Open System Standards and Agile Acquisition

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Congressional Emphasis

- **Section 804 of 2016 NDAA authorizes a Middle Tier acquisition pathway for rapid prototyping and fielding**
  - DON and USAF have distributed guidance
- **Section 805 of 2017 NDAA describes requirement for Modular Open Systems Approach (MOSA) in major defense acquisition programs**
  - Modular design
  - Major Interfaces conform to widely supported & consensus based stds
  - Uses a system architecture that allows severable component

NDAA MOSA Goals

- **Significant cost savings or avoidance**
- **Schedule reduction (speed of capability to the field)**
- **Opportunities for technical upgrades**
- **Increased interoperability**

Challenges

- **Numerous issues need to be addressed to achieve the vision**
  - What architectures do you start with?
  - What standards are emerging?
  - How do you streamline testing or manage just-in-time testing?
  - How do you streamline the accreditation process?
  - Will there be component libraries available to draw from?
  - How do you streamline the requirements process?

Trends - GRAs

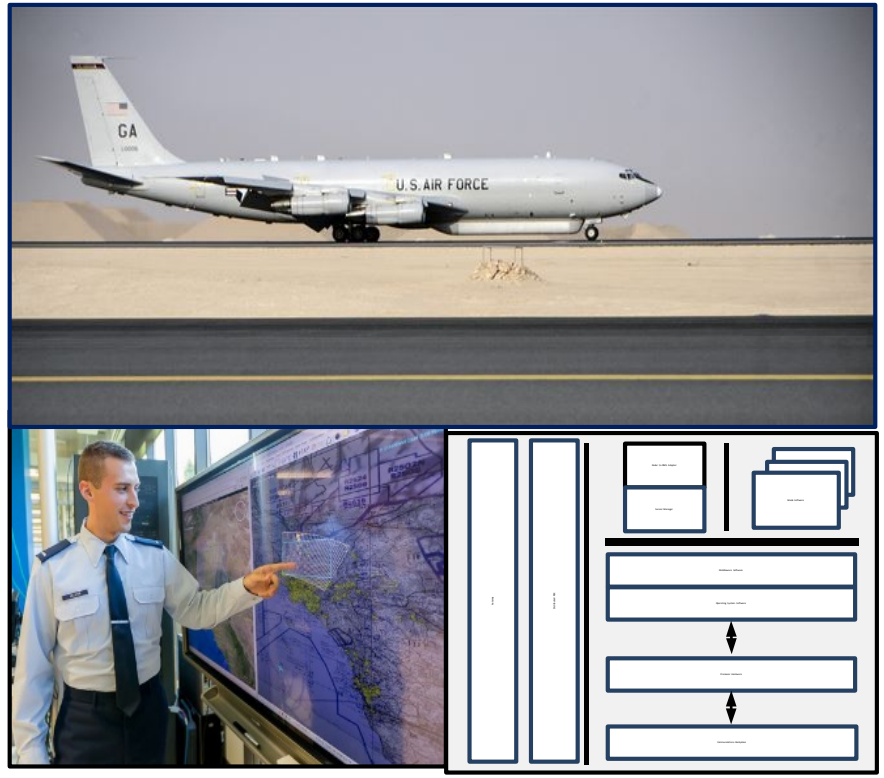
- **Government Reference Architectures appear to be a "method" to address some of the challenges**
  - Provides a starting place
  - Includes appropriate standards
  - Aids testing due to familiarity and incremental approach
  - Same with accreditation
  - Libraries needs to be addressed
  - Requirements process needs to be addressed

Trends – Emerging Standards

- C4ISR/EW Modular Open Suite of Standards (CMOSS)
- Common Open Architecture Radar Program Specification (COARPS)
- Future Airborne Capability Environment (FACE™)
- Hardware Open Systems Technologies (HOST)
- Modular Active Protection System (MAPS)
- Modular Open Radio Frequency Architecture (MORA)
- Open Mission Systems (OMS)
- Sensor Open Systems Architecture (SOSA)
- Simulator Common Architecture Requirements and Standards
- Software Communication Architecture (SCA)
- STANdardization AGreement (STANAG - various standards)
- Universal Armament Interface (UAI)
- Universal Command and Control Interface (UCI)
- Universal Control Segment (UCS)
- Vehicular Integration for C4ISR/EW Interoperability (VICTORY)

