sea,'" he added.

The DTCL works hard to ensure training and equipment duplicate exactly what crews will encounter on deployment. With the Fleet Synthetic Training Program, participants can prepare for the exercise in advance so there are no unexpected delays when the exercise actually begins. The synthetic training is so realistic that participants are easily caught up in the role-playing.

"The ultimate compliment was made by the last commodore that went through. He said he had to walk out on the bridge just to make sure that he was still tied to the pier because he was sweating because we were working him pretty hard," Rear Adm. Quinn said.

The next to train at the DTCL are the USS Theodore Roosevelt (CVN 71) and Iwo Jima (LHD 7) Strike Groups. They will use FST-GC or Fleet Synthetic Training – Group Commanders.

Synthetic Training

As realistic as DTCL's training environment is, the training cannot replace live training.

"We can't replace all of it, you still have to drive ships and fly airplanes in terms of airmanship and seamanship. That's what we are working on right now — what is the right mix? This cuts across all warfare areas. This summer we will be working with the Navy's Expeditionary Combat Command and they will start folding into these exercises and stressing their command elements as part of the training," Rear Adm. Quinn said.

Surprisingly, the training only involves 20 percent of the crew, according to Rear Adm. Quinn.

"You are dealing largely with the watchstanders at the CDC (Combat Direction Center) level, but people in engineering may not be involved. It varies depending on the type of ship," the admiral said.

According to the DTCL, synthetic training is so valuable, especially in joint and coalition operations, that ships must go through it at least once before deployment.

"One thing about synthetic training that you cannot provide with live training is that robust coalition force and the other services. This Navy Continuous Training Environment (NCTE), this spider Web network that the Navy uses is tremendous. Our joint service brethren — Air Force and Army — use one called the Joint Training Experimentation Network. We can tie those two together, and the Air Force is using their simulators and their training sites at their home bases, and they are able to interact with the strike groups just as they would with a combatant commander in the 5th Fleet, 6th Fleet or 7th Fleet," Payne said.

Because Navy ships do not all have the same technology configuration, the DTCL has technical experts who ensure the software suites used during synthetic training are the same technologies crews will use on deployment.

Assistant Chief of Staff, N9, and head of synthetic training for CSFTL, Odie Ogden, said it may take a bit of preparation to get everything working as it should.

"It is a matter of paying attention. We try to start onboard ship with the crews in their spaces with their C4I *(command, control, communications, computers and intelligence)* systems. If their C4I systems aren't where they need to be, or the ship is unavailable,

Mike Dial (forefront) from Navy Warfare Development Command (NWDC) in Newport, R.I., and Fred Whiteman, technical operations lead, respond to media questions.

then we will move them into the modules either here at DTCL, at TACTRAGRULANT (Tactical Training Group, Atlantic) or the EWTGLANT (Expeditionary Warfare Training Group, Atlantic) Joint Expeditionary Tactical Trainer (JETT). There they can operate off their ships but still use the same real-world C4I systems, and thus their same procedures.

"In the modules, we do not provide strike groups something extra that they are not going to deploy with. For example, we only provide them the version of software they are going to deploy with.

"Negative training is high on the list of things we don't want to do. We want to train them on the systems, the version, the communications, and the conduits that they are going to deploy with so they get used to it. That is the baseline for how we want to use synthetic training to augment and enhance the live training," Ogden said.

According to Mike Dial from Navy Warfare Development Command (NWDC) in Newport, R.I., Rear Adm. Carlton "Bud" Jewett, commander of NWDC, is the technical director for the NCTE and for the Navy JSAF program.

"It is Admiral Jewett's job, and the technical team that works for him, to do the testing and integration with the Navy simulators and with the joint simulators and then to provide a product that works for folks here in the training lab, so that when we put this together for a functional exercise, things all work and there is no problem with integration because those details have been worked out," Dial said.

Coalition partners in many of the exercises include Germany, Canada, Australia, United Kingdom and France.

"We can leverage through the Internet, the easiest way to put it, coast-to-coast, locally, in order to pull disparate players from different places — Japan, Australia, Canada, U.K. — into a single game. Everybody is in the same synthetic environment. It's a video game. It's what our kids have grown up with," Rear Adm. Quinn said.

Scenarios are based on training requirements, and they can be modified. The play is interactive throughout the exercise.

"We can give them [crews] instruction and they do it again and again until they do it right. It is a nice way to do things. You can do a lot of training without hurting anybody or causing injuries and without spending a lot of money. It's expensive to send ships out to sea and evaluate them. It is an efficient way to train," said Mark Checchio, JSAF lead.

The NCTE is Internet-based, but the demand for robust bandwidth is not a problem for the advanced simulation the JSAF provides.

"We don't really have any restrictions that I know of as far as the amount of data that we can send between nodes of the NCTE. Data is encrypted, so we can do things classified to the secret level. It allows us to do more exercises at the secret level. That does eliminate some people because they don't have authorization to see U.S. secret stuff, for example, some of the foreign countries. You have to sanitize what goes to them if they are participating in an event," Checchio said.

Generally, coalition partners communicate in the exercise via VoIP, Checchio said. "We have all different ways to allow anybody to play that is authorized by the Navy. We may have to declassify things or remove some things they [coalition members] are not allowed to see. The technical guys do a great job; they have a lot of tools that allow us to do that."

Another aspect of ensuring a successful exercise is security. Brian Koman is the information assurance manager who monitors the integrity of the network.

"You have to keep the network secure because if the network falls apart, there goes the whole scenario. Everything that is running is shot if someone breaks into your network. It is a thankless job, but it is a very important job because you have to keep the network safe before you can do anything else," Koman said.

Praise has been high from groups who have participated in the training, and many are requesting additional training to maintain readiness, according to Rear Adm. Quinn.

"Right now, everyone is asking for it. It is getting rave reviews. The Harry S. Truman (CVN 75) raved about it. They just got a mid-deployment report that said it was valuable. It is not perfect, they recommend a little more of this and a little less of that, but they rave about it."

For more information, go to www.cnsl.surfor.navy.mil.   CHIPS

Space and Naval Warfare Systems Center, Charleston

Leads the Way in the Global War on Terrorism with Lean Six Sigma

Improved manufacturing processes and a dedicated team help to aggressively ramp up MRAP vehicle production

By Lt. Brian E. Phillips

SSC Charleston is leading the charge protecting warfighters with state-of-the-art technology by overseeing the integration of the command, control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR) suite into Mine Resistant Ambush Protected (MRAP) vehicles, which are responsible for saving countless lives on a daily basis in the global war on terrorism.

Because of their unique V-hulled construction, which provides increased protection against underbelly blasts, MRAP armored vehicles are required to increase the survivability and mobility of troops operating in hazardous fire areas against known threats such as small arms fire, improvised explosive devices and other threats.

The MRAP program is currently the Defense Department's top acquisition priority — with $24.5 billion in funding. SSC Charleston stepped up and demonstrated the capability to fully integrate 50 vehicles per day with a full complement of C4I capability. This accomplishment helps demonstrate that SSC Charleston is a world-class military systems engineering organization, accomplishing a goal that many believed to be impossible in the eight months it took to stand up the program to full rate production.

SSC Charleston's utilization of Lean Six Sigma principles and tools in a true industrial setting is being held up as a shining example to the rest of the DoD. Using LSS methodology significantly reduces waste and variation in manufacturing.

When the program began in March 2007, the MRAP integration facility was producing an average of five vehicles per day. But SSC Charleston never imagined that the requirement would expand to a $24.5 billion requirement. To assist in the expansion, SSC Commanding Officer Capt. Red Hoover requested that a command Black Belt report to the MRAP facility and stand up a team to help meet the task of integrating 50 vehicles per day using LSS principles.

I took on this assignment and assembled a team of 10 individuals to tackle this challenge. The team members, all fully committed, highly energetic and brilliant, worked extremely hard to remove waste from the process and increase production of MRAPs through the use of Kaizen, often called Rapid Improvement Events.

What is most amazing is that the average age of the team members is 24 years old and most have just a year of work experience.

During the first four months of the MRAP LSS team's presence at the vehicle integration facility, their efforts contributed to an increased output from five to more than 50 vehicles per day, the number we had committed to in response to the demand signal.

The next — and an ongoing step — is to consistently sustain this output rate for a significant length of time, while reducing overall cycle time and increasing the quality output from the MRAP facility.

The integration of government fur-nished equipment into the MRAP vehicles presents the command with one of its chief opportunities to effectively implement continuous process improvement.

Some of the other Lean Six Sigma successes include the following.

• Welding – By modifying the welding process and instituting efficient material handling, the MRAP program shortened production time on this step from two hours to 20 minutes, roughly an 80 percent reduction.

• Quality Assurance – While increasing production from five vehicles to 50 vehicles per day, the QA process was modified and total quality related deficiencies have been reduced by 25 percent across the entire integration facility. It is noteworthy that quality related rework incidents were substantially reduced despite the fact that production increased and 400 new hires came onboard.

• Non-core Competency – SSC Charleston identified, drafted and communicated several engineering change plans for several non-C4I competency tasks, or tasks not related to integrating the C4I suite into MRAPs, including hole-drilling, welding and turret subassembly and installation. Removing this non-core work from the integration lines and passing it back to vehicle vendors to perform will save at least 15 man-hours per vehicle.

• Digital Rack – Through the utilization of complex LSS methodology and tools, the MRAP program redesigned the

Defense Secretary Robert M. Gates speaks to workers at the vehicle integration facility in Charleston, S.C., Jan. 18, 2008. Defense Dept. photo by Cherie A. Thurlby.

The MRAP program has been the largest and fastest military acquisition buildup since World War II …

digital rack buildup process reducing the four-hour process to a 25-minute continuous flow process to completion.

• Vehicle Variant Takt Time – Through a comprehensive analysis, standardized work packages for each of seven vehicle variants were developed, allowing a reduction of required workers from four to three, while simultaneously cutting the overall process time by 50 percent. *(Takt, German for metronome, is the total time specifically spent in manufacture of producing one object.)*

The MRAP program is a glowing example of what can be achieved by utilizing the methodology taught in Lean Six Sigma, and it has drawn high levels of interest and attention.

The MRAP integration team demonstrated the capability of the program in more than 60 formal visits in a six-month period. This required long hours by many to coordinate visits while maintaining the operational tempo in the integration facility, at the same time, the visitors brought additional synergy to the process.

On January 18, 2008, their efforts were recognized by Secretary of Defense Robert M. Gates when he visited Charleston to congratulate the workforce and regional community for their hard work. He acknowledged that the MRAP program has been the largest and fastest military acquisition buildup since World War II — quite an accomplishment for the entire DoD.

There is no doubt that SSC Charleston and the Navy have performed above and beyond in support of the warfighter, as well as the nation. The lessons learned utilizing sound systems engineering and Lean Six Sigma will be valuable to future SSC Charleston programs, as well to the Navy and the Defense Department.

Lt. Brian E. Phillips is the Mine Resistant Ambush Protected vehicle LSS deployment champion.   *CHIPS*

Capt. Red Hoover, SSC Charleston commanding officer, gives Defense Secretary Robert M. Gates an MRAP overview in Charleston, S.C., Jan. 18, 2008. Because of the importance of the MRAP program to protecting the lives of warfighters in Iraq and Afghanistan, the program has captured the interest of the general public as well as members of Congress and top military leadership. Defense Department photo by Cherie A. Thurlby.

SECDEF VISITS SSC CHARLESTON

By Susan Piedfort, SSC Charleston Public Affairs

U.S. Secretary of Defense Robert M. Gates visited Charleston Jan. 18 to thank employees of SSC Charleston for saving warfighter lives by integrating, testing and installing advanced electronic systems communications equipment on MRAP vehicles.

At the MRAP integration facility, Gates thanked the government/industry partner team installing C4ISR equipment in the vehicles. Gates told more than 400 assembled workers at the MRAP integration facility, "You delivered under pressure with warfighter lives on the line."

SSC Charleston Commanding Officer Capt. Red Hoover said he is proud to be part of the MRAP effort which is truly making a difference by saving lives. "I am extremely proud of the hard work the SPAWAR Systems Center Charleston team is doing, and we are honored to be part of such a significant program. Your success is a testament to what dedication and determination by a government and industry partner team can do."

Gates called IEDs the weapons of choice of our adversary because they are cheap, deadly and difficult to detect. While there is no fail-safe measure to reduce loss of life and limb in war, a vehicle like the MRAP gives warfighters the best protection available, the secretary said. The troops love the MRAPs, Gates told the crowd, and commanders say they sleep better at night because of them.

Gates echoed the sentiments of another recent visiting dignitary, Secretary of the Navy Donald Winter, when he praised SSC Charleston and the community's ability to mobilize MRAP integration and ramp up the production line. The secretary said that in the 1940s the war effort mobilized the country's entire economy. While that is not true today, it does not take away from the importance of the task at hand at SPAWARSYSCEN Charleston. "Then President Franklin D. Roosevelt told the people of this country to raise their sights, to let no one say it can't be done, to keep raising their sights.

"And now I say to you, keep pressing on. IEDs will be with us for some time to come. The need for these vehicles will not soon go away," Gates said. "There can be no better description of the service you are providing: you are saving lives."

Among the distinguished visitors accompanying Secretary Gates were the Honorable John Young, Under Secretary of Defense for Acquisition, Technology and Logistics, and Lt. Gen. Peter Chiarelli, senior military advisor to the Secretary of Defense.   *CHIPS*

MHQ with MOC Lessons Learned: A KM Perspective

"In times of change, learners inherit the Earth, while the learned find themselves

beautifully equipped to deal with a world that no longer exists."

– Eric Hoffer

By Ms. Jamie Hatch

The Maritime Headquarters with Maritime Operations Center (MHQ with MOC) concept of operations (CONOPS) is perhaps one of the most significant catalysts for change supporting U.S. Navy commanders today. With its prescribed actions derived from operational lessons learned, MHQ with MOC seeks to improve the ability of the Navy's "operational-level headquarters staffs" to "assess, plan and execute."

As the need to operate more efficiently and effectively in the joint arena becomes increasingly important, the MHQ with MOC construct requires Navy commands to become more cross-functional, allows them to streamline information flows and leverage organizational knowledge to speed and improve operational decisions.

By following and improving upon MHQ with MOC principles, warfighters will become better equipped to support commanders and be more efficient at transitioning operations from normal and routine (NAR) to the full operational level of war (OLW).

Where KM Fits

As a knowledge manager supporting the MHQ with MOC implementation and sustainment processes for Commander, U.S. Pacific Fleet, Adm. Robert F. Willard, the challenge has been a tremendously exciting one.

COMPACFLT excels as an organization in all areas, particularly in operations; however, MHQ with MOC requires a cultural shift aimed at breaking down traditional "stovepipes," creating crosstalk, and further "operationalizing" the staff.

COMPACFLT will be the first command accredited as an MHQ with MOC in March 2008. An integrated planning team (IPT), a core of bureau, board, center, cell and working group (B2C2WG) members and leads, and an executive steering group, under the direction of an exceptionally motivated commander, have led us to this stage of readiness.

The intent of this article is to share lessons learned, from a knowledge manager's perspective, with the hope that as the global network of MHQs with MOCs continues to take shape, we will continue to improve the concept and refine processes accordingly.

The Game Plan

My involvement in the MHQ with MOC project began just four months prior to the commander's preliminary accreditation ready (PAR) deadline of Jan. 31, 2008. The initial taskings from the IPT for knowledge management were as follows:

• Follow the guidance of the commander, the "spirit" of the MHQ with MOC CONOPS and Joint Publication 3-33.

• Build a SIPRNET MOC Web site modeled after JTF-519. JTF-519 is a fully deployable joint task force capable of planning and executing any contingency from relatively small-scale operations, such as noncombatant evacuations or maritime interdiction, to major theater conflict.

• Leverage the Collaboration-at-Sea (CAS) Web content management tool and the Enterprise Knowledge Management (eKM) collaboration tool.

• Establish a working group to manage the CAS site and address KM and information management (IM) issues.

Our entire approach focused on using existing joint and Navy doctrine and using tools that had been proven to work in both the operations center and in the fleet management element. Following IPT guidance and the advice of our JTF-519 counterparts, our plan of action and milestones during the planning phase consisted of the following:

✔ Establish a cross-functional, cross-directorate KM Working Group (KMWG).

✔ Develop a MOC Web Site.

✔ Build the MOC battle rhythm, complete with inputs, outputs, associated tasks and processes.

✔ Assess and develop Web tools for: training, manning, lessons learned, taskers and significant events, collaboration and decision making, and produce a KM plan and a Web site management plan.

An item of note that will not be discussed here in detail, but will be mentioned to open discussion, is that COMPACFLT chose not to establish an information management board or cell. This decision was necessitated by our current organizational structure which we will be reevaluating as the project moves forward.

