

- Organization and POC Info: SSC LANT CNIC IPT supporting the CNIC CAC Program Office - Eroica Johnson eroica.johnson@navy.mil; 843-218-2236
- Mission:
 - *Provide computer application engineering and integration support to CNIC*
 - **Problem Statement:** *Upgrade the Personnel Accountability System (PAS) to provide system mobility and to quickly and more accurately account for personnel boarding/leaving a naval vessel (crew and visitors)*
- Biometrics-enabled Solution:
 - *Upgraded to PAS 2.1 to include fingerprint biometrics for administrator log-in and check-in/out; Successfully demonstrated PAS 3.0 interfaced with a Virtual Transaction Manager for Access Control using a Biometric Handheld capable of processing authentication without connection to an external master database (Handheld devices could not meet the demands of a population above 1K).*
 - *The use of biometrics vs. using the CAC chip was on average 75% faster; effective at authentication when member did not have ID on hand; accuracy based on matching template used and quality of print captured.*

- What We Had
 - PAS/CAC 1.0.3 automated the accountability process onboard a naval vessel, base or squadron using the CAC
 - Over 80 customers across the DoD
- What We Tried to Do
 - Upgrade to PAS 2.0 to include the integration of a biometric handheld
- What We Did
 - Upgraded and Fielded PAS 2.1 with biometrics and no mobile device
 - Prototyped and Demonstrated PAS 3.0 with a mobile device

- Designed to function independently on a dedicated workstation
- Read the CAC integrated circuit chip or scans the barcode from personnel arriving or leaving a ship or station
- Verifies identity and automates personnel accountability
- Accounts for attendees at meetings & training sessions
- Complies with OCONUS Buddy System policy
- Provides instant communication capability via a message board
- Displays crew pictures for additional verification

- Integrate fingerprint biometric handheld platforms
 - Smaller Footprint, Portability, Check-in/out Speed
 - Accountability/Authentication of Non-CAC holding visitors
 - Prolong life of CAC
- Capture EDIPI in lieu of the SSN
- Integrate additional smart card technologies (e.g. GSA PIV, TWIC, DBIDS)
- Other security and user-requested feature upgrades (e.g. level of encryption, photographs, reports)

Phase One Design/Product Selection (PAS 2.0)

- Application Developed by Cogent Systems
- Developmental Testing: 4 – 8 May 09
- Dropped devices:
 - Cogent Systems Mobile Ident III due to late prototype
 - Datastrip DSVII-SC due to memory and performance issues
- Included:
 - MaxID iDLMax and Panasonic U1

- Capture EDIPI in lieu of SSN
- Understand additional smartcards (GSA PIV & TWIC)
- Improve look and feel
- Incorporate biometric matching
 - Develop to rugged handheld devices
 - MaxID
 - Panasonic U1
 - Datastrip



Device [SCORE]	Model	Battery (hrs)	Weight	Peripheral Locations				Keyboard	Sync Cradle/USB	HD Capacity	MILSPEC	Processor	OS	Current Users	Mobile App Dev on Staff	Comments
				Barcode	Fingerprint	CAC	Camera									
DAP [3]	CE3240B	6-8	Light	Front	Top/Front	Front	Front	Phone	Cradle/USB	128 Flash 128 SRAM	Yes	PXA270 520 MHz	Windows CE	Police PIVMAN	Partners	Takes picture of barcode for scanning... not a red laser.
MaxID [4]	iDLMax	10	Medium	Front	Top/Front	Side & upside down	Bottom	QWERTY	USB dongle	1G and SD slot for 32 G card	Yes	PXA270 520 MHz	Windows CE	BAT leave behind	Partners	Not mature device, developer said hard to work with
Datastrip [5]	EasyVerify (prototype)	12	Heavy	Front	Top/Front	Side	Bottom	QWERTY	Cradle/USB	256MB DRAM 256MB DDR	Yes	RAMD 500 MHz	Windows CE	N/A	Yes	New device, we did not see this one.
Datastrip [5]	DSV2+ turbo	12	Heavy	Front	Top/Front	Side	Bottom	None	Cradle/USB	64MB RAM 256MB Flash	Yes	Renesas SH4 7760 120MHz	Windows CE	USCG Mona-Pass	Yes	Concerned about processing speed.
Panasonic [5]	U1	9 hrs with both bats	Heavy (has harness)	Front	Bottom Not Flat/Rolled	Back	Bottom	QWERTY	USB	16GB 1024MB SDRAM	Yes	Atom Processor 1.33 GHz	Windows XP	??	Just started	Fingerprint scanner not able to match to fingerprint data.
Motorola [6]	MC75	8	Light	Back	Top/Back	Back	Bottom	Phone	Cradle USB 1.1	128MB RAM 256MB Flash	No	PXA270 624 MHz	Windows Mobile 6	??	Yes & Partners	Peripherals clip on to the device, easy to lose.

