

Presentation to

Military Logistics Conference

Secure Mobile and pRFID Technology

**Turning logistics data into
Actionable Logistics Intelligence**

Presented by
Jack Rhyne

Enterprise Global
Asset Visibility
Server



Recognition for the team!



The contractor team of Main Sail, CACI and Software A.G. has worked together supporting the Navy in creation of these cutting edge solutions for the last 8+ years.

None of what was accomplished would have been possible without strong synergy with the Navy Supply Systems Command (NAVSUP) team.



Key Issues and Challenges

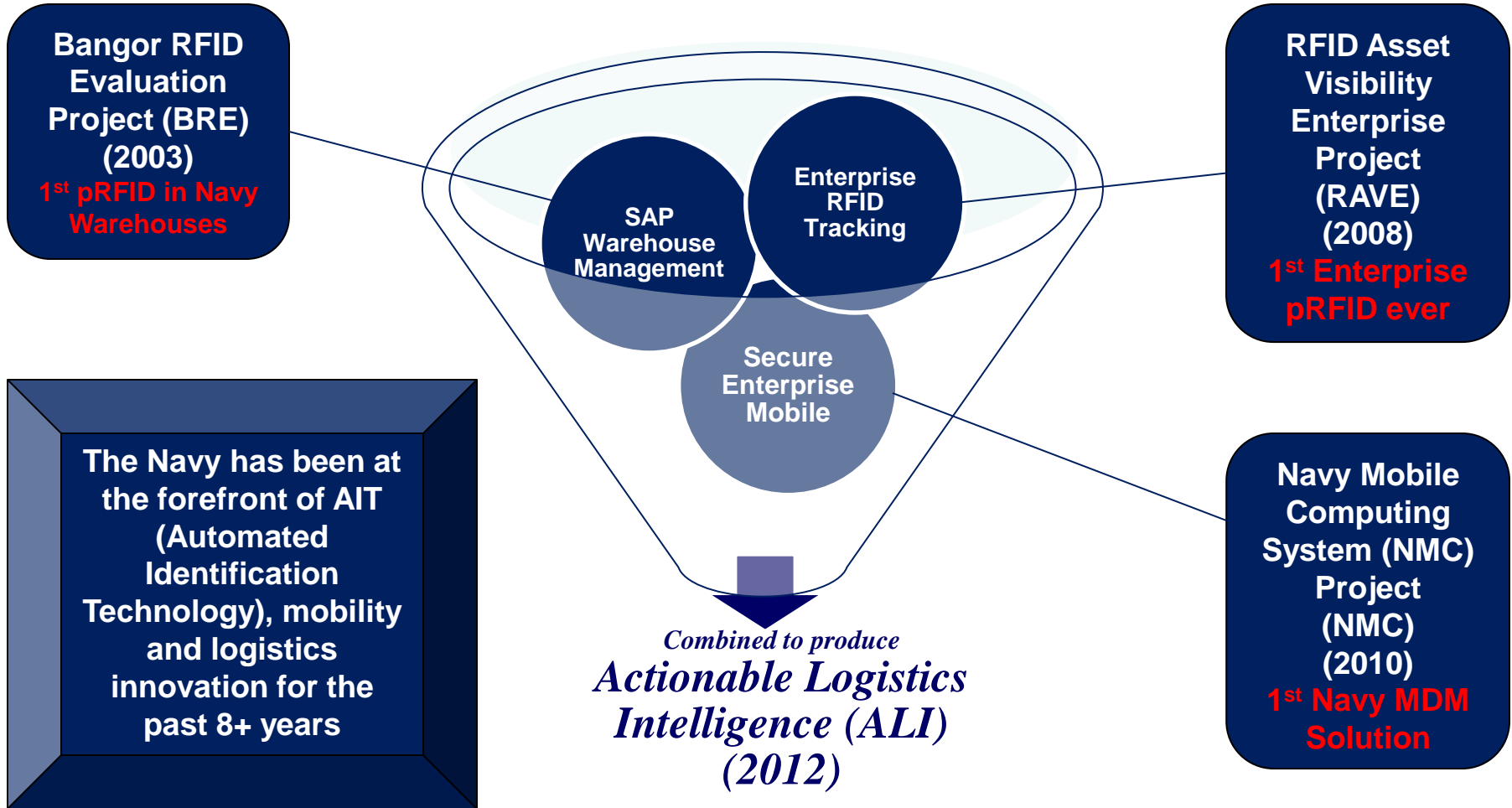
**Secure Deployment of
Mobility Solutions into
the supply chain and
beyond**

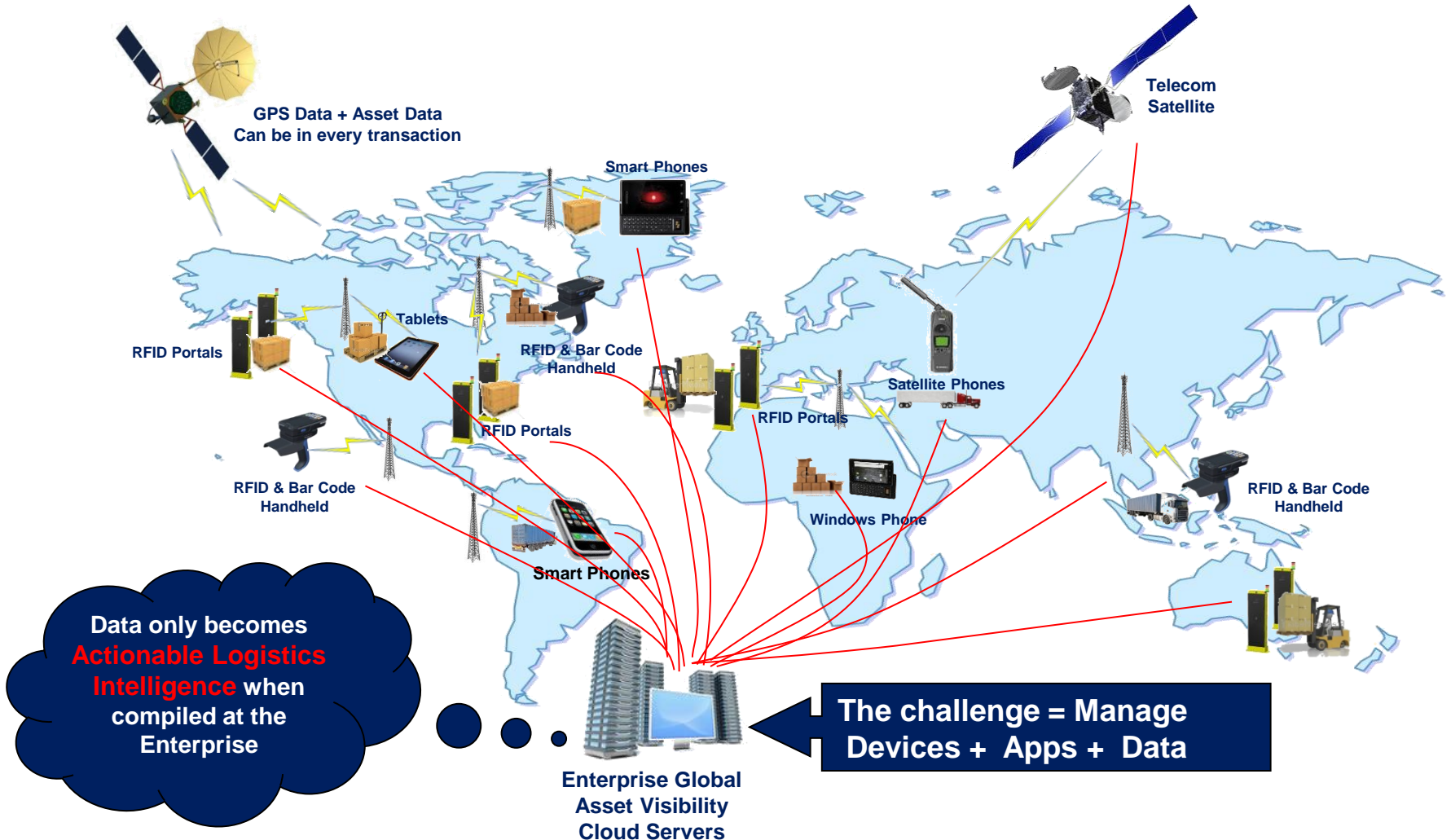
**Deploying I.T.
applications as
Enterprise solutions**

