STATEMENT OF

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UNITED STATES JOINT FORCES COMMAND

BEFORE THE HOUSE ARMED SERVICES SUBCOMMITTEES ON READINESS TERRORISM,

UNCONVENTIONAL THREATS AND CAPABILITIES

ON THE JOINT NATIONAL TRAINING CAPABILITY

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Mr. Chairman, distinguished members of the committee, it is an honor and privilege to be here representing Admiral Giambastiani, Commander of the US Joint Forces Command to report to you on our progress in implementing the Joint National Training Capability.

In the words of the Secretary of Defense, when he introduced the need to transform DoD training, "Effectiveness in combat will depend heavily on jointness, and how well the different branches of the military can communicate and coordinate their efforts on the battlefield...achieving jointness in wartime requires building that jointness in peacetime. *We need to train like we fight and fight like we train and, too often, we don't.*" The concept, to train like you fight, is the very heart of the Joint National Training Capability.

JNTC will improve the ability of U.S. forces to fight more effectively as a joint team by extending joint training to a much broader audience. Joint forces win wars. In the past two decades we have progressively developed the concepts and culture needed to conduct joint operations. We have seen extraordinary joint successes in the field, accomplished often through ad hoc innovations enabled by the superb tactical competence of Service forces and outstanding military leaders at all levels of command. Military endeavors as Operation Just Cause, Operation Urgent Fury, and Operation Desert Storm, enabled our forces to conduct significantly more complex joint operations such as Operation Enduring Freedom and Operation Iraqi Freedom. But over this same period of time, due in part to limited joint operational training and exercises for our conventional forces, we have seen gaps in our capability to put joint task forces together quickly, thus inhibiting joint operations. The operational requirements clearly suggest the need for more interoperability and mission coherence grounded in a comprehensive joint training program at the tactical and operational levels. Training of operational forces and staffs has been accomplished largely along Service lines. While the requirement for individual Services to train their personnel in service core competencies will remain, the need for a more extensive joint training experience, with the attendant-supporting infrastructure, is clearly evident. It is important to note that the Services did a marvelous job in launching the first wave of Training Transformation when they established training capabilities like the Navy's Top Gun, the Air Force's Air Warrior and Red Flag, the Marine Corps' Combined Arms Exercise program and the Army's Combat Training Centers. However, since U.S. forces must be ready to fight jointly, with little or no notice, in a complex and challenging security environment, a second wave of training transformation, this time in joint training, is imperative.

Transformation of joint training is the engine that drives transformation of joint warfighting capabilities. The new realities of asymmetric military threats call for a significant change in all aspects of military planning, organization, basing, deployment, and fighting. Planning that once was deliberate, based on a known threat, must now be adaptive, to respond to enemy capabilities that are highly adaptable and often unconventional. Fighting forces must be lean and packaged to move quickly to the area of operations and strike with the right composition of forces and firepower. Training transformation calls for significant advancements in the joint nature of training and a major change in the way we use our existing training infrastructure.

There are four pillars to effective joint training: realistic combat training; adaptive and credible opposing forces (OPFOR); common ground truth; and high quality feedback. JNTC will bring joint context to each pillar. Combat training realism will be improved by analyzing each joint tactical task, defining the conditions and measures associated with each task, coordinating Service training schedules to inject more joint operations into traditionally Service-specific events, and providing a robust, challenging opposition force. The development of a live, virtual, constructive joint training environment will significantly improve the depth and breadth of training. Opposing forces will be improved and strengthened through the establishment of a standing OPFOR headquarters and the development of doctrine, tactics, techniques and procedures that reflect the asymmetric tactics of our enemies. Additionally, JNTC will ensure that OPFOR low-density high-demand assets will be more widely available for a broader range of events. Improvements in instrumentation on Service training and testing ranges and development of new instrumentation technologies and methodologies will provide for an expansion of the number of entities that can be used in an exercise. This will lead to significantly greater fidelity in battlespace awareness enhancing the commander's ability to control his forces and the trainer's ability to track the action and assess the results. Finally, by developing better tools for collecting, analyzing, and cataloging exercise lessons learned, we will significantly improve training feedback and enhance the commander's ability to evaluate the readiness of his forces.

