Amendment Number 2 for BAA 08-003
"Sense & Respond Logistics Information Mechanism Design and Integration"
07 DEC 2007

The purpose of Amendment #2 is to change the due date for full proposals and post the first section of the Industry Day presentation materials:

1) Section I, paragraph 4 is revised to read as follows:

"4. Response Date

Full Proposals: **22 JAN 2008**"

2) The dates in Section IV, paragraph 1 are revised as shown in bold below:

"1. Application and Submission Process

Industry Day Briefing – ONR will conduct an Industry Day Briefing for potential offerors. It is scheduled for 27 November 2007 at the Alfred M. Gray Research Center located in Quantico, Virginia. The purpose of the briefing is to provide potential offerors with a better understanding of the program.

Registration: Interested offerors MUST register for the Industry Day Briefing at the ONR event website; http://www.onr.navy.mil/about/events/regdetail.asp?cid=373&code=4. The deadline to register is two days PRIOR to the event. No substitutions in the attendee list are allowed after the registration deadline.

Not Able to Attend: Those not able to attend this briefing should consult the ONR website (www.onr.navy.mil) to see briefing slides and answers to written questions submitted during the event.

Full Proposals - The due date for receipt of Full Proposals is 2 p.m. (Eastern Time) on **22 January 2008**. It is anticipated that final selections will be made by **28 February 2008**. Proposals received after the published due date and time will not be considered. As soon as the final proposal evaluation process is completed, each offeror will be notified via email of its selection or non-selection for an award. Proposals exceeding the page limit may not be evaluated."

3) The first paragraph of the section entitled "VOLUME 2: Cost proposal:" (page 11 of the original BAA) is revised to read as follows:

"NOTE: Potential offerors only need to submit a Phase I cost proposal by **22 JAN 2008**; if selected for award then offerors will submit cost proposals for Phase II upon completion of Phase I. If selected for a Phase II award, then offerors will submit a cost proposal for Phase III upon completion of Phase II."

4) The paragraph entitled “Significant Dates and Times” (pages 12-13 of original BAA), is revised to read as follows:

2. Significant Dates and Times -

Anticipated Schedule of Events *		
Event	**Date (MM/DD/YEAR)**	**Time (EDT)**
Industry Day (Quantico, VA)	11/27/2007	8:30 A.M.
Full Proposals Due Date	1/22/2008	2 P.M.
Notification of Selection for Award	02/28/2008*	_____
Contract Award	06/30/2008*	_____

***These dates are estimates as of the date of this announcement.**

5) Attached to this amendment is the first part of the presentation materials from the Industry Day held on 27 NOV 2007. The rest of the presentation materials will be posted in a subsequent amendment.

Sense & Respond Logistics

EC Designator : BAS-FY08-03P

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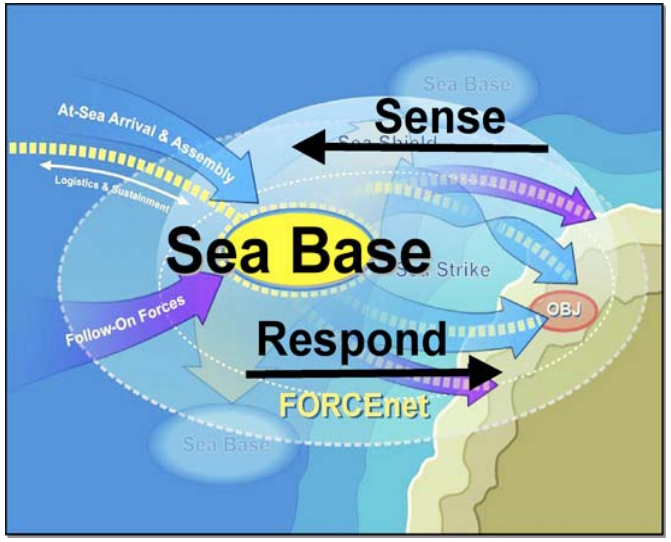
Sea Basing Focused FNC

Relevant Research and Results . . .Yesterday, Today, and Tomorrow

BAS-FY08-03 - Sense and Respond Logistics FNC

GAP - Capability to rapidly close, assemble, employ and indefinitely sustain and repetitively reconstitute ground forces ashore without reliance on land bases



METRICS

Close : A Marine Expeditionary Brigade-sized force within 10-14 days

Assemble : A Marine Expeditionary Brigade-sized force within 24-72 Hours

Employ : One battalion vertically and one battalion via surface within 8-10 hours

Sustain : Selected joint forces and up to two brigades operating up to 150 nm inland with minimal logistics footprint ashore

Reconstitute: Forces for future operations within 30 days

Enabling Capability : Logistics to Operations Ashore

Anticipated "demands" from forces ashore are dynamically supported from a sea based Log/C2 system that is paced with the heartbeat of operations.

The Sea Based Log/C2 center assimilates, prioritizes, synchronizes and de-conflicts to achieve a focused and tailored logistics response to tactical forces.

The Sea Base is much more than an automated, floating, forward supply point

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USMC Organization

Marine Air Ground Task Force (MAGTF)

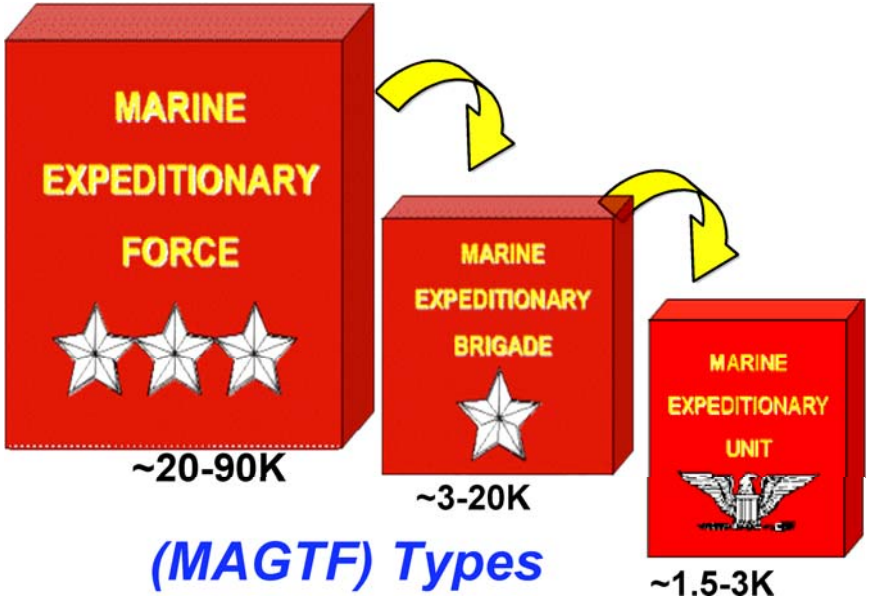
- Integrated combined arms fighting unit.
- Tailor made to respond to any crisis. Organized to meet the threat/tasking order.
- The elements of a MAGTF can be any size. A MAGTF may range from 1,000 to over 50,000 Marines.
- Self Supporting

Marine Expeditionary Force (MEF)

Marine Expeditionary Brigade (MEB)

Marine Expeditionary Unit (MEU)

- All are “MAGTFs”



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Approaches to Logistics

Relevant Research and Results . . .Yesterday, Today, and Tomorrow

BAS-FY08-03 - Sense and Respond Logistics FNC

Mass-Based

"More is better"

- Massive inventory measured in days of supply
- Hedges against uncertainty in demand and supply
- Mass begets mass and slows everything down

Prime Metric: Days of Supply

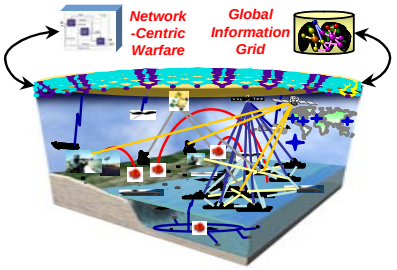
Distribution-Based

"On-time is better"

- Inventory reduced to a minimum and kept moving
- Transportation flexibility and robust IT to handle uncertainty
- Works great, except when it doesn't

Prime Metric: Customer Wait Time

Sense & Respond

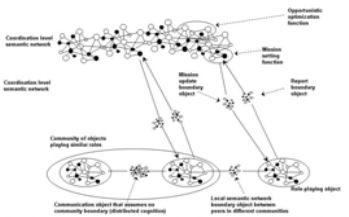


"Adaptive - better still"

- Inventory is dynamically positioned throughout
- Uses demand forecasting and static optimization to purge uncertainty
- Supports distributed, adaptive ops

Prime Metric: Speed/Quality of Effects

Prediction-Based



"Preemptive is best"

- Log, Intel & Operational C2 Fusion
- Unified Cognitive System
- Self-organizing
- Anticipates and Preempts Demand

Prime Metric: Preempted Requirements

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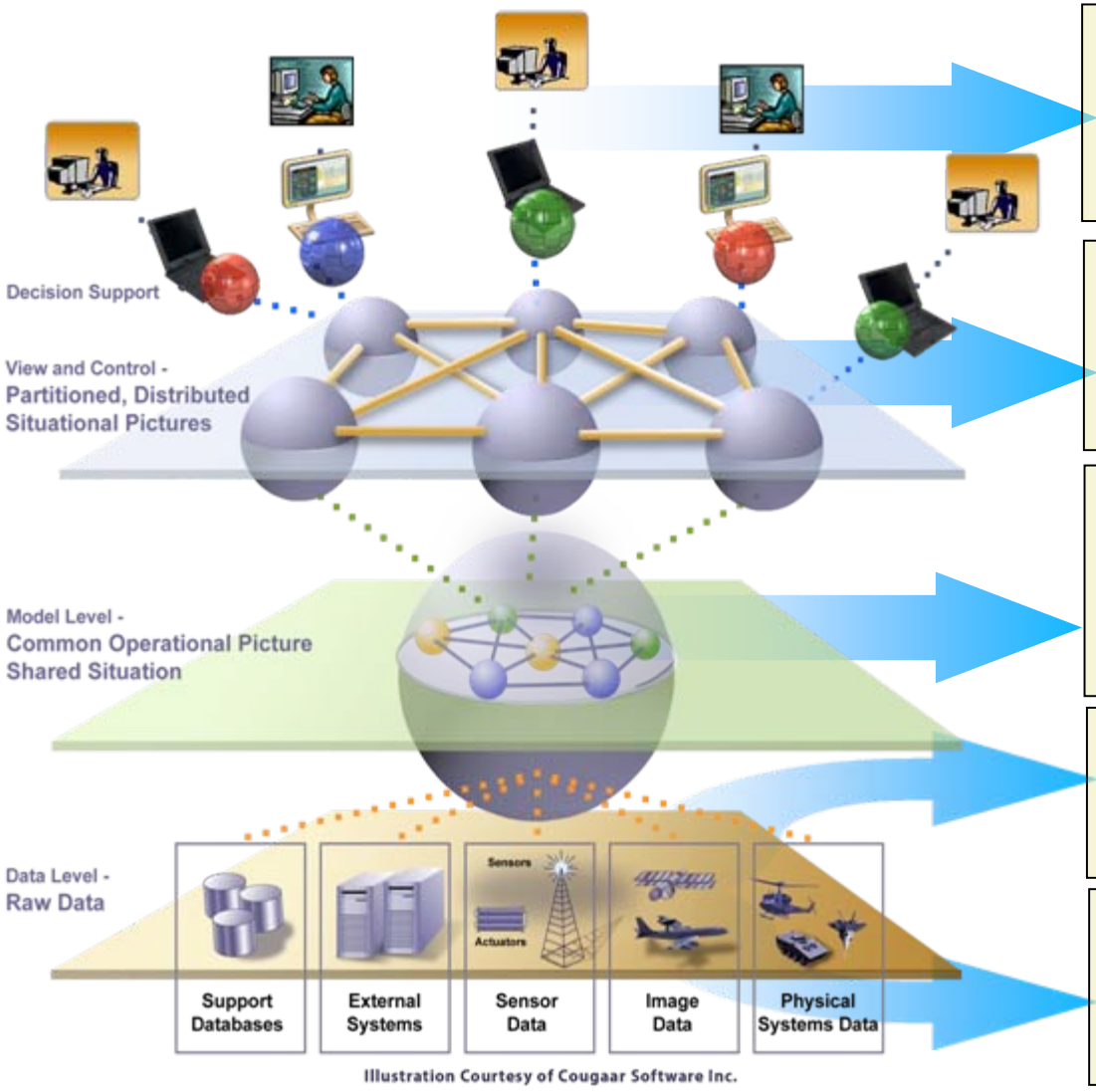
SR&L General Information Architecture