The Challenges

Some of the challenges we faced revealed themselves almost immediately, the first being manning and organization. COMPACFLT is fortunate to have a flag officer in the position of chief knowledge officer (CKO). It does not; however, have an official billet for a knowledge management officer (KMO).
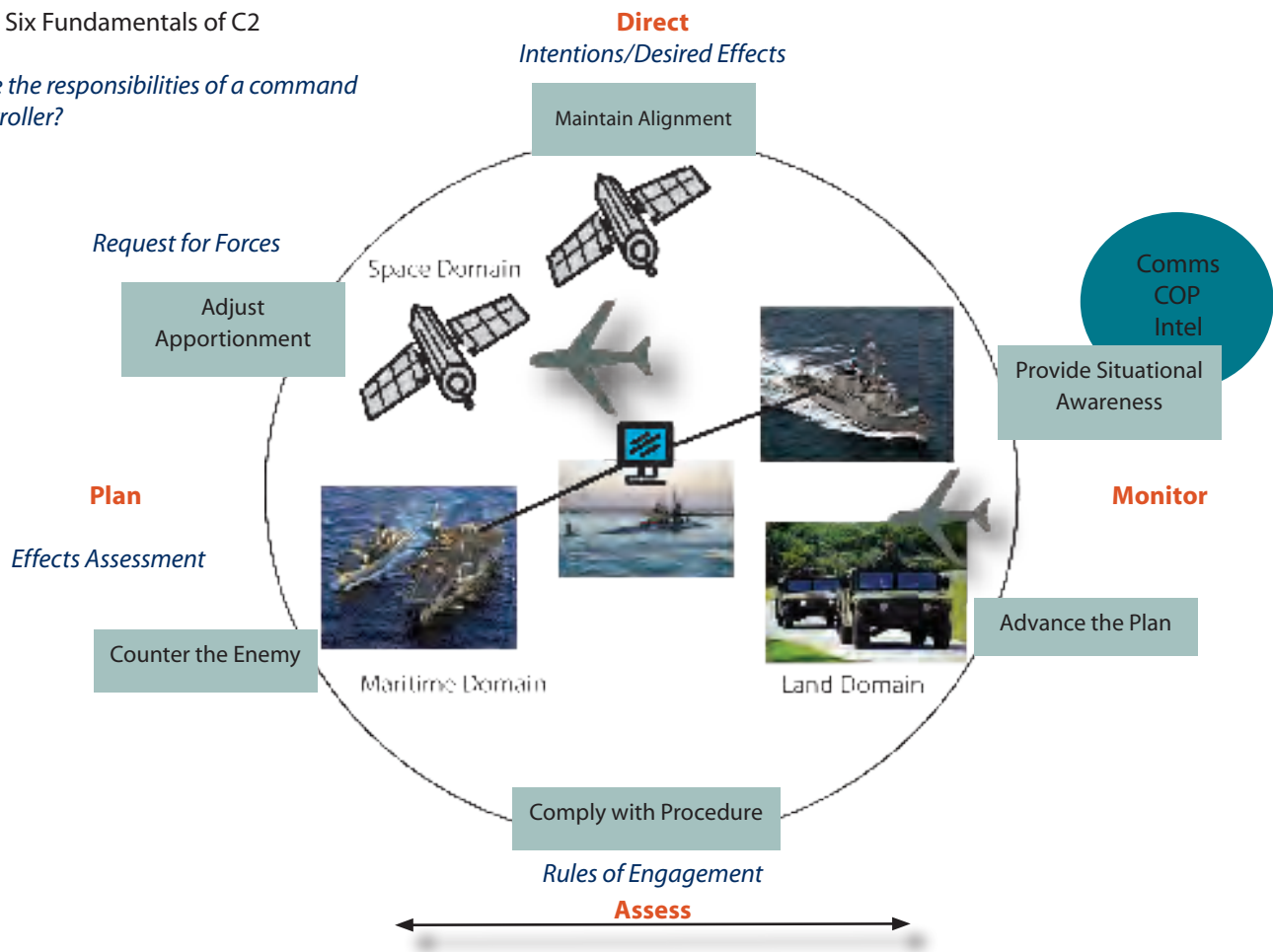
The COMPACFLT KM team consists of the CKO, Rear Adm. Joe Mulloy, and a small group of contractors, myself included, working throughout the COMPACFLT area of responsibility. Like most obstacles the staff encountered, issues that arose due to manning challenges in KM were overcome by Adm. Willard's clear and enthusiastic support for KM initiatives and the day-to-day support of the MOC Director Rear Adm. Tom Copeman, the CKO and the members of the IPT.
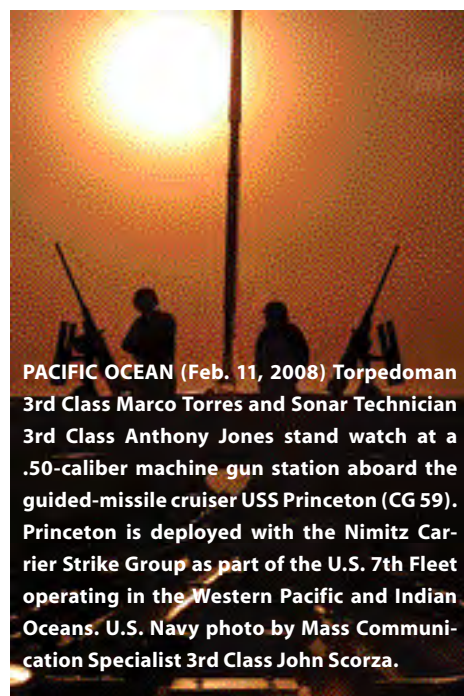
PACIFIC OCEAN (Feb. 11, 2008) Torpedoman 3rd Class Marco Torres and Sonar Technician 3rd Class Anthony Jones stand watch at a .50-caliber machine gun station aboard the guided-missile cruiser USS Princeton (CG 59). Princeton is deployed with the Nimitz Carrier Strike Group as part of the U.S. 7th Fleet operating in the Western Pacific and Indian Oceans. U.S. Navy photo by Mass Communication Specialist 3rd Class John Scorza.

Figure 1. Six Fundamentals of C2

What are the responsibilities of a command and controller?

Direct
Intentions/Desired Effects

Maintain Alignment

Request for Forces

Adjust Apportionment

Space Domain

Comms
COP
Intel

Provide Situational Awareness

Plan

Effects Assessment

Monitor

Counter the Enemy

Maritime Domain

Land Domain

Advance the Plan

Comply with Procedure

Rules of Engagement

Assess

Additionally, the formation of a KM Working Group allowed us to reach out to all directorates via Information Management and Training Leads (IMTLs) assigned by each directorate to represent both fleet management and MOC interests.

The formation of the KMWG allowed us to collect information and share goals when developing our Web site, and it provided a vehicle for us to address all KM/IM issues in a balanced forum. The KM team went forward with the understanding that the knowledge management function would need to be further defined and honed at COMPACFLT, but that standing up the MHQ with MOC, maximizing the efforts of the KMWG, and fulfilling the immediate needs of the organization were paramount.

Time and its associated pressures proved to be another big challenge. With only a few months to support Adm. Willard's aggressive timelines, accreditation deadlines, rather than longer term change initiatives, became the primary focus of effort. This was not necessarily a negative aspect of the process because it allowed us to draw the lines around and highlight those areas we knew we would

need to address in more detail later.

Some of the key tasks a KM hopes to perform earlier in the process, such as conducting assessments and developing a full information exchange requirements matrix, could not be accomplished due in part to the number of demands placed on the directorates, B2C2WG leads and the KM for a multitude of accreditation inputs.

Our KM goal was to assess, organize and codify the many processes that occur at our command daily; however, the more "visible" tasks (particularly the construction of the Web site) soon became the primary objective.

Now that we have met the deadline, the real detail work is beginning to take place. As we approach accreditation, our longer term organizational learning goals have moved back into focus, and we will likely begin to address how we will meet those goals as we go through the accreditation process.

As we have said many times at COMPACFLT, we are building the plane as we are flying it. Learning the concept and executing it at the same time is a challenge, but certainly not one that will not

be overcome as we exercise the concept and apply lessons learned.

As KM, my approach to capturing tacit knowledge has been more "anthropological" than technical. Observing processes in motion, having informal conversations, participating in and observing meetings and events occurring at all levels of the staff have helped our team gain further insight into MOC processes without putting the burden of understanding KM on the staff.

As Cmdr. John Hearne and Ms. Christine Carobine stated in a recent CHIPS article *(available at www.chips.navy.mil/ archives/07_Dec/web_pages/KM_Guide. htm)*, "Organizations don't DO knowledge management; they attempt to improve their performance using the people and tools available to them."

In our experience, this is the best and least disruptive approach to take when attempting to implement and facilitate change of this scope.

Commander's Guidance

Much of how we approached organizing under the MHQ with MOC concept centered on the six phases of the com-

mander's decision cycle, known as the "Willard wheel." B2C2WGs were challenged to think about and organize their information and processes using the six fundamentals of command and control (C2), as shown in Figure 1:

- Maintain Alignment
- Provide Situational Awareness
- Advance the Plan
- Comply with Procedure
- Counter the Enemy
- Adjust Apportionment

This task was first explicitly visualized on our Web site, but has evolved into the way that information is prepared and presented, whether or not it is explicitly labeled as such. Understanding this decision cycle is critical to understanding the commander's thought process, and organizing information flows to align with and support the cycle is another necessary cultural change for the staff.

Adm. Willard directed several critical events that helped the B2C2WG leads through the planning process and consequently helped the KM team achieve some of our fundamental organizational objectives.

At the first MOC briefing for Adm. Willard, the IPT leads provided a status report for their respective areas. Before we began, the admiral asked us to do two things. First, he asked us to identify "what is different" about how we were doing business prior to the MOC, and second, he asked us to be honest about the challenges we encountered in the process. He also emphasized that the MHQ with MOC was not an "exercise" — that it was indeed a new way of doing business, and that he expected all to perform accordingly.

This guidance not only set the tone for the brief, but for the entire implementation process. Certainly, to have a commander who is as engaged and open to dialogue throughout the process will be critical to the success of any MHQ with MOC concept implementation.

A day long Warfighting Processes Forum was organized, at the request of Adm. Willard, where the B2C2WG leads presented the commander their processes in detail. Following that forum, Adm. Willard directed us to conduct a battle rhythm tabletop to first construct our Major Combat Operations (MCO) battle rhythm, then our NAR battle rhythm.

These events were necessary for open-

ing the lines of communication between B2C2WGs and to building an understanding of where we needed to be as an organization for accreditation and beyond.

Other crucial guidance from Adm. Willard included:

✔ Develop the Web site as a "one-stop-shop" for the warfighter.

✔ Be customer focused — find out what our numbered fleets need, how they need it and when.

✔ COMPACFLT may follow but not copy the JTF-519 model; make the Web site uniquely COMPACFLT MOC.

✔ Note the lines of demarcation between B2C2WGs, between fleet management and MOC functions, and between MOCs at other commands.

✔ Continue to look at how other commands are accomplishing tasks, evaluate other tool sets and maintain alignment.

Lessons Learned

Everyone who participated in the MHQ with MOC implementation will have his or her own set of lessons learned. Below are some of the most critical lessons learned from my perspective:

- Understand the evolutionary and experimental nature of the MHQ with MOC concept and move out accordingly. As difficult as it is, be open to change.
- As a KM, involve yourself in the IPT from the earliest stages of planning.
- Make efforts staff-wide, not just on the leadership tier, to promote awareness and understanding of the MHQ with MOC concept.
- Create opportunities for key players to build cross-functional relationships in open forums (tabletops) both during and after implementation.
- Build internal B2C2WG battle rhythms, identify inputs and outputs, and then consolidate.
- As a KM, influence the process at as many levels as possible as a participant, not just as an outside observer.

COMPACFLT MHQ with MOC

To date in KM, we have:

- Established an active KMWG;
- Developed a KM plan as part of the MOC standard operating procedures;
- Developed a powerful one-stop-shop Web site that is accessible to our commander and those who support him on all levels; and
- Procured tools to work within CAS 3.0
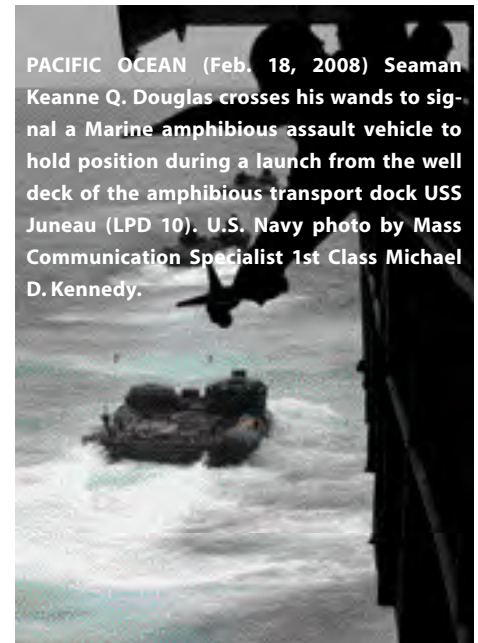
such as, Portal Pages, a lines of operation tool; eKM Actions Plug In; and a refined manning database and battle rhythm tool adopted from the JTF-519 tool set.

As a MOC, we have constructed NAR and MCO battle rhythms and identified an initial set of inputs and outputs. We are also working to further define and document the true relationships and inner workings between the bureaus, boards, centers, cells and working groups to feed that information back to the MHQ with MOC project team.

As we continue through the accreditation process and work to refine our organizational processes, our objectives remain to learn from our actions, improve collaboration across the staff and between commands, and to become an organization that is adaptive to change and always ready for the fight.

Knowledge management and information management will continue to play critical roles throughout the transition process and, if successful, our combined efforts will further enable all Navy commanders to make the best decisions possible and increase warfighter readiness throughout the Navy.

Ms. Jamie Hatch is the lead KM support specialist for COMPACFLT. Ms. Hatch holds a bachelor's degree in cultural anthropology from the University of California, Santa Barbara and a master of science degree for information systems for professionals from Hawaii Pacific University.

CHIPS

Knowledge Management in Support of the Seabees

"With compassion for others we build — we fight for peace with freedom."

– Seabees motto

By the Center for Seabees and Facilities Engineering

For more than 60 years the Seabees have demonstrated their skills as fighters and builders. In December 1941, with an eye on the developing storm clouds of war across both oceans, Naval Construction Battalions were established.

The earliest Seabees were recruited from the civilian construction trades and were placed under the leadership of the Navy's Civil Engineer Corps (CEC). Because of the emphasis on experience and skill rather than physical standards, the average age of Seabees during the early days of the war was 37.

From the island hopping of World War II, to Korea, to the jungles of Vietnam, to the mountains of Bosnia, the Middle East and throughout the globe, the Seabees have built entire bases, paved thousands of miles of roadway, airstrips, bridges, warehouses, and built hospitals, gasoline storage tanks and housing.

Additionally, they accomplish a myriad of construction projects in peacetime and in natural disasters. Seabees built or improved many roads, orphanages, schools and public utilities in many remote sections of the world, thus, earning the title as the Navy's "Goodwill Ambassadors."

But unlike the Seabees of the 1940s, the average age of today's Seabee is 22, with little skill or experience in the construction trades prior to entering the Navy.

To meet that challenge, the Center for Seabees and Facilities Engineering was established in 2003. CSFE is the primary source for technical training for Seabees and CEC officers. Our overall goals are to create a responsive and agile training system with open lines of communication that ensure mission accomplishment, while providing Seabees with the tools and opportunities to excel both professionally and personally.

We are responsible for ensuring personnel arrive at their units with the right training, and with the capability of reaching back for technical guidance. With the constant changes in unit locations, personnel and missions, CSFE strives to incorporate the most current technology and curriculum through our courses. Our role is in direct support of the 22,000 Seabees and CEC officers who are assigned to the active duty or Reserve components.

Throughout 2007, the CSFE Knowledge Management Directorate instituted innovative programs that directly benefited all of our communities of practice (CoPs) and training programs. The following initiatives support the improvement of the basic components of the KM model: people, technology and processes.

People

First, CSFE's KM Directorate established a strong communication program. CSFE uses KM tools and practices to capture corporate knowledge on a recurring basis. These tools and practices include, but are not limited to, technical information exchanges via discussion forums, construction interactive advice programs, newsletters, articles and e-mails.

The tools support the CSFE command principles and are in alignment with the Chief of Naval Operations' goals to assist officers, Sailors and the civilian workforce by providing tools for continuous professional growth.