JNTC will provide the environment, organization, processes, and tools that will improve the ability of U.S. forces to fight effectively as a joint and combined team. Such improvement will require a new set of capabilities to augment our existing training structure. These new capabilities must leverage, and be integrated with, existing Service capabilities and infrastructure. These facilities, not only represent a considerable investment, but they have demonstrated consistently superb training to Service tactical competencies. By leveraging existing infrastructure and capturing the best of new technologies, the JNTC envisions a networked, worldwide system of both Service, joint, and multinational facilities that will bring the benefits of a live, virtual, and constructive training environment to the user at all echelons. The capabilities being built into the JNTC will prove useful for training, experimentation, concept development, testing and evaluation, rapid prototyping, and mission rehearsal.

JNTC is significantly more complex than simply a capability to plan and execute Joint training events. In support of the Chairman's Joint Training System (JTS), JNTC seeks to bring greater economy and efficiency to all facets of Joint training. JNTC respects the traditional training role of the Services while providing an organizational structure and management construct that enhances their ability to conduct training and provides the resources and momentum necessary to ensure that Service training assets can be more effectively used for Joint training tasks.

Implementing Training Transformation

Almost two years ago in his testimony before the Senate Armed Services Committee, Deputy Secretary of Defense Paul Wolfowitz stated "The centerpiece of our training transformation effort will be the Joint National Training Capability." Since that time Joint Forces Command has made significant progress. In October 2002, JFCOM established a JNTC Joint Management Office

(JMO) to develop the program, planning, and budgeting processes necessary to enable the command to achieve the JNTC Initial Operating Capability (IOC) by October 2004. The JMO, working closely with OSD, the Services, US Special Operations Command (SOCOM), and the other Combatant Commanders, developed and implemented processes needed to identify training requirements, program investment strategies, and address areas of common interest among the stakeholders. The immediate concerns were to define joint context, leverage existing Service and combatant command exercise programs, and identify technologies and capabilities that would be needed to implement the extensive, dynamic JNTC program. In this process, we are being good stewards of the public's funds. We have planned and executed training events as "proofs of concept" that the JNTC can achieve its goals. We have successfully "raised the bar" of training in a realistic joint environment and we have begun to identify the significant technology investments, particularly in information technology, that will be needed to meet the needs of joint training in the future.

Initial Successes

A JNTC "proof of concept" event, scheduled for the summer of 2003, was significantly downscaled due to the higher priorities of combat operations in Iraq. Conducted in June 2003, it was a simulation exercise based on a scenario in which a Joint Task Force is formed to expel an aggressor nation that had invaded its neighbor. The training focus was on Joint Theater Air and Missile Defense. In spite of its reduced scope, JNTC was instrumental in demonstrating new capabilities in training technology in this event. For example, joint data network air track simulation improvements were provided and thoroughly tested to fix recurrent theater air missile defense (TAMD) exercise simulation programs. This resulted in a more realistic air and theater ballistic missile (TBM) scenario highlighted by the first ever achievement of simulation correlations on TBM tracks. The improved air picture enabled realistic TAMD and data link management training. The testing process contributed to similar solutions for real-world systems. A second JNTC investment, air picture analysis, resulted in improved assessment of the TAMD joint tactical task and provided significantly improved feedback to the training audience. Finally, JNTC funded and established a more realistic communications network that was able to emulate real world communications. This JNTC initiative resulted in validation of the Distributed Interactive Simulation (DIS)-Voice initiative and successfully replicated tactical voice networks. These improvements led an Airborne Warning and Control System (AWACS) communicator to note "voice communications were the best seen in any previous simulation-driven exercise."

While that early success was heartening, a bigger opportunity occurred in the January 2004, Western Range Complex event with the execution of the first in a series of four events that define the JNTC Initial Operating Capability. Joint Close Air Support (JCAS) was the focus of training in this event, with additional emphasis on two areas related to JCAS, Baseline Information Exchange and Combat Identification. All facets of JCAS were assessed including the integration of JCAS assets into tactical planning and operational execution; coordination of JCAS employment with the ground commander's maneuver plan; the effectiveness of communications links between headquarters, ground forces, and JCAS assets; the contribution of JCAS to the synergistic effects of fires; battle damage assessment; the ability of C2 nodes to effectively track air and ground forces (both Red and Blue); and the quality of combat identification. The Western Range Complex event was conducted in California, Nevada, Arizona, and New Mexico with supporting