Relevant Research and Results . . .Yesterday, Today, and Tomorrow

BAS-FY08-03 - Sense and Respond Logistics FNC



Knowledge Centric Decision Support
- *Predictive Planning*
- *Adaptive Response*
- *Effects Based Results*

Netcentric Warfare

Community of Interest Situational Views
- *Parsed Information*
- *Real Time/Dynamic Updates*
- *Commanders Intent*

Intelligent Agent Generated Awareness

Distributed Total Situational Picture
- *Information Aggregation*
- *Information Fusion*
- *Context*
- *Universal Availability*

Networked Information Distribution

Information
- *Data Fusion*
- *Real Time*

Collection -> Processing -> Storage -> Transmission

Sensor Data
- *Accuracy*
- *Frequency*

Collection -> Processing -> Storage -> Transmission

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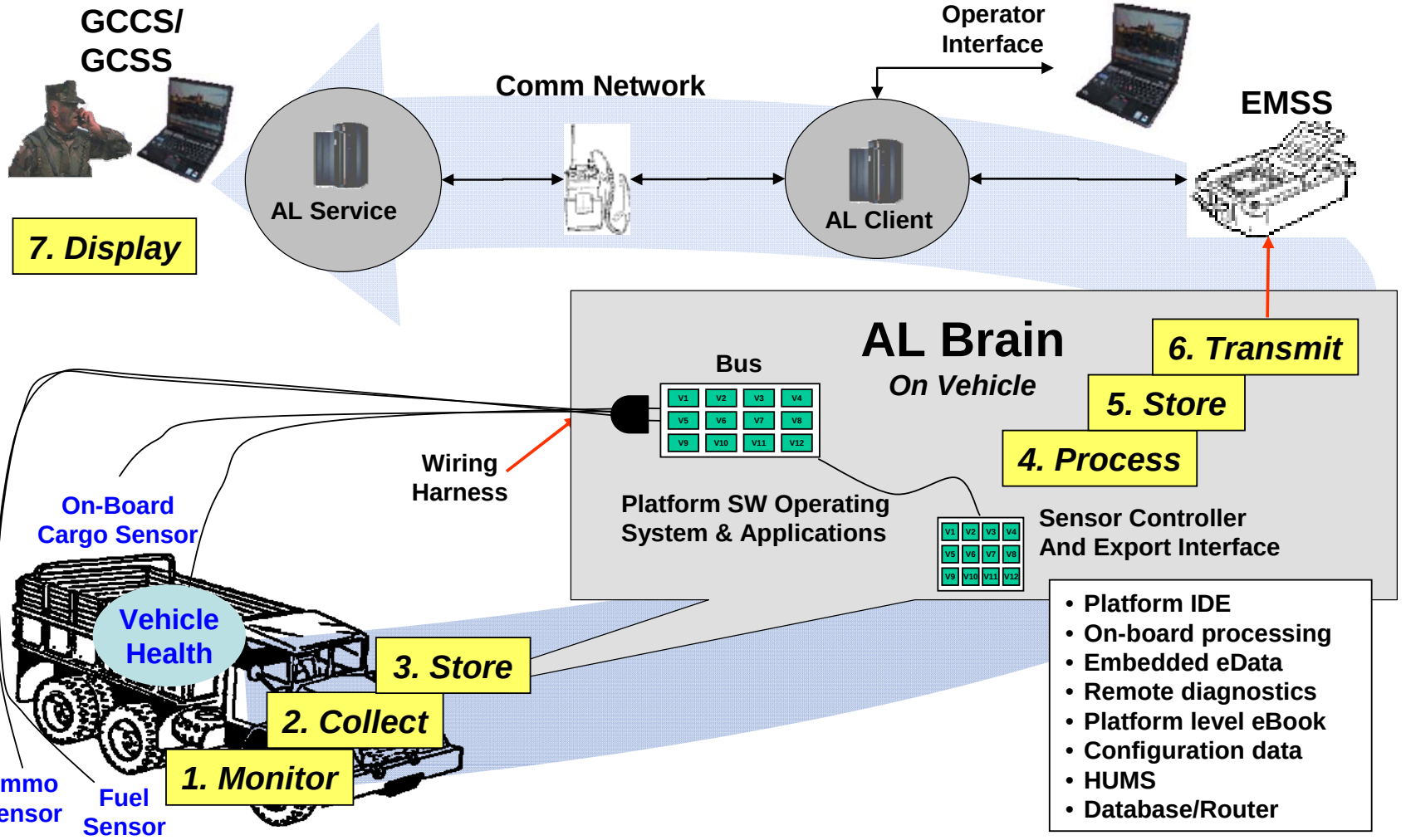
USMC Autonomic Logistics (AL) Program CONOPs

Relevant Research and Results . . .Yesterday, Today, and Tomorrow

BAS-FY08-03 - Sense and Respond Logistics FNC



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USMC Autonomic Logistics (AL) Program
Logistics Information at the Vehicle Level

BAS-FY08-03 - Sense and Respond Logistics FNC

Knowledge Centric Decision Support
- *Predictive Planning*
- *Adaptive Response*
- *Effects Based Results*

Netcentric Warfare

Community of Interest Situational Views
- *Parsed Information*
- *Real Time/Dynamic Updates*
- *Commanders Intent*

Intelligent Agent Generated Awareness

Distributed Total Situational Picture
- *Information Aggregation*
- *Information Fusion*
- *Context*
- *Universal Availability*

Networked Information Distribution

Information
- *Data Fusion*
- *Real Time*

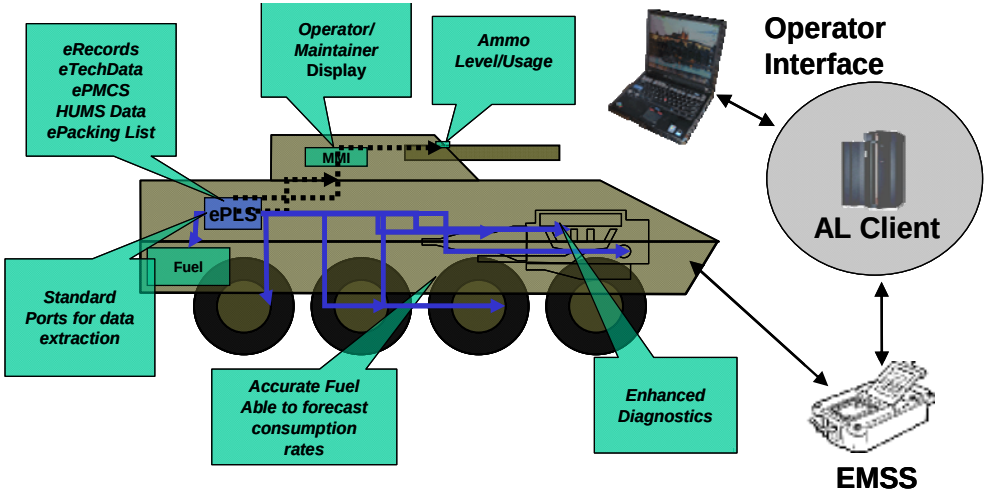
Collection -> Processing -> Storage -> Transmission

Sensor Data
- *Accuracy*
- *Frequency*
- *Security*

Collection -> Processing -> Storage -> Transmission

Vehicle Sensing and Monitoring System

- **Covers Multiple Vehicles**
  - AAV
  - LAV
  - MTVR
  - HMMWV
- **Covers Defined Areas for Monitoring**
  - Ammunition
  - Fuel
  - Vehicle Health
  - Mobile Loads
- **Internal Vehicle System**
  - EPLS
  - Sensors & Sensor Network
  - Central Processor - 'AL Brain'
  - Local Data Processing
- **External Vehicle System**
  - EMSS
  - Handheld, Portable Device
  - Diagnostic Capability
  - Vehicle Data Offload



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S&RL Product Mapping System Overview

Relevant Research and Results . . .Yesterday, Today, and Tomorrow

BAS-FY08-03 - Sense and Respond Logistics FNC

Knowledge Centric Decision Support
- *Predictive Planning*
- *Adaptive Response*
- *Effects Based Results*

Netcentric Warfare

Community of Interest Situational Views
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Networked Information Distribution

Information
- *Data Fusion*
- *Real Time*

Collection -> Processing -> Storage -> Transmission

Sensor Data
- *Accuracy*
- *Frequency*

Collection -> Processing -> Storage -> Transmission

Vehicle Health Management

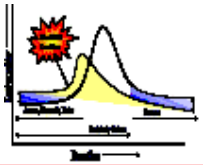
Ammunition Management

Mobile Load Management

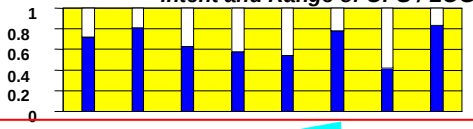
Fuel Management

Decision Support Tools For Demand Options Generation

Anticipatory Proactive Logistics
Alter Initial Conditions



Capture and Visualize Commander's Intent and Range of OPS / LOG options



And Other Possible Software & Hardware Architectures

Intelligent Agent Technologies

Provides capability to collect and integrate disparate information into functional views. Equipment level, system level, platform level, and enterprise level models that function in an open, distributed environment.

Vehicle Health Information

Ammunition Information

Mobile Load Information

Battlefield Fuel Information

Intelligent Sensor Systems

Board Level
Nov 2005
10 in^3

ASIC/MEMS
30 months
1 in^3

Complex data, sensors operating on scavenged power, IP addressable. Part of a Infrastructure monitoring equipment, health, status, location, and state to LRU level.