Greenbit	Pre-production device, not ready for demo
Cogent	Pre-production device, not ready for demo

“Mobile application not desirable. We expected the mobile solution for PAS to be used in remote locations or at key entry points to quickly check people in and out of the system using the barcode and fingerprint. Neither of these options are quick...”

“The [application on the] *MaxID* mobile device is not performing at a level where we would use it.”

“We have determined that the *Panasonic* mobile device is not usable in our environment.”

- Don't mix RDT&E with an operational upgrade
- Cogent fingerprint licensing methodology was not practical for stand alone configuration
- Handhelds
 - Lack processing speed and memory to do 1:N matching
 - Form factors not conducive to PAS use case
 - Weight
 - Location of readers
 - QWERTY keyboards
 - Wireless accreditation process/roadblock
- Difficult software installation process
- Data not properly secured/encrypted

Phase Two Implementation/Testing (PAS 2.1)

- Application Developed by Ultra-Scan Corp.
- Correct/Include findings during PAS 2.0 testing
- Test at 3 ships, 2 shore sites: 13 May – 11 Jun 09
 - USS Enterprise, USS Makin-Island, USS Curtis Wilbur
 - Naval Expeditionary Medical Training Institute, Naval Hospital Corps School
- Biometric Technology Demonstration by Dec 09:
10 ship, 5 shore locations

Fingerprint Authentication

- Ultra-Scan matching algorithm
- Enhanced 1:1 and 1:N matching speed
- UPEK sensor integration

Check-in/Check-out Capability

- New Rapid Mode
- Added Processor Role (prev. only Admin and Operator Roles)

Automated Liberty Processing

- Buddy system compliance
- Non-drinking buddy designation
- Overnight Liberty Processing

Database Synchronization

- Import/Export capability
- Improved import file comparison performance
- Person Delete/Purge Improvement
- Backup and Recovery