sites in Texas, Louisiana, Kansas, Alabama, Georgia, Florida, and Virginia. It leveraged and integrated existing Service training events including an Army National Training Center brigade rotation at Ft Irwin, a U.S Marine Corps Combined Arms Exercise at the Marine Corps Air Ground Combat Center, Twentynine Palms, Navy Strike Group training, including a Stand-Off Land Attack Missile Exercise in the vicinity of San Diego, and the Air Force's Air Warrior exercise at Nellis Air Force Base. These events were integrated with Special Operations forces' training and joint training enhancements at twelve other distributed sites. Although the modeling and simulation confederation used in this event was based on the confederation developed for Millennium Challenge 2002, there are few similarities between the two events. The January event was a true training event rather than an experiment or demonstration. The event was significant in that it achieved critical improvements in the execution of joint training, strengthening each of the four pillars of joint national training:

- Realistic combat training.

  - It was the first full tactical exercise of Joint Close Air Support to be conducted with the proper joint context and assessed to defined conditions and measures.
  - It fully integrated live, virtual, and constructive simulations based on improvements to capabilities demonstrated in Millennium Challenge 02.
  - It included live and distributed virtual participation of Special Operations Forces.
  - It featured a fully distributed training audience and training support.

- Adaptive and credible opposing force - The event employed greatly expanded, full-spectrum opposition forces including fixed and rotary wing threats, Unmanned Aerial Vehicles, threat emitters, threat targets, decoys, and live Red forces.

- Common ground truth - Increased instrumentation successfully integrated the Western Range Complex resulting in a high quality, Common Operating Picture (COP) for all participants.

- High quality feedback.

  - Fully manned assessment teams were assigned to each live location with enhanced analyses conducted by Joint Warfighting Center analysts, the Joint Combat Identification Evaluation Team, the Joint Interoperability Test Center, and the Joint Close Air Support Joint Test Team.
  - The event featured early integration of USJFCOM's Interoperability Technology Demonstration Center to assess command and control capabilities.

Technological enhancements included:

- An integrated live, virtual, constructive simulation environment over a distributed architecture.

- Improved instrumentation with an Advanced Range Data System (ARDS) ground station and processing at the Marine Corps' training facilities at Twentynine Palms.
- Live air and ground forces instrumented, tracked, and recorded with ARDS at Twentynine Palms, then forwarded in to the COP via the event network. This live information was successfully merged with simulations.
- Air Warrior entities simulated at Nellis AFB were tracked, recorded, and successfully forwarded into the COP.
- National Training Center - Instrumentation System (NTC-IS) ground tracks, via the Instrumentation Translation Module (ITM), were successfully integrated into the Test and Training Enabling Architecture (TENA) logical range.
- Using multiple TENA compatible displays, the training audience viewed an aggregate live picture at 29 Palms, Fort Irwin, San Diego and Nellis.
- Successfully distributed video via an exercise network.

- First use of Global Command and Control System – Army (GCCS-A) at NTC.

- Virtual AH-64s and AC-130s were integrated into the JNTC federation and scenario at NTC.

- A virtual Joint Surveillance and Targeting Radar System (JSTARS) was integrated with the common ground station.

During the exercise ADM Giambastiani asked an Army major, a veteran of several brigade rotations and a member of the 3rd Infantry Division in Operation Iraqi Freedom, what he thought was different about the JNTC exercise. His answer was recognition that for the first time he was able to train with the advanced systems and joint tactics, techniques, and procedures that he used in war. This is a clear example of how JNTC is transforming the joint force. But, there is much yet to do, especially in the area of the communications infrastructure needed to support this global training network. The January event still represents an era of "setting up and tearing down" the training communications infrastructure. This is inefficient, expensive, and inadequate for joint warfighter training in the future.

JNTC Operational Implementation

The JNTC is being implemented in two phases, "Initial Operating Capability (IOC)" planned for October 2004 and "Full Operating Capability (FOC)" scheduled for October 2009. IOC of JNTC is defined as "the ability to conduct Horizontal, Vertical, and Integration training events."