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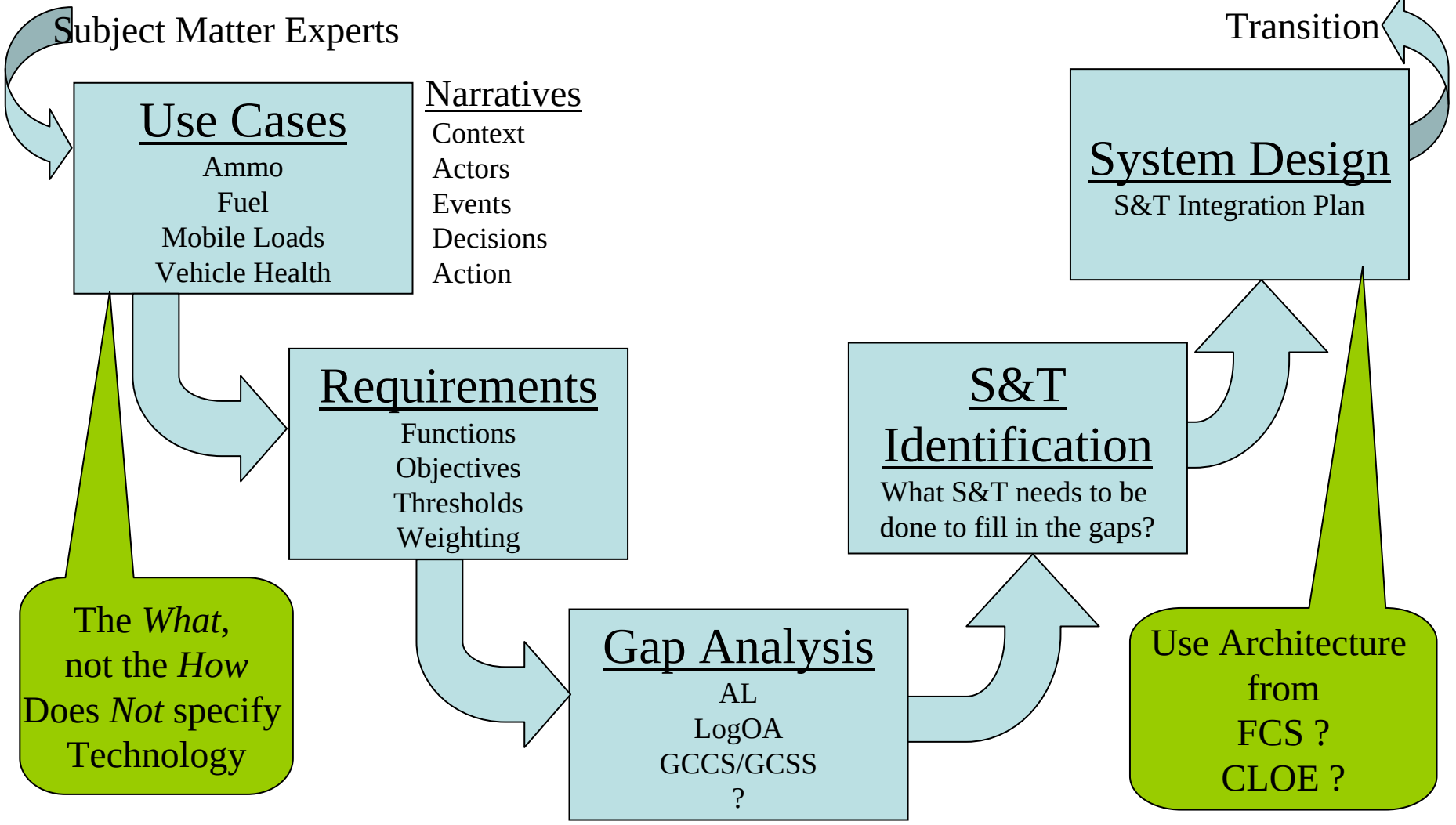
The Way Ahead

Relevant Research and Results . . .Yesterday, Today, and Tomorrow

BAS-FY08-03 - Sense and Respond Logistics FNC



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FY08 SR&L Program Plan

Relevant Research and Results . . .Yesterday, Today, and Tomorrow

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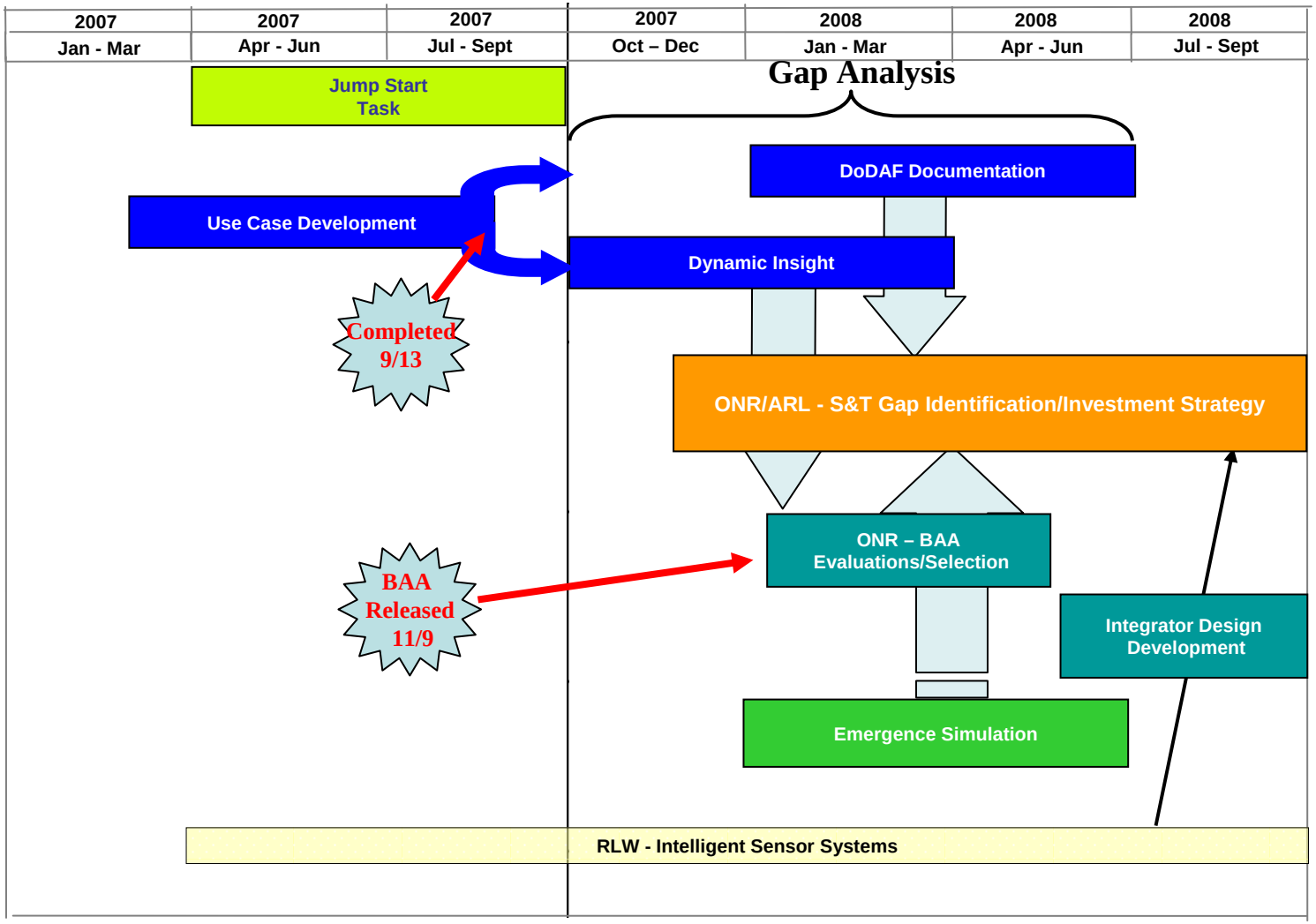

DoDAF Documents

Functional and Performance Rqts

S&T Investments Identified

Set Up Contracts/Performers

Systems Integrator selected

Systems Infrastructure Design selected

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SR&L Program Plan

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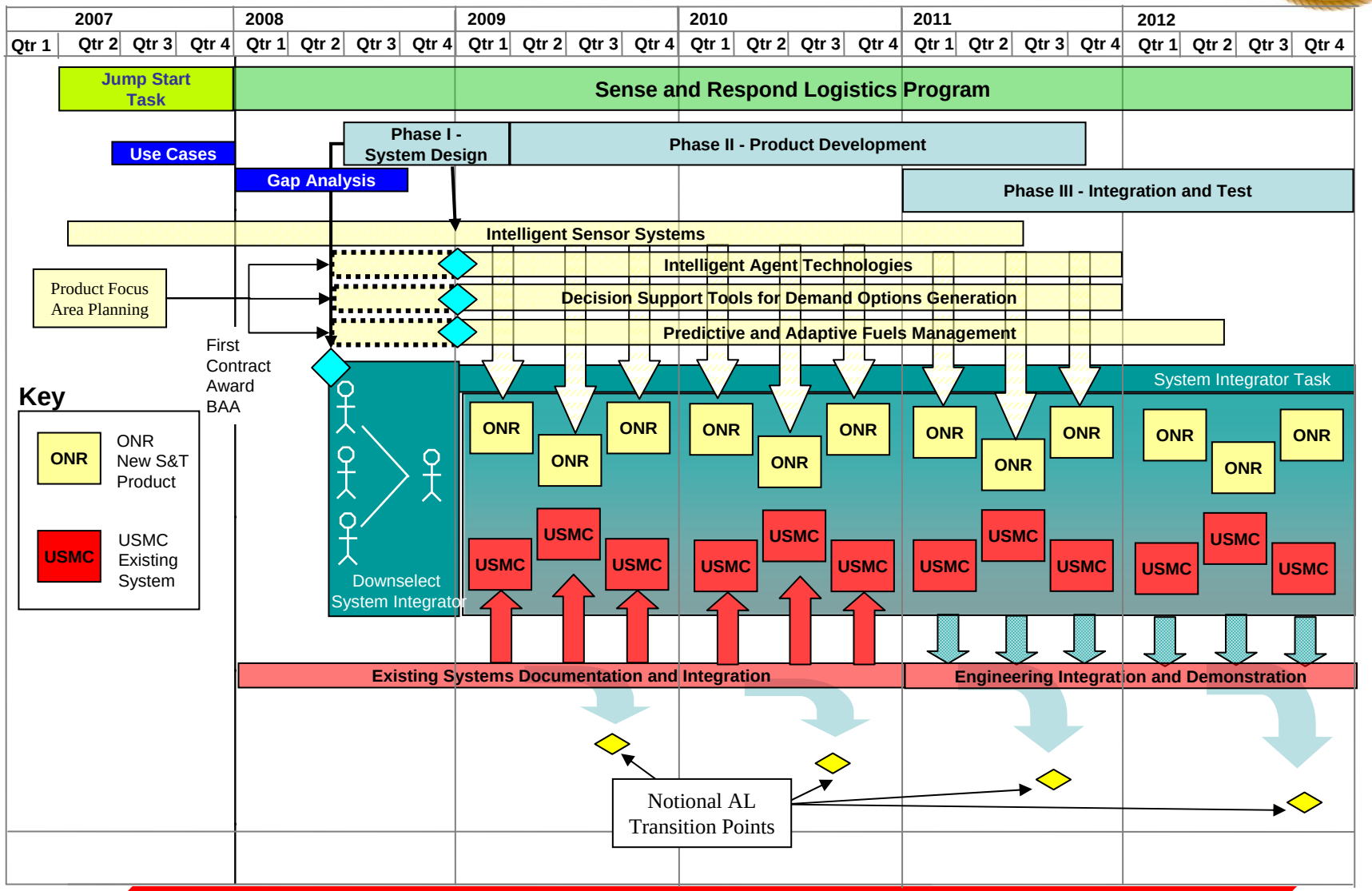

