



RFID for ITV

A Warfighter's Perspective



Col. Mark Nixon

**Head, Logistics Vision
and Strategy Center**

Headquarters, U.S. Marine Corps



Key Points



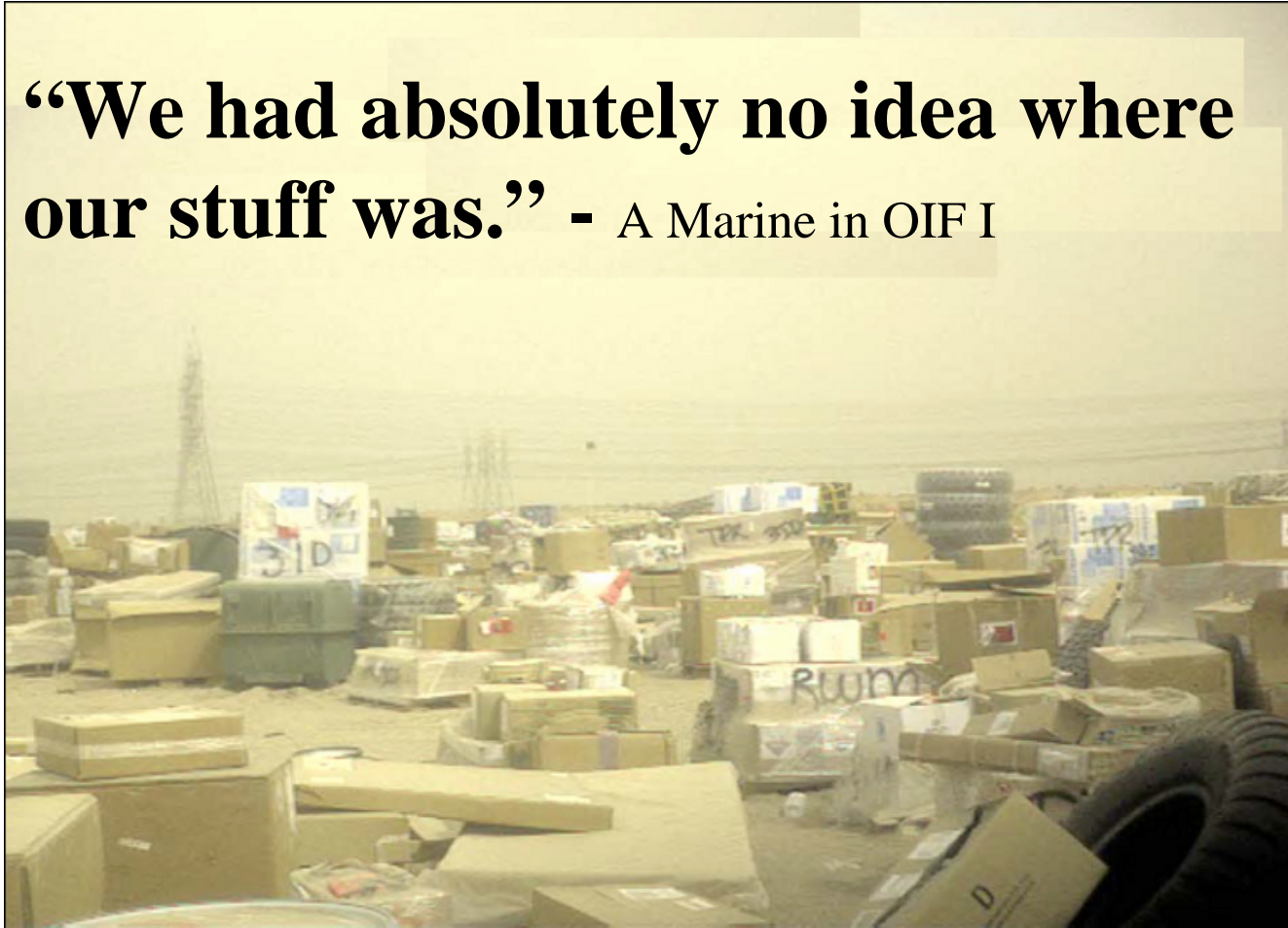
- *Radio Frequency Identification (RFID) technology provided unprecedented levels of in-transit visibility (ITV)* over the movement of supplies to Marine forces deployed for Operation IRAQI FREEDOM (OIF) II. However, much room for improvement remains.
- RFID technology as a means of tracking items in transit has applicability to both deployment of units and movement of sustainment.
- Decision support tools are required to convert RFID data into useable information.
- RFID technology is but one of several tools for ITV. Expeditors at critical nodes are still required.



OIF I LESSON LEARNED



“We had absolutely no idea where our stuff was.” - A Marine in OIF I



Requirement: Tag all USMC accompanying equipment into theater and track sustainment/resupply distributions using RFID to the using unit.



Background



- 31 Jul 02 - USCENTCOM required all air pallets, containers, and commercial sustainment moving to/from the theater and intra-theater movements to be tagged with RFID at origin for asset and intransit visibility tracking (**only viable means to achieve immediate and significant level of ITV**)
- Jul 03 - Marine Corps received initial funding to develop RFID way ahead (**very limited experience with RFID**)
- Nov 03 - The Supply Unit at Camp Pendleton, CA requested support to tag equipment for OIF II deployment (Feb 04)
 - decided to use existing infrastructure to the greatest extent possible





USMC ROAD to OIF II ITV



- Sourced and Installed Interrogators
 - Camp Pendleton
 - Main Gate
 - Fallbrook Gate
 - 29 Palms
 - March Air Base