**Gaining improved
logistics performance
from technology on
reduced budgets**

**Inserting new
technology (like
pRFID) into current
and future AIS's**

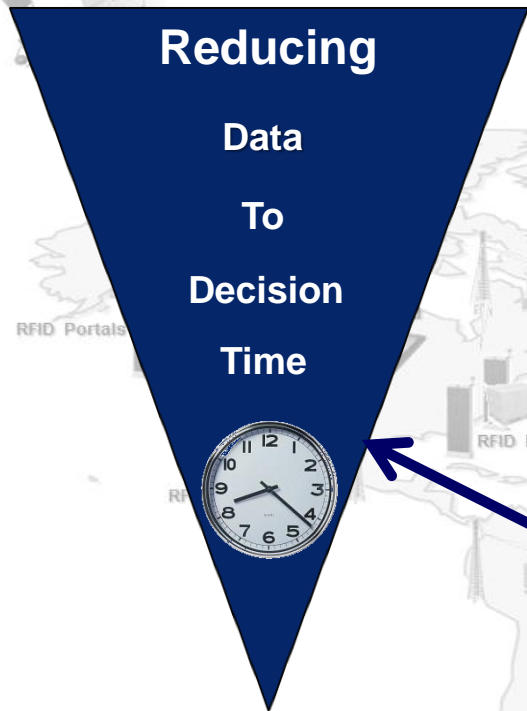
Three Cutting Edge Capabilities





Guiding Principles:

Actionable Logistics Intelligence

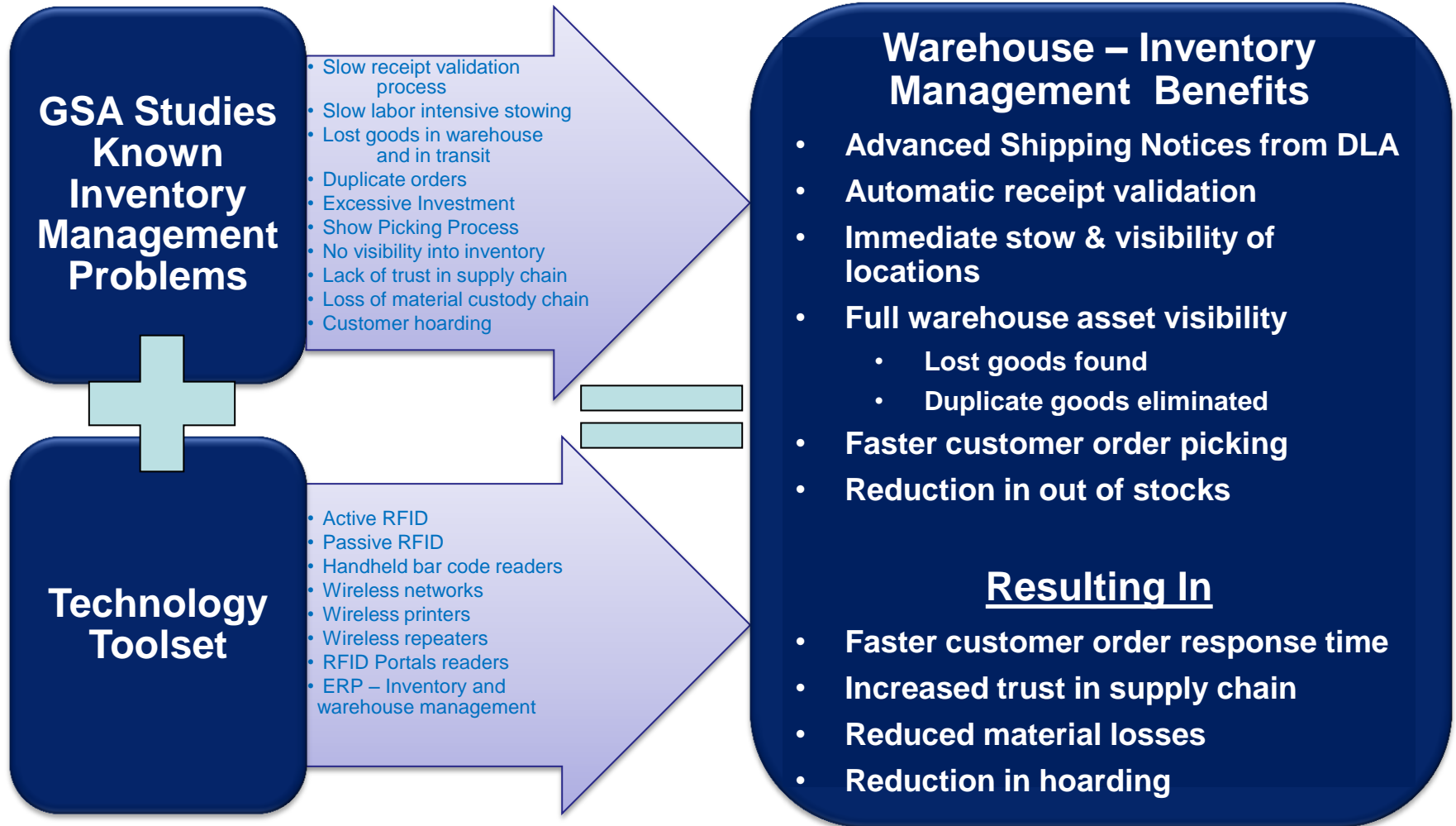


Using COTS devices

Over any available net. (SAT, CDMA, GSM, 802.11....)