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SR&L Integrated Product Team

Relevant Research and Results . . .Yesterday, Today, and Tomorrow

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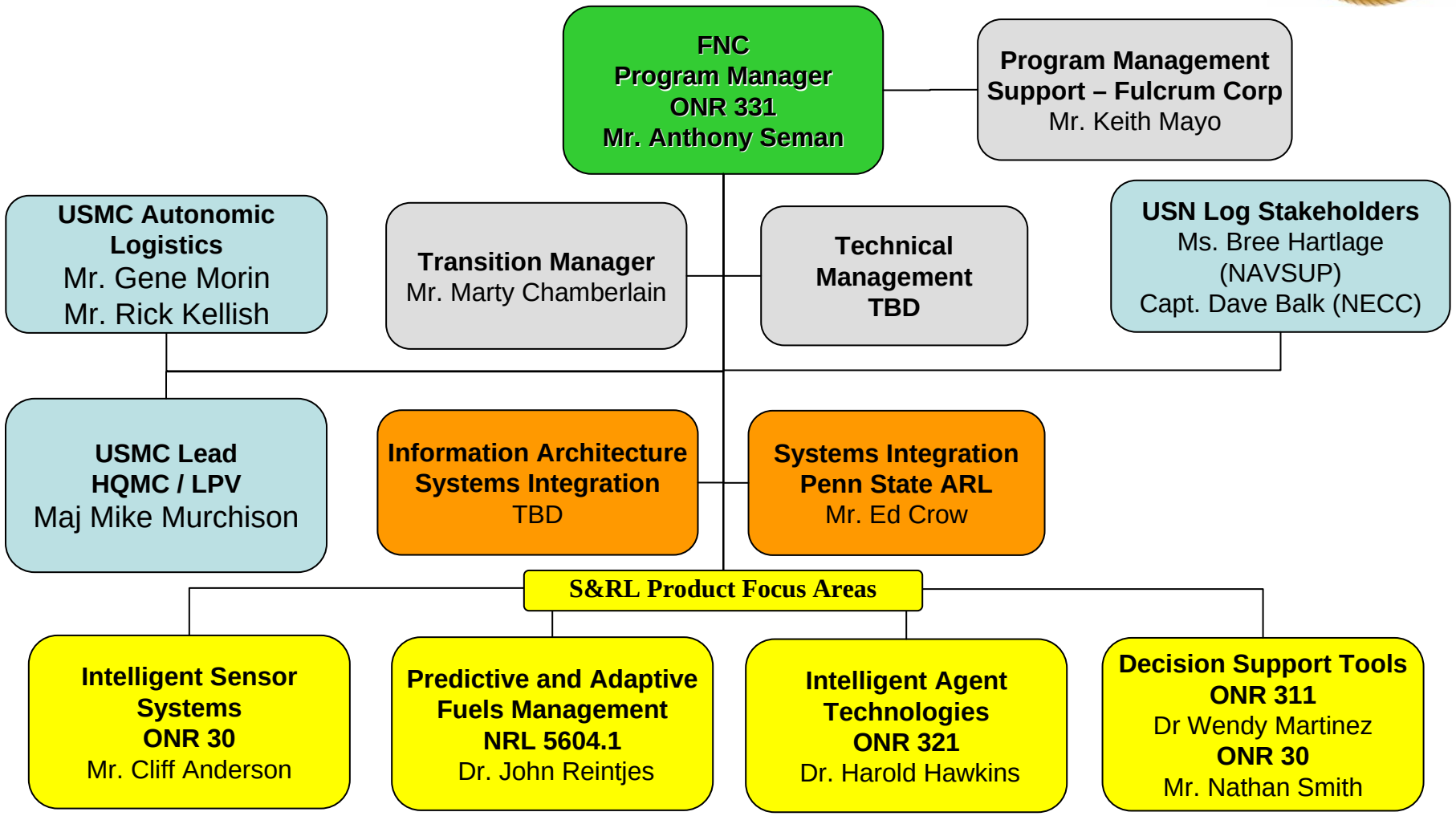

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Autonomic Logistics

Gene Morin
MARCORSYSCOM
PM/TMDE
AL Project Lead

PURPOSE/OUTLINE

PURPOSE: To provide background and information regarding MCSC Autonomic Logistics, associated efforts and transition opportunities.

OUTLINE:

- **General Background**
- **Autonomic Logistics (AL)**
- **Associated Programs**
  - **Embedded Platform Logistics System (EPLS)**
  - **Electronic Maintenance Support System (EMSS)**
- **Transition**

Evolution in Logistics

Mass-Based

- More is better
- Mountains of stuff measured in days of supply
- Uses massive inventory to hedge against uncertainty in demand and supply
- Mass begets mass and slows everything down

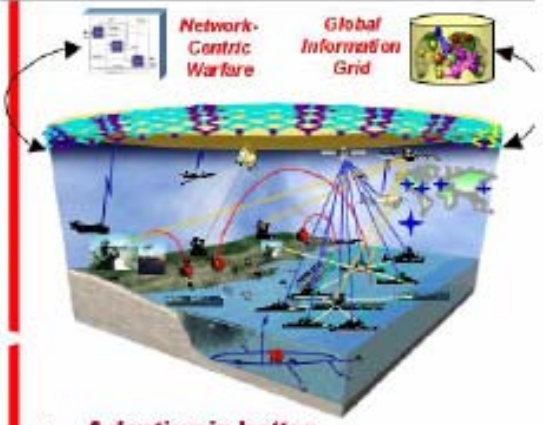
Prime Metric:
Days of Supply

Just-in-Time

- On-time is better
- Inventory is reduced to a minimum and kept moving
- Uses precise demand prediction and static optimization to purge uncertainty
- Works great, except when it doesn't

Prime Metric:
Flow Time

Sense and Respond



- Adaptive is better
- Inventory is dynamically positioned throughout
- Uses transportation flexibility and robust IT to handle uncertainty
- Predictive capabilities
- Supports distributed, adaptive ops

Prime Metric:
Speed/Quality of Effects

Logistics Transformation

- Strategic Planning Guidance (SPG) – FY06
  - Directs USD(ATL) to reconcile Focused Logistics, emerging advanced concepts, and recent lessons learned into **a coherent logistics transformation strategy that supports distributed, adaptive operations**, and to initiate a joint effort to **integrate logistics from point-of-effect to source of supply/services**, across Services and Defense Agencies

- DOD Logistics Transformation Strategy – 10 Dec 04
  - **Strategy to achieve** knowledge-enabled logistics **-- integrated joint logistics that fuses information, logistics processes, and platform** embedded sensor-based technologies **to support tactical, operational and strategic sustainment levels operating in a joint integrated logistics environment**

- Force-centric Logistics Enterprise (FLE)
  - **Accelerate logistics improvement, enhance support to the warfighter, and align logistics processes with the operational demands of the 21st Century – includes information technologies needed to implement new logistics business practices and CBM+**

- Focused Logistics Joint Functional Concept
  - **A comprehensive, integrated approach for transforming DOD logistics capabilities and for dramatically improving the quality of logistics support**
  - **Provide a high degree of certainty to the supported joint force commander that** forces, equipment, sustainment, and support will arrive where needed and on time

- Focused Logistics Roadmap
  - **The fusion of logistics information and transportation technologies; the ability to** track and shift units, equipment and supplies even while en route and the delivery of tailored logistics packages and sustainment directly to the warfighter

AL Driven by Logistics Transformation

3 Major Logistics Initiatives

- Joint Visibility, S&RL and CBM+ provide sustained logistics readiness so that
  - **Joint warfighters have what they need to accomplish their mission**
  - **Joint commanders can better apportion resources and prioritize effort**
  - **Services can better support Joint force outcomes**
- These initiatives to support more informed decision-making rely on a foundation of
  - **timely and accurate data collection**
  - **sharing of actionable information**
- AL supports the mandate for more Joint Visibility, the S&RL concept and the CBM+ initiative
  - **Provides the functionality to autonomously monitor and report asset condition**
  - **Enables ground tactical equipment with the capability to collect and share relevant logistics information**

Joint Visibility - Logistics

- Joint Logisticians must
  - **Match resources against anticipated requirements to provide supportability assessments to the Joint Force Commander**
  - **Fully understand logistics support requirements and resources available arrayed in time and space to meet those requirements**
  - **Monitor joint logistics performance to plan and execute the support mission effectively and efficiently**
  - **Have access to logistics processes, resources, and requirements to provide the insight necessary to make effective decisions**
- Systems, processes and tools are required to provide logistics visibility to meet these user requirements
- AL delivers logistics visibility by enabling ground tactical equipment with the capability to provide current and historical data to system operators, support and maintenance personnel, logistics planners, C2 elements, and life-cycle managers in a time relevant manner

"The Joint Force Commander's ability to effectively execute their directive authority for logistics is completely dependent upon visibility." – DJ4

Sense and Respond Logistics

- S&RL initiative goal is adaptive, responsive demand and support for force capability sustainment
  - **A critical enabler to *deliver improved materiel readiness* to the warfighter and *enhance asset visibility, connectivity,* and interoperability.**
  - **Enables *operations-driven control of theater logistics*, strategic connectivity, and integration of logistics and operations to eliminate stovepipe sub-optimization**
  - **Joint Theater Logistics: Maritime Support – CNA Report, Nov 2006**
    - **COCOM's tactical logistics *requirements start with an ability to implement a "sense and respond"* type of logistics support**
    - **Success depends on the speed of pattern recognition and speed of response**
- AL enables the "sense" part of S&RL

Condition Based Maintenance +

- DUSD(L&MR) policy mandating Condition Based Maintenance – Plus (CBM+) -- Nov 02
  - **“The Military Services shall pursue the…implementation of CBM+ enabling technologies…”**
  - **Improve maintenance agility and responsiveness, increase operational availability and reduce costs**
- AL enables fulfillment of CBM+ Tenets:
  - ***Need-driven* maintenance**
  - ***Improved maintenance and analytical technologies***
  - ***Automated maintenance information* generation**
  - **Integrated information systems providing *logistics system response based on equipment maintenance conditions*, etc.**

Common Objectives

- Increase speed of command,
- Accommodate dispersed, distributed forces,
- Manage high rates of change,
- Respond to closely couple events,
- Reduce and/or eliminate process lines, emphasize achievement of commander's intent,
- Cognitive decision support, prediction, and anticipation to support preemptive operations,
- Global awareness, local optimization

Relationship of Autonomic Logistics to S&R,L

- AL is currently the Marine Corps implementation of a S&R,L capability.