Horizontal events focus at the tactical level to provide existing Service training the joint context under which they will need to operate in time of conflict. Simply put, a horizontal event is focused on an audience from the most junior enlisted member (E-1) all the way to (Colonel or Captain) O-6 and that individual Service audiences are capable of conducting joint tactical operations with one another. There are two horizontal events being planned in FY 04:

- The January 2004, Western Range Complex event integrated a brigade rotation at the National Training Center, Air Warrior at Nellis AFB,

a USMC Combat Arms Exercise at 29 Palms, and a Navy Strike Group exercise in San Diego.

- An August 2004 event will be conducted, built around a brigade rotation at the Joint Readiness Training Center and Air Warrior exercise on the Eastern Range Complex.

Vertical training events are at the Strategic/Operational level, focusing on coherent integration up and down multiple levels of command and control to achieve the desired effects. The training audience can range from a combatant commander's Battle Staff, to a joint task force commander and staff. Vertical events will normally reach down to the component level. Determined Promise 04 is the FY 04 vertical training event and will be conducted in August 2004 at sites distributed across the country. It is a combined Command Post Exercise and Field Training Exercise that will train the NORTHCOM battle staff and the Joint Task Force – Civil Support in a Chemical, Biological, Radiological, Nuclear and Enhanced Conventional weapons (CBRNE) crisis consequence management scenario. As this is a recent change to the JNTC event lineup, due to force availability, the set of Joint tactical tasks has not been approved as of this statement.

Integration training events focus on the operational to tactical linkages, the ability of an operational commander (and staff) to effectively execute joint tactical operations, such as Theater Air Missile Defense, Forcible Entry, etc. Integration events will enhance existing joint exercises to address joint interoperability issues. Combined Joint Task Force exercise 04-2 scheduled for June 2004 will be the FY 04 integration event. It is a US/UK bilateral exercise employing Joint and Combined forces in a littoral environment with participants from Ft. Bragg, NC; Camp Lejeune, NC; Cherry Point, NC; and Eglin AFB, FL.

These events will demonstrate the ability of the JNTC to close the gaps and eliminate the seams in joint training as well as prepare sites for certification. In addition, they will establish a methodology for first-time events that sets the conditions for successful execution of similar JNTC supported events.

JNTC Program Implementation

Implementing the Requirements Development Process – Service Coordination

JNTC, as an element of DoD's Strategic Plan for Training Transformation, is being implemented in accordance with the Training Transformation Implementation Plan (T2 I-Plan). The T2 I-Plan provides the overarching tasks and milestones ensuring that the development of training requirements, program and budget planning, and program execution are accomplished in full transparency of OSD, the Services, Combatant Commanders, and Defense Agencies. Additionally, the T2 I-Plan is the broad-based blueprint for the JNTC program and is the master plan to which all other planning and programming documents must respond. Required activities, programs, projects, and tasks that OSD, the Services, Combatant Commanders, and Defense Agencies must execute are more specifically delineated in the FYDP DoD T2 Program Plan, and the execution year JNTC Program Execution Plans.

Joint Forces Command's JNTC Joint Management Office (JMO) has created a formal management structure that ensures open representation from OSD, the

Services, Combatant Commanders (e.g. Special Operations Command), and Defense Agencies. Using a process that is aligned with the President's Planning, Programming, and Budget Execution process and the development of the five year Program Objective Memorandum (POM), OSD, the Services, Combatant Commanders, and Defense Agencies submit training requirements to the JNTC JMO as the front end of the program development effort. The execution year Program Guidance and Assumptions, collaboratively developed with OSD, the Services, Combatant Commanders, and Defense Agencies, provides specific investment strategies ensuring that submitted requirements form a coordinated and integrated, cost-effective package. The JMO management team, composed of the JMO director, program manager, operations manager, and technical director, works closely with representatives from OSD, the Services, Combatant Commanders, and Defense Agencies to review and prioritize the requirements. Through this effort they ensure that the requirements fulfill the goals and objectives identified in the T2 Implementation Plan, the current FYDP-based T2 Program Plan, the execution year Program Guidance and Assumptions, and specific roadmaps. Additionally, each requirement is assessed in terms of operational need, affordability, and technical feasibility. The program management team works closely with OSD, the Services, Combatant Commanders, and Defense Agencies to develop trade space for priority requirements.