The reach-out program allows communication in the Seabee CoPs and targets certain troops. Membership is grouped by ratings and pay-grades ranging from E3 and below, E4 through E9 and O1 to O5. Groupings were created using the administrative tools on Navy Knowledge Online. Other groups include the Training Working Group, CEC Women's Professional Network, Limited Duty Officer/Chief Warrant Officer, instructors, Command Master Chiefs, and retired or separated Seabees.

NKO News Grams are sent biannually with updates about what is new in a community. For e-mails that are bounced back, we use NKO white pages to identify the person and MS Outlook to send a second e-mail that requests the member to correct his or her address. We sent e-mail notices to more than 22,000 members of the Seabee community.

The Seabees are the Navy's "Goodwill Ambassadors."

The KM Directorate has also submitted articles to *Seabee Magazine* and the *CEC Biweekly* newsletter. Since launching the program in June 2007, CSFE has had a greater than 250 percent increase in the number of hits on its main NKO page.

The KM Directorate created and distributed 6,000 business cards for the four Seabee "A" School learning sites. The cards provide students with a reference tool and a point of contact for requirements pertaining to the NKO Seabee portal.

Technology

We use post deployment surveys to give the deckplate leadership of our nine active Naval Mobile Construction Battalions a means to assess the quality of training that their troops received from the CSFE Learning Sites. These surveys, hosted on NKO, are used by the KM Directorate to provide quantitative and qualitative data for CSFE's Training Directorate and our customers to improve existing training or to devise new training.

For example, CSFE is developing a Construction Management Continuum course that will allow Seabees to attend one course that encompasses blueprint reading, planning and estimating, project planning, execution and construction management.

This training is currently in five different courses. By taking the suggestions given via the surveys, CSFE will soon be able to provide Seabees with the desired knowledge in a single three-week course thus eliminating training redundancy and improving quality.

These surveys also capture returning battalions' lessons learned which are passed on to the next battalion that deploys to the same site. For example, a returning battalion that had a detachment in the Horn of Africa indicated that further training in block, stucco concrete mix design and 220-volt/50 hertz electrical power are needed. A battalion scheduled to deploy to the same location can use this knowledge to build a training plan.

The "Tricks of the Trade" program captures tacit knowledge and makes it available as explicit knowledge. Troops are able to leave a post in the feedback channel in their CoP portal page on NKO. NKO administrators validate the comment with subject matter experts (SMEs) and display it for everyone to see in a bullet format with a link gear.

The KM Directorate also uses different discussion forums, chat sessions and "Ask-the-Chief" channels to capture potential explicit knowledge for Tricks of the Trade posts. This is very useful because there is a continuous influx of new technologies and methods in the construction fields. By using this program, troops will keep updated on new trends, methods, technologies and troubleshooting techniques.

The "Test Your Rating Knowledge" initiative helps junior troops (E1–E6) in evaluating their rating knowledge. All seven Seabee rates at each rank level have a quiz and game in their CoP. Troops can take the quizzes, which are set up much like the interactive games that young adults play, as many times as they like.

Questions are taken from training manuals and each quiz is different. After taking a quiz, troops are given instant feedback regarding which questions they got right or wrong, and the reference to find the correct response. Since its inception in August 2007, more than 7,000 troops have used the quizzes and games.

Live advancement bibliographies assigned for each Seabee rate and rank are now available. Troops can open their advancement page to see their bibliography, which is hyperlinked to the source documents. Troops click on the reference and the document pops up for them to download or study. This is a superb advantage for troops, since they can use their time to study instead of spending countless hours trying to find references.

Chat and instant messaging sessions were developed to communicate via NKO Instant Messenger. With assistance from CSFE's Training Directorate, we establish the topics, set the convening date and session duration, and act as the facilitator.

The Training Directorate provides SMEs for a specific rating to address the technical aspects of the chat session. After each chat session, the KM Directorate posts the transcript so that knowledge is available to everyone.

CSFE's Career Management Directorate's DVD, titled "Seabee Electronic Toolbox," is an alternative resource when NKO and the Internet are not available. The DVD is designed as a "point and click" ready reference that is easy to navigate.

The DVD contains more than 900 diverse references such as videos, images and text with career enhancing and job-related professional tools. The DVDs will be updated annually with a target audience of all Seabee rates, E6 and below.

Processes

The KM Directorate mapped processes which reduced time and effort spent on data calls in support of: manpower, curriculum reviews, validating courses, creating new course identification numbers and course data processing codes, student enrollment and associated requests.

Process mapping was also used for determining data flows between the Army Training Requirements and Resources System (ATRRS) and Corporate enterprise Training Activity Resource System (CeTARS). The KM Directorate developed a standard operating procedure for student registrars and coordinated needed training on Navy Integrated Training Resources Administration System (NITRAS) and CeTARS.

The KM Directorate is CSFE's data repository. Drumbeat metrics, center production metrics and weekly accessions reporting are created by pulling information from different sources and "contextualizing" the information to provide CSFE's command element with knowledge at each layer.

The KM team extract certain portions of data from Kirkpatrick Level 1 and 3 surveys to assist the Training Directorate in understanding the needs of the troops and their comprehension of the material delivered in the classroom. We also ask former students for feedback six to nine months after training was received to see if training was beneficial.

These initiatives ensure we achieve a positive return on investment for each training dollar while providing up-to-date information on construction industry standards and professional credentials.

Emphasis on continuous professional development makes certain that constructionmen are vital players in the global war on terrorism. The CSFE KM Directorate proudly contributes to their success.

Dr. Ramon Flores is the CSFE director of knowledge management.

Mr. Chris Bissonnette is a retired master chief constructionman and is a knowledge management analyst at CSFE.

Ms. Mattie Jones is an operations research analyst at CSFE.

Mr. Mark Wagner is a retired chief construction mechanic and the NKO administrator at CSFE. **CHIPS**

Air National Guard Reserve Order Writing System Celebrates One Year Anniversary

AROWS completes its first year of successful use in the field

By Maria L. Tolleson, SSC New Orleans Public Affairs

AROWS, a modification of the Navy Reserve Order Writing System, is an automated order writing system that gives all levels of management, down to the individual guardsman, accurate, real-time information for decision making. AROWS supports more than 106,000 customers in the Air National Guard, with approximately 15,000 orders and travel orders processed weekly.

AROWS came online in the wake of Hurricane Katrina in October 2006 at the Space and Naval Warfare (SPAWAR) Systems Center (SSC) New Orleans continuity-of-operations (COOP) facility in Fort Worth, Texas. While programming changes for the application itself are supported by the Technology Services Organization (TSO) at Defense Finance and Accounting Service (DFAS) Kansas City, all daily support for the production system is provided by a team from SSC New Orleans. This support includes both direct support of the application by systems operators and administrators and database analysts, as well as 24x7 help desk support for AROWS users. SSC New Orleans also provides Tier II/interface support for the help desk.

AROWS was created because of a need to integrate order writing support to reduce redundancy, eliminate discrepancies and comply with the Business Enterprise Architecture (BEA) and the mandate of the Chief Financial Officers (CFO) Act of 1990.

TSO - DFAS Kansas City was the recognized expert in order writing software development, having already developed an order writing system for the Marines and Navy Reserve. When the Air National Guard studied what was already available as commercial and government-off-the-shelf software, they discovered the services of the TSO.

But the TSO's forte lies in software development, not hosting, so the TSO recommended to the Air National Guard that they contact SSC New Orleans to serve as hosts. AROWS replaced the Integrated Automated Orders System and the Base Workday Control systems, which were unique to Air National Guard integrated legacy systems.

AROWS provides a reliable, interoperable and efficient relational open system, leveraging Internet and Web technology and uses a graphical user interface. The business process consists of the functions of an order request, approval and publishing. An order request is the initial step in placing a guardsman on military duty and/or travel status. Typically a request is initiated from a field unit to fulfill a need for military duty and/or travel in support of the Air National Guard or Air Force mission requirements.

The approval of the orders includes the allocation of funds necessary to support the cost of the request. Cost items that are typical for orders are basic military pay, per diem, subsistence, housing and travel expenses. Various funding sources support the order writing process. Tracking the use of the funds and the ability for reconciliation are an essential aspect of AROWS.

Ultimately, the order writing process provides the documentation required to support the placement of a guardsman in a military status with the associated travel cost. This may include specific written authorization for movement and authorization for commercial or military transportation. AROWS provides real-time access to information about Air National Guard orders to a widely distributed community of guardsmen dispersed around the world.

This system represents the most significant change in resource management in the Air National Guard in the last 20 years. It brings orders and workday management in compliance with the CFO Act and enhances every step of the orders process. AROWS is 100 percent Web-based, requests for orders can be initiated from anywhere in the world. It combines the orders application process with an automated approval workflow, budgeting approvals and the delivery of official orders.

AROWs interfaces with the General Accounting and Finance System (GAFS), the Military Personnel Data System (MilPDS), the Commanders' Resource Integration System (CRIS) and the Integrated Military Personnel System (IMPS). An interface to the Defense Travel System (DTS) is planned for the near future.

The current user base includes approximately 4,345 personnel, but a new release in spring 2008 will provide access to all Air National Guard personnel, enabling each guardsman with a CAC-enabled computer to input an order request and track its progress. Currently, guardsmen are able to access the system in read-only mode.

The SSC New Orleans AROWs team is in the process of migrating AROWS from the COOP facility in Fort Worth, to the state-of-the-art shared services environment at SSC New Orleans. Upon completion of the move, the system will have even greater flexibility and redundancy, resulting in less downtime and greater support for the guardsman in the field.

Air Force Lt. Col. Millie De Jesus, AROWS program manager, praised the work of the AROWs team at the conclusion of its first year.

"We just went over the first anniversary of the deployment of AROWS and have completed the first close-out of [the] fiscal year using the system. This is the perfect opportunity to convey our deepest appreciation for the outstanding and consistent support your organization has provided throughout this groundbreaking year. The New Orleans team, along with the Technical Services Office at DFAS Kansas City, are critical components of the AROWS success formula," she said.

"We look forward to continued joint support of the system and collaboration among the experts who sustain the system operations," continued De Jesus. "As we start fiscal year '08, we know we will face new challenges, and we are confident your teams will conquer them."

The SSC New Orleans AROWS team consists of John Beierl, AROWS project manager; Robert Justo; Chris Rizzo; John Landry; Steve Hollars; Joan Baham; Sara Gutierrez; Kelly Price; Crystal Porter; Yvette Stringfield and Pete Ramos in Texas; and Shelitta Myers.

CHIPS

NPDC Knowledge Management and NIACT Support Teams Win DON IM/IT Excellence Award

By MC1(SW/AW) John Osborne
Naval Personnel Development Command Public Affairs

The Department of the Navy Chief Information Officer (DON CIO) presented the Knowledge Management (KM) Team of Naval Personnel Development Command (NPDC) and the Support Team from the Navy Individual Augmentee Combat Training (NIACT) Center a Department of the Navy Information Management/Information Technology Excellence Award for their collaborative work in constructing the Individual Augmentee Community of Practice (IA CoP) on Navy Knowledge Online (NKO). The two teams accepted their award in San Diego in February.

"The real winners here are the Sailors who have benefited from the information we have been able to put out," said Tony Martin, a retired chief petty officer and NPDC KM team member who has been at the tip of the spear in developing the IA CoP. "The CoP was created to address the inconsistencies with the flow of information. Sailors are being asked to take on completely unfamiliar duties in dangerous places, and the last thing we want is for them to go in unprepared and uninformed or worrying about their records being accurate."

The IA CoP, which has assisted thousands of IA Sailors in getting the necessary information to make their tour as successful as possible, was created in response to the Chief of Naval Operations' 2005 agreement to assist the Army due to a shortage of Soldiers supporting the global war on terrorism. It was decided the Army would train the Sailors at McGrady Training Center near Fort Jackson in Columbia, S.C., with an initial goal of putting through 10,000 Sailors (to date more than 9,300 have graduated NIACT).

From the beginning, the key challenge was disseminating the information to the prospective IA Sailors. It didn't take long for Martin and his team to determine that NKO would be the optimal medium for delivery.

"The CoP had to address the challenge of communication to a geographically disbursed group of people where timeliness, accuracy and accessibility were critical issues," Martin said. "NKO provided the means for one-stop-shopping."

Finding the hosting site, however, was only the beginning. Martin and team members, Jon Harris, Leonard Coley, Ken Decker and Theresia Reistad, immediately hit the road to begin gathering information and collaborating with a myriad of individuals who would eventually turn the IA CoP into a living community.

The first visit was to PERS 463/464 in Millington, Tenn., which worked to make a connection between the Pentagon and the Bureau of Naval Personnel. Next came three separate site visits to McGrady to meet with the NIACT team.

The NIACT Team, consisting of Master Chief Yeoman (SW) Larkin Whetstone, Chief Hospital Corpsman (AW/SW) Alex Garza, Chief Master-At-Arms Charline Mayo, Yeoman First Class Rosalyn Reeder, Hospital Corpsman First Class Angela Martin, Storekeeper First Class Lexington Harris, Personnel Specialist Second Class Katrina Mackey, Hospital Corpsman Second Class Duval Raines and Storekeeper Second Class Byron Moore, were responsible for the readiness, outfitting, training and transfer of the augmentees to various locations supporting the GWOT.

DON CIO Robert J. Carey presenting the DON IM/IT Excellence Award to the KM Team of Naval Personnel Development Command and the Support Team from the Navy Individual Augmentee Combat Training Center.

According to Whetstone, the former senior enlisted adviser at NIACT, the site visits proved to be invaluable in getting the right information to Sailors and their families and easing the tension about what they could expect during their training.

"In the beginning of the NIACT training process there were a lot of 'mess deck rumors' about what specifically was being trained at NIACT and what the training was like," he said. "No one knew what to bring with them to NIACT, what military documentation was required, what type of equipment they would receive, what type of medical/dental screening was required, if they would receive a weapon, and the list just goes on and on."

Martin, Larkin and their teams set out to answer these questions through personal observation of the training and several meetings and one-on-one interviews with Sailors who had been through the process, paying close attention to their frustrations and suggestions on improvement.

In between the second and third visit to NIACT, Martin made a connection with Capt. Rhetta Bailey, who was already in Baghdad, and she became a vital source of information through feedback from Sailors who had just completed the training.

"Capt. Bailey is really the one who catapulted the IA CoP," Martin said. "She sent updates every weekend that I could in turn input into CoP. It was helpful in keeping information current and making sure we were aware of what our Sailors needed."

Using that knowledge, the CoP was designed to include pages for the countries where Sailors would deploy, key points of contact, maps, checklists for medical and dental requirements and a list of required e-Learning courses. The CoP also includes a discussion forum for deploying and deployed Sailors to share unclassified information.

Whetstone cited the discussion forum element of the CoP as one of its most useful components. "The message board the team created was extremely helpful to the Sailors. Not only could they post questions to the NIACT staff, but they could also get information from Sailors who had been through the training or that had previously been on an IA assignment," he said.

The IA CoP went live on Feb. 10, 2006, and has since had more than 1.3 million visitors. Although it is now managed by the Expeditionary Combat Readiness Center, the mission remains the same, and it remains a vital tool for a smooth and successful IA tour. **CHIPS**

SWORDS

Delivering fire power and situational awareness

By Sharon Anderson

The Armament Research, Development and Engineering Center (ARDEC), under the Army Research, Development and Engineering Command (RDECOM), is the first Department of Defense organization in history selected to receive the prestigious Malcolm Baldrige National Quality Award.

The Baldrige National Quality Award is presented annually to a small group of elite businesses and organizations deemed to have world-class performance excellence and quality achievement practices.

ARDEC, located in Picatinny, N.J., is a one-of-a-kind facility that provides virtually all of the lethal mechanisms used in Army weapon systems and those of the other military services. It is a joint service armament research and development center with 2,500 scientists, engineers and technical experts working in five different locations throughout the U.S.

This highly skilled workforce exploits technologies like high power microwaves, high energy lasers and nanotechnology in ARDEC's 10 major technical areas: smart munitions, indirect fire, direct fire, Soldier weapons, mines and demolition, gun propulsion, fuzing and lethal mechanisms, fire control, munitions survivability and pollution prevention.

Army Maj. Michael Pottratz, explosive ordnance disposal deputy director of technology for ARDEC, demonstrated one of ARDEC's wonders, the SWORDS, or Special Weapons Observation Remote Recon Direct Action System robotic weapon, in the RDECOM exhibit at the West 2008 conference in San Diego in February.

The system consists of a weapons platform mounted on a Talon robot, a product of the engineering and technology development firm Foster-Miller. The system runs off DC power, lithium batteries and Single Channel Ground and Airborne Radio System (SINCGARS) rechargeable batteries. The control box weighs about 30 pounds, with two joysticks that control the robot platform and the weapon and a daylight viewable screen.