- Cuts across MCSC Product Groups.

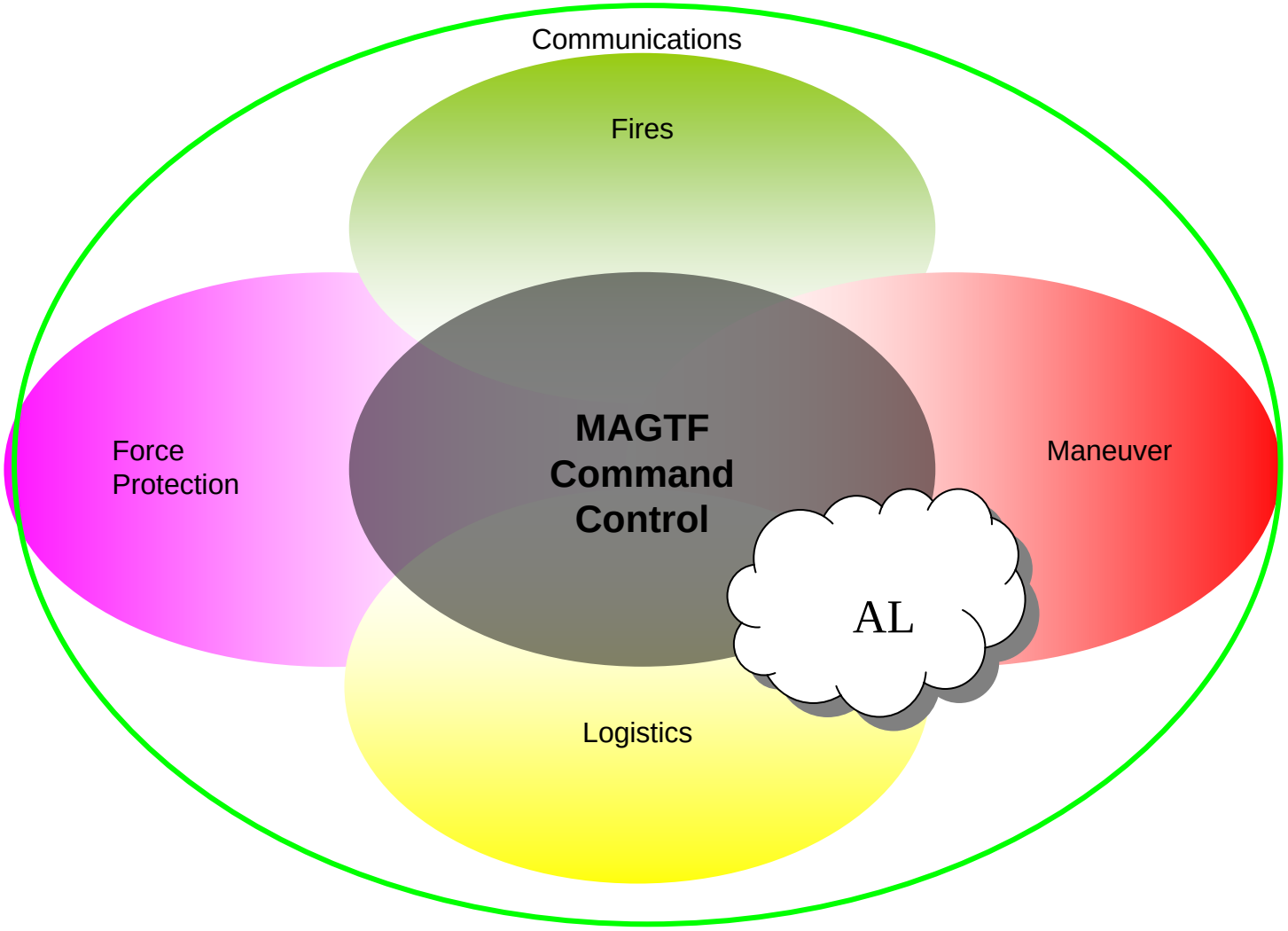
- Requires a concerted, integrated, and coordinated effort to bring capabilities together in a smooth and orderly fashion.

- Leverages product responsibilities inherent in each PG.

- AL will operate in conjunction with other in- service and future Joint logistic and sustainment systems to provide relevant data to the Joint logistics enterprise.

- Easy to say, hard to do….

AL Relationship to Warfighting Functions



AL automatically integrates the functions of maneuver and logistics to MAGTF C2.

AL the Program

AL Objectives

Enables Condition Based Maintenance (CBM+)

- Autonomically collects and reports platform health data to operators and maintainers

→

- Reduces manual analysis and provides more accuracy to diagnostics
- Supports development of prognostics
- Improves life-cycle affordability

→

- Enables establishment of responsive demand and support networks that bring speed and quality to the logistics process in the operating environment

Enhances Visibility for the Joint Logistician

- Communicates logistics requirements data in a time relevant manner

→

- Supports matching of resources against anticipated logistics requirements
- Enhances monitoring of joint logistics performance

→

- Reduces maintenance cost and down time, and increases operational readiness

Supports Quicker, Better Informed C2 Decisions

- Communicates platform operational health/readiness and logistics information

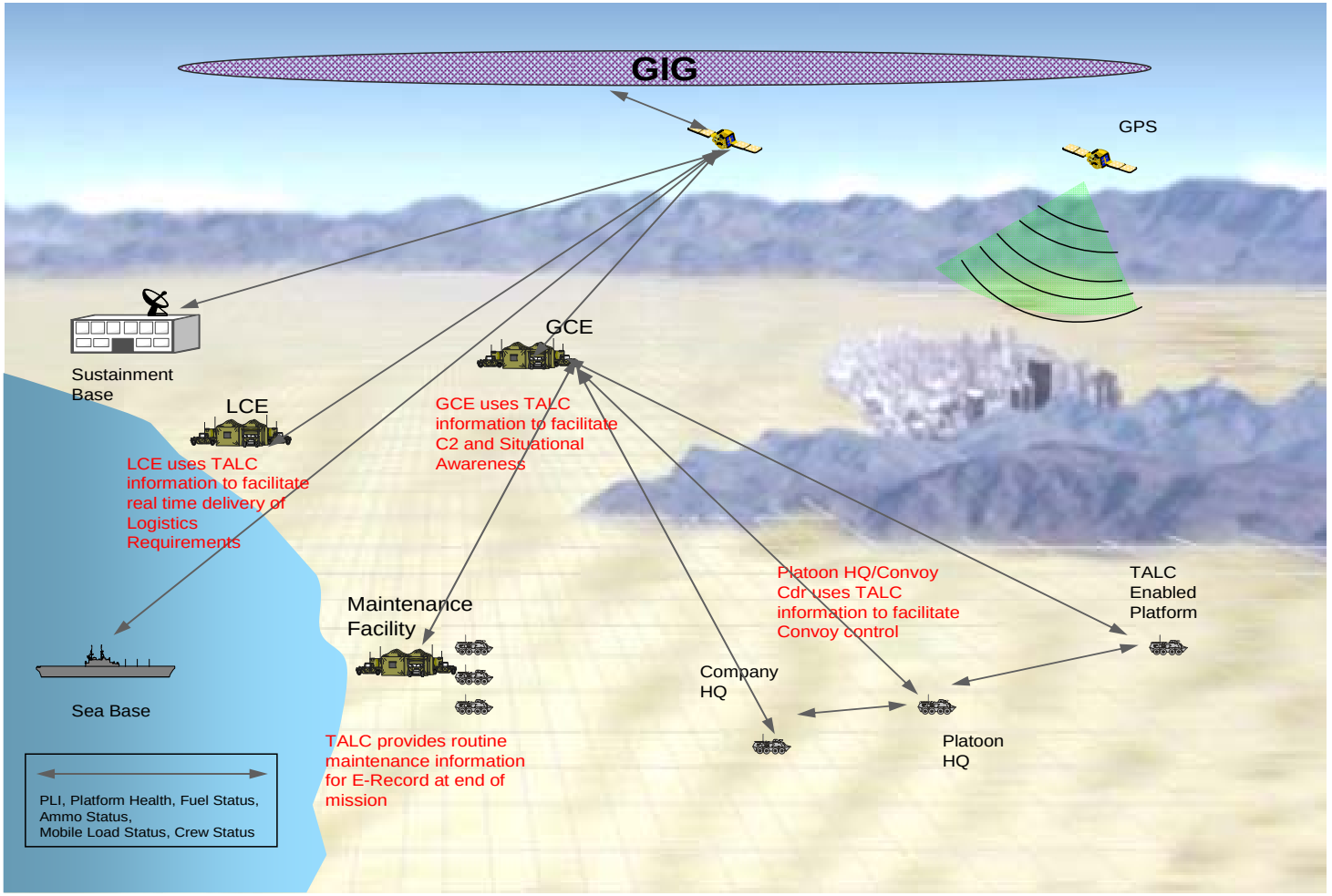
→

- Accelerates information to decision-makers
- Informs supportability assessments to the Joint Force Commander