Report Generation Capability

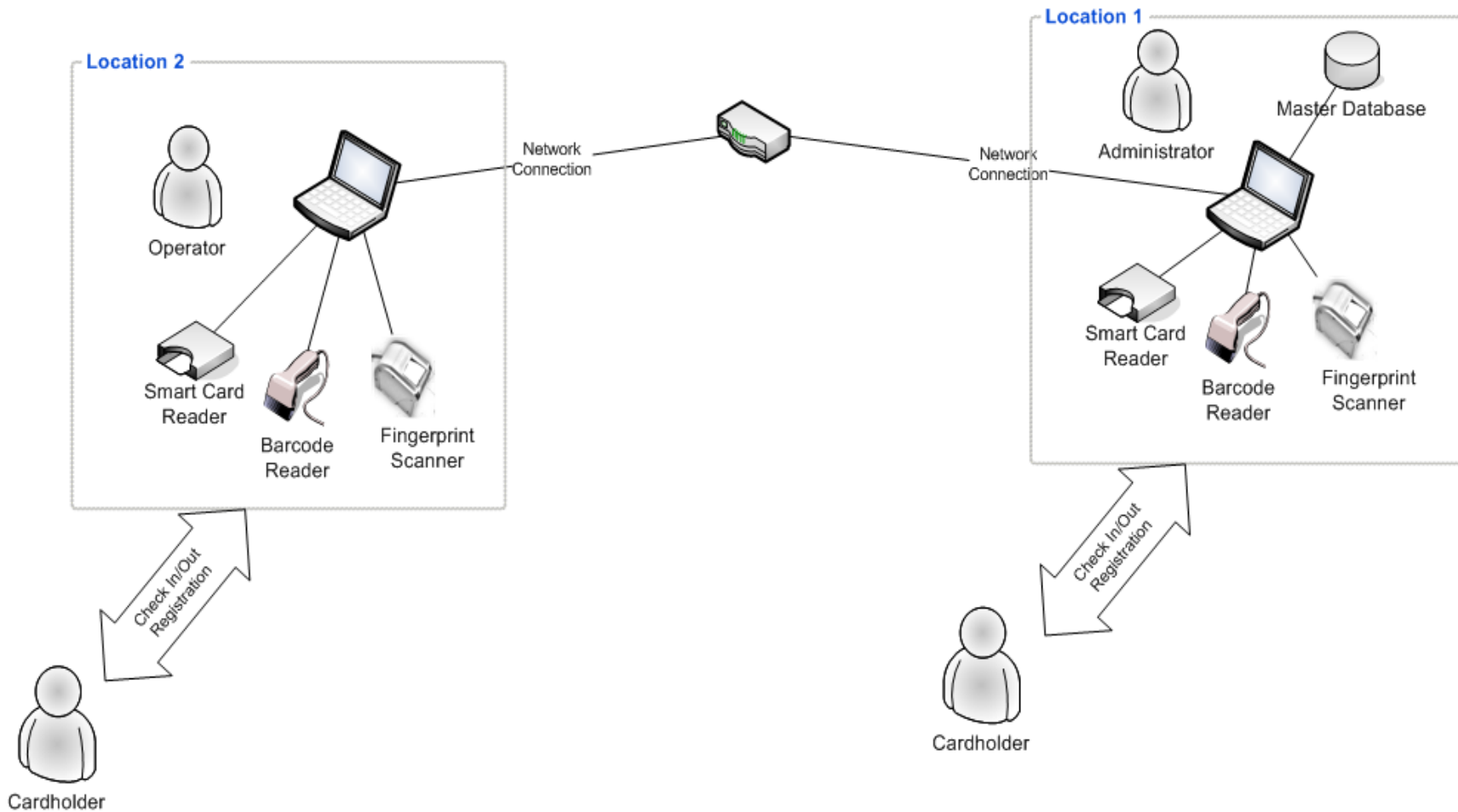
- Enhanced “canned” reports
- Custom report creation tool

Training

- Enhanced Help Function
- User Manual

- FIPS 201/HSPD-12 PIV/PIV-I compliant including new 144K CAC; Includes open standards smartcard library
- Supports two-factor requirement per DTM 09-012 “Interim Policy Guidance for DoD Physical Access Control”
- Data at Rest/Data in Transit encrypted per FIPS 140-2 guidelines
- IA audited using DIACAP guidelines; received ATO

- PAS 2.1 Operational Test and BTD held November/December 2009
 - Included 14 ships and 5 shore locations
- All participants received
 - PAS 2.1 software
 - Toughbooks, fingerprint readers, smartcard readers and barcode readers
 - Extensive test procedures and evaluation feedback matrix
- Positive feedback received and incorporated into final version
- Fielded December 2009 to 80+ PAS customers
 - Navy, Air Force, Army, Marine Corps
 - Customers received help desk support and manuals for user installation and operation




SHIPS (14)

- USS Enterprise
- USS Makin Island
- USS Curtis Wilbur
- USNS Mercy
- USS Abraham Lincoln
- USS Antietam
- USS Blue Ridge
- USS Bonhomme Richard
- USS Cowpens
- USS Essex
- USS Harry S. Truman
- USS John Hall
- USS Lake Champlain
- USS Roosevelt

ASHORE (5)

- MARCORDET
- NEMTI
- AFSOC 1 SOA/MX
- USAF 436 AW Dover
- Georgia National Guard

 = PAS 2.0 (handheld)

 = PAS 2.1

“The fingerprinting was easy to use and quick to update personnel prints.”

“Initial testing shows that rapid check in/out with finger scanner is very fast.”

“It was good to see a lot of the policies required by Sixth and Fifth Fleet were incorporated.”

“These changes will be valuable to the units...”

“The report options were in depth and covered any kind of report we would ever need to see. Outstanding job the folks who put that together.”