JNTC resources are categorized into three broad groups: JNTC resources provided to and controlled by the Services for Service-specific JNTC program obligations; JNTC resources provided to and controlled by JFCOM for JNTC program obligations; and JNTC resources provided to and controlled by JFCOM for distribution to the Services for Service-specific JNTC program obligations. This latter category of resources allows the JNTC program manager wide latitude and year of execution flexibility to support Service requirements that are critical for the JNTC program enabling further integration of program requirements.

Once the JMO management team has vetted the requirements, the JNTC JMO director produces the program execution plan for the next fiscal year. This document details all the requirements to be executed in the coming year with complete budget data. It is given a final review by OSD, the Services, Combatant Commanders, and Defense Agencies before being submitted for approval.   The components are given the opportunity to rebut program management decisions with the rebuttals being given careful consideration by the JNTC JMO director and program manager, openly discussing those issues with senior Service representatives. The Director of the JNTC (JFCOM Director of Joint Training) and the Deputy Undersecretary of Defense for Readiness formally approve the program execution plan.

The processes that have been put in place to collect, merge, and validate the joint training requirements of OSD, the Services, Combatant Commanders, and DoD Agencies ensure a close relationship between Service training investments and the needs of the JNTC program. The linkages between the program execution plan, roadmaps, FYDP T2 Program Plan, the T2 I-Plan and the Strategic Plan for Training Transformation provide a high level of confidence that the joint training program is fully integrated and training investments lead to improved interoperability. Additionally, because it works very closely with the Services, the JNTC JMO is able to ensure that the Services are investing in systems and equipment that are fully integrated and interoperable with the JNTC systems and equipment.

JNTC Budget Development

The JNTC program is designed to identify all the training requirements of OSD, the Services, Combatant Commanders, and DoD Agencies; find commonalities; eliminate redundancies; and identify the most cost effective solutions. While the JNTC budget targets are established through OSD, the final budget is a dynamic document, sufficiently flexible to accommodate changes in the program scope. The FY 2004 JNTC budget, both Services and USJFCOM, including all appropriations, was set at $135.7M. In September 2003 Congress placed a $21.7M mark against the USJFCOM and US Navy portions of JNTC Operations and Maintenance funding. The program has been restructured as follows:

- Communications and Infrastructure ($6.9M)

  - Eliminates installation of permanent communications infrastructure at 10 of 30 planned sites
  - Eliminates West Coast system control
  - Reduces Navy's instrumentation and infrastructure investments
  - Risk: Reduction in infrastructure will result in reliance on legacy systems for site connectivity and bow wave cost of installations to FY 05. This will reduce JNTC's ability to satisfy training throughput targets in FY 05 and beyond.

- Joint Training Support ($7.9M)

  - Results in limited implementation of Capabilities Improvement Initiative Teams and investigation of improved capabilities.
  - Reduces the ability to fully populate a capabilities database with lessons learned, observations, and findings associated with joint training and joint operations including OIF and OEF.
  - Impacts analysis of joint tactical tasks and joint doctrine planning coordination for FY 04 events.
  - Risk: This decreases analysis and preparation of FY 04 events.

- Opposition Forces ($5.6M)

  - Reduces OPFOR staffing and limited OPFOR investments
  - Risk: This delays implementation of an OPFOR HQ staff and decreases the ability to fund Service OPFOR needs in Horizontal, Vertical, and Integration events.

- Joint Command and Control ($0.30M)

  - Delays implementing a permanent Joint Command and Control system.
  - Risk: This places FY 05 throughput expectations at risk.

- Joint Management Office ($1.0M)

  - Delays implementing a fully staffed JMO and bow waves hiring into FY 05.
  - Risk: This places FY 05 program management at risk.

While we do not anticipate these cuts will prevent JNTC reaching IOC by October 2004, the remaining events scheduled will see some reduction in scope. The result is that FY 05 will still be spent focusing more on learning about JTNC and less about getting on with training. Additionally, planning for FY 05 events and our ability to adequately begin FY 05 budget development and POM 06 planning are impacted.

JNTC Technical Implementation

As part of the implementation plan, operational, system, and technical architectures are being developed to evolve the JNTC from its present capabilities, as well as to establish standards to ensure interoperability with legacy and future systems. Technical requirements for the JNTC are being derived from operational requirements and from current DoD operational and technical guidelines, policies, and standards. The enterprise architecture for the JNTC will be achieved: (1) by establishing a long-term "to be" architecture that can evolve with changing technology and requirements, (2) by initiating a small-scale prototype, and (3) by growing and evolving toward the "to be" architecture in 2004-2009.