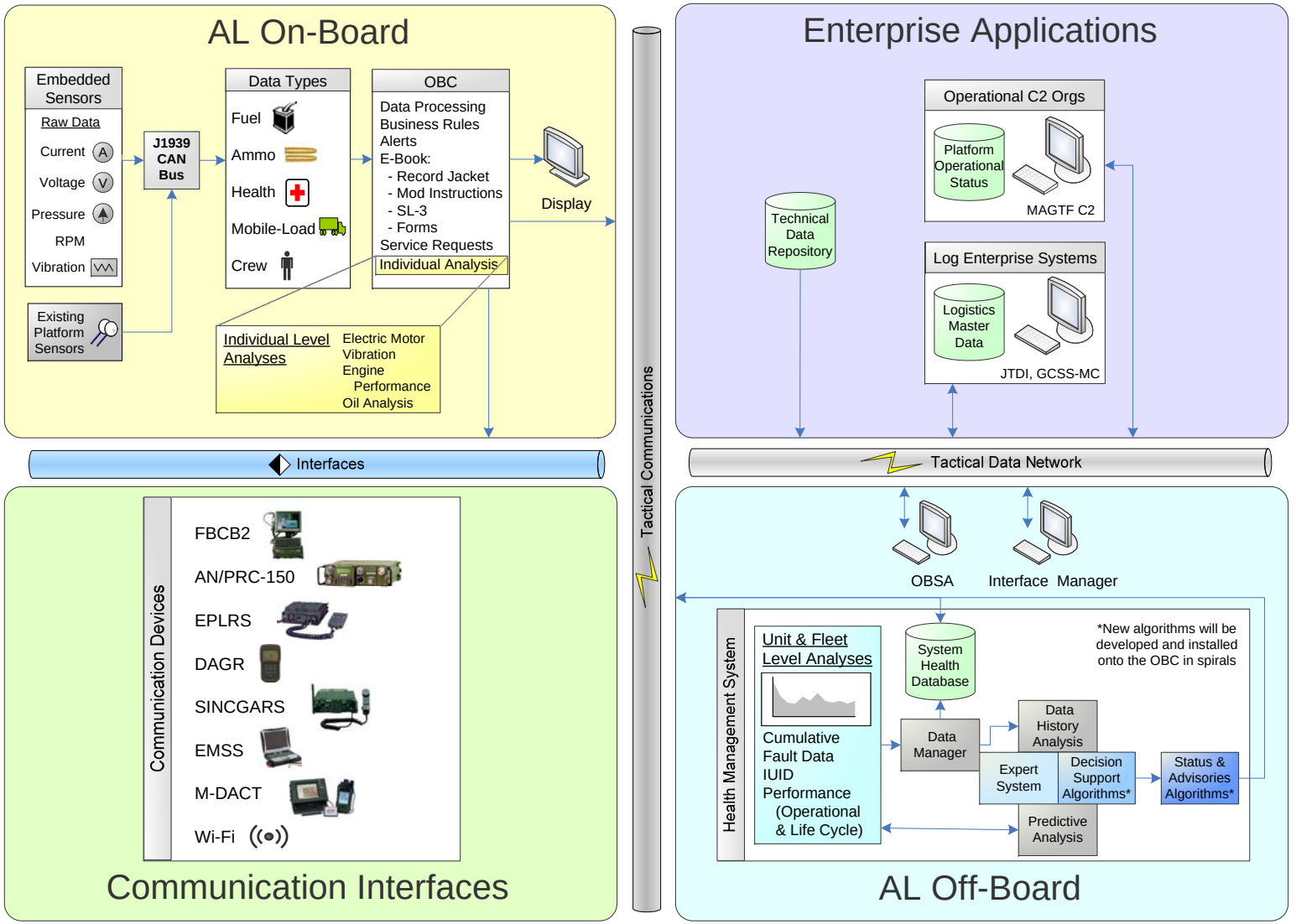
→

- Allows commanders to leverage resources to maximize warfighting

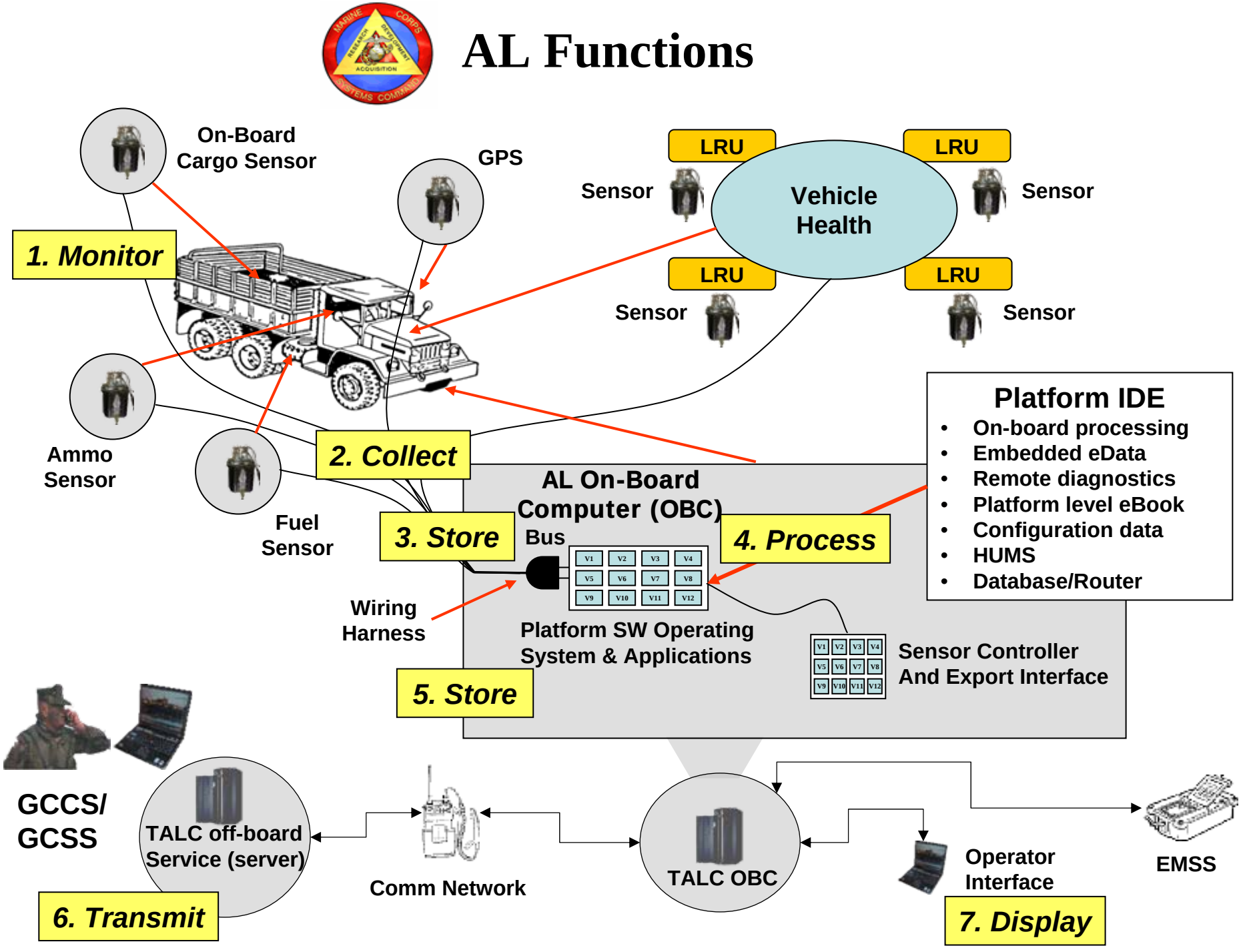
AL Operational Concept Graphic (OV-1)



AL System Diagram

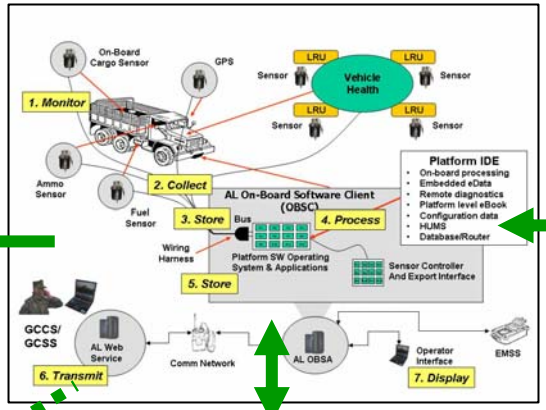


AL Functions



Interrelationships, Dependencies and Synchronization with Complementary Systems

C4I Systems	I		C	S	P
FBCB2	1				
C2PC	1				
Tactical Radios	1				
DAGR	3				
GCSS MC	1				
MAGTF C2	1				
MCEITS	1				
MCEN	1				



Armament	I		C	S	P
MK-19	1				
HB M2 50 Cal	1				
M242 25mm	1				
TOW ATGM	1				
81mm Mortar	3				

Other	I		C	S	P
AAV	1				
LAV	1				
MTVR	1				
LVSR	1				
EMSS	3				

Solid denotes current system
Dash denotes future system

Arrow to AL denotes supports AL
Arrow from AL denotes AL supports

No known platform or system issues
Monitoring potential interoperability issues

PM DAES Rating: I C S P Not Rated Fielded

I = Integration.
Color denotes Synchronization of effort with this program
Number denotes degree of dependency:
1 – Critical , 2 – Significant , 3 - Enabler

AL Milestone Status

- **Current status:**
  - **MS A granted in Oct 03**
  - **ACAT IV (T) (Information Technology)**

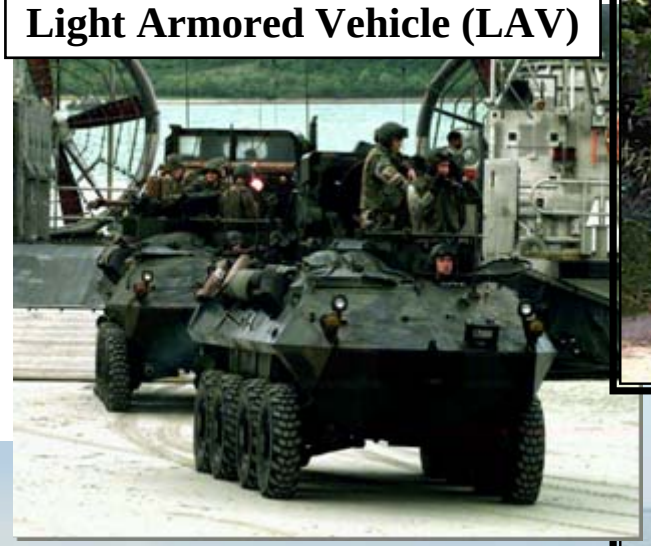
- **MS A Exit Criteria**
  - **CDD**
    - **Completed Marine Corps Staffing**
    - **CID direction to enter CDD into KMDS**
    - **Depending on JCIDS review potential MROC decision**
  - **LCCE**
    - **Under contract / Managed by AC Prog**
    - **Working EA and CARD**
    - **Preliminary drafts of the Lifecycle Cost Estimate (LCCE) show may breach ACAT I cost thresholds**
  - **AoA**
    - **In review by AoA IPT**
  - **MCSAMP**
    - **Being worked by program office**

- **Currently proceeding to MS B as ACAT III**

Planned AL Enabled Platforms

Medium Tactical Vehicle Replacement (MTVR)