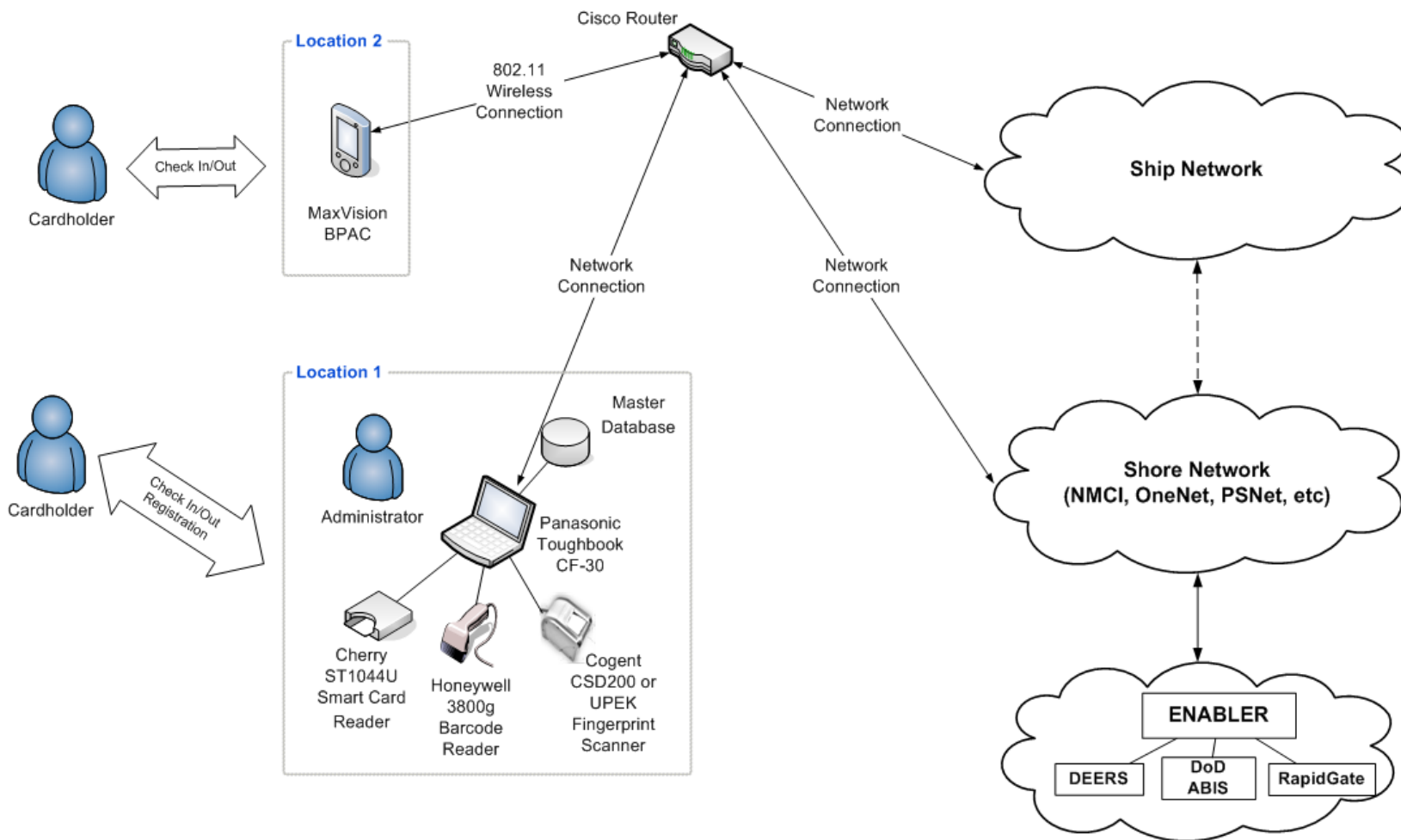
- Current COTS handhelds are not ready for operational use in a stand alone configuration
- Customers are excited about biometric technology & impressed with speed of biometric check in/out
- Installation/Setup was simple
- Fingerprint biometrics seem to be the preferred method for PAS customers
- Disliked scanning three times to get fingerprint enrolled
- Concerned about fingerprint readers in the ships' environment (moisture, salt, dirt)

- Improve biometric licensing method
- Enhance security and encryption
- Custom reporting module
- User friendly back up and recovery
- Other customer requirements



- Mobile platform with PAS v2.1 functionalities
- Integration with ENABLER for access to Authoritative Databases
- Handheld Selection
 - Needs analysis performed
 - Extensive search with 90% spec requirement
 - Devices tested:
 - Amrel
 - MaxVision (selected)
 - Panasonic
 - DAP
 - MaxID
 - Datastrip
 - Motorola