Although, SWORDS is not a new invention, it successfully combines many technologies into one robotic system.

Different weapons can be interchanged on the system – the M-16, the 240, 249 or 50-caliber machine guns, or the M-202 –A1 with a 6mm rocket launcher. Soldiers operate it by remote control, from up to 800 meters away.

The Talon robot began helping with military operations in Bosnia in 2000, deployed to Afghanistan in early 2002, and it has been in Iraq since the war started, assisting with improvised explosive device detection and removal.

SWORDS was named one of the most amazing inventions of 2004 by *Time Magazine*.

"SWORDS was designed to provide the Soldiers standoff distance from a known enemy threat. You can send this robot down the street ahead of the troops to a known enemy location, and it can do reconnaissance without putting any Soldiers in harm's way," Pottratz said.

"We teamed up with industry in order to create this and what you are seeing is the first and only robot that is authorized to be deployed overseas for use in combat. We have three of these robots in Iraq."

Although SWORDS is a weapons system; it doesn't look particularly intimidating. In fact, its compact design is deceiving in its ability to assist warfighters, and Pottratz's demonstration of it made it look fun to operate. To prevent a curious population — or insurgent — from tampering with it, troops must be nearby to operate with SWORDS.

"We have developed training procedures, and part of the training for the use of this system is that you always have eyes on the robot. That provides cover for the robot while it's doing its mission," Pottratz said.

SWORDS training is an intense 40 hours of learning, which includes driving the unit for day and nighttime use. SWORDS comes with third generation starlight scopes for two of the cameras equipped with night vision. Training involves going to a mount site, such as a building, and engaging targets with blank ammunition and wireless gear. Finally, Soldiers take SWORDS to a firing range to qualify with the weapon system, according to Pottratz.

"When the Soldiers are training, they train on the robot itself, but to save money and time we utilize a trainer program, which mimics the robots functions exactly. We call it the SWORDS Trainer and the Talon Trainer," Pottratz said.

Army Maj. Michael Pottratz, explosive ordnance disposal deputy director of technology for ARDEC, demonstrated one of its wonders, the SWORDS, or Special Weapons Observation Remote Recon Direct Action System robotic weapon, in the RDECOM exhibit at the West 2008 conference in San Diego in February 2008. Photo by Andricka Thomas, RDECOM public affairs specialist.

"SWORDS was designed to provide the Soldiers standoff distance from a known enemy threat. You can send this robot down the street ahead of the troops to a known enemy location, and it can do reconnaissance without putting any Soldiers in harm's way."

U.S. Army Staff Sgt. Santiago Tordillos operates the armed robotic system, SWORDS, by remote control with two joy sticks on a control panel, tracking where it's going on a small screen. U.S. Army photo by Sgt. Lorie Jewell.

"These [trainers] provide a video game setting which prevents wear and tear on the robot, but the Soldiers have realistic scenarios based upon Iraq. We wrote these programs, and they are a mirror image of the control panels you see here," he continued.

The SWORDS robotic training system is operated by America's Army game. Launched in July 2002, America's Army is a fully interactive 3-D environment designed to create a variety of cost-effective technologies from trainers to virtual prototypes. With training applications for the SWORDS, America's Army allows Soldiers to develop and enhance their skills on controlling these robots without the actual robot being there.

The SWORDS power source is a 42-volt lithium-ion battery, which provides about four hours of mobile usage or eight hours of stationary usage. The unit weighs about 200 pounds with a full ammunition supply. The vehicle has five video cameras, which feed information back to the operator for situational awareness.

"We control the robot through an item we call the OCU, which stands for operational control unit. The Soldiers or Marines that use this system gain remote situational awareness using the cameras," Pottratz explained.

Since initial deployment, advancements have been made that include a new camera just completed in December. These are being shipped to Iraq, according to Pottratz, who is excited by the developments in camera technology.

"This camera is called a WARVV (Wide Angle Robotic Vehicle Vision System). It gives the Soldiers a huge angle with which to view the surrounding environment and increases their situational awareness. The ultimate solution, when we get it finished, signifies complete and utter situational awareness. It is the HARV, the Head-Aimed Remote Viewer. It is amazing because if you put that HARV on SWORDS, you now understand everything that is around it as if you were sitting on top of the robot," Pottratz said.

"These cameras may not seem as dramatic as this robot here, but they are the true success behind these robots," he added.

The unit that Pottratz demonstrated carries a M-249 machine gun, which fires a 5.56 mm round. It carries a magazine of 400 rounds and can travel up to 5 miles per hour on its tank-like tracks.

SWORDS was developed in response to an ONS, an Operational Needs Statement that came out of Iraq several years ago, according to Pottratz.

"The robot is used at the unit commander's discretion. The location of the asset is determined by how the command wants to employ it. This tool gives [troops] a standoff from the known threat and there is a variety of different uses for it," said Pottratz.

In response to a question about the cost of the SWORDS unit, Pottratz said that the true cost of SWORDS should be measured by its capability and its ability to keep troops safe.

"If you consider that, the cost of loss of life outweighs the cost of the system itself."

The complete maintenance package for SWORDS is already in Iraq. Further deployment of SWORDS is on hold until the units already deployed in Iraq have completed field testing. CHIPS

Happy 66th Birthday Seabees

Building a Legacy Since 1942

In the past year, Seabees continued in their role as the Navy's goodwill ambassadors, completing community relations projects, repairing and constructing schools and medical facilities in Vietnam, the Philippines, New Guinea, Solomon Islands, Marshall Island and Thailand.

In November 2007, Amphibious Construction Battalion (ACB) One provided direct disaster response support during the Southern California wildfires, constructing 10 miles of emergency firebreaks and erecting a 500-person evacuee tent camp at NAB Coronado.

In Eastern Africa, Seabees are working on Kenyan wells and Ethiopian schools and a vet clinic. In Djibouti, Seabees of the Mobile Utility Support Equipment unit completed the largest expeditionary power plant since the Vietnam era, capable of powering nearly 4,000 residential homes.

Seabees participating in Africa Partnership Station recently replaced school roofs in Cameroon and Gabon, renovated three schools in Sao Tome and constructed a medical clinic in Ghana.

Time and again, Seabees have answered the call to aid victims of earthquakes, floods and hurricanes at home and abroad. Because of the high demand for Seabee expertise, Naval Mobile Construction Battalion 11 and the 25th Naval Construction Regiment were commissioned in Gulfport, Miss., last September.

More than 15,000 Seabees have deployed in support of Operations Enduring Freedom and Iraqi Freedom, and about 2,800 Seabees are currently deployed to 17 countries. Except for the new units, every regiment and battalion has deployed for OIF/OEF, some several times.

Seabee regiments and battalions continue contingency operations throughout Iraq, Kuwait and Afghanistan in direct support of Marine Expeditionary Forces and Special Operations Forces efforts. Recent projects in theater include construction of base camps, infrastructure repair and building renovations. Task-organized units provide force protection and mission-support projects, such as hardened dining facilities, Southwest Asia huts, and tension fabric structures at camps and Forward Operating Bases. Battalions also continue to run convoy security teams through the streets of Al Anbar Province, Iraq. CHIPS

DON CIO Launches New Web Site

Exciting new look and feel makes navigation easier and faster

The Department of the Navy Chief Information Officer unveiled its newly redesigned Web site in late January. In addition to its updated look and feel, the Web site's organization and underlying technology have been improved to better equip users to locate information in just one or two clicks.

The interactive Web site offers podcasts by the DON CIO Robert J. Carey, RSS feeds, a CIO blog and the latest news regarding DON policy, projects, and another interesting feature, "DON CIO in the News."

Go to www.doncio.navy.mil, to try it yourself! **CHIPS**

Information Assurance Scholarship Program

The Information Assurance Scholarship Program (IASP), authorized by U.S.C. Title 10 Chapter 112, is designed to increase the number of qualified personnel entering the information assurance (IA) and information technology (IT) fields within the Department of Defense.

The IASP serves as a multifaceted program institutionalized within DoD to recruit and retain a corps of highly skilled IA/IT professionals (military and civilian) to accommodate the diverse warfighting and unique mission requirements, while providing incentives to strengthen IA/IT research and education in critical areas of interest to the DoD.

The IASP consists of three related parts:

• Scholarships for DoD personnel. This grants military and civilians the opportunity to obtain a master's or a Ph.D. at either the Naval Postgraduate School, Air Force Institute of Technology, or a combination of the Information Resources Management College (IRMC) and a partner Center of Academic Excellence (CAE). Up to 15 academic credit hours from IRMC may transfer toward either a master's or Ph.D. degree at a partnering CAE. Civilians and military students also incur an obligation to continue in DoD employment for a period to be determined by their component.

• Scholarships for non-DoD students. Graduate students and rising junior or senior undergraduates accepted at or enrolled in one of the non-DoD institutions designated as a CAE are eligible to apply for full scholarships to complete a bachelor's, master's or doctoral degrees, or graduate (post-baccalaureate) certificate programs in an IA discipline. During breaks in their academic studies, students will receive progressive, hands-on experience in information security internships.

• Grants to schools. CAE proposals for program participation may also request funding for research, faculty and curriculum development and laboratory improvements to help develop institutional capacity for strong IA educational programs. Grants also will be used to support critical areas of interest to the DoD in the areas of IA and IT.

For more information about the IASP, go to www.defenselink.mil/cio-nii/iasp. **CHIPS**

Attention BlackBerry Users!

New BlackBerry Security Settings Take Effect in February

By the DON Enterprise Services Management Team

Stronger and improved security settings were implemented for all Navy Marine Corps Intranet BlackBerry devices in February. These settings comply with mandatory security policies to protect the devices from unauthorized access and to change features that pose potential security vulnerabilities.

Content protection, to comply with Department of the Navy (DON) data-at-rest guidelines for personal digital assistants (PDAs), has been activated, which encrypts the data on the BlackBerry device and has a slight impact on response time as the data is encrypted/decrypted.

Users are now required to have a minimum five-character password, containing at least one alpha and one numeric character. This password must be changed every 90 days.

After five unsuccessful attempts to enter the password, the BlackBerry will be locked and all information will be erased. Users who need to restore their BlackBerry device should contact the NMCI Help Desk (1-866-THE-NMCI).

Highlights of other changes include:

✔ Content Protection: "Caller ID" will not display when the device is locked

✔ Lock and Erase Feature: user has five attempts to enter the password correctly

✔ Owner Name and Information Field: user can update and modify this field

✔ BlackBerry connected to a USB cable: user can make and receive calls

✔ Pin-to-Pin Messaging: encrypted and unencrypted capability allowed

✔ Instant messaging: is not allowed (including BB Messenger)

✔ Blackberry maps: are now allowed

For a complete list of all changes affecting NMCI BlackBerry devices, as well as the corresponding details and impacts of those changes, go to the NMCI BlackBerry Device Security Settings user tip in the Training section of the NMCI Homeport Web site.

NMCI BlackBerry security settings are based on the Defense Information Systems Agency (DISA) "Wireless Security Technical Implementation Guide (STIG) BlackBerry Security Checklist v5, Release 1.2" of May 23, 2007, with additional guidance from the DON Designated Approval Authority, Marine Corps Designated Approval Authority and DON Chief Information Officer.

For additional questions, please contact the NMCI Help Desk (1-866-THE-NMCI). **CHIPS**

One School You Should Attend

The Defense Financial Management and Comptroller School

By Diana Benoit

The Defense Financial Management Course focuses on decision support which gives emphasis to communication and interpersonal skills, critical thinking, leadership skills, the diverse DoD financial environment, conflict resolution and expeditionary warfare.

The Department of the Navy (DON) is leading the way in preparing its military and civilian leaders to manage effectively and efficiently by providing diverse training and educational programs. Such programs are becoming more important because of the increasingly complex fiscal environment resulting from transformation, technological advances and a shrinking defense budget.

Sound fiscal responsibility and leadership are areas in which the Department of the Navy is focusing efforts to educate its workforce. The Defense Financial Management and Comptroller School (DFM&CS) can help. Long recognized as a Department of Defense (DoD) Center of Excellence for financial management, comptroller and decision support education, DFM&CS provides high quality joint operational-level continuing education to the DoD financial management community.

One of three financial management courses offered at DFM&CS, the Defense Financial Management Course (DFMC), prepares the DoD workforce to be more proactive in meeting strategic challenges through effective decision-making.

Formerly called the Professional Military Comptroller Course, the DFMC curriculum was dramatically revised three years ago to deliver the most relevant, credible financial management, comptrollership and leadership education available within DoD.

The DFMC four-week course is recommended for GS-12 and above (or equivalent) employees and military personnel.

Air Force O3s selected for the Financial Management Leadership Program may attend as an exception. Additionally, attendance is authorized for personnel outside the comptroller career area that are endorsed by the major command/agency comptroller.

The course focuses on decision support which gives emphasis to communication and interpersonal skills, critical thinking, leadership skills, awareness of the diverse DoD financial management environment, conflict resolution and expeditionary warfare and contingency operations.

Decision support training is at the core of all DFM&CS courses and is defined as "enabling people to make informed decisions that optimize resources and mission effectiveness."

At DFM&CS, the decision support concept is taught as a two-phased process providing leaders with viable alternatives, methods to assess financial and non-financial impacts, assembling a well-supported recommendation and a method for implementing the leader's direction.

Students are required to actively participate, formulate individual and group goals, and successfully complete homework and test requirements. Two tests are administered during the course. They are composed of multiple choice and essay questions related to critical thinking. The course is rigorous and taught at the graduate level.

The course emphasizes a balanced curriculum, faculty instructors lay a firm foundation of principles and practices in each functional area, reinforced by guest lecturers who discuss the application of these principles and practices on the job. Methodologies range from readings, questioning, individual practical exercises, role-playing, student-led discussions and problem solving, to instructor-guided discussions, realistic case studies, and self-paced, computer-assisted simulations.

Students are divided into seminars based upon a careful review of questionnaires they complete. Seminars are mixed by service, background, and whether a student is military or civilian. This procedure greatly enriches the learning experience of all students.

Guest speakers have included:

- Defense Finance and Accounting Service (DFAS) senior leaders;
- DoD's Business Transformation Agency leaders, including the Defense Business Systems Acquisition Executive and Director, Transformation Priorities and Requirements - Financial Management;
- Auditor Generals from the departments of the Navy, Air Force, Army and the Coast Guard;
- Comptrollers from several defense agencies;
- Comptrollers from U.S. Special Operations Command, U.S. Northern Command, U.S. Southern Command and U.S. Joint Forces Command; and
- Current and past political appointees.

Opportunities provided in the course include:

- Learning how to advise senior leaders in strategic decision support roles;
- Increasing awareness of the diverse financial management framework within DoD;
- Understanding the impact of the strategic environment on the DoD mission;

- Practicing enhanced leadership and interpersonal skills;
- Comprehending contingency operations concepts and their impact on financial management; and
- Enhancing communication and leadership skills.

The DFMC evaluation processes have two broad objectives: (1) evaluation of student performance to measure achievement of behavioral objectives established by the faculty and (2) evaluation of the faculty, guest speakers, educational materials and other facets of the curriculum to determine if the course is meeting the needs of the comptroller community and the DoD.

Student achievement of behavioral objectives is measured in several ways including tests, objective evaluation of student prepared written papers, oral presentations, seminar contributions, formal problem solving exercises, use of proper quantitative techniques, and interpretation of quantitative information.

For more information about the curriculum, go to www.au.af.mil/au/ecpd/dfmcs/dfmc_curric.htm.

The DoD financial managers trained today need the essential skills that decision support addresses as part of their toolkit for future success. Financial managers are preferred, but other communities, such as project managers, will be accepted by exception if seats are available. Nominations are submitted through, and screened by the Department of the Navy, Director, Office of Budget, Budget Policy and Procedures Division (FMB5).

The DFM&CS is located on Maxwell-Gunter Air Force Base, Montgomery, Ala. Travel and per diem expenses for DFMC students (not in a PCS status) are centrally funded by the Assistant Secretary of the Navy (Financial Management and Comptroller) (ASN (FM&C)). Visit the DFMCS Web site at www.au.af.mil/au/ecpd/dfmcs/ for information about lodging and per diem.

For assistance, call the school at (334) 953-6656 or DSN 493-6656. For information about eligibility, phone (703)-692-4839 or DSN 222-4839.

Ms. Benoit is a DFAS employee serving as an instructor at Air University, Eaker College, DFM&CS.   CHIPS

Foreign language tools available through Navy audio books program

by Ensign Ian Shultis
Naval Education and Training Command Public Affairs

Learning a foreign language just got a little easier for the thousands of Sailors and their families serving overseas or preparing to deploy. From German to Swahili, self-study materials for more than 25 languages are available for download through Navy Knowledge Online by all active duty, retired, Reserve and family members of the Navy, Marine Corps and Coast Guard.