Absolutely Secure end-to-end connections

Enterprise Global Asset Visibility Server



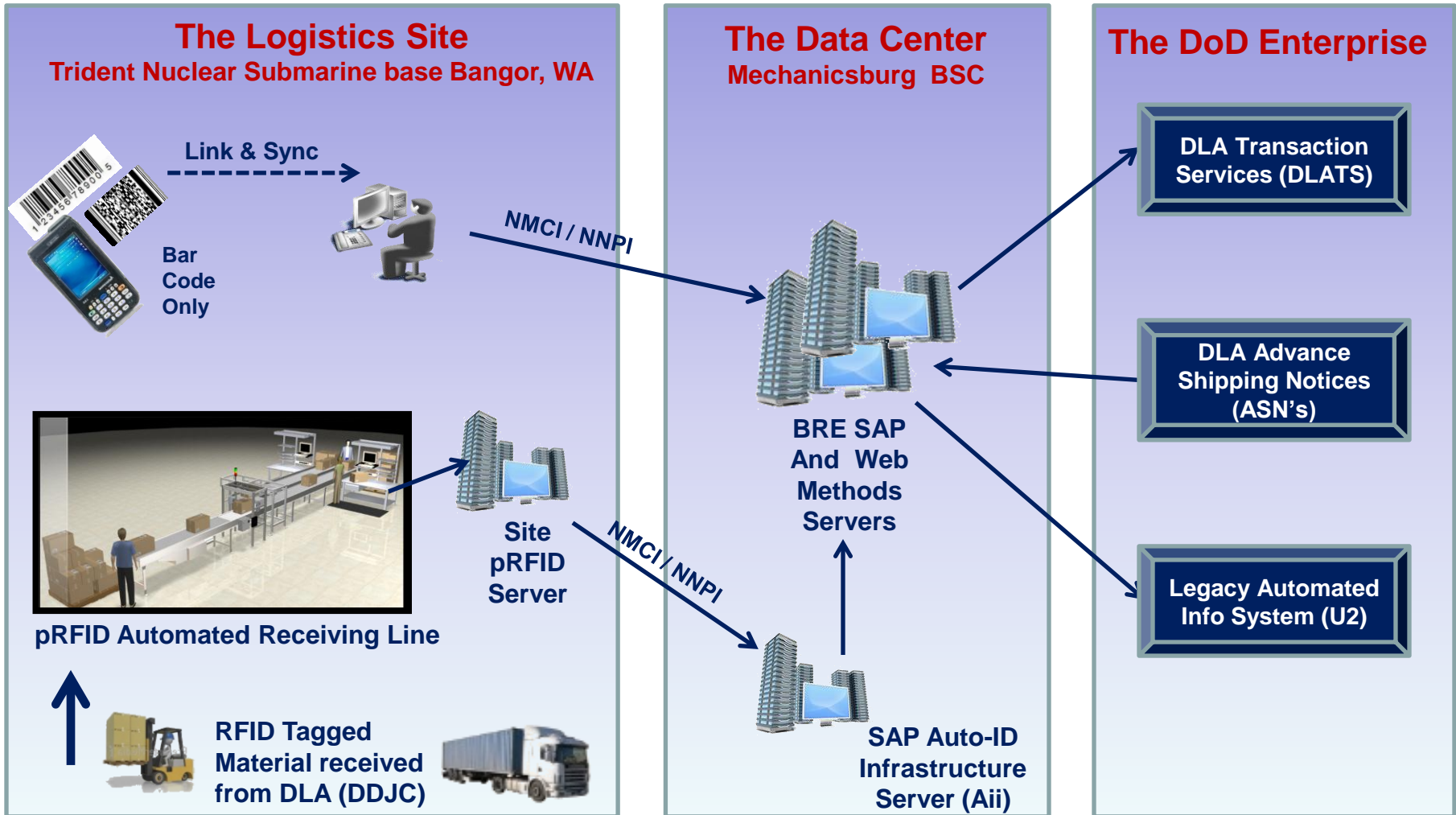
Where it all started

What the Navy has accomplished with Main Sail support:

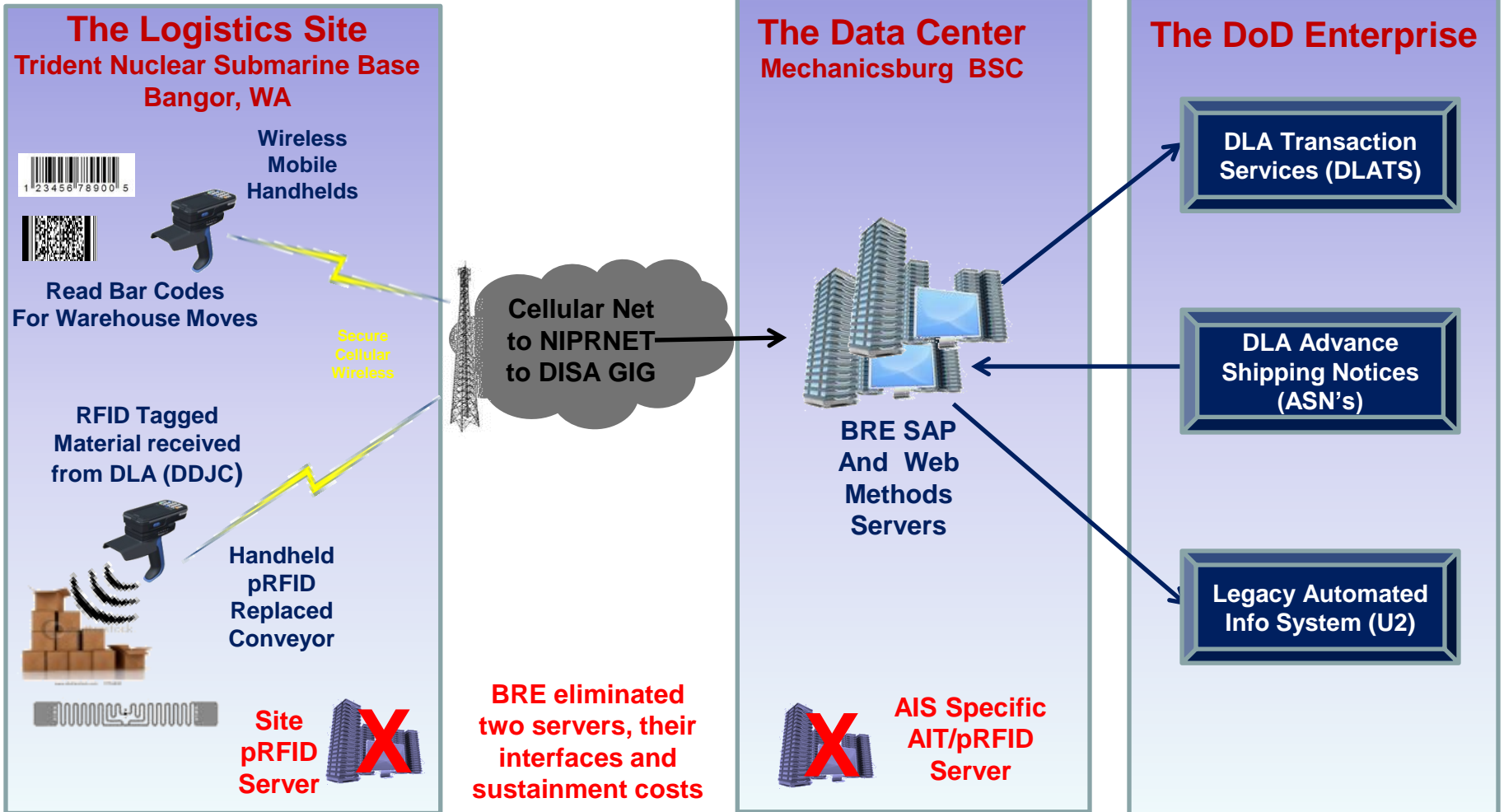
- ✓ First full production site to receive ASN data and tagged material from the Defense Logistics Agency (DLA).
- ✓ First such project implemented inside the Navy's NMCI (Navy Marine Corps Internet) network environment
- ✓ First Navy project to operate pRFID equipment over the NMCI WAN.
- ✓ First Navy implementation of SAP ERP based Warehouse Management. The BRE solution is used to manage over 300,000 SF of warehouse space in multiple buildings at the Bangor, Washington site.
- ✓ First Navy implementation of wireless AIT mobile handhelds using cellular CDMA technology

Early First Adopter of pRFID

The Navy Partnered with DLA



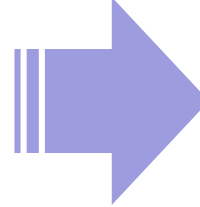
Early First Adoption of Secure Wireless and handheld pRFID



RFID Provides Positive Performance Metrics... and Huge Potential Savings

Initial pRFID ROI Results

Metric	Result
ASN Processing Rate	99%
Tag to ASN Matching Rate	89%
pRFID Receipt Posting Rate	98%
Receipt to Storage Time -Improved by 3.6 days	1.56 days
Average Customer Wait Time (ACWT) -Improved by 3.6 days	11.2 days
ROI based on \$1.15M costs versus \$485K savings/year	2.37 Years