Camp Pendleton Main Gate



USMC ROAD to OIF II ITV

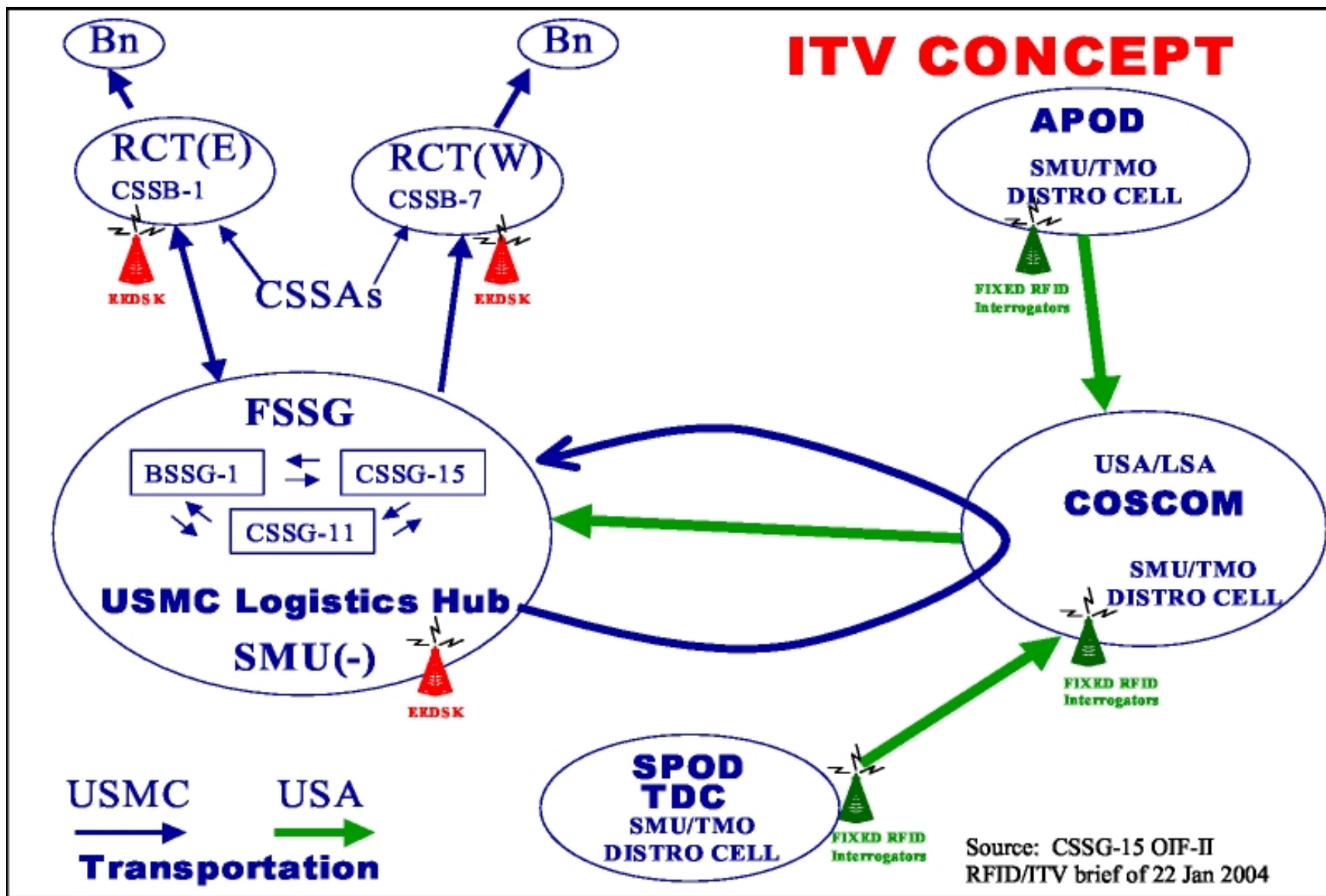


Tagged all TEU accompanying supplies (sustainment cargo)





OIF II ITV Architecture





INITIAL OBSERVATIONS



- RFID tags have enabled a much greater degree of in-transit visibility than before (tagged over 6,000 delivers to using units)
- Marines found the ITV information provided by RFID tags to be helpful, but not consistently reliable - **User Errors**
- A survey rated ITV during OIF-II at about 4 to 5 on a scale of 0-10, compared to their rating of 0 to 1 for ITV during OIF-I
 - **Users still do not have all necessary tools (GTN, JTAV, ITV-Server, etc)**

There are other emerging technologies that enhance in-transit visibility



RFID Way Ahead



- Tag unit equipment, sustainment, and pallets (463L) for future deployments (content level detail)
- Develop complimentary receipt confirmation of delivers at the “last tactical mile” and feed command and control systems
- Implement a robust fixed RFID infrastructure at all bases and stations to initiate ITV using RFID
- Integration of active and passive RFID data and architecture



Passive RFID Pilot



- 2d Sup Bn, Camp Lejeune, NC only DoD unit that participated in the OSD's Initial Implementation Project
- Components of the pilot included sending Advance Ship Notice (ASN), receiving each shipment, and reading the passive RFID tags
- 45 day test period with mixed results; did not automate logistics system based upon tag read
- Intention to continue pilot using R&D 64 monies



Passive RFID Future



- Integration with DoD Architecture
- Change selected legacy systems to allow for passive data integration
- Wide array of passive tags to support diverse items - case/pallet to piece/part
- Data integration to 50' to work FEU's



OIF II Lessons Learned



- RFID technology is a very useful tool for in-transit visibility, but is one of many
- Human interface is still needed today. An example is expeditors to act on the visibility provided by RFID

“It is not enough to merely have systems that capture ITV data. A means of converting that data into information that will aid in making better decisions for the management of the supply chain is also needed.”



Questions