To define, build, implement, and maintain the architectures that support JNTC, a well-structured systems engineering and configuration management process must be created and managed. The JNTC architectures will be composed of models and simulations, stimulators, communications infrastructure, command-and-control systems, range instrumentation systems, and emerging training technology systems. Research, design, development, integration, test and operation of the technical infrastructure will be accomplished through the technical management of various activities within US Joint Forces Command, the Services, and contractor support organizations.

A technical implementation process is being used to develop and deploy JNTC technical capabilities. The process will enable:

- Clear traceability from requirements to deployed capability
- Configuration management of requirements and system design
- A system architecture approach to move from requirements to design
- Delineation of responsibilities within a systems engineering cycle
- Identification of documentation and product deliverable requirements
- Consistent product development and integration approach across disparate and distributed services, sites, and products
- Managed sequencing, synchronization, and insertion of JNTC capabilities into joint events

An incremental development process is being used to release JNTC capabilities. JNTC technology and capability releases will be synchronized with JNTC requirements and program considerations. Joint events provide opportunities to demonstrate, test, and use new capabilities as part of the JNTC.

JNTC will introduce technology improvements in seven primary areas:

- Communications
- Instrumentation
- Live, virtual, constructive simulations
- Opposition forces
- Web based technologies
- Standards and common architectures

- Selection and certification of JNTC sites

Communications

JFCOM is developing the Joint Training and Experimentation Network (JTEN) as the communications network for JNTC. The JTEN is a persistent, rapidly re-configurable network connecting sites that are essential to the success of Joint training. The network supports stand-alone events, Joint training exercises, exercise preparation and rehearsal, experimentation, evaluation of advanced training technologies, rapid prototyping, and evaluation of new warfighting concepts. The network permits community of interest networks and virtual data connections to be rapidly established within the overall network bandwidth. The JTEN provides secure data transport and, when mature, will implement state of the art Multi-Level Security (MLS). The network will encompass both interagency and coalition connectivity. At maturity, the network architecture will include provisions for "edge-to-edge" network monitoring and operational control from a Network Operation and Security Center (NOSC). Engineering control will normally be accomplished from a System Control Center (SYSCON). Both facilities are being developed at USJFCOM. The system will include capabilities to collect and analyze network performance and utilization data. The JTEN is a classified network which will initially operate at U.S. system high SECRET. Full implementation of the JTEN will be accomplished using a phased approach.

The success of the JNTC depends upon a high bandwidth network infrastructure that links Service training ranges and command headquarters, combatant commands, agencies, multinational training sites, RDT&E facilities, and centers of excellence worldwide. DoD and the Services have a large number of dedicated wide area networks (WANs) that can be leveraged to form the JTEN global WAN. One example includes the Defense Research and Engineering Network (DREN), Defense Information System Network Asynchronous Transfer Mode Services (DATMS), Defense Information System Network - Leading Edge Services (DISN-LES), and the Navy's Distributed Engineering Plan (DEP). In addition to investigating these opportunities, USJFCOM has been working closely with the Defense Information Systems Agency (DISA) on the potential use of the Global Information Grid Bandwidth Expansion (GIG-BE) program that is being developed to provide global C2 connectivity for selected Joint, Service, and Agency headquarters. Leveraging the capabilities of other DoD enterprises is a "bottom-up" approach to developing a persistent network. However, with the unique technical, administrative, and policy challenges presented by each of the potential network partners, JNTC will also seek non-traditional networking solutions, establishing portals between key networks at national network interface points, and fostering cooperation among agencies order to create the most cost effective and technically capable network.

