



U.S. ARMY COMBAT CAPABILITIES DEVELOPMENT COMMAND C5ISR CENTER

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

4 AUGUST 2026