"The downloadable audio book program is made available through Morale, Welfare and Recreation funding," said Nellie Moffitt, the head of the Navy General Library Program in an interview Jan. 3. "Giving Sailors the opportunity to practice their language skills and if they improve, they get money for this new skill, improves their morale. Of the more than 40 languages on the approved DoD Strategic Language List for FY07, nearly all are in the collection."

Although the online library is an MWR initiative, the implications for mission readiness are also important to active duty personnel. "The Navy has become more technically sophisticated, as well as more demanding for cultural/linguistic understanding of adversaries and allies," said Capt. Connie Frizzell, commanding officer of the Center for Information Dominance. CID houses the Center for Language, Regional Expertise and Culture (CLREC), and remains at the forefront of language training throughout the service.

Currently, the online library houses more than 8,000 audio books, 400 e-books, 600 videos and 1,400 music albums. Over 400 titles were selected specifically for children. New titles are added to the library regularly, in categories ranging from "classic literature" and "juvenile fiction" to "business and finance" or "comic and graphic books."

To access the audio books program, log into https://www.nko.navy.mil, click on the link to "Navy Library eContent" on the right side of the page under the "Reference" section. Next, click on the banner that reads "Download eBooks, Audio Books, Music and Video," to access the myriad of titles available. A user account must be established within eContent to check out materials.

There are several guidelines for use of the library. Titles are served through the Overdrive Media Console, and so cannot be downloaded to Navy computers, or used on iPods, Macs or Zunes. Items may be downloaded to personal computers, non-iPod listening devices or even CDs.

Five items may be downloaded at a time. Due to high customer demand, all audio book and music titles are available to the user for 10 days, and video titles may be checked out for five days; after that period, the title must be checked out again.

For more information or to establish an account, visit NKO at https://www.nko.navy.mil.   CHIPS

It's a jungle out there — but the DON IT Umbrella Program can help!

Getting the most from your information technology investment

By Sharon Anderson, Linda Greenwade and Sylvia Neidig

Are you one of the many who struggle through the sometimes agonizing process of defining your requirements, searching for a solution, tackling the fine print in a licensing agreement, and conducting market research, until finally exhausted, you purchase a software solution while hoping for the best?

The Department of the Navy Information Technology (DON IT) Umbrella Program and Department of Defense Enterprise Software Initiative (DoD ESI) have some tips that may make your life easier and help make the most of your IT investment.

The Umbrella Program was chartered in 1988 by the Assistant Secretary of the Navy for Financial Management as a means to ensure effective and efficient use of the Department's IT dollars.

The Umbrella team provides program management and technical expertise to support the timely and cost-effective placement of acquisition vehicles for IT hardware, software and services.

Acquisition vehicles are managed from conception to closure, which ensures that customers get best value on their purchases and exceptional customer service from the Umbrella team throughout contract life.

COTS Software

Often buyers think that because they are purchasing commercial-off-the-shelf products that little effort is required in making the purchase, but this couldn't be further from the truth. Terms and conditions vary widely, and a thorough analysis of licensing agreements and a clear definition of requirements must be conducted to ensure that you are getting the best value for your IT dollar.

Use a systematic approach to make sure that you not only meet your requirements, but have also met policy guidance and acted in the best interests of the DON and Defense Department enterprise.

The following tips can help set a course that will lead you to a successful purchase.

However, be sure to work with your local procurement office for the latest policy and procedural guidance.

Software Buyers Checklist

<u>Determine Your Requirement</u> – Conduct a technical evaluation of what you need and the products under consideration. Determine how long you will need to use the product, short- or long-term. Do you need a name brand product or will a less expensive, less well-known product deliver the same results? Remember that competition among vendors can provide a best value solution for you.

If you still find that your requirements demand a name brand product, a sole source justification is required.

<u>Follow the Order of Precedence</u> – The DoD and DON are committed to good stewardship of IT funds and management of enterprise COTS IT agreements, assets and policies for the purpose of lowering total cost of ownership across the DoD, Coast Guard and Intelligence Community.

You must review the applicable federal, DoD and DON regulations to ensure your purchase meets this guidance.

✔ The Federal Acquisition Regulation (FAR) 8.002 and Defense Federal Acquisition Regulation Supplement (DFARS) 208.002 cite order of precedence for use of government supply sources:
 – Considerations most pertinent to COTS software acquisition:

✔ Check "Inventory Box" at www.esi.mil

✔ ESI and SmartBUY
 – ESI specifically cited in DFARS 208.74
 – SmartBUY policy memo Dec. 22, 2005
 – DoDI 5000

✔ GSA Schedule
 – Other existing contracts (TAC, ITES ...)

✔ Open Market

The Umbrella Team

Consolidates the Department's IT requirements when better prices and/or quality can be obtained;

Collects and analyzes customer requirements, prepares life cycle management (LCM) documents, develops Requests for Proposal/Requests for Quote (RFP/RFQ), and manages and assists with the selection process;

Provides post award customer service;

Provides order management and technical and contracting support;

Manages ITEC Direct, the Department's e-commerce site;

Ensures offerings comply with DON and DoD policy;

Member of DON Enterprise Licensing Team and Software Product Manager for DON assignments under the DoD Enterprise Software Initiative (ESI), including support to the SmartBUY initiative;

Represents the Navy in joint source contracts and source selection;

Sponsors CHIPS, the Department of the Navy IT magazine, published quarterly.

<u>Get the Best Pricing</u> – Adequate market research should be conducted. This also includes quotes from DoD ESI and SmartBUY vendors, if applicable. If you find that you can obtain better pricing from another contract or the open market, consult the ESI and SmartBUY software product manager (SPM) and follow the procedures specified in DFARS Procedures, Guidance and Information (PGI) 208.74.

Often, the licensing terms do not compare with those that ESI and SmartBUY offer, so you will not be getting the best value, that's why it is so important to talk to the SPM.

Another consideration is volume pricing. Spot discounting from ESI and SmartBUY (GSA) prices is allowable and expected when buying large quantities.

<u>Know the Terms and Conditions</u> – Do you understand the terms and conditions? This is one area where purchasers frequently make costly mistakes.

Check the End User License Agreement (EULA) and compare ESI and SmartBUY agreements to see the terms and conditions that have been addressed for comparative pricing. Check the GSA schedule for license rights (Special Item Numbers (SIN) 132-33 – Term Software License and Perpetual Software License).

Understand use rights and perpetual versus term licenses. Consider the duration of your requirement and funding constraints. Consider use rights and the scope of your requirement. Is the license for your organization, an enterprise license, parts of your organization, or a program office?

Do you understand the terms of the license which may have different use definitions for different software? For example:

– A named user license generally permits use of the software by one named individual or on a specifically identified desktop.

– A concurrent user license generally permits a fixed number of users access to the software at a given time. This is in contrast to an unlimited use license.

– A pay per processor (CPU) license provides the right to install the software on a machine for which the number of CPUs is not greater than the number of licenses purchased, as specified in the license. The number of seats that may access the program is limited only by the capacity of the licensed CPUs.

Will you need additional rights for mobile devices, such as laptops or for home use?

Does the license include restrictions such as to hardware make or model?

Are there unusual cases such as use charges tied to virtual machines?

Contractor Use – Outsourcing permits the outsourced contractor to purchase and use software in support of the government customer. But it must be specified who owns the licenses: government or contractor.

Or if not outsourced, be sure that third parties (contractors) have use rights when working on behalf of the government or when providing services to host government-owned licenses.

Audit Provisions – Retain the right to self-audit or, ensure that government rights are adequately protected by requiring appropriate security clearances and advance notice of audit as well as removing any payment obligations.

Understand termination and rights of survival clauses. Understand the impact to software use and maintenance rights if an order is terminated without completion of expected payments to the vendor.

Given the frequency of acquisitions and mergers in industry, it is important to include retention of rights when vendors are bought by other companies or when products are repackaged under a new name.

Changes in the Defense Department are no less frequent than in industry; in the last 10 years there have been disestablishments and many organizational realignments and name changes. Will your organization retain the rights to its software after the dust settles? Make sure that the terms and conditions allow transfer rights; check for limitations on movement or transfer within or between components, organizations, programs, etc.

Understand notice requirements either by your organization or the vendor. If you fail to follow your contract notice obligations, you may jeopardize the right to transfer licenses.

Address delivery options and media distribution, will you require hard copy media, duplication rights, electronic distribution, central distribution, user access?

What does the warranty offer?

Is an escrow agreement needed? A software escrow account is the deposit of the software's source code into an account held by a third party escrow agent. Escrow is typically requested by a party licensing software (the "licensee") to ensure maintenance of the software. The software source code is released to the licensee if the licensor files for bankruptcy or otherwise fails to maintain and update the software as promised in the software license agreement.

Are there terms defined for "Times of Conflict"? Some of the ESI agreements contain this provision. In general, this provision may allow software use during "Temporary Expeditionary Deployments" ("TEDS"), that is, deployments away from in-garrison (permanent locations) to locations where troops or civilian government personnel deploy in support of war games, exercises,

DON IT
umbrella program

DON IT Umbrella - www.it-umbrella.navy.mil
ITEC Direct - www.itec-direct.navy.mil
ESI - www.esi.mil
CHIPS www.chips.navy.mil

real-world contingencies, and emergency situations similar to the terrorist attacks of 9/11 where temporary duty stations were needed due to the destruction of government offices.

Don't forget Maintenance – Find out what is included in maintenance and the terms – one year, two or is it prorated to a specific date? Some vendors prefer to have their maintenance agreements expire on a certain date because it makes it easier for them to manage the large number of agreements they receive.

Is there an "all or none" provision? Is maintenance priced as a percentage of list price or GSA schedule vice purchase price? Can maintenance escalation be capped for a number of years? What is the maintenance cost ratio to product price?

Check to ensure all rights are clearly defined, quantifiable and predictable!

Finally, follow the guidance of your local contracting office. The Umbrella team is available if your local contracting office or you may need assistance.

As you can see there are many items to consider, even with a COTS software purchase, but by using the DON IT Umbrella program BPAs and agreements under the ESI, and following the software buyer's checklist, you can ensure a successful purchase and assist the DoD and DON enterprise in making the most of scarce IT dollars.

www.it-umbrella.navy.mil
www.itec-direct.navy.mil
www.esi.mil
www.chips.navy.mil

Sharon Anderson is the CHIPS senior editor.

Linda Greenwade is the DON IT Umbrella program manager.

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Comply with Regulations and Policies

– Applicable FAR/DFARS policies: DFARS 208.74 provides policy regarding consideration of ESI agreements, if one exists.

– DoD SmartBUY policy memo of December 22, 2005, provides guidance on the use of SmartBUY vehicles and states that SmartBUY in DoD is implemented through the ESI.

– DoDI 5000.2 section E4.2.7 states "When the use of commercial IT is considered viable, maximum leverage of and coordination with the DoD ESI shall be made."

– DON Applications and Database Management System (DADMS)/Functional Area Manager (FAM) approval.

– Navy Marine Corps Intranet (NMCI)

– Section 508 of the Rehabilitation Act. Products must meet the applicable accessibility standards of 36 CFR Part 1194 as required by FAR Case 1999-607. General information regarding the Section 508 Act can be found at www.section508.gov. Links to software publishers' Web sites can be found at www.itec-direct.navy.mil/.

– DoD IT Standards Repository (DISR). The DISR is maintained by the DoD Executive Agent for IT Standards. The DoD IT standards management tool, DISRonline is available for use by CAC-equipped authorized parties and can be accessed for account requests at https://disronline.disa.mil/.

– Common Security Configuration. The Office of Management and Budget (OMB) issued policy memorandum M-07-11, "Implementation of Commonly Accepted Security Configurations for Windows Operating Systems," which states that "agencies with these operating systems [Windows XP and VISTA] and/or plans to upgrade to these operating systems must adopt these standard security configurations by Feb. 1, 2008."

– OMB memo M-07-18, "Ensuring New Acquisitions Include Common Security Configurations," provides recommended language for agencies to use in solicitations to ensure new acquisitions include these common security configurations and IT providers certify that their products operate effectively using these configurations.

– For more information go to www.csrc.nist.gov/itsec.

– Internet Protocol version 6 (IPv6). OMB required that agencies enable their core networks to handle IPv6 traffic by the end of June 2008. As a part of this process agencies must procure IPv6 compatible products.

– Net-centricity. The DoD is transforming the way information is managed to accelerate decision-making, improve joint warfighting and to create intelligence advantages. To reach this net-centricity, DoD must exploit advancing technologies that move the enterprise from an application-centric to a data-centric paradigm. ASD(NII)/DoD CIO net-centric checklist, located at www.defenselink.mil/cio-nii/docs/NetCentric_Checklist_v2-1-3_.pdf, provides information on the net-centric posture of IT products and services.

SPM	Contract	Savings off GSA
Linda Greenwade	Microsoft	Up to 38%
Sarah Jones	COTS Integration Service Providers	10 – 20%
John Toscano	SAP	3 – 19%
Peggy Harpe	Oracle (Navy only)	64 – 70%
	Novell	48%
	Telelogic	Up to 15%
	Digital Systems Group IFMIS	Up to 15%
	Gartner	Up to 4%
	HiSoftware 508 Tools	3 – 43%
Sandy Sirbu	iGrafx	21 – 69%
Steve Thompson	Adobe Desktop	Up to 60% off TLP Level 1
Thao Vu	BEA	Up to 18%
	RWD	5 – 51%

The Lazy Person's Guide to the Semantic Web

By Retired Air Force Maj. Dale J. Long

Communication, as we may remember, consists of four parts: sender, receiver, message and medium. The sender constructs a message that consists of specific content and transmits that content through a particular medium: voice, symbols, letters, waving flags, Morse code, whatever it takes to deliver the message. For communication to be considered effective, the receiver must both receive and understand the message.

With that in mind, I would submit that humans communicate with computers, albeit in a very limited way. Yes, we send them lots of messages: "Remember this text I'm typing," "Save this file," "Open that file," "Print this picture," which our computers will execute. But the average computer, other than doing what the print command demands, is not *aware* of what the word "print" means outside the context of a machine executable command.

However, creating sentient, self-aware, artificial intelligence (AI) is the Holy Grail of computing. We are intrigued by this notion and have created many fictional characters with artificial intelligence that have the ability to understand meaning well enough to hold rational conversations, including the paranoid HAL 9000 (heuristically programmed algorithmic computer) from *2001: A Space Odyssey*, the intelligent car KITT (short for "Knight Industries Two Thousand"), from *Knight Rider*, and Data (an android who serves as the second officer and chief operations officer) from *Star Trek*, to name just a few. But how to create artificial intelligence in the real world is the question of the day.

In the last issue of CHIPS we looked at how humans use computers as calculators and external memory storage, two functions that do not require true cognitive behavior on the part of the machine. In this issue, we will look at how we might develop systems capable of more than just crunching numbers or storing static bits of information, systems capable of understanding the meaning of what we tell them in addition to merely doing what we command.

To Serve Man

As happens sometimes, my choice of topic was inspired by a visit with Zippy, Zippette, and their now six-year old twins, Paul and Cassie. They also have one other new family member: a four-foot tall humanoid robot they call "Alfie."

"It's really cool," Zippy said. "Watch this! Alfie, bring me some tortilla chips and medium salsa."

Alfie ambled into the kitchen and returned about two minutes later with two bowls, one filled with tortilla chips and the other with the appropriate salsa. Of course, all the food in the kitchen had to be properly labeled and stored in the correct locations for it to do this, and all the terms had to be pre-programmed into the robot. But Zippy was correct, it was very cool to have our own robotic butler.

Zippy continued to put Alfie through his paces, and the little robot soon had us supplied with enough drinks and munchies to make it through the first half of the Super Bowl. Things were going well until Zippy spilled some salsa on his shirt and decided to have Alfie clean him up with the command, "Alfie, wipe off my shirt."

Fortunately for Zippy, Alfie was not particularly strong, though the shirt needed several new buttons after the robot tried to do what Zippy told it to do instead of what Zippy meant it to do. Computers do have a tendency to take things literally.

The Meaning of Meaning

The word "semantic" is defined as: "Of or relating to meaning, especially meaning in language." The "Semantic Web" concept is based on the idea that we can evolve our current static, separate stores of language-based information and build a system that approximates how a human mind relates information in memory based on the meaning of its contents.

For a more detailed explanation, here are some excerpts from the World Wide Web Consortium (W3C®) introductory page on the Semantic Web:

"The Semantic Web is about two things. It is about common formats for integration and combination of data drawn from diverse sources, where on the original Web mainly concentrated on the interchange of documents. It is also about language for recording how the data relates to real world objects. That allows a person, or a machine, to start off in one database, and then move through an unending set of databases which are connected not by wires but by being about the same thing."

