



# U.S. ARMY COMBAT CAPABILITIES DEVELOPMENT COMMAND – C5ISR CENTER

FACE™ and SOSA™ Technical Interchange Meeting

C5ISR/EW Modular Open Suite of Standards (CMOSS) Overview

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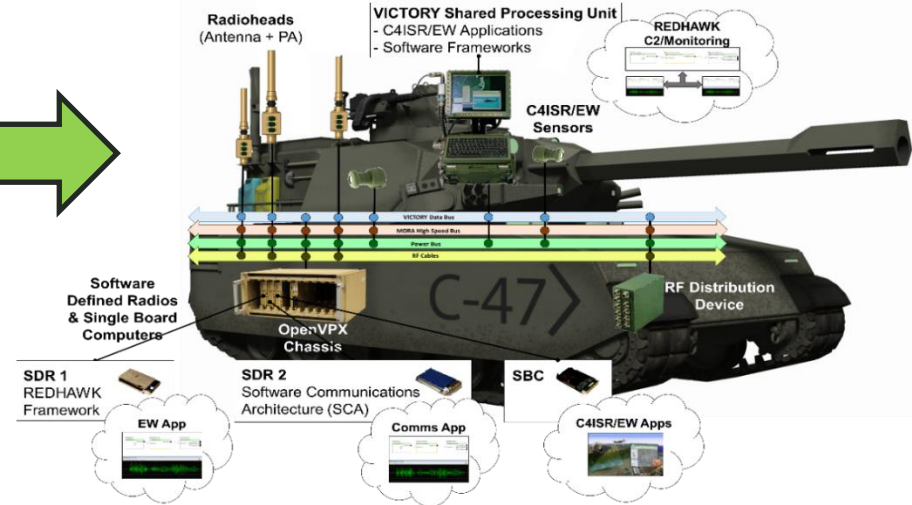
# CMOSS OVERVIEW



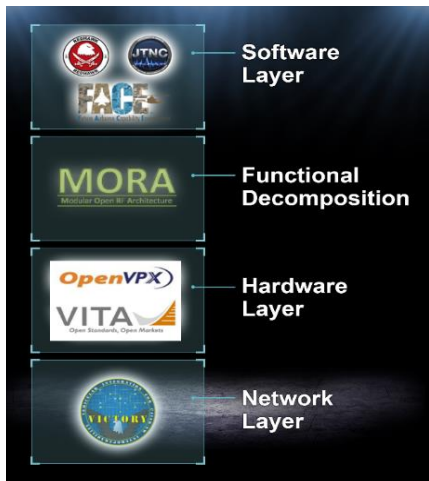
## Why Converge?



## CMOSS Architecture



## C5ISR/EW Modular Open Suite of Standards (CMOSS)



- CMOSS is a suite of standards to support the reduction of the size, weight and power of C5ISR and EW systems while increasing the flexibility and adaptability of these systems
  - Universal A-Kit – Project Managers field capabilities as cards into a common chassis
  - Pooled radio resources such as antennas and amplifiers for Communications, Electronic Warfare (EW), and Signals Intelligence (SIGINT) systems
  - Shared processing resources such as computers and displays
  - Shared data services such as Position, Navigation, and Time (PNT)
  - Foundation for enhanced interoperability and simultaneity between C5ISR systems
  - Reduced life cycle cost through increased competition, smaller logistics tails with common sparing, and upgrading to the latest hardware as parts are replaced
  - Rapid insertion of new technology/capability

**Army, Air Force, and Navy collaborate under the SOSA Consortium to develop a holistic open architecture that leverages existing standards, maximizes economies of scale, and provides the flexibility to rapidly insert the latest capabilities to achieve Future Force Modernization.**