PAS 3.0 System Overview



Navy PAS Mobile Hardware Comparison Top Choices

HARDWARE				
	PAS Specification	Amrel	MaxVision	Panasonic U1
CPU/OS	Intel Atom Processor, 1.6Ghz/Windows XP	Atom 1.6Ghz	Atom 1.6Ghz	Atom 1.3Ghz
Memory	1.0 GB DDR2 RAM	2.0 GB	2.0 GB	1.0 GB
Fingerprint Reader	PIV certified 500 DPI fingerprint reader	Yes	Yes	Yes
Communications	Ethernet, USB 2.0, 802.11b, g ,n wireless	Yes	Yes	Yes
Barcode Reader	Capable of reading 1D barcode	Yes	Yes	Yes
Smartcard Reader	Contact and Contactless, capable of reading CAC. TWIC and GSA PIV II ICC	No	Yes	Yes
Camera	2.0 MP with face illumination or flash	Yes	Yes	1.3MP
Keyboard	QWERTY keyboard, sealed for moisture and dust resistance or onscreen	Yes	Yes	Yes
Power	Battery power, sufficient for 6 hours of use	6 hours	7 hours	9 hours
Environmental	Operational temperatures from -20C to + 70C	Yes	Yes	No
	MIL-SPEC Certified	Yes	Yes	Yes
Output Display	Sunlight readable LCD touch screen, 4.0 in. min.	Yes 5.0in.	Yes 5.6in.	Yes 7.0in.
Physical	9.5in. x 4.5in. x 2.6in.	Yes	Yes	No
	Maximum weight of 3 lbs	Yes	Yes	No



- Rugged Ultra-Mobile PC
- Biometric Data Collection (Fingerprint, Facial, Iris)
- Full Windows XP
- 802.11 b/g/n Wireless
- Contact/Contactless Smartcard Interface

- 1D Barcode Reader/Passport OCR
- Size: 6.8"x4.5"x2.1"; Weight: 3.45 lbs.
- MIL-STD 810G for Low/High Temp, Dust, Drop, and Water Resistance





- Maxvision BPAC Device Integration
 - PAS 3.0-FA
 - Contact read, 3 of 9 barcode, optical fingerprint sensor, Contactless, PDF 417 barcode
 - Integrated Motorola Symbol barcode reader

- Real-time CAC authentication through ENABLER→DEERS
 - Implementation of JGS 2.0 for EDIPI/FASC-N submission
 - Periodic ENABLER polling for revocation updates

- Demonstrated to PSEAG September 9, 2010

- **Accreditations**
 - DIACAP/ATO
 - DITPR-DON
 - DADMS
 - SHIPMAIN
 - CCC (Common Criteria Certification)
- **Integration to Enabler with JGS v2.0**
 - EBTS transmission/comparison to DoD ABIS
 - Visitor Management with JPAS integration
- **PSEAG DIAC testing of PAS 3.0 Maxvision**

- Four finger Ultrasonic Fingerprint Capture
 - Eliminate Multi-capture
 - Address Environment Concerns
- Multi-modal Biometric Collection
- Enhance Storage/Matching Capability
- Include RapidGate and DBIDS Credentials
- Centralized Fleet Reporting
- Visitor Management Integration (inc. other authoritative sources such as JPAS)
- Sponsorship, POR status, Deployment

SSC Development Projects				CAC PMO Sustainment				
PAS 3.0	Bachelor Housing ENABLER	CAC-FIT	PAS Light	PAS 2.1	CAC Pin Reset	CVS	DEERS/RAPIDS	Appointment Scheduler
Handheld Selection	Define Requirements	Form IPT	Define Requirements	Development	Software Upgraded	System Operational	CONUS NMCI Transition	System Operational
Software Upgrade	Design	Define Requirements	Design	DTE/OTE	ATO		OCONUS OneNet Transition	
Prototype Development	ENABLER Integration	Design	Prototype Build	Software Upgrade	System Operational		Afloat Rollout	
ENABLER Integration	Deploy Infrastructure	Prototype Development	Beta Release	Rollout				
DIACAP Package	Install OCONUS sites	ENABLER Integration	Pilot Test	ATO				
Visitor Management		Testing		System Operational				
POR		Deployment						
Testing								
Deployment								

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