JSTARS Recap Example

- **GRA developed through interaction with Industry SMEs**
  - Non-proprietary interfaces and open standards
  - Open Mission Systems (OMS) standard
  - Common Open Architecture Radar Processing System (COARPS)
  - Safety of flight isolation

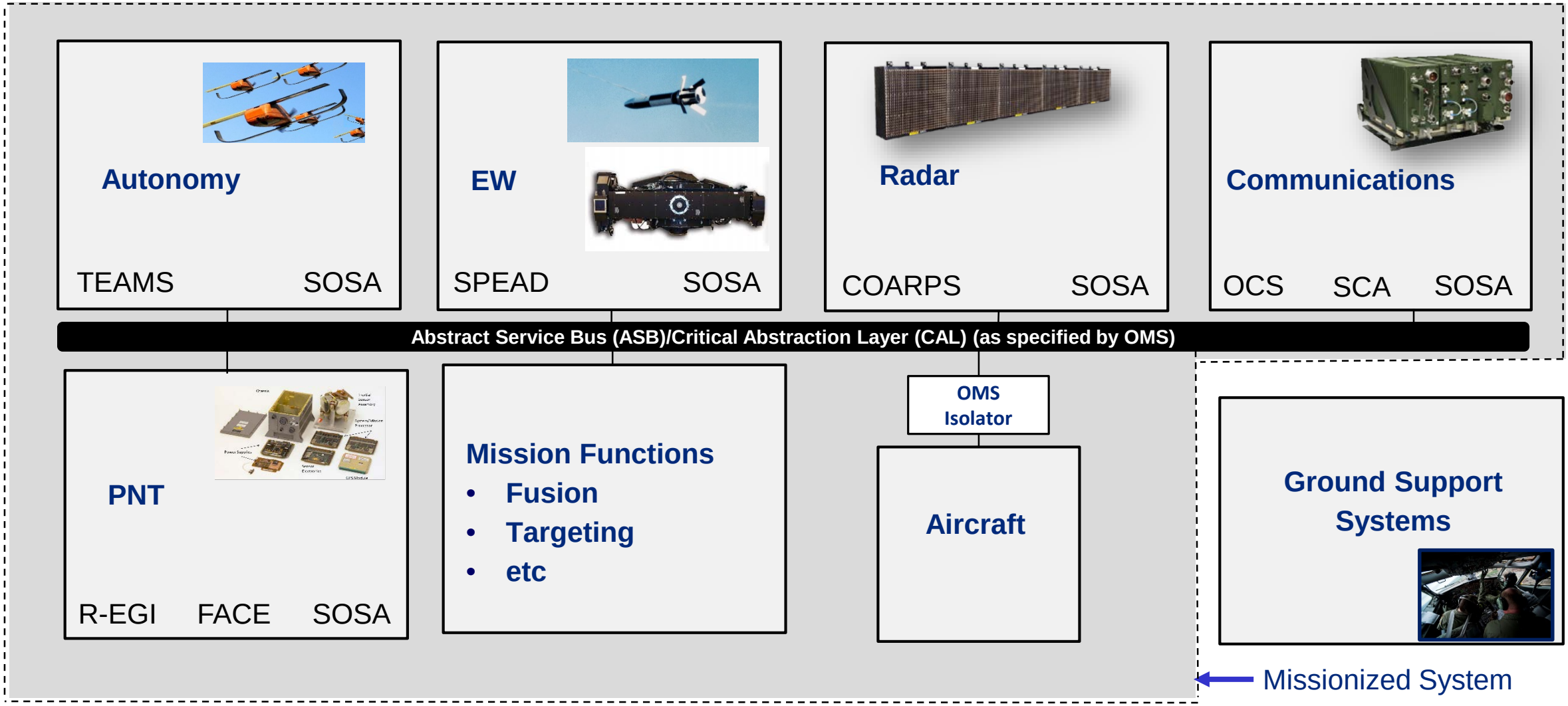


GRA Benefits

- **Represents Govt's understanding of weapon system**
- **Modeled within modern architectural tool**
- **Helps Govt understand design trade space**
- **Facilitates discussions during all phases**
- **Readily useable as the starting point for future efforts**

Notional Avionics GRA

AFLCMC… Providing the Warfighter's Edge



Conclusions (Questions)

- **Is it possible to kick-start future programs or modifications by supplying a government reference architecture?**
  - If so, can we add "basic" or foundational cyber controls?