The ability to relate pieces of information based on meaning is essentially how humans think. The trick is to replicate information in a rigid, binary electronic system to mimic what the chemically-based biological computers inside our skulls learn to do over many years of trial and error.

Creating the Semantic Web as an evolutionary successor to the World Wide Web will require developing a way to express and access Web content in natural language and in a format that can be read and used by automated tools. This is not a trivial task.

Before we go into specific tools and methods, let's look at how a Semantic Web would work by asking the question: "When is the next space shuttle launch?"

If you ask that question by typing "when is the next space shuttle launch" into an Internet search engine, the top result should be the NASA shuttle operations page, which will show any current missions and the date of the next shuttle launch. The search engine likely found this page by identifying a page that had the closest match to this combination of terms, not because it really understood the question.
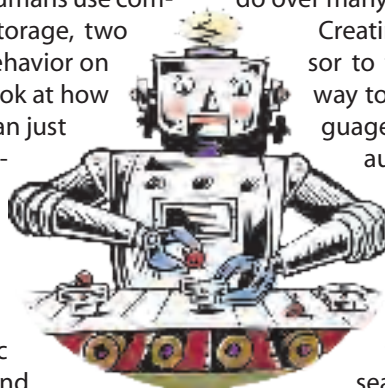
But using the Semantic Web, you would receive a simple, direct answer. At the time I wrote this article, the response would have simply been: March 11, 2008. The difference between the two responses is that in the first, the search engine found a page with the best match for the terms. A semantic engine, however, would go through each term to find the meaning of the question:

– When: this is a time-based query

– is: state of occurrence

– the: singular event

– next: related to when, means the first occurrence of the singular event after the present

– space: too many meanings, need more information

– shuttle: related to space, "space shuttle" is identifiable as a specific object

– launch: takeoff, as opposed to any other activity

At this point, a semantic engine would *read* the NASA page, extract only the information relevant to the question and construct and present a meaningful answer to the question, not a page that happens to contain the information. The simple answer would be a date: "March 11, 2008."

As the date draws closer, a semantic engine that *knows* weather is a factor in the launch could factor in weather forecasts and offer an opinion on how likely the shuttle is to actually takeoff on schedule based on the forecast. The more nuanced answer would be the projected date with conditions: "March 11, 2008, weather permitting."

Humans learn to do this by rote, trial and error, and eventually intuition. Computers, on the other hand, currently have no way of *learning* other than by human input. One of the greatest barriers to the Semantic Web, therefore, is that we must somehow *teach* computers what everything means in relation to everything else.

So how would we teach a computer to search the way we do?

Machine Learning

Let's try another question: "What is today's special at the five restaurants closest to my office?"

If I were going to answer that question myself, I would go to Google maps, enter the location of my office, and search for restaurants. Then I would click on the five closest results, one at a time, look for today's updated menu, look for the term "special" and note the results for each.

To teach that to a computer, I would first have it record and mimic my clicks and keystrokes. Then I would assign meanings to the terms in each step and relate them to each term in the question in much the same way the previous query related the terms "space," "shuttle" and "launch" to develop meaning.

If I can teach the computer how to execute this specific search, the next level is to replace search terms and see if it can find something different, like "soup of the day" or changing the number or type of restaurants. If the semantic engine can successfully answer the question, "what are today's dinner specials at the three Italian restaurants closest to my office" without further training from me, I will have succeeded in teaching the semantic engine a new skill without having to individually program every variation of every query about restaurants.

The problem with learning by mechanical or unthinking routine is that it is a slow, literal process that takes a long time to teach each action. Trial and error would not be much better because we would still have to instruct the computer in every new skill.

That leaves intuition. *But how do you give a computer intuition?*

Structuring Meaning

Human intuition is based on many things, but where language is concerned much of it comes from an extensive knowledge of the meaning of words in relation to other words. The W3C has various projects underway to provide semantic applications with a formal description of concepts, terms and relationships within given knowledge domains. These tools and methods include the Resource Description Framework (RDF), a variety of data interchange formats (RDF/XML, N3, Turtle, N-Triples), and notations such as RDF Schema (RDFS) and Web Ontology Language (OWL).

The key to the Semantic Web will be RDF, according to the W3C.

"RDF is intended for situations in which this information needs to be processed by applications, rather than being only displayed to people. RDF provides a common framework for expressing this information so it can be exchanged between applications without loss of meaning. Since it is a common framework, application designers can leverage the availability of common RDF parsers and processing tools. The ability to exchange information between different applications means that the information may be made available to applications other than those for which it was originally created."

RDF is based on the idea of identifying things using Web identifiers (called Uniform Resource Identifiers, or URIs), and describing resources in terms of simple properties and property values. This enables RDF to represent simple statements about resources as a graph of nodes and arcs representing the resources, and their properties and values.

To explore how this might work in practice, it is time to ask our imaginary semantic engine another question: "Who will play in the next Super Bowl?"

First, answering this question requires a very specialized inference to turn the words "super" and "bowl" into a term that means something entirely different from their literal meaning. However, the computer does get a hint that this term is a compound object because both words are capitalized. Therefore, the term "Super Bowl" would have its own unique URI, as would each team, and football terms like touchdown, interception, field goal, and so on.

Once the semantic engine figured out that we are referring to the annual championship game between the American and National Football Conference champions, the easy part of answering this question is the time factor. There is generally a single, well-publicized date associated with the event. Based on our question, we want the next date this event occurs. From there, the system can work backwards based on the season's schedule.

Knowing that the game is contested by only two teams at a time also helps narrow down the answer to the two most likely candidates. But which two teams will play?
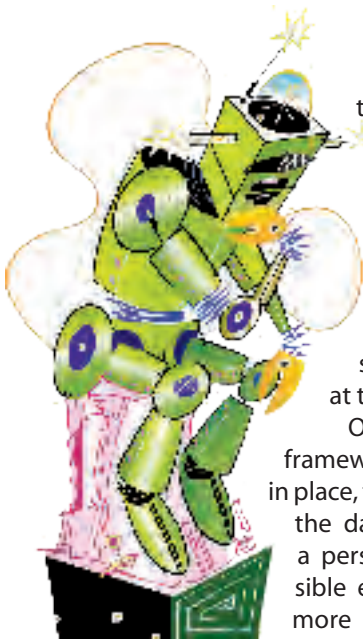
To answer this question, the system will need access to schedules and results for every team and game during the season, divisional standings, and as much other data about the teams that it can incorporate into its prediction algorithm, including weighting performance at the end of the season higher than performance at the beginning.

Once the common information framework from all the various sources is in place, teaching a computer how to weigh the data is no different than teaching a person to weigh data, with the possible exception of the computer being more likely to calculate complex math accurately.

However, instead of us telling it where to look, we will want the systems to find all these sources on its own by looking around the entire Web and selecting relevant sites based on what we have taught it about how schedules are constructed and the NFL so it can automatically incorporate data it finds that we may not have known about when we programmed it.

If it is sophisticated enough, it could also factor in the opinions of various sports pundits, weighted of course by their percentage of correctly predicted games during the season.

The answer the system provides to our question will likely change over time as the season progresses. Before any games are played, the system will have very little pertinent information. As more games are played, the system's opinion will change; just as a human fan's opinion will change based on how various teams perform.

Predicting football results is still a fairly limited exercise and one that most football fans can do fairly quickly every week during football season. Also, what we've described still requires explicit markup of metadata to teach our system what it needs to know about football to return a realistic result.

Explicit Versus Implicit

All of our sample questions so far have been based on the concept of explicit (unambiguous) semantics, where we determine in advance the meaning of various words and terms for the system. However, to take our semantic engines to a level approximating human thought, we need a way to develop implicit (implied, but not explicitly expressed) semantics, where our system can draw inferences based on prior experience without specific direction.

Implicit semantics are created by people simply by doing what they do. User voting and editing on Wikipedia and similar Web sites are a social version of implicit markup, while autonomic examples of this would be Google's PageRank™ system or Facebook's "social graph." But for the closest thing to autonomic implicit markup, we turn to the world of international news: *Reuters* and its Calais Web service.

In February 2008, Reuters opened access to the application programming interfaces of its OpenCalais project. Calais allows anyone to send text-based content, for example, this article, a blog, weather report, football statistics, and have Calais analyze it and generate metadata. The words are tagged representing people, places, facts and events to increase the document's search relevance and accessibility.

The short description of this process is: raw text goes in; tagged text full of meaning comes out. Dropping a document into Calais is the equivalent of immersing a person in a social community to absorb meaning and content from that community.

If you want to try it yourself at home, gather a large number of documents and run them through Calais. Then scan and analyze the tagged documents with a spatial search tool like RDF-Gravity, a free, open source application that analyzes RDF formatted documents and returns a visual, graphical representation of the data. You may find the results interesting.

Let's say we have a terabyte of unstructured data on the weapons, units, weather, terrain, and other factors from various battles. If we could abstract information from all this raw data and graphically display it in relation to the actual outcomes of the battles, the results might show some insights applicable to future conflicts.

In Closing

We have really just scratched the surface of the Semantic Web, particularly since we only looked at a few limited text-based applications. Every year we increase the number of devices that are potential sensors for our "global brain," but we limit ourselves by structuring data only for use within single applications.

Our goal should be the fictional intelligence gathering system depicted in the movie *The Bourne Ultimatum*, one that will alert us if someone, somewhere in the world, does the right combination of things that provides the answer to the question: "Where and when will al Qaeda attack next?"

While no one human could likely survey, analyze, and summarize all the public and private information available from news, transportation, telecommunications, financial, intelligence, and other relevant sources, a truly semantic system might be able to provide an answer. However, until we fully develop semantics-based technologies capable of thinking like we do, we must still rely on humans to extract meaning from data.

Computers cannot think like we do. Yet.

Until next time, Happy Networking!

Long is a retired Air Force communications officer who has written regularly for CHIPS since 1993. He holds a master of science degree in Information Resource Management from the Air Force Institute of Technology. He is currently serving as a telecommunications manager in the U.S. Department of Homeland Security.

CHIPS

Enterprise Software Agreements
Listed Below

The **Enterprise Software Initiative (ESI)** is a Department of Defense (DoD) initiative to streamline the acquisition process and provide best-priced, standards-compliant information technology (IT). The ESI is a business discipline used to coordinate multiple IT investments and leverage the buying power of the government for commercial IT products and services. By consolidating IT requirements and negotiating Enterprise Agreements with software vendors, the DoD realizes significant Total Cost of Ownership (TCO) savings in IT acquisition and maintenance. The goal is to develop and implement a process to identify, acquire, distribute and manage IT from the enterprise level.

Additionally, the ESI was incorporated into the Defense Federal Acquisition Regulation Supplement (DFARS) Section 208.74 on Oct. 25, 2002, and DoD Instruction 500.2 in May 2003.

Unless otherwise stated authorized ESI users include all DoD components, and their employees including Reserve component (Guard and Reserve) and the U.S. Coast Guard mobilized or attached to DoD; other government employees assigned to and working with DoD; nonappropriated funds instrumentalities such as NAFI employees; Intelligence Community (IC) covered organizations to include all DoD Intel System member organizations and employees, but not the CIA nor other IC employees unless they are assigned to and working with DoD organizations; DoD contractors authorized in accordance with the FAR; and authorized Foreign Military Sales..

For more information on the ESI or to obtain product information, visit the ESI Web site at http://www.esi.mil/.

Software Categories for ESI:

Asset Discovery Tools
Belarc - NEW!

Belmanage Asset Management - Provides software, maintenance and services.
Contractor: *Belarc Inc.* (W91QUZ-07-A-0005)
Authorized Users: This BPA is open for ordering by all Department of Defense (DoD) components and authorized contractors.
Ordering Expires: 30 Sep 11
Web Link: https://ascp.monmouth.army.mil/scp/contracts/viewcontract.jsp?cNum=W91QUZ-07-A-0005

BMC - NEW!

Remedy Asset Management - Provides software, maintenance and services.
Contractor: *BMC Software Inc.* (W91QUZ-07-A-0006)
Authorized Users: This BPA is open for ordering by all Department of Defense (DoD) components and authorized contractors.
Ordering Expires: 12 May 08 (Call for extension information.)
Web Link: https://ascp.monmouth.army.mil/scp/contracts/viewcontract.jsp?cNum=W91QUZ-07-A-0006

Carahsoft - NEW!

Opsware Asset Management - Provides software, maintenance and services.
Contractor: *Carahsoft Inc.* (W91QUZ-07-A-0004)
Authorized Users: This BPA is open for ordering by all Department of Defense (DoD) components and authorized contractors.

Ordering Expires: 19 Nov 09
Web Link: https://ascp.monmouth.army.mil/scp/contracts/viewcontract.jsp?cNum=W91QUZ-07-A-0004

DLT - NEW!

BDNA Asset Management - Provides asset management software, maintenance and services.
Contractor: *DLT Solutions Inc.* (W91QUZ-07-A-0002)
Authorized Users: This BPA has been designated as a GSA Smart-BUY and is open for ordering by all Department of Defense (DoD) components, authorized contractors and all federal agencies.
Ordering Expires: 01 Apr 08 (Call for extension information.)
Web Link: https://ascp.monmouth.army.mil/scp/contracts/viewcontract.jsp?cNum=W91QUZ-07-A-0002

Patriot - NEW!

BigFix Asset Management - Provides software, maintenance and services.
Contractor: *Patriot Technologies Inc.* (W91QUZ-07-A-0003)
Authorized Users: This BPA has been designated as a GSA Smart-BUY and is open for ordering by all Department of Defense (DoD) components, authorized contractors and all Federal agencies.
Ordering Expires: 08 Sep 12
Web Link: https://ascp.monmouth.army.mil/scp/contracts/viewcontract.jsp?cNum=W91QUZ-07-A-0003

Business and Modeling Tools
BPWin/ERWin

BPWin/ERWin - Provides products, upgrades and warranty for ERWin, a data modeling solution that creates and maintains databases, data warehouses and enterprise data resource models. It also provides BPWin, a modeling tool used to analyze, document and improve complex business processes.
Contractor: *Computer Associates International, Inc.* (W91QUZ-04-A-0002)
Ordering Expires: Upon depletion of Army Small Computer Program (ASCP) inventory
Web Link: https://ascp.monmouth.army.mil/scp/contracts/compactview.jsp

Business Intelligence
Business Objects

Business Objects - Provides software licenses and support for Business Objects, Crystal Reports, Crystal Enterprise and training and professional services. Volume discounts range from 5 to 20 percent for purchases of software licenses under a single delivery order.
Contractor: *EC America, Inc.* (SP4700-05-A-0003)
Ordering Expires: 04 May 10
Web Link: http://www.gsaweblink.com/esi-dod/boa/

Mercury

Mercury Software - Provides software licenses, training, technical support and maintenance for Mercury Performance Center, Mercury Quality Center, Mercury IT Governance Center and Mercury Availability Center.
Contractor: *Spectrum Systems, Inc.* (SP4700-05-A-0002)
Ordering Expires: 21 Feb 09
Web Link: http://www.spectrum-systems.com/contracts/esi-hp.htm

Database Management Tools

Microsoft Products

Microsoft Database Products - See information under Office Systems on page 73.

Oracle (DEAL-O)

Oracle Products - Provides Oracle database and application software licenses, support, training and consulting services. The Navy Enterprise License Agreement is for database licenses for Navy customers.

Contractors:

Oracle Corp. (W91QUZ-06-A-0001)

DLT Solutions (W91QUZ-06-A-0002)

Mythics, Inc. (W91QUZ-06-A-0003)

Ordering Expires:

Oracle: 30 Sep 11

DLT: 1 Apr 08 (Call for extension information.)

Mythics: 17 Dec 08 (Call for extension information.)

Authorized Users: This has been designated as a DoD ESI and GSA SmartBUY contract and is open for ordering by all U.S. federal agencies, DoD components and authorized contractors.

Web Link: https://ascp.monmouth.army.mil/scp/contracts/compactview.jsp

Special Note to Navy Users: On Oct. 1, 2004, and May 6, 2005, the Navy established the Oracle Database Enterprise License, effective through Sept. 30, 2013. The enterprise license provides Navy shore-based and afloat users to include active duty, Reserve and civilian billets, as well as contractors who access Navy systems, the right to use Oracle databases for the purpose of supporting Navy internal operations. Navy users in joint commands or supporting joint functions should contact the NAVICP Mechanicsburg contracting officer at (717) 605-3210 for further review of the requirements and coverage.

This license is managed by the Space and Naval Warfare Systems Center (SPAWAR-SYSCEN) San Diego DON Information Technology (IT) Umbrella Program Office.