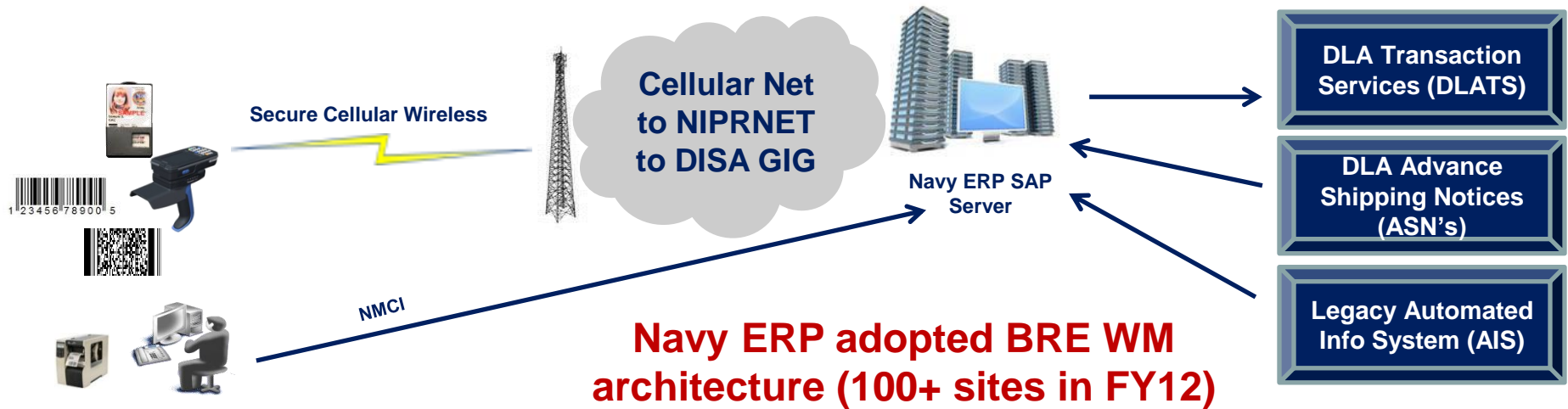
Potential for pRFID Enablement In an E2E Repairable Supply Chain

Repairable Spare Parts Inventory	\$11B
Inventory In-Transit Annually	\$25B
Material savings For every .01% Inventory Accuracy Improvement	\$25M per year
Average Cost per part	\$2000
Average Annual Receipt Transactions	12.5M per year
Receiving Efficiencies help improve processing times	Significant Savings

**Even .01% better accuracy
Saves more than enough to
Pay for RAVE**

**TAV & ITV improvements
are gained by linking
pRFID to AIS's**

Evolution to Enterprise Warehouse Management in Navy ERP



At the Site:

- No servers onsite
- Only Readers, printers
- Wireless mobile devices don't touch existing network.
- Cellular repeaters installed where cell signal is low
- Added CAC login process for mobile handhelds
- Approved for HAZMAT (Class I, Div2)

The Navy ERP WM Solution:

- Similar to BRE WM solution
- Uses WEB technology to present transactions to handheld
- Deployed to several types of warehouse facilities
- Replaced several legacy WM systems
- Nuclear and munitions tracking capable (Future)

RFID Interface with RAVE:

- RFID = Asset Visibility Enterprise
- Receipt in Process (RIP) to SAP planned
- Facilitates tracking and reporting of receiving backlog.
- Immediate visibility of material arrival on-site

Wireless impacts these areas:

- ***Receiving***
- ***Pick & Put Away (Stow)***
- ***Stock Transfers***
- ***Physical Inventory***
- ***Inquiries' (Item, Bin, Empty Bin list etc.)***

Advantages of Real Time Wireless Operation

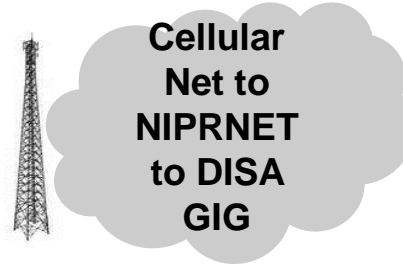
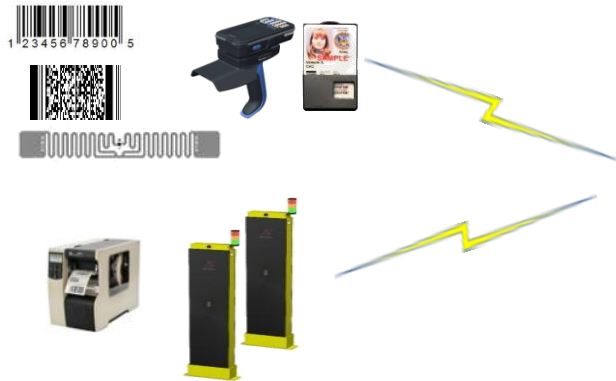
- ✓ Transactions exist for virtually all common floor operations
- ✓ Feedback to the operator is immediate. Errors corrected immediately enforcing best business processes.
- ✓ No custom code loaded on the handheld. User is interacting directly with the ERP system. Data is updated immediately. No synch between devices required.
- ✓ Work can be automatically “pushed” to handheld users.
- ✓ Sets the stage for elimination of most paper material movement documents.

**Drives up Bin Inventory Accuracy
and Provides Productivity Gains**

What the Navy has accomplished with Main Sail support:

- ✓ **The first implementation of an Enterprise architecture for pRFID processing ever.**
- ✓ **Eliminated need for on-site servers to control RFID equipment with huge cost savings.**
- ✓ **Cleared the way for an economical approach improve your supply chain and implement the OSD pRFID mandate.**
- ✓ **Fully IA certified solution operating in a DISA hosted facility.**
- ✓ **A Joint design capable of operating across DoD and Federal agencies.**

The Logistics Site



Data Center



**Enterprise
RFID Tracking
Server
(Navy RAVE
Server)**

DoD Enterprise



At the Site:

- No servers onsite
- Only Readers, printers
- Don't touch existing network
- Installs in days not months
- pRFID can be inserted into any site to track arrivals and departures

The Net:

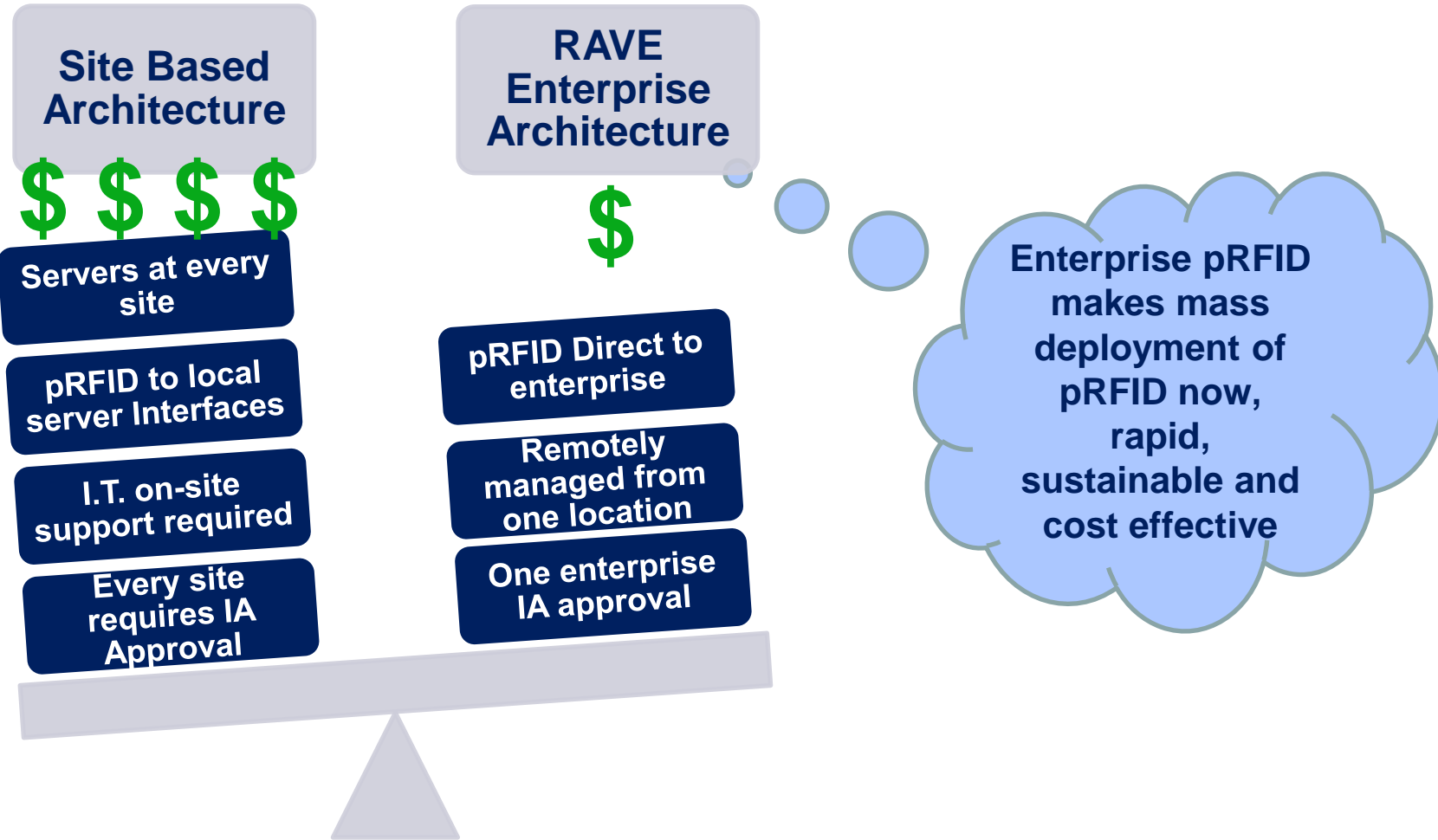
- Secure IA approved
- Uses cellular, or 802.11 or DISA end points
- CDMA routers to connect hardware to net
- Mobile HHD's with build in cellular cards

Enterprise RFID Server

- Directs transactions to AIS's
- Manages RFID hardware
- Sends Asset Visibility data to DoD
- Standardizes business processes
- Front end and back end independent
- A Technology Insertion platform for legacy AIS's



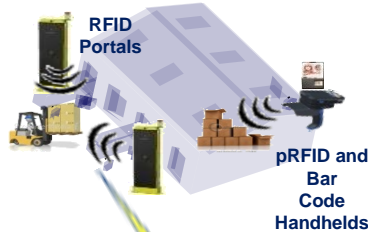
Enterprise Architecture vs. Site Based Removing Obstacles to pRFID Deployment



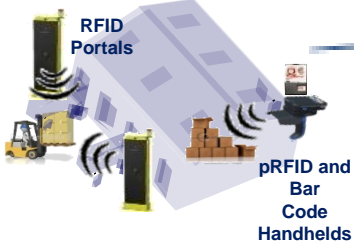
Air Force Base Receiving



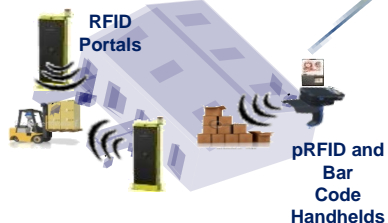
Navy RMS Site



Army Maintenance Depot



USMC MALS Site



Commercial Repair Site



Electronic Product Code (EPC) Data in tag

RFID Tag Identity	Requisition #
2F02032533139342DFDC1C35	V0336552740001

Enterprise RFID Tracking Server

DLA Transaction Services (DLATS)