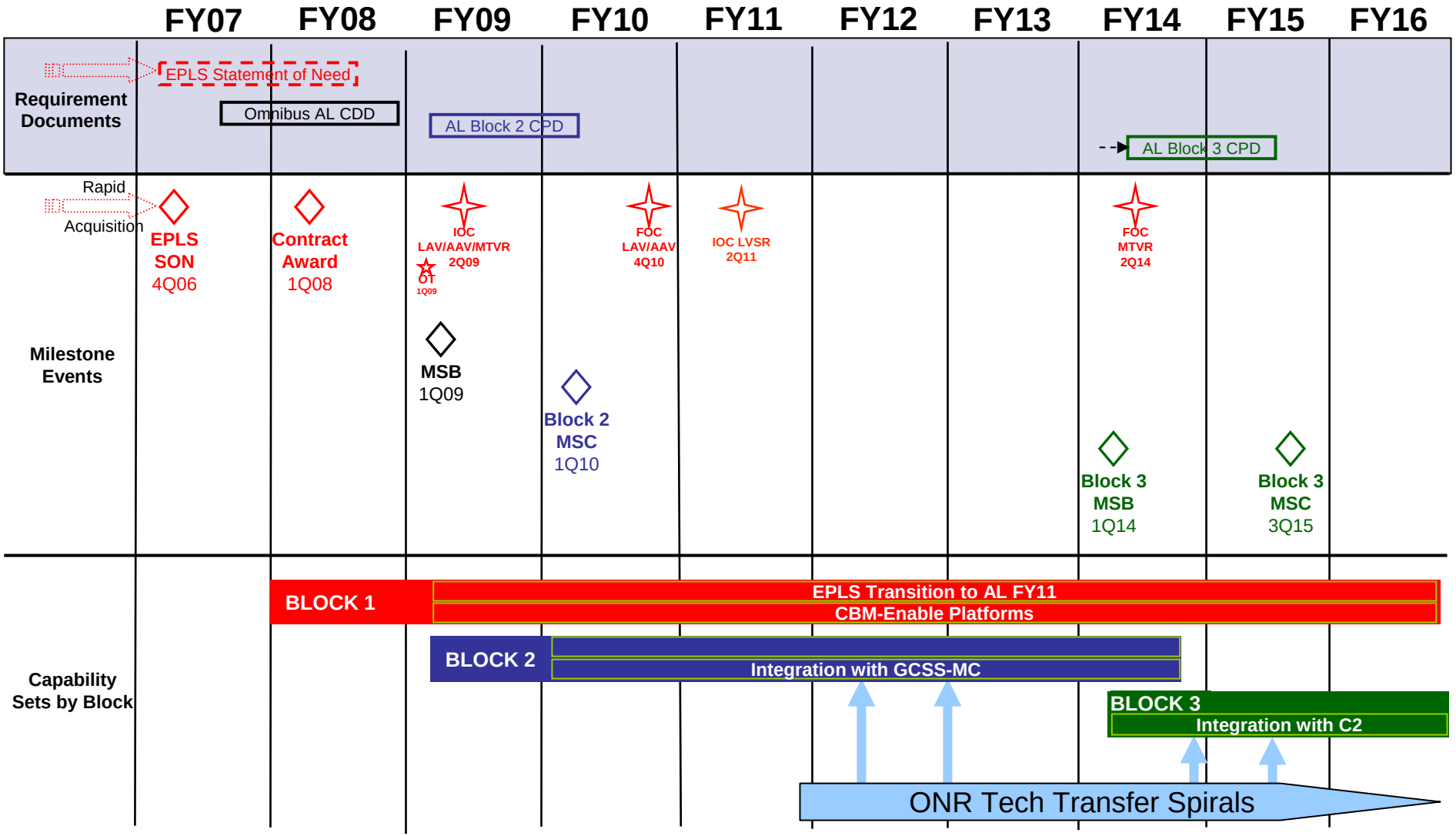
Light Armored Vehicle (LAV)



Amphibious Assault Vehicle (AAV)

Logistics Vehicle System Replacement (LVSR)

AL Program Schedule



AL Summary

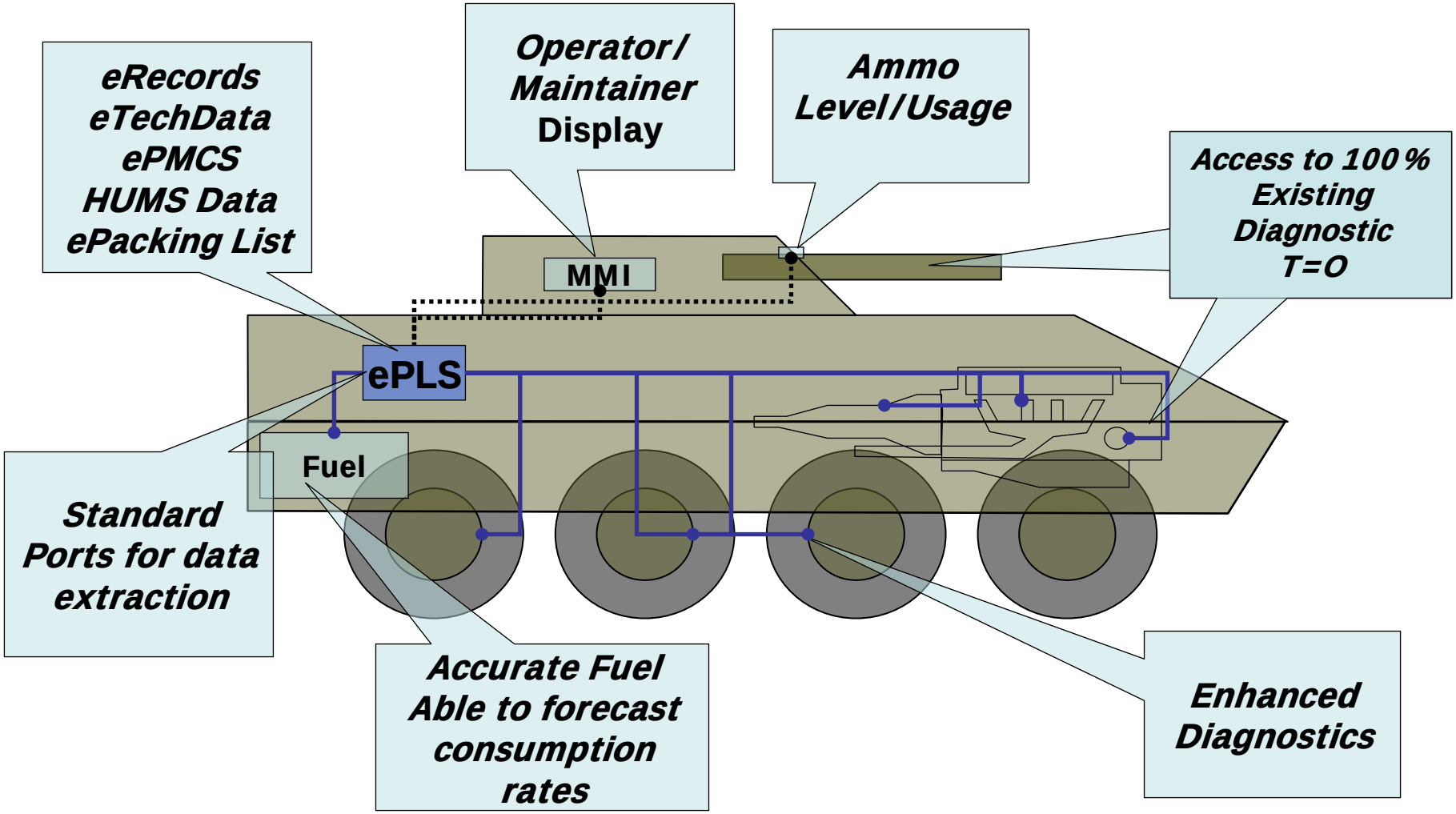
- AL addresses critical warfighting gaps:
  - **Flexible and adaptive logistic support**
  - **Logistics command and control**
  - **Joint Logistics Distribution and Visibility**
- AL mitigates gaps associated with
  - **Ability to track supplies**
  - **Plan and manage battlefield distribution**
  - **Diagnose equipment faults**
  - **Assess and repair battle damaged equipment**
  - **Life-cycle support and sustainment planning**
- AL delivers capabilities to current platforms:
  - **LAV, AAV, MTVR and LVSR**
  - **AL hardware and software technologies will leverage existing and future networks to transfer relevant data**
- CDD in Staffing
  - **Will support a Milestone B in FY08, 4th Qtr**

Associated Programs

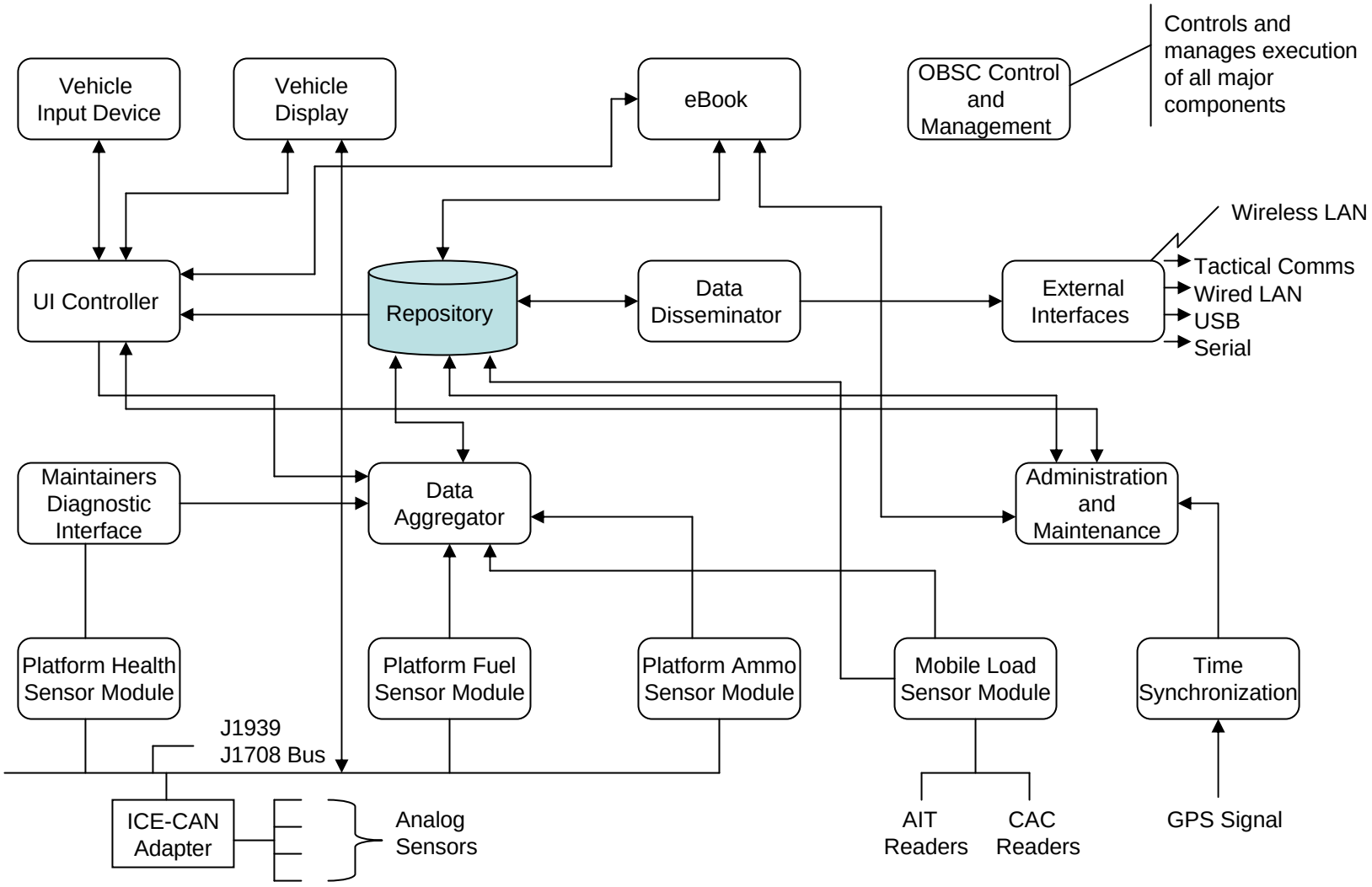
EPLS and EMSS

- EPLS
  - EPLS Statement of Need -Signed 11 Sept 06 by MGen Johnson
    - FY-06 Supplemental Funds ($109M)
    - Provides Hardware Infrastructure for AL
    - Rapid Acquisition Team (AC PROG Chair) – Oversaw RFP release and EPLS Contract was signed on 12 Sept 07
  - EPLS will be integrated into AL at MS B
- EMSS
  - Using NAVAIR JTDI as bridge
  - Preparing for Fielding