Instrumentation

JNTC is playing a key role in upgrading instrumentation systems employed on the many Service ranges used for test and training throughout the country. These upgrades, employing a consistent set of standards and protocols, are ensuring a level of Service interoperability never before seen. Additionally, through the investment incentive offered by the JNTC Joint Management Office, modernization of Service-centric range

instrumentation and telemetry systems is moving forward at an accelerated pace. Modern instrumentation systems will comply with the Test and Training Enabling Architecture (TENA), an architecture and interoperability standard that shares information among instrumentation systems, simulations, and real-world command-and-control systems

Live, Virtual, and Constructive Environment

An important aspect of the JNTC is the implementation of a live, virtual, constructive (LVC) training environment able to support globally distributed training events. LVC is defined as:

- Live – Real people, real equipment conducting training
- Virtual – Human-in-the-loop, using simulators, integrated into the training event
- Constructive – Simulated forces generated to enhance training

There are two aspects to the LVC capability. First is an operational implementation. The second is a test bed environment that can be used to investigate, in a laboratory setting, new ideas in training technologies and new simulation tools. The development of the LVC simulation capability complements current investments and investigations into modeling and simulation tools for training including the work of the Services and joint simulation efforts such as development of the Joint Federated Object Model, and will ultimately incorporate the outcomes of the Training Capabilities Analysis of Alternatives.

There is also a lot of work being done to transfer the best capabilities of the Joint Simulation System (JSIMS). First, the Software Support Facility, established by the Joint Warfighting Center as directed by the December 2002 Program Decision Memorandum and, second, a JSIMS validation and verification being conducted by US Joint Forces Command. The JSIMS Software Support Facility (SSF), based in Orlando, FL, is executing its assignment to maintain the JSIMS software pending initiation of a follow-on program. Operational on 1 October 2003, JWFC's SSF operations have supported the Training Capabilities AoA with analysis, lessons learned, and briefings and demonstrations. It has supported JSIMS validation activities with event planning, associated software corrections, and support, and provided onsite personnel to participate in all related activities. Finally, the JWFC SSF has maintained the JSIMS software pending completion of the directed AoA and review by the Congress. In the five months since it was established, the SSF has delivered two separate patches and two complete JSIMS version updates that have corrected nearly 300 software problems. Additional improvements are planned for June and September 2004.

The independent US Joint Forces Command JSIMS validation and verification, directed by Congress, is evaluating and identifying simulation capabilities that can be transferred and implemented as part of the JNTC. These capabilities will be assessed by the JNTC Advanced Training Technology (ATT) group to see if they can satisfy JNTC challenges and shortfalls. Capabilities deemed promising and requiring refinement and stability enhancements will be integrated into the JNTC ATT Laboratory (JATTL) environment for test, evaluation, and certification. When the JSIMS technology is mature and ready for use in a training event it will be formally integrated into the JNTC toolkit and readied for deployment.

Web-based Technologies

Web based technologies are being used in several ways. As a program management tool, the JNTC web site is being modified to allow our partners to submit training requirements using an on-line application. This will greatly simplify the requirements collection process. US Joint Forces Command's Joint Digital Library System (JDLS) is being employed as a document management and storage system for the JNTC. Web-accessible, this tool enables JNTC personnel to access information and conduct business from remote locations. The JDLS includes task management tools and "chat-room-like" collaboration tools. Finally, JNTC is developing a Collaborative Information Environment (CIE) that will provide wide-ranging support to the JNTC program. CIE will support planning and execution of JNTC training events. It will be employed by the program managers in the programming and budget management processes. The CIE will be used to create and maintain technical integration databases that will enable the technical process action teams to more effectively analyze technical gaps and seams in training capabilities. Finally, the CIE will improve the effectiveness and efficiency of training through the adoption of automated scheduling tools.

Wed based technologies are also being used to investigate and develop advanced concepts in Joint training. For example, a web based repository browser is being developed to hold all object model specification requirements for the Test and Training Enabling Architecture (TENA). This repository acts as the access mechanism to build an instance of a TENA event. In addition, collaborative web based tools are enabling system engineers to coordinate development of the Rapid Distributed Database Development (RD3) capability and Joint Federated Object Model (JFOM) integration. The RD3 design concept will leverage web-based technologies to facilitate correlation of data among modeling and simulation dataset production cells in DoD. Current research in extensible modeling and simulation framework is investigating extensible mark up technologies to enhance C4I in simulation systems interfaces. Computer generated forces that are used to build the JNTC federation exchange information through browser technologies during events, which aids the After Action Review (AAR) process. An organic Blue Force Tracking architecture will be used to track live forces as part of CJTFEX 04-02. This will allow for a data collection process over an Internet Protocol framework. The feed will provide an interactive display capability, which when networked will allow collaborative planning, preview, and rehearsal activities between tactical and command activities while other leadership or training audiences can have a viewing portal to conduct their activities.