The Navy Oracle Database Enterprise License provides significant benefits including substantial cost avoidance for the Department. It facilitates the goal of net-centric operations by allowing authorized users to access Oracle databases for Navy internal operations and permits sharing of authoritative data across the Navy enterprise.

Programs and activities covered by this license agreement shall not enter into separate Oracle database licenses outside this central agreement whenever Oracle is selected as the database. This prohibition includes software and software maintenance that is acquired:
a. as part of a system or system upgrade, including Application Specific Full Use (ASFU) licenses;
b. under a service contract;
c. under a contract or agreement administered by another agency, such as an inter-agency agreement;
d. under a Federal Supply Service (FSS) Schedule contract or blanket purchase agreement established in accordance with FAR 8.404(b)(4); or
e. by a contractor that is authorized to order from a Government supply source pursuant to FAR 51.101.
This policy has been coordinated with the Office of the Assistant Secretary of the Navy (Financial Management and Comptroller), Office of Budget.

Web Link: http://www.it-umbrella.navy.mil/contract/enterprise/deal/Oracle/oracle.shtml

Sybase (DEAL-S)

Sybase Products - Offers a full suite of software solutions designed to assist customers in achieving Information Liquidity. These solutions are focused on data management and integration; application integration; Anywhere integration; and vertical process integration, development and management. Specific products include but are not limited to: Sybase's Enterprise Application Server; Mobile and Embedded databases; m-Business Studio; HIPAA (Health Insurance Portability and Accountability Act) and Patriot Act Compliance; PowerBuilder; and a wide range of application adaptors. In addition, a Golden Disk for the Adaptive Server Enterprise (ASE) product is part of the agreement. The Enterprise portion of the BPA offers NT servers, NT seats, Unix servers, Unix seats, Linux servers and Linux seats. Software purchased under this BPA has a perpetual software license. The BPA also has exceptional pricing for other Sybase options. The savings to the government is 64 percent off GSA prices.

Contractor: ***Sybase, Inc.*** (DAAB15-99-A-1003); (800) 879-2273; (301) 896-1661

Ordering Expires: 15 Apr 08 (Call for extension information.)

Authorized Users: Authorized users include personnel and employees of the DoD, Reserve components (Guard and Reserve), U.S. Coast Guard when mobilized with, or attached to the DoD and nonappropriated funds instrumentalities. Also included are Intelligence Communities, including all DoD Intel Information Systems (DoDIIS) member organizations and employees. Contractors of the DoD may use this agreement to license software for performance of work on DoD projects.

Web Link: https://ascp.monmouth.army.mil/scp/contracts/compactview.jsp

Enterprise Application Integration

BEA

BEA Products - Supplies integration and service-oriented architecture (SOA) software including: BEA WebLogic Server; BEA WebLogic Portal; BEA WebLogic Integration; BEA WebLogic Workshop; BEA JRockit; BEA AquaLogic; BEA Tuxedo and other BEA products.

Contractors:

CompSec (Computer Security Solutions, Inc.) (N00104-07-A-ZF43); Small Business; (703) 917-0382

immixTechnology, Inc. (N00104-07-A-ZF41); Small Business; (703) 752-0659

Merlin International (N00104-07-A-ZF42); Small Business; (703) 752-8369

Ordering Expires: 19 Dec 09

Web Links:

CompSec
http://www.it-umbrella.navy.mil/contract/enterprise/application_integration/CompSec/index.shtml
immixTechnology
http://www.it-umbrella.navy.mil/contract/enterprise/application_integration/immix/index.shtml
Merlin International
http://www.it-umbrella.navy.mil/contract/enterprise/application_integration/Merlin/index.shtml

Enterprise Architecture Tools
IBM Software Products

IBM Software Products - Provides IBM product licenses and maintenance with discounts from 1 to 19 percent off GSA. On June 28, 2006, the IBM Rational Blanket Purchase Agreement (BPA) with immixTechnology was modified to include licenses and Passport Advantage maintenance for IBM products including IBM Rational, IBM Database 2 (DB2), IBM Informix, IBM Trivoli, IBM Websphere and Lotus software products.

Contractor: ***immixTechnology, Inc.*** (DABL01-03-A-1006); Small Business; (800) 433-5444

Ordering Expires: 26 Mar 09

Web Link: https://ascp.monmouth.army.mil/scp/contracts/compactview.jsp

Enterprise Management
CA Enterprise Management Software (C-EMS2)

Computer Associates Unicenter Enterprise Management Software - Includes Security Management; Network Management; Event Management; Output Management; Storage Management; Performance Management; Problem Management; Software Delivery; and Asset Management. In addition to these products there are many optional products, services and training available.

Contractor: *Computer Associates International, Inc.*
(W91QUZ-04-A-0002); (800) 645-3042

Ordering Expires: Effective for term of the GSA FSS Schedule

Web Link: https://ascp.monmouth.army.mil/scp/contracts/compactview.jsp

Citrix

Citrix - Provides a full range of Metaframe products including Secure Access Manager, Conferencing Manager, Password Manager, Access Suite & XP Presentation Server. Discounts range from 2 to 5 percent off GSA Schedule pricing plus spot discounts for volume purchases.

Contractor: *Citrix Systems, Inc.* (W91QUZ-04-A-0001); (772) 221-8606

Ordering Expires: 23 Feb 08 (Call for extension information.)

Web Link: https://ascp.monmouth.army.mil/scp/contracts/compactview.jsp

Microsoft Premier Support Services (MPS-1)

Microsoft Premier Support Services - Provides premier support packages to small and large-size organizations. The products include Technical Account Managers, Alliance Support Teams, Reactive Incidents, on-site support, Technet and MSDN subscriptions.

Contractor: *Microsoft* (DAAB15-02-D-1002); (980) 776-8283

Ordering Expires: 30 Apr 08 (Please call for information about follow-on contract.)

Web Link: https://ascp.monmouth.army.mil/scp/contracts/compactview.jsp

NetIQ

NetIQ - Provides Net IQ systems management, security management and Web analytics solutions. Products include: AppManager; AppAnalyzer; Mail Marshal; Web Marshal; Vivinet voice and video products; and Vigilant Security and Management products. Discounts are 10 to 8 percent off GSA Schedule pricing for products and 5 percent off GSA Schedule pricing for maintenance.

Contractors:
NetIQ Corp. (W91QUZ-04-A-0003)
Northrop Grumman - authorized reseller
Federal Technology Solutions, Inc. - authorized reseller

Ordering Expires: 5 May 09

Web Link: https://ascp.monmouth.army.mil/scp/contracts/compactview.jsp

ProSight

ProSight - Provides software licenses, maintenance, training and installation services for enterprise portfolio management software. The software product provides the enterprise with a suite of solution specific applications for Capital Planning and Investment Control (CPIC) Budgeting (OMB 300/53); CPIC Process (Select/Control/Evaluate); IT Governance; FISMA (Federal Information Security Management Act) and Privacy Compliance; Project Portfolio Management; Application Rationalization; Research and Development (R&D) and Product Development; Asset Management; Grants Management; Vendor and Service Level Agreement Management; and Regulatory Compliance. ProSight products have been designated as a DoD ESI and GSA SmartBUY. The BPA award has been determined to be the best value to the government and; therefore, competition is not required for software purchases. Discount range for software is from 8 to 39 percent off GSA pricing, which is inclusive of software accumulation discounts. For maintenance, training and installation services, discount range is 3 to 10 percent off GSA pricing. Credit card orders are accepted.

Contractor: *ProSight, Inc.* (W91QUZ-05-A-0014); (503) 889-4813

Ordering Expires: 19 Sep 11

Web Link: https://ascp.monmouth.army.mil/scp/contracts/compactview.jsp

Quest Products

Quest Products - Provides Quest software licenses, maintenance, services and training for Active Directory Products, enterprise management, ERP planning support and application and database support. Quest software products have been designated as a DoD ESI and GSA SmartBUY. *ONLY* Active Directory Products have been determined to be the best value to the government and; therefore, competition is not required for Active Directory software purchases. Discount range for software is from 3 to 48 percent off GSA pricing. For maintenance, services and training, discount range is 3 to 8 percent off GSA pricing.

Contractors:
Quest Software, Inc. (W91QUZ-05-A-0023); (301) 820-4800
DLT Solutions (W91QUZ-06-A-0004); (703) 709-7172

Ordering Expires:
Quest: 14 Aug 10
DLT: 01 Apr 08 (Call for extension information.)

Web Links:
Quest
https://ascp.monmouth.army.mil/scp/contracts/viewcontract.jsp?cNum=W91QUZ-05-A-0023
DLT
https://ascp.monmouth.army.mil/scp/contracts/viewcontract.jsp?cNum=W91QUZ-06-A-0004

Telelogic Products

Telelogic Products - Offers development tools and solutions which assist the user in automation in the development life cycle. The major products include DOORS, SYNERGY and TAU Generation. Licenses, maintenance, training and services are available.

Contractors:
Bay State Computers, Inc. (N00104-07-A-ZF48); Small Business Disadvantaged; (301) 352-7878, ext. 116
Red River Computer Company (N00104-07-A-ZF47); Small Business; (603) 448-8880
Spectrum Systems, Inc. (N00104-07-A-ZF46); Small Business ; (703) 591-7400

Ordering Expires:
Bay State Computer, Inc.: 14 Aug 10
Red River Computer Company: 31 Jul 10
Spectrum Systems, Inc.: 31 Jul 10

Web Link: http://www.it-umbrella.navy.mil/contract/enterprise/telelogic/telelogic.shtml

Enterprise Resource Planning
Digital Systems Group

Digital Systems Group - Provides Integrated Financial Management Information System (IFMIS) software that was designed specifically as federal financial management system software for government agencies and activities. The BPA also provides installation, maintenance, training and professional services.

Contractor: *Digital Systems Group, Inc.* (N00104-04-A-ZF19); (215) 443-5178

Ordering Expires: 31 Aug 10

Web Link: http://www.it-umbrella.navy.mil/contract/enterprise/erp_software/dsg/dsg.shtml

Oracle

Oracle - *See information provided under Database Management Tools on page 70.*

RWD Technologies

RWD Technologies - Provides a broad range of integrated software products designed to improve the productivity and effectiveness of end users in complex operating environments. RWD's Info Pak products allow you to easily create, distribute and maintain professional training documents and online help for any computer application. RWD Info Pak products include Publisher, Administrator, Simulator and OmniHelp. Training and other services are also available.

Contractor: *RWD Technologies* (N00104-06-A-ZF37); (609) 937-7628

Ordering Expires: Effective for term of the GSA FSS Schedule

Web Link: http://www.it-umbrella.navy.mil/contract/enterprise/erp_software/rwd/rwd.shtml

SAP

SAP Software - Provides software license, installation, implementation technical support, maintenance and training services.

Contractor: *SAP Public Sector & Education, Inc.* (N00104-02-A-ZE77); (202) 312-3905

Ordering Expires: Effective for term of the GSA FSS Schedule

Web Link: http://www.it-umbrella.navy.mil/contract/enterprise/sap/sap.shtml

ERP Systems Integration Services
ERP Systems

ERP Systems Integration Services - Provides the procurement of configuration; integration; installation; data conversion; training; testing; object development; interface development; business process reengineering; project management; risk management; quality assurance; and other professional services for COTS software implementations. Ordering under the BPAs is decentralized and is open to all DoD activities. The BPAs offer GSA discounts from 10 to 20 percent. Firm fixed prices and performance-based contracting approaches are provided to facilitate more efficient buying of systems integration services. Five BPAs were competitively established against the GSA Schedule. Task orders must be competed among the five BPA holders in accordance with DFARS 208.404-70 and Section C.1.1 of the BPA. Acquisition strategies at the task order level should consider that Section 803 of the National Defense Authorization Act for 2002 requirements were satisfied by the BPA competition.

Contractors:

Accenture LLP (N00104-04-A-ZF12); (703) 947-2059

BearingPoint (N00104-04-A-ZF15); (703) 747-5669

Computer Sciences Corp. (N00104-04-A-ZF16); (856) 988-4505

Deloitte Consulting LLP (N00104-04-A-ZF17); (703) 885-6449

IBM Corp. (N00104-04-A-ZF18); (703) 424-7581

Ordering Expires: 03 May 09

Web Link: http://www.it-umbrella.navy.mil/contract/enterprise/erp_services/erp-esi.shtml

Information Assurance Tools
Data at Rest Solutions BPAs offered through ESI/SmartBUY

The Office of Management and Budget, Defense Department and General Services Administration awarded multiple contracts for blanket purchase agreements (BPA) to protect sensitive, unclassified data residing on government laptops, other mobile computing devices and removable storage media devices.

These competitively awarded BPAs provide three categories of software and hardware encryption products — full disk encryption (FDE), file encryption (FES) and integrated FDE/FES products. All products use cryptographic modules validated under FIPS 140-2 security requirements and have met stringent technical and interoperability requirements.

Licenses are transferable within a federal agency and include secondary use rights. All awarded BPA prices are as low as or lower than the prices each vendor has available on GSA Schedules. The federal government anticipates significant savings through these BPAs. The BPAs were awarded under both the DoD's Enterprise Software Initiative (ESI) and GSA's governmentwide SmartBUY programs, making them available to all U.S. executive agencies, independent establishments, DoD components, NATO, state and local agencies, foreign military sales (FMS) with written authorization and contractors authorized to order in accordance with the FAR Part 51.

Service component chief information officers (CIO) are currently developing component service-specific enterprise strategies. Accordingly, customers should check with their CIO for component-specific policies and strategies before procuring a DAR solution. The Department of the Navy, Army and Air Force will be releasing service-specific DAR guidance for their personnel to follow. Go to the ESI Web site at www.esi.mil for more information.

As of press time, DoD users are not authorized to purchase DAR software because service-specific guidance has not been issued. DON users are not authorized to purchase a DAR solution until the DON CIO has issued an enterprise solution for purchasing DAR software in the third quarter of FY 2008.

Mobile Armor – *MTM Technologies, Inc.* (FA8771-07-A-0301)

Safeboot – *Rocky Mountain Ram* (FA8771-07-A-0302)

Information Security Corp - *Carahsoft Technology Corp.* (FA8771-07-A-0303)

Safeboot – *Spectrum Systems* (FA8771-07-A-0304)

SafeNet, Inc. – *SafeNet, Inc.* (FA8771-07-A-0305)

Encryption Solutions, Inc. – *Hi Tech Services, Inc.* (FA8771-07-A-0306)

Pointsec/Checkpoint – *immix Technologies* (FA8771-07-A-0307)

SPYRUS, Inc. – *Autonomic Resources, LLC* (FA8771-07-A-0308)

WinMagic, Inc. – *Govbuys, Inc.* (FA8771-07-A-0310)

CREDANT Technologies – *Intelligent Decisions* (FA8771-07-A-0311)

GuardianEdge Technologies – *Merlin International* (FA8771-07-A-0312)

Ordering Expires: 14 Jun 12 (If extended by option exercise.)

Web Link: http://www.esi.mil

McAfee

McAfee - Provides software and services in the following areas: Anti-Virus; E-Business Server; ePolicy Orchestrator; GroupShield Services; IntruShield; Secure Messaging Gateway and Web Gateway.

Contractor: *En Pointe* (GS-35F-0372N)

Ordering Expires: Call for expiration information.

Web Link: http://www.esi.mil

Antivirus Web Links: Antivirus software available at no cost; download includes McAfee, Symantec and Trend Micro Products. These products can be downloaded by linking to either of the following Web sites:

NIPRNET site: https://www.jtfgno.mil/antivirus/av_info.htm

SIPRNET site: http://www.cert.smil.mil/antivirus/av_info.htm

Securify

Securify - Provides policy-driven appliances for network security that are designed to validate and enforce intended use of networks and applications; protects against all risks and saves costs on network and security operations. Securify integrates application layer seven traffic analysis with signatures and vulnerability scanning in order to discover network behavior. It provides highly accurate, real-time threat mitigation for both known and unknown threats and offers true compliance tracking.

Contractor: *Patriot Technologies, Inc.*

Ordering Expires: 04 Jan 11 (if extended by option exercise)

Web Link: http://www.esi.mil

Symantec

Symantec - Symantec products can be divided into eight main categories that fall under the broad definition of Information Assurance. These categories are: virus protection; anti-spam; content filtering; anti-spyware solutions; intrusion protection; firewalls/VPN; integrated security; security management; vulnerability management; and policy compliance. This BPA provides the full line of Symantec Corp. products and services consisting of over 6,000 line items including Ghost and Brightmail. It also includes Symantec Antivirus products such as Symantec Client Security; Norton Antivirus for Macintosh; Symantec System Center; Symantec AntiVirus/Filtering for Domino; Symantec AntiVirus/Filtering for MS Exchange; Symantec AntiVirus Scan Engine; Symantec AntiVirus Command Line Scanner; Symantec for Personal Electronic Devices; Symantec AntiVirus for SMTP Gateway; Symantec Web Security; and support.