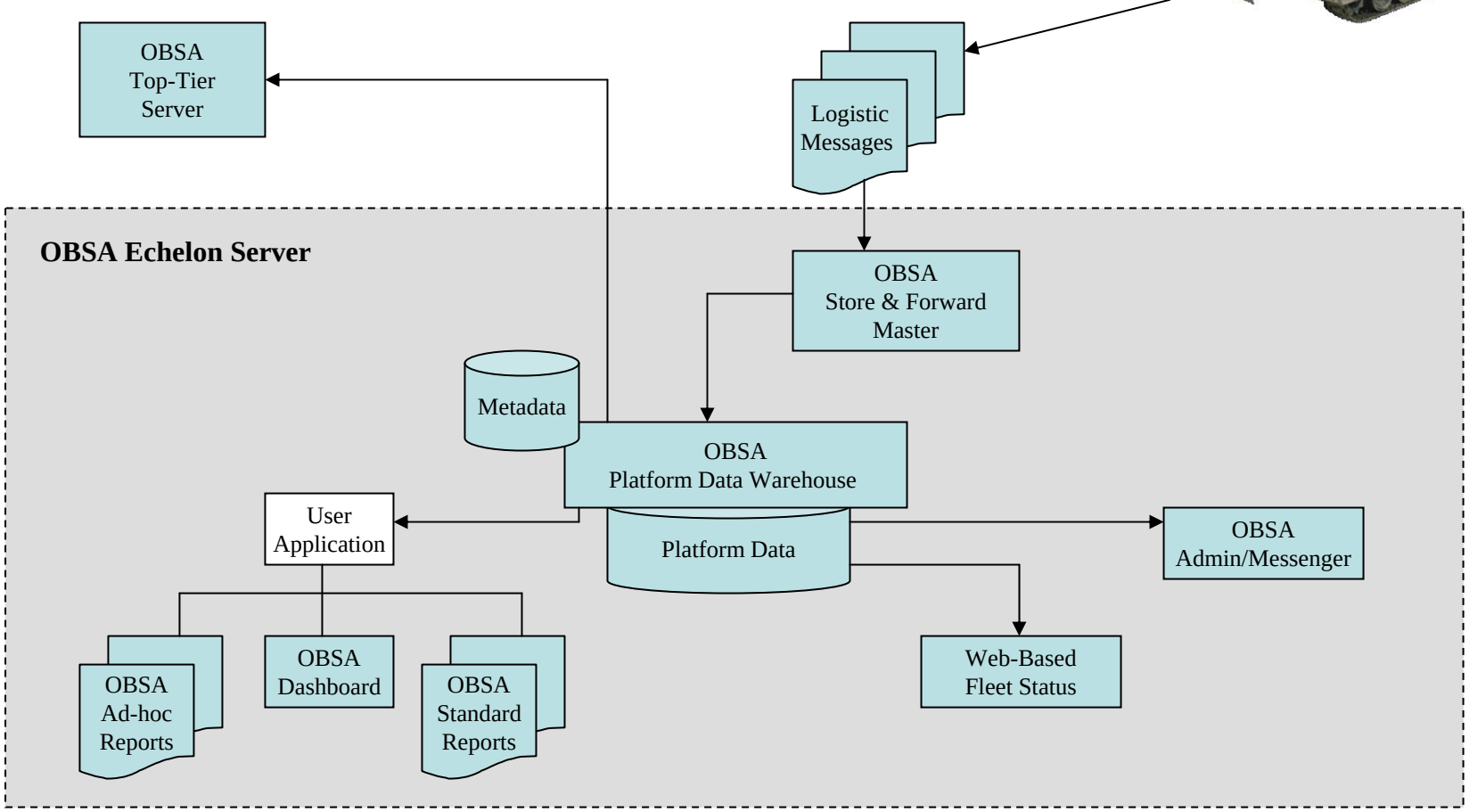
Embedded Platform Logistics System



EPLS Modular Platform Architecture (Notional)



EPLS Off-Platform Data Base and Application (Notional)



EPLS System Overview

ON-BOARD

Driver
- **Accurate vehicle status**
- **Proactive alerts**
- **Automated checklists and forms**

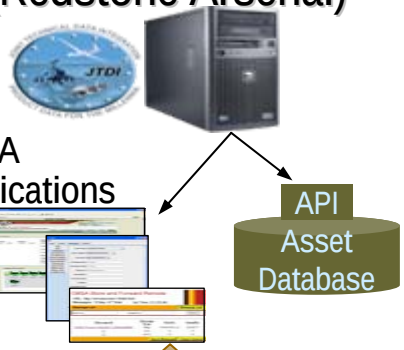
Vehicle Commander
- **Improved diagnostics**
- **Vehicle awareness**
- **Track mobile loads**
- **Access to vehicle records & IETMS**

Common HW/SW

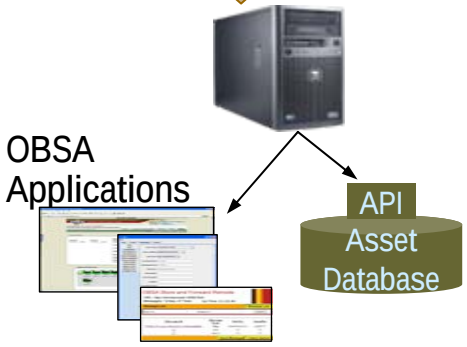
OBSA - Store & Forward

OFF-BOARD

Enterprise - Main
(Redstone Arsenal)



EMSS Architecture
Database Replication



Battalion / Mid-Tier

Commanders & Logisticians
- **Situational awareness of vehicle readiness**
- **Access to accurate vehicle fault information and diagnostics**
- **Ability to anticipate logistics needs**
- **GCSS Rquest for Service**
- **Reporting and data mining**
- **$$$ savings**

Flexible Solution

EMSS Infrastructure

Authoritative Data Sources

Top Tier
Huntsville

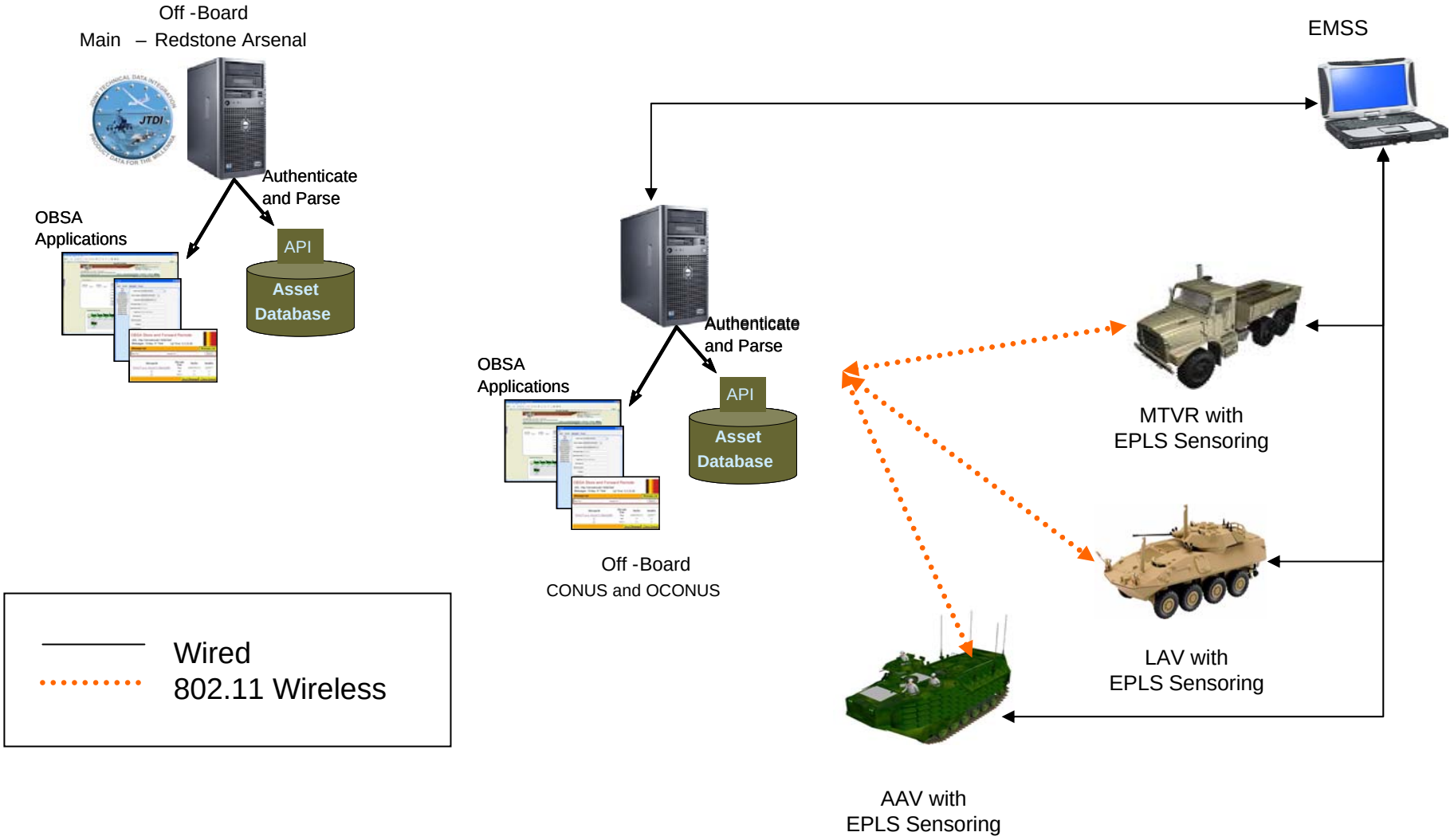
Regional

Bn Level

User OccFlds

- 11XX
- 13XX
- 21XX
- 28XX
- 35XX
- 59XX

EPLS/EMSS Interdependencies



TRANSITION

Developing a Strategy for Transition

- Transition starts when the project starts

- Don’t forget importance of operational suitability issues:
  - Manning
  - Training
  - Equipping
  - Maintaining

- Early user involvement

- Understand totality of Requirements, think through DOTMLPF issues

- Caution – The user doesn’t care about the science behind the technology, it either works or it doesn’t work…

What are Potential S&R,L Transition Products?

- Hardware
- Software
- Architectures
- Processes
- Design/Performance attributes:
    - Functional requirements/standards
    - Interface requirements/standards
    - Performance requirements/standards
    - Environmental requirements/standards
    - Etc.

Supporting Documentation

(No Documentation = No Transition)

Design Data

Performance Data

Test Data

Human Factors/Human Integration Data

Supportability Data

Reliability Data

Safety Data

Configuration Data

Electromagnetic Environmental Effects Data

Producibility Data