Standards

JNTC standards will be drawn primarily from those defined in the Joint Technical Architecture (JTA) that mandates the minimum set of technical standards for DoD systems that produce, use, or exchange information. JNTC standards will extend JTA guidance and establish additional standards to meet specific joint training requirements. These JNTC-specific standards will build upon, but not conflict with those standards outlined in the JTA.

The overriding criterion for selection of JNTC standards is that they must be critical to joint training interoperability. Using the JTA standards as a starting point, JNTC standards will be based primarily on commercial

open system technologies. They must also be technically mature, publicly available, technically implementable, and consistent with law, regulation and policy.

We face many challenges in adopting and fielding systems that comply with the new, emerging standards. However, to build the most integrated and capable joint force possible, JNTC will need to establish standards that best support joint training. Where a legacy standard supports effective joint training, it will be maintained. Where legacy standards hold back the creation of a truly integrated joint training environment new standards will be adopted. In some cases, the Services will need to use systems based on legacy standards for some time into the future. In these cases, JNTC will use interfaces and gateways between legacy systems and systems based on JNTC standards.

Configuration control of JNTC standards will be critical to maintaining their currency and relevancy. JNTC standards will be configuration-managed by the JNTC JMO, under the direction of the JMO technical director. The technical director will chair a standards review group consisting of the JMO technical management group leadership, representatives from the JMO program management and operations management groups, and Service and DoD Agency representatives. The standards review group will manage the review and selection of new standards based on JTA and commercial standards developments, input from Services and Agencies, as well as feedback from JNTC training events.

Site Selection and Certification Program

JNTC sites are selected in two ways. The first is when a Service, Combatant Commander, or Defense Agency recommends a site be designated as a JNTC site. These sites will be regular participants in joint events. The second is when the Joint Management Office believes that a particular site has the requisite tools and capabilities to materially contribute to a joint event. In this case, the site will be included (with Service, joint or agency concurrence) into the JNTC infrastructure. To be nominated, a site must possess one or more of the following characteristics or capabilities:

- Capability to provide LVC data to stimulate the C2 devices during a joint event. This must be an established resident capability.

- Possess a C2 function, an education capability, and/or a technical center of excellence that clearly contribute to the JNTC environment

Site certification is focused on five key areas:

- Communications systems and supporting networks;
- Live, virtual, and constructive simulations;
- Instrumentation and data collection;
- OPFOR technologies; and
- Information management/knowledge management.

The certification process will employ JTA and TENA. It will provide a determination that sites and systems are compliant with specified architectures, configurations, and standards required to create a realistic environment. As a direct result of certification, the joint interoperability of sites, systems, and distributive networks will continually improve. Certification will assist the Services in planning investments in training

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systems and infrastructure. Assurance of continued ability to meet certification criteria will be achieved through a program of periodic re-verifications.

Conclusion

During Operation Iraqi Freedom, for the first time, DoD instituted a dynamic lessons learned process at the operational level of war and deployed a team for the express purpose of gathering joint operational insights on a comprehensive scale. The significance of what we saw was that our commanders realized that the key to harnessing the full power of jointness begins at the operational level of command and links to strategic planning and tactical execution. It is at that level—the level of the Combatant Commander, the Joint Task Force commander and the Joint Air, Land and Sea Component Commander, where the real work of seamlessly integrating Service capabilities into a Coherently Joint and Combined force takes place. We saw that the ability to plan and adapt to changing circumstances and fleeting opportunities is the difference between success and failure in the modern battlespace. In total, what these lessons learned indicate is that our traditional military planning paradigm and perhaps our entire approach to warfare is shifting. The main change, from our perspective, is the shift from deconflicting Service-centric forces designed to achieve victories of attrition to integrating a joint and combined force that can enter the battlespace quickly and conduct decisive operations with both operational and strategic effects. JNTC will serve as the venue by which we can integrate these lessons learned and, with advances in technologies, coupled with innovative operational warfighting concepts, build a new joint culture, enabling a new level of coherent military operations that we have never been able to achieve before.

Thank you for the opportunity to be here today to address our evolving capabilities in joint training and for your continued support to our Soldiers, Sailors, Airmen and Marines, who daily go in harms way in support of our country.