# CMOSS ARCHITECTURE



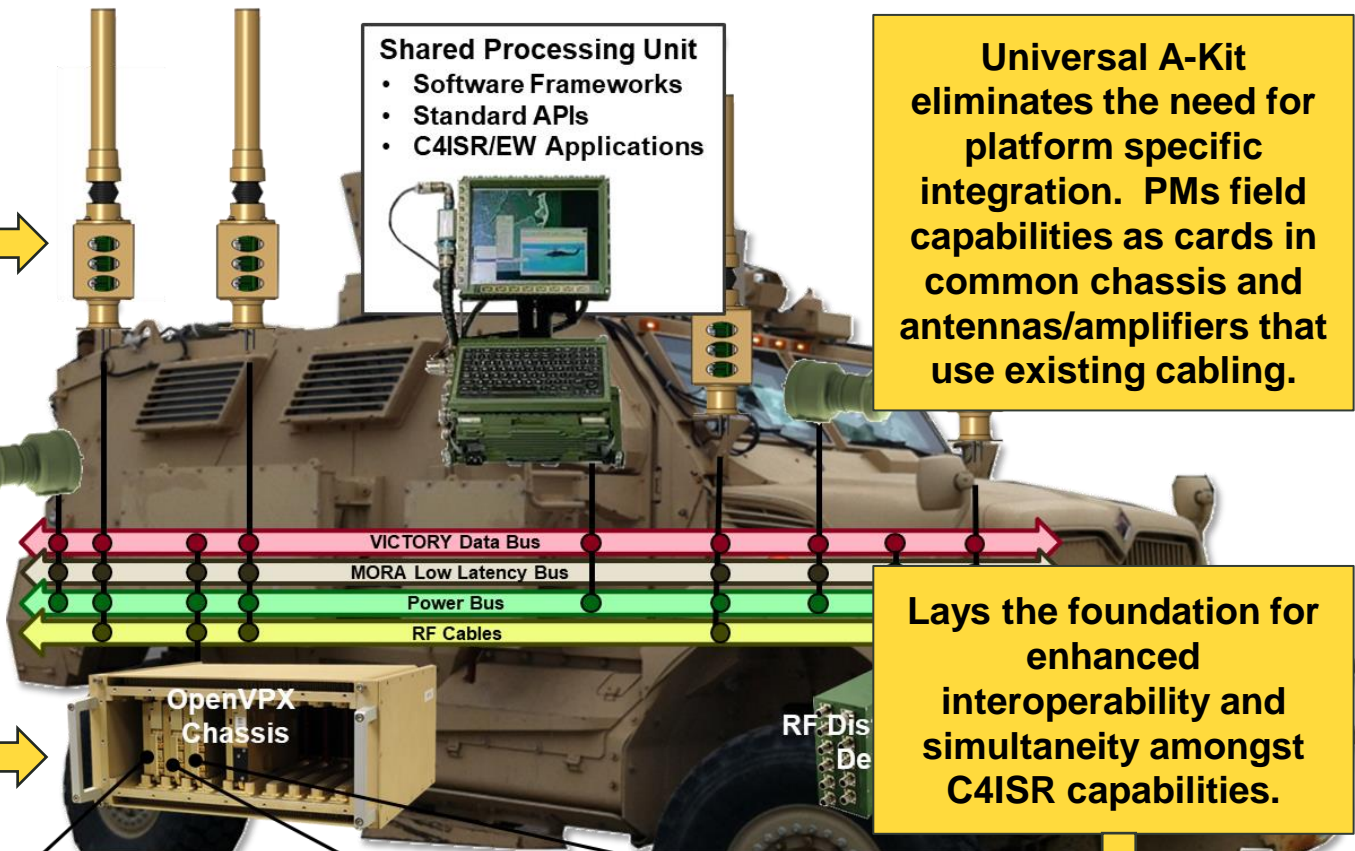
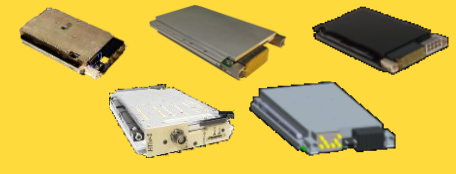
Reduces the size, weight and power footprint of C4ISR systems by sharing hardware such as antennas and amplifiers.

**Shared Processing Unit**

- Software Frameworks
- Standard APIs
- C4ISR/EW Applications

Universal A-Kit eliminates the need for platform specific integration. PMs field capabilities as cards in common chassis and antennas/amplifiers that use existing cabling.

Enables rapid technology insertion using best of breed capabilities to address emerging requirements.



Lays the foundation for enhanced interoperability and simultaneity amongst C4ISR capabilities.

**EW App**

**SDR 2**

**Comms App**

**SBC**

**C4ISR/EW Apps**

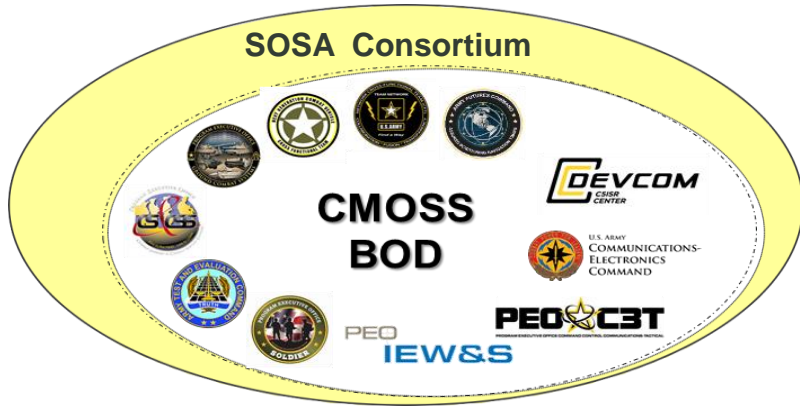
Reduces logistics tails by enabling common sparing. Eliminates the need for “End of Life” buys for a 30+ years sustainment by enabling hardware modernization every 5-10 years.