Contractor: *immixGroup* (FA8771-05-0301)

Ordering Expires: 12 Sep 10

Web Link: http://var.immixgroup.com/contracts/overview.cfm or www.esi.mil

Notice to DoD customers regarding Symantec Antivirus Products:
A fully funded and centrally purchased DoD enterprise-wide antivirus and spy-ware software license is available for download to all Department of Defense (DoD) users who have a .mil Internet Protocol (IP) address.

Contractor: *TVAR Solutions, Inc.*

Antivirus Web Links: Antivirus software can be downloaded at no cost by linking to either of the following Web sites:

      NIPRNET site: https://www.jtfgno.mil/antivirus/av_info.htm
      SIPRNET site: http://www.cert.smil.mil/antivirus/av_info.htm

Xacta

Xacta - Provides Web Certification and Accreditation (C&A) software products, consulting support and enterprise messaging management solutions through its Automated Message Handling System (AMHS) product. The software simplifies C&A and reduces its costs by guiding users through a step-by-step process to determine risk posture and assess system and network configuration compliance with applicable regulations, standards and industry best practices, in accordance with the DITSCAP, NIACAP, NIST or DCID processes. Xacta's AMHS provides automated, Web-based distribution and management of messaging across your enterprise.

Contractor: *Telos Corp.* (F01620-03-A-8003); (703) 724-4555

Ordering Expires: 31 Jul 08

Web Link: http://esi.telos.com/contract/overview/

Office Systems
Adobe

Adobe Products - Provides software licenses (new and upgrade) and upgrade plans (formerly known as maintenance) for numerous Adobe and formerly branded Macromedia products, including Acrobat (Standard and Professional); Photoshop; Encore; After Effects; Frame Maker; Creative Suites; Illustrator; Flash Professional; Dreamweaver; Cold Fusion and other Adobe products.

Contractors:

ASAP (N00104-06-A-ZF33); Small Business; (800) 248-2727, ext. 5303

CDW-G (N00104-06-A-ZF34); (703) 621-8211

Softchoice (N00104-06-A-ZF35); Small Business; (800) 268-7638

Softmart (N00104-06-A-ZF36); Small Business; (610) 518-4192

Ordering Expires: 31 May 08

Web Link: http://www.it-umbrella.navy.mil/contract/enterprise/adobe-esa/index.shtml

Four Blanket Purchase Agreements (BPAs) provide both new and upgrade software licenses for Adobe products. These agreements also provide Adobe software upgrade plans, formerly known as maintenance agreements. The BPAs include software licenses formerly known under the Macromedia product brand. Products include: Acrobat (Standard and Professional); Photoshop; Encore; After Effects; Frame Maker; Creative Suites; Illustrator; Flash Professional; Dreamweaver; Cold Fusion; and other Adobe products.

iGrafx Business Process Analysis Tools

iGrafx - Provides software licenses, maintenance and media for iGrafx Process 2005 and 2006 for Six Sigma and iGrafx Flowcharter 2005 and 2006.

Contractors:

Softchoice (N00104-06-A-ZF40); (416) 588-9002 ext. 2072

Softmart (N00104-06-A-ZF39); (610) 518-4292

Software House International (N00104-06-A-ZF38); (732) 564-8333

Authorized Users: Open for ordering by all Department of Defense (DoD) Components, U. S. Coast Guard, NATO, Intelligence Community and authorized DoD contractors.

Ordering Expires: 16 Jul 08

Web Links:

Softchoice
http://www.it-umbrella.navy.mil/contract/enterprise/iGrafx/softchoice/index.shtml
Softmart
http://www.it-umbrella.navy.mil/contract/enterprise/iGrafx/softmart/index.shtml
Software House International
http://www.it-umbrella.navy.mil/contract/enterprise/iGrafx/shi/index.shtml

Microsoft Products

Microsoft Products - Provides licenses and software assurance for desktop configurations, servers and other products. In addition, any Microsoft product available on the GSA Schedule can be added to the BPA.

Contractors:

ASAP (N00104-02-A-ZE78); Small Business; (800) 248-2727, ext. 5303

CDW-G (N00104-02-A-ZE85); (877) 890-1330

Dell (N00104-02-A-ZE83); (800) 727-1100 ext. 37010 or (512) 723-7010

GTSI (N00104-02-A-ZE79); Small Business; (800) 999-GTSI or (703) 502-2959

Hewlett-Packard (N00104-02-A-ZE80); (800) 535-2563 pin 6246

Softchoice (N00104-02-A-ZE81); Small Business; (877) 333-7638

Softmart (N00104-02-A-ZE84); (800) 628-9091 ext. 6928

Software House International (N00104-02-A-ZE86); (732) 868-5926

Software Spectrum, Inc. (N00104-02-A-ZE82); (800) 862-8758

Ordering Expires: 31 Mar 10

Web Link: http://www.it-umbrella.navy.mil/contract/enterprise/microsoft/ms-ela.shtml

Red Hat/Netscape/Firefox

Through negotiations with August Schell Enterprises, DISA has established a DoD-wide enterprise site license whereby DISA can provide ongoing support and maintenance for the Red Hat Security Solution server products that are at the core of the Department of Defense's Public Key Infrastructure (PKI).

The Red Hat Security Solution includes the following products: Red Hat Certificate System and dependencies; Red Hat Directory Server; Enterprise Web Server (previously Netscape Enterprise Server); and Red Hat Fortitude Server (replacing Enterprise Server).

August Schell also provides a download site that, in addition to the Red Hat products, also allows for downloading DISA approved versions of the following browser products: Firefox Browser; Netscape Browser; Netscape Communicator; and Personal Security Manager.

The Red Hat products and services provided through the download site are for exclusive use in the following Licensed Community: 1) All components of the U.S. Department of Defense and supported organizations that utilize the Joint Worldwide Intelligence Communications System, and 2) All non-DOD employees (e.g. contractors, volunteers, allies) on-site at the U.S. Department of Defense and those not on-site but using equipment furnished by the U.S. Department of Defense (GFE) in support of initiatives which are funded by the U.S. Department of Defense.

Licensed software products available through the August Schell contract are for the commercial versions of the Red Hat software, not the segmented versions of the previous Netscape products that are compliant with Global Information Grid (GIG) standards. The segmented versions of the software are required for development and operation of applications associated with the GIG, the Global Command and Control System (GCCS) or the Global Combat Support System (GCSS).

If your intent is to use a Red Hat product to support development or operation of an application associated with the GIG, GCCS or GCSS, you must contact one of the Web sites listed below to obtain the GIG segmented version of the software. You may not use the commercial version available from the August Schell Red Hat download Site.

If you are not sure which version (commercial or segmented) to use, we strongly encourage you to refer to the Web sites listed below for additional information to help you to make this determination before you obtain the software from the August Schell Red Hat download site (or contact the project manager listed below).

GIG or GCCS users: Common Operating Environment Home Page
http://www.disa.mil/gccs-j/index.html
GCSS users: Global Combat Support System
http://www.disa.mil/main/prodsol/gcss.html

Contractor: *August Schell Enterprises* (www.augustschell.com)

Download Site: http://redhat.augustschell.com

Ordering Expires: 14 Mar 09 (Contract options expire 15 Mar 11)
All downloads provided at no cost.

Web Link: http://iase.disa.mil/netlic.html

Red Hat Linux

Red Hat Linux - Provides operating system software license subscriptions and services to include installation and consulting support, client-directed engineering and software customization. Red Hat Enterprise Linux is the premier operating system for open source computing. It is sold by annual subscription, runs on seven system architectures and is certified by top enterprise software and hardware vendors.

Contractor: *DLT Solutions, Inc.* (HC1013-04-A-5000)

Ordering Expires: 30 Apr 09

Web Link: http://www.dlt.com/

WinZip

WinZip - This is an IDIQ contract with Eyak Technology, LLC, an "8(a)" Small Disadvantaged Business (SDB)/Alaska Native Corp. for the purchase of WinZip Standard, a compression utility for Windows. Minimum quantity order via delivery order and via Government Purchase Card to Eyak Technology, LLC is 1,250 WinZip licenses. All customers are entitled to free upgrades and maintenance for a period of two years from original purchase. Discount is 98.4 percent off retail. Price per license is 45 cents.

Contractor: *Eyak Technology, LLC* (W91QUZ-04-D-0010)

Authorized Users: This has been designated as a DoD ESI and GSA SmartBUY Contract and is open for ordering by all U.S. federal agencies, DoD components and authorized contractors.

Ordering Expires: 27 Sep 09

Web Link: https://ascp.monmouth.army.mil/scp/contracts/compactview.jsp

Operating Systems
Novell

Please contact Software Project Manager for information about Novell products and pricing.

Point of Contact:
Comm: (619) 524-9701 DSN: 524

Sun (SSTEW)

SUN Support - Sun Support Total Enterprise Warranty (SSTEW) offers extended warranty, maintenance, education and professional services for all Sun Microsystems products. The maintenance covered in this contract includes flexible and comprehensive hardware and software support ranging from basic to mission critical services. Maintenance covered includes Sun Spectrum Platinum, Gold, Silver, Bronze, hardware only and software only support programs.

Contractor: *Dynamic Systems* (DCA200-02-A-5011)

Ordering Expires: Dependent on GSA Schedule until 2011

Web Link: http://www.ditco.disa.mil/hq/contracts/sstewchar.asp

Research and Advisory BPA

Research and Advisory Services BPAs provide unlimited access to telephone inquiry support, access to research via Web sites and analyst support for the number of users registered. In addition, the services provide independent advice on tactical and strategic IT decisions. Advisory services provide expert advice on a broad range of technical topics and specifically focus on industry and market trends. BPA listed below.

Gartner Group (N00104-07-A-ZF30); (703) 378-5697; Awarded 01 Dec 2006

Ordering Expires: Effective for term of GSA contract

Authorized Users: All DoD components. For the purpose of this agreement, DoD components include: the Office of the Secretary of Defense; U.S. Military Departments; the Chairman of the Joint Chiefs of Staff; Combatant Commands; the Department of Defense Office of Inspector General; Defense Agencies; DoD Field Activities; the U.S. Coast Guard; NATO; the Intelligence Community and Foreign Military Sales with a letter of authorization. This BPA is also open to DoD contractors authorized in accordance with the FAR Part 51.

Web Link: http://www.it-umbrella.navy.mil/contract/r&a/gartner/gartner.shtml

Records Management
TOWER Software

TOWER Software - Provides TRIM Context software products, maintenance, training and services. TRIM Context is an integrated electronic document and records management platform for Enterprise Content Management that securely manages business information in a single repository through its complete life cycle. The TOWER TRIM solution provides: document management; records management; workflow management; Web-based records management; document content indexing; e-mail management; and imaging. The DoD Enterprise Software Initiative (ESI) Enterprise Software Agreement (ESA) provides discounts of 10 to 40 percent off GSA for TRIM Context software licenses and maintenance and 5 percent off GSA for training and services.

Contractor: *TOWER Software Corporation* (FA8771-06-A-0302)

Ordering Expires: 5 Dec 10

Web link: http://www.esi.mil

Section 508 Tools
HiSoftware 508 Tools

HiSoftware Section 508 Web Developer Correction Tools - Includes AccRepair (StandAlone Edition), AccRepair for Microsoft FrontPage, AccVerify for Microsoft FrontPage and AccVerify Server. Also includes consulting and training support services.

Contractor: *HiSoftware, DLT Solutions, Inc.* (N00104-01-A-Q570); Small Business; (888) 223-7083 or (703) 773-1194

Ordering Expires: 31 Aug 10

Web Link: http://www.it-umbrella.navy.mil/contract/508/dlt/dlt.shtml

Warranty: IAW GSA schedule. Additional warranty and maintenance options available. Acquisition, Contracting and Technical fee included in all BLINS.

TAC Solutions BPAs
Listed Below

TAC Solutions provides PCs, notebooks, workstations, servers, networking equipment and all related equipment and services necessary to provide a completely integrated solution. BPAs have been awarded to the following:

Dell (N68939-97-A-0011); (800) 727-1100, ext. 7247753

GTSI (N68939-96-A-0006); (800) 999-4874, ext. 2914

Hewlett-Packard (N68939-96-A-0005); (800) 727-5472, ext. 15612

Ordering Expires:
Dell: 30 Apr 08 (Call for extension information.)
GTSI: 30 Apr 08 (Call for extension information.)
Hewlett-Packard: 30 Apr 08 (Call for extension information.)

Authorized Users: DON, U.S. Coast Guard, DoD and other federal agencies with prior approval.

Warranty: IAW GSA Schedule. Additional warranty options available.

Web Links:
Dell
http://www.it-umbrella.navy.mil/contract/tac-solutions/dell/dell.shtml
GTSI
http://www.it-umbrella.navy.mil/contract/tac-solutions/gtsi/gtsi.shtml
Hewlett-Packard
http://www.it-umbrella.navy.mil/contract/tac-solutions/HP/HP.shtml

Department of the Navy
Enterprise Solutions BPA
Navy Contract: N68939-97-A-0008

The Department of the Navy Enterprise Solutions (DON ES) BPA provides a wide range of technical services, specially structured to meet tactical requirements, including worldwide logistical support, integration and engineering services (including rugged solutions), hardware, software and network communications solutions. DON ES has one BPA.

Computer Sciences Corp. (N68939-97-A-0008); (619) 225-2600; Awarded 7 May 97

Ordering Expires: 31 May 08

Authorized Users: All DoD, federal agencies and U.S. Coast Guard.

Web Link: http://www.it-umbrella.navy.mil/contract/don-es/csc.shtml

Information Technology Support Services
BPAs
Listed Below

The Information Technology Support Services (ITSS) BPAs provide a wide range of IT support services such as networks, Web development, communications, training, systems engineering, integration, consultant services, programming, analysis and planning. ITSS has four BPAs. They have been awarded to:

Centurum Information Technology, Inc. (Small Business) (N00039-98-A-3008); (619) 224-1100; Awarded 15 Jul 98

Lockheed Martin (N68939-97-A-0017); (703) 367-3407; Awarded 1 Jul 97

Northrop Grumman Information Technology
(N68939-97-A-0018); (703) 413-1019; Awarded 01 Jul 97

SAIC (N68939-97-A-0020); (858) 826-5899; Awarded 01 Jul 97

Ordering Expires:
Centurum: 31 May 08
Lockheed Martin: 31 May 08
Northrop Grumman IT: 31 May 08
SAIC: 31 May 08

Authorized Users: All DoD, federal agencies and U.S. Coast Guard

Web Links:
Centurum
http://www.it-umbrella.navy.mil/contract/itss/centurum/itss-centurum.shtml
Lockheed Martin
http://www.it-umbrella.navy.mil/contract/itss/lockheed/itss-lockheed.shtml
Northrop Grumman IT
http://www.it-umbrella.navy.mil/contract/itss/northrop/itss-northrop.shtml
SAIC
http://www.it-umbrella.navy.mil/contract/itss/saic/itss-saic.shtml

Floyd Groce, team lead for the DON Enterprise Licensing initiative and co-chair of the DoD Enterprise Software Initiative (ESI) Working Group, presents Linda Greenwade, DON IT Umbrella program manager, and Sylvia Neidig, contract specialist at Naval Inventory Control Point, Mechanicsburg, with a token of appreciation for their participation in the DON IM/IT Conference in San Diego, Feb. 5, 2008.

The DON IT Umbrella Program offers great customer service

www.it-umbrella.navy.mil

www.itec-direct.navy.mil

www.esi.mil

East Coast DON IM/IT Conference

Department of the Navy Information Management/Information Technology Conference

Hosted by the Department of the Navy Chief Information Officer (DON CIO)

16 - 19 JUNE 2008

VIRGINIA BEACH CONVENTION CENTER, VIRGINIA BEACH, VA

The DON IM/IT Conference provides a venue to share information about the latest DON IM and IT initiatives, policy and guidance. Conference topics include:

Computer Network Defense	Enterprise Software
Critical Infrastructure Protection	Information Assurance
Data Management	Knowledge Management
DON IM/IT Workforce	Open Source Software
DON IT Umbrella Program	Privacy
Electromagnetic Spectrum	Service Oriented Architecture
Enterprise Architecture	Wireless

The DON IM/IT Conference is open to all DON, government, military and support contractor personnel. No conference fee will be assessed, but registration is required.

In the coming months, check the DON CIO website at www.doncio.navy.mil to register for the conference and to see tentative and final agendas.