Air Force Enterprise and Legacy Systems

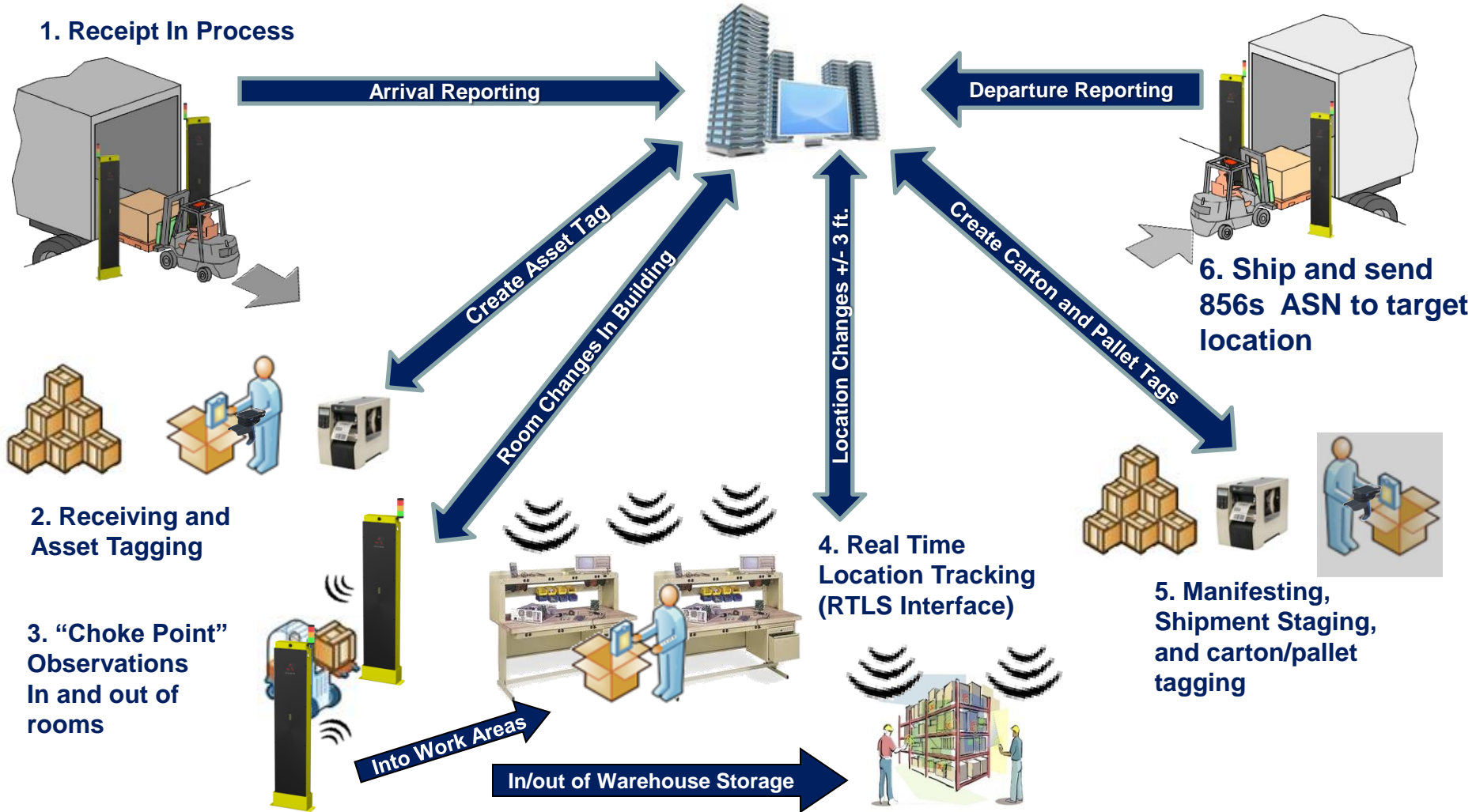
Army Enterprise & Legacy Systems

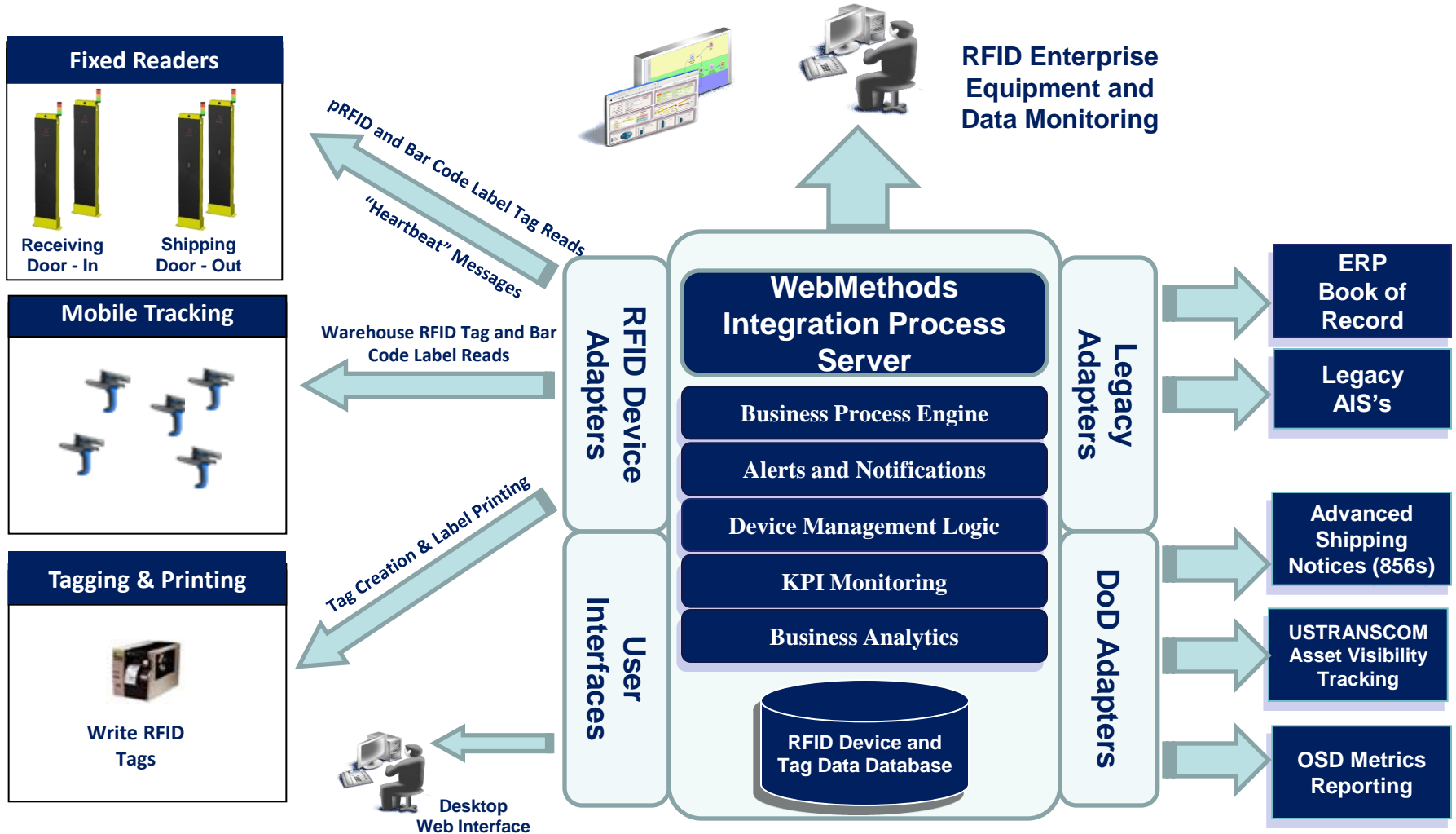
USMC Enterprise and Legacy Systems

Navy Legacy and Enterprise Systems

- Benefits of Joint Enterprise pRFID:**
- ✓ pRFID equipment & status managed centrally
 - ✓ Joint view of asset movements & issues
 - ✓ Enables pRFID technology anywhere very quickly
 - ✓ Joint pRFID and logistics metrics and KPI's
 - ✓ EXISTS NOW – huge cost savings by leveraging