# C5ISR CMOSS STRATEGY



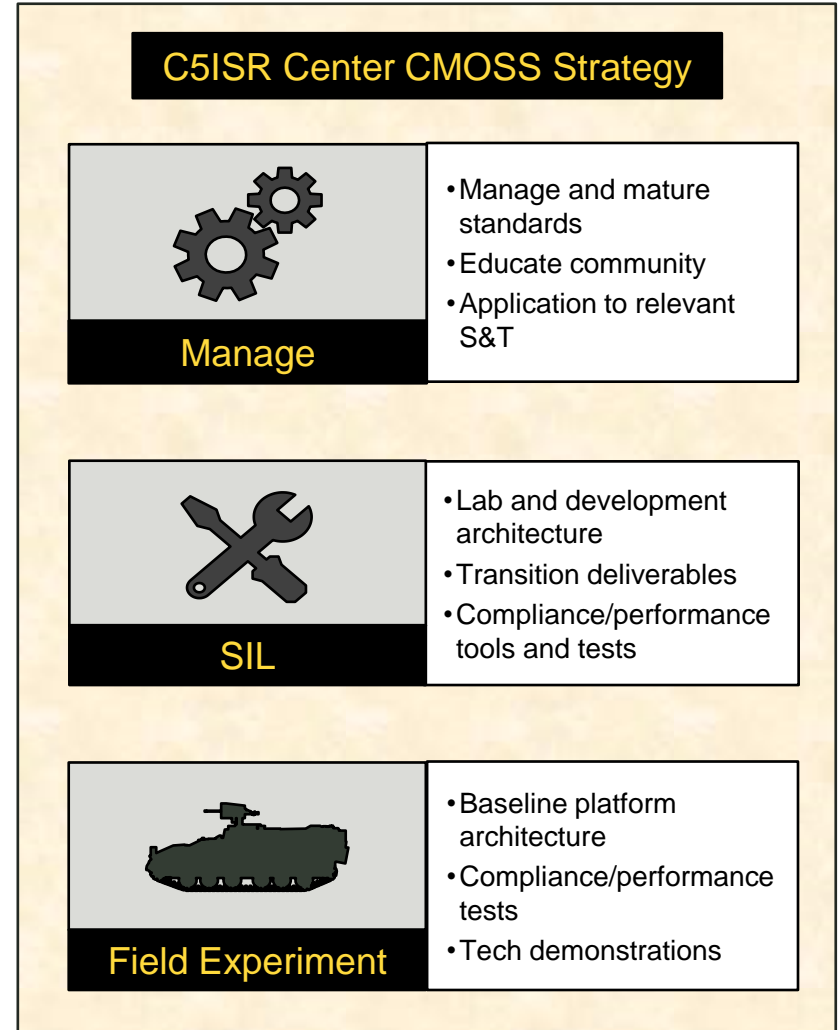
## ORGANIZE



## SYNCHRONIZE

- Multiple C5ISR Center CMOSS prototyping efforts
- Multi-Function Electronic Warfare - Air Large (MFEW-AL)
- Tactical Cyber Equipment - CMOSS Chassis (TCE-CC)
- Terrestrial Layer System (TLS)
- CMOSS Mounted Form Factor Abbreviated - Capability Development Document (CMFF A-CDD)
- N-CFT TEM 4 – CMOSS
- Assured Positioning, Navigation Timing (A-PNT) Prototyping
- PM Tactical Radios (TR) CMOSS SBIRs
- A-PNT Open Innovation Lab (OIL)
- Tri-Service Open Architecture Interoperability Demonstration (TSOA-ID)

## EXECUTE



## JOINT CFT/PEO/S&T GOVERNANCE AND EXECUTION



# ON-GOING CMOSS EFFORTS



- **Programs of Record**

- Product Lead Electronic Attack (PdL EA) Multi-Function Electronic Warfare Air Large (MFEW-AL) Electronic Attack / Electronic Warfare Support pod on a Gray Eagle unmanned aircraft system
- Product Manager Information Warfare (PdM IW) Tactical Cyber Equipment - CMOSS Chassis (TCE-CC) manpack chassis and Bionic Commando Cyber-Electromagnetic Activities (CEMA) card
- Product Manager Terrestrial Spectrum Warfare (PdM TSW) Terrestrial Layer System (TLS) SIGINT, EW, and Cyber-enabling integrated solution

- **Requirements**

- CMOSS Mounted Form Factor (CMFF) Abbreviated – Capability Development Document (A-CDD) for a CMOSS chassis including cards for PNT, Mission Command, Communications, and EW

- **Prototype Efforts**

- TSM and USRP radio cards
- CMOSS-capable cryptographic subsystem (CSS) via RESCUE
- Proof of concept of JBC-P/MMC hosted on a single board computer (SBC)
- Multiple CMOSS-based Mounted Assured PNT System (MAPS) prototypes
- CMOSS-based Tactical SIGINT (TSIG) system integrated into Stryker platform
- Small Business Innovation Research (SBIR) efforts for Radioheads and SDR cards
- Digital / analog Radiohead prototyping