Typical Enterprise pRFID Tracking Functions

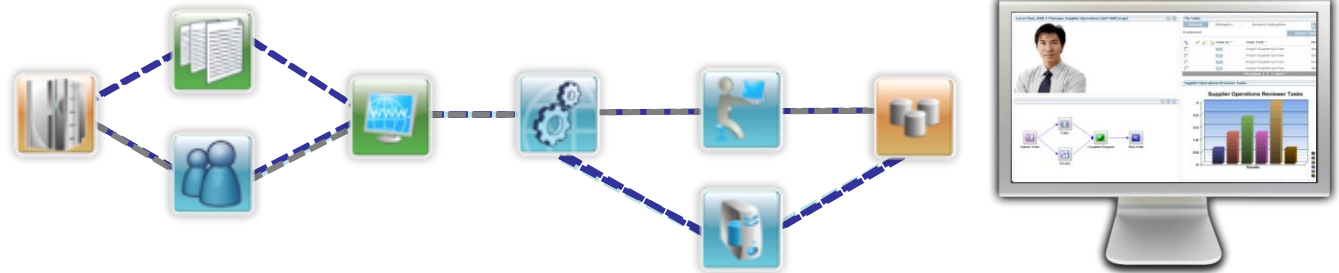




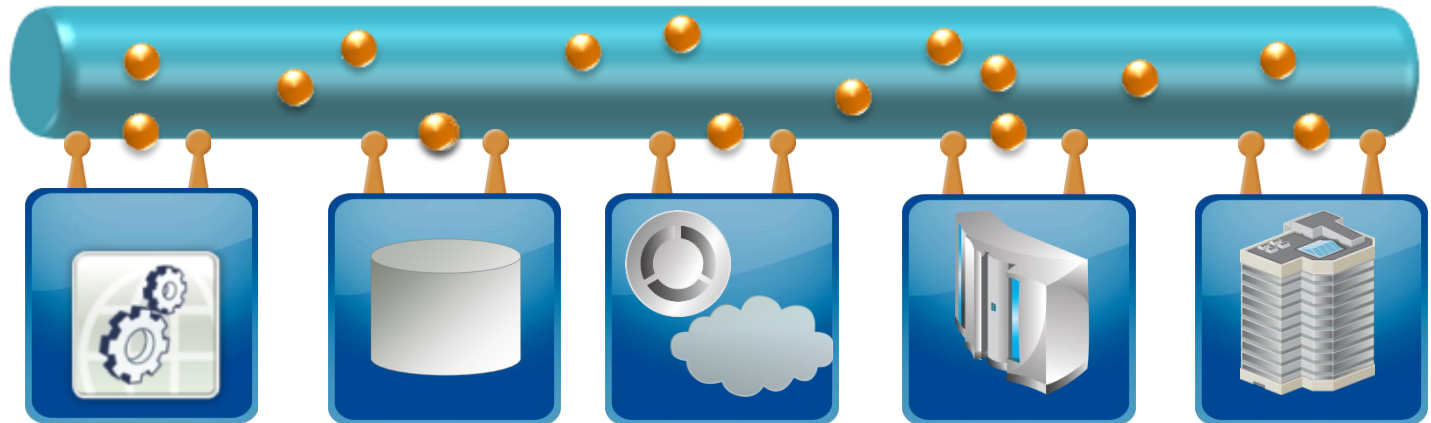
Monitoring and Analytics



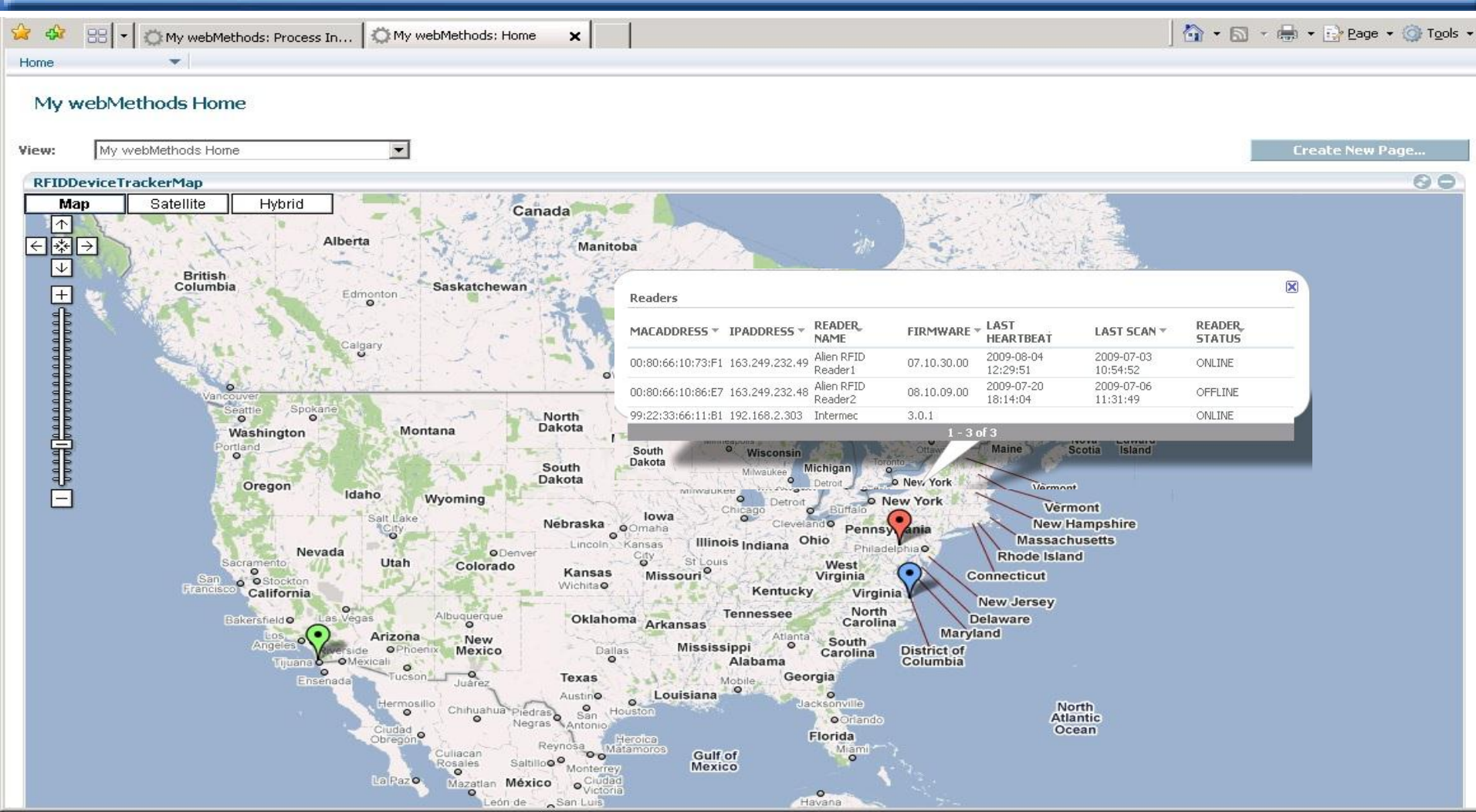
Business Process Management



Enterprise Service Bus



Global RFID Enterprise Visibility and Status Monitoring - with Real-Time Alerting



View: Create New Page...

RFIDDeviceTrackerMap

Map | Satellite | Hybrid

MACADDRESS	IPADDRESS	READER_NAME	FIRMWARE	LAST HEARTBEAT	LAST SCAN	READER STATUS
00:80:66:10:73:F1	163.249.232.49	Allen RFID Reader1	07.10.30.00	2009-08-04 12:29:51	2009-07-03 10:54:52	ONLINE
00:80:66:10:86:E7	163.249.232.48	Allen RFID Reader2	08.10.09.00	2009-07-20 18:14:04	2009-07-06 11:31:49	OFFLINE
99:22:33:66:11:B1	192.168.2.303	Intermec	3.0.1			ONLINE

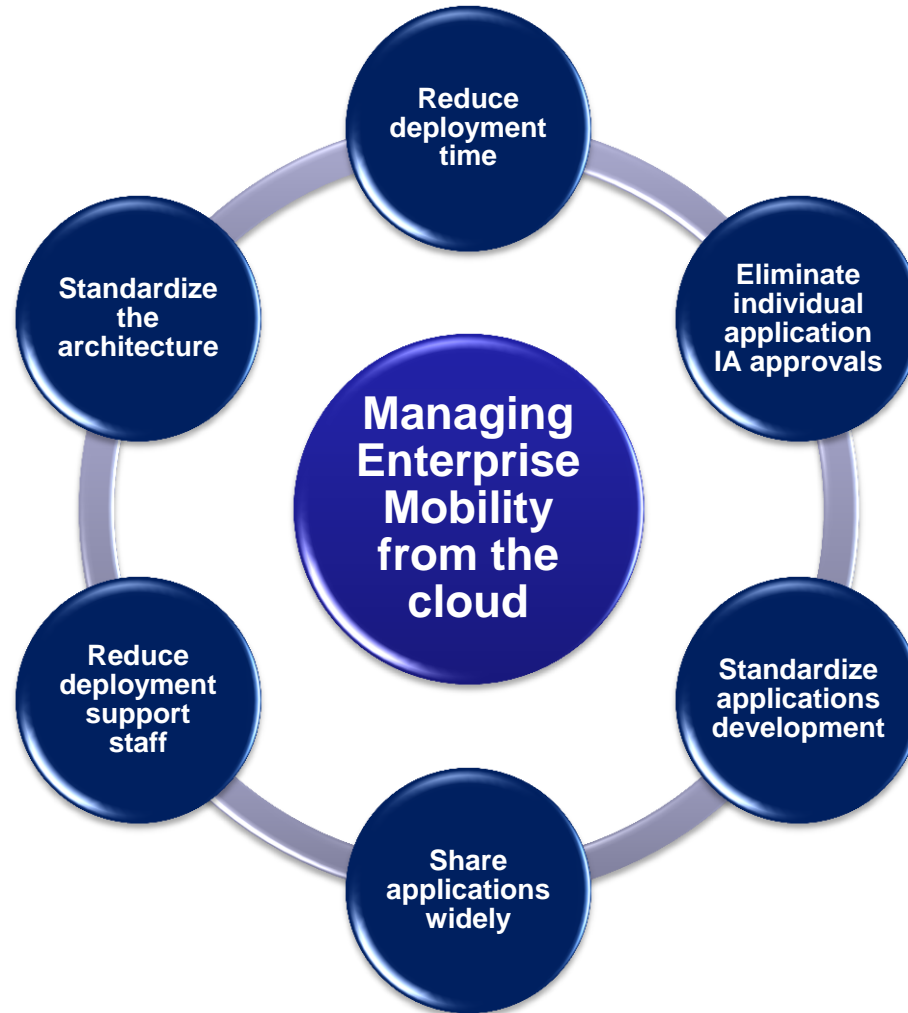
1 - 3 of 3

Mobile Device Management (MDM) Enables Mobility Goals

What the Navy has accomplished with Main Sail support:

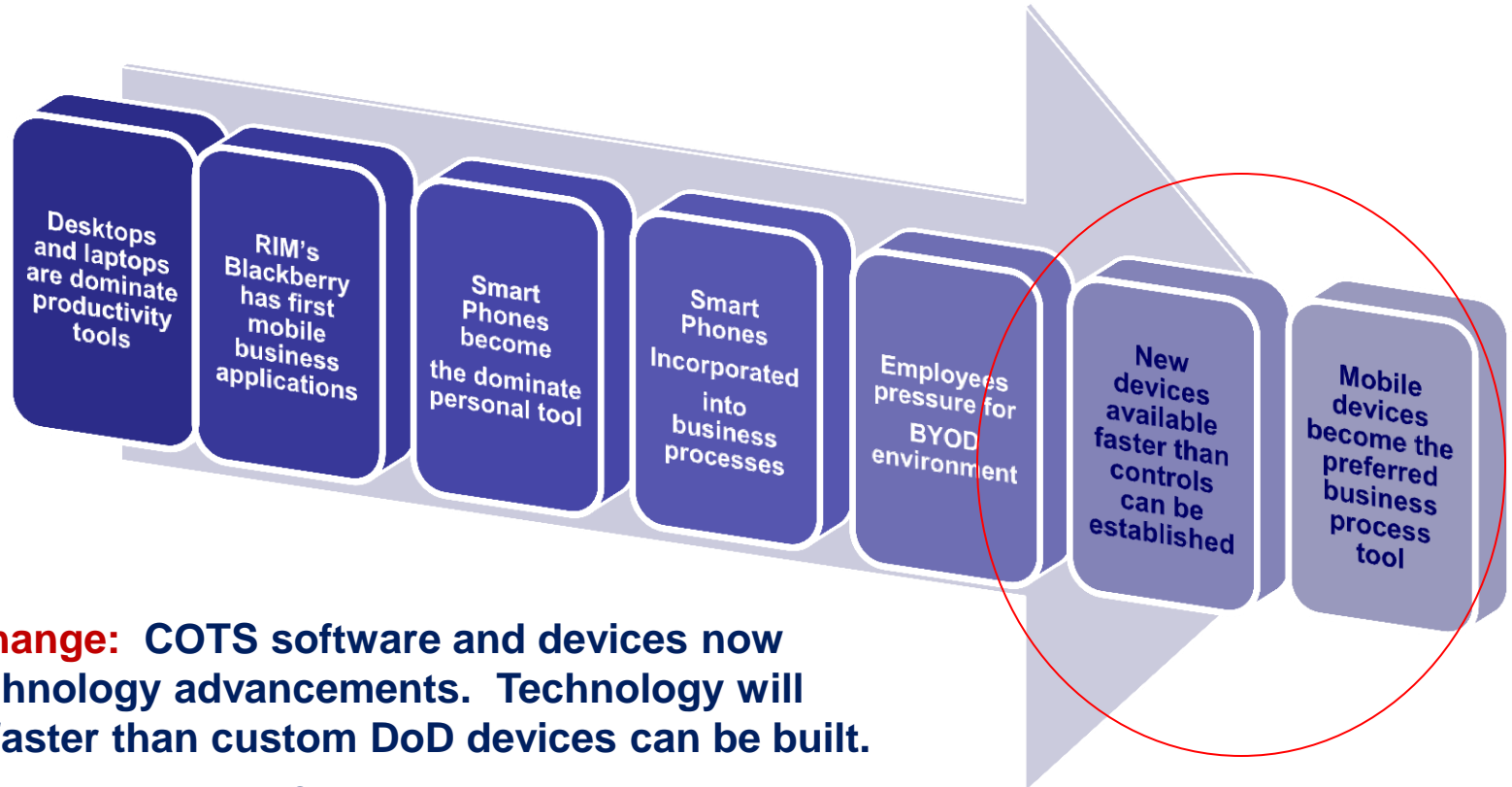
- ✓ Meets all requirements for IA and GIG Waiver Board certified solution.
- ✓ First Mobile Device Management implementation for the Navy.
- ✓ Implemented to provide mobile wireless technology in support of Navy ERP Warehouse Management, RAVE sites and other agencies.
- ✓ Supports devices on cellular networks – soon to support 802.11 and OCONUS.
- ✓ Moving to a DISA hosting facility for FY13.
- ✓ Available as a subscriber service from the Navy for any DoD or Federal Agency.

Enterprise Mobility Goals



Evolution of MDM

How Did We Get Here?



Trend Change: COTS software and devices now drive technology advancements. Technology will change faster than custom DoD devices can be built.

Effect: Requiring DoD Custom built devices could cause us to fall behind our enemies.

Answer: Secure COTS technology - not custom building is the new requirement to stay current.

The Logistics Site and beyond . . .



Windows Mobile



iPad

iPhone



Android

Windows Phone



Mobile Device Management (MDM) is required to meet IA and operational requirements for 100's or 1000's of mobile devices

Cellular Net to NIPRNET to DISA GIG

Data Center



Enterprise Mobile Device Management (MDM) Server



Enterprise Mobile Applications Server

There's an App for that?

The Device

- IA compliant
- Communicates to an application and . . .
- Managed by MDM Over the Air (OTA)
- Entire device locked or . . .
- Compartments are secured

The Net:

- Any cellular network can be used
- End-to-end FIPS 140-2 encryption secures the connection and device
- Bridge back to NIPRNET or SIPRNET

MDM Server:

- Manages 1000's to 100,000's of devices
- Supports Windows Mobile, IOS, Android, and RIM Operating Systems
- Controls all device functions remotely
- Manages apps presence and access
- Supports BYOD policy if implemented

High Level MDM Requirements fulfillment

Functionality	Description
Group Management and provisioning	Automated provisioning and group creation. Applying policies by group.
Service Management and Reporting	Visibility into device and network performance.
Mobile Application Management	Visibility of installed apps, and ability to whitelist / blacklist apps.
Mobile Operating Platform Support	Support for Android, iOS, and windows Mobile operating systems
Policy and Security Management	Application of policies beyond basic ActiveSync functionality
Role-base Management	Customizable views of the management interface, depending on role.

Main Sail uses a 200+ item checklist to evaluate MDM vendor compatibility. Closest vendor in all areas is Air Watch with 1 million user across all operating systems.

Does At Least one MDM vendor have this capability or will in the next 3-6 months			
X = Native		P=Requires partner component	
Security Category	Apple	Android	MS Windows
Applications control	X	X	X
Configuration Control (Secure)	X	X	X
MDM FIPS 140-2 Communication	P	P	X
Content FIPS 140-2 Security	P	P	X
Remote Control FIPS 140-2	X	X	X
Secure email	P	P	X
CAC/Smartcard Access	P	P	P

- 1. No one has the capability to fulfill the entire matrix alone.**
- 2. Several COTS security components in an integrated solution are required**
- 3. A DoD customized mobile device solution that will be expensive to procure and will be obsolete in 18-24 months**

What you can do with this information?

- ✓ Discuss our teams' experiences in implementation of a **Mobile Device Management (MDM) solution** and consider leveraging the Navy's existing secure NMC system which is offered as a fee-for-service to other DoD agencies.
- ✓ Discuss our teams' experience in implementation of **enterprise level pRFID asset tracking, and** consider subscribing to the Navy's RAVE (RFID Asset Visibility Enterprise) system to process pRFID reads for logistics movements and eliminate any currently redundant pRFID servers you may be paying for.
- ✓ Discuss our team's experiences in implementing an enterprise wide **Warehouse Management and Material tracking Solution** with secure wireless handhelds and pRFID automated receiving and shipping.
- ✓ **Drop by the Main Sail, SAG, CACI booth** and discuss the concepts presented in this presentation.

Recognition for the team!



The contractor team of Main Sail, CACI and Software A.G. has worked together supporting the Navy in creation of these cutting edge solutions for the last 8+ years.

None of what was accomplished would have been possible without strong synergy with the Navy Supply Systems Command (NAVSUP) team.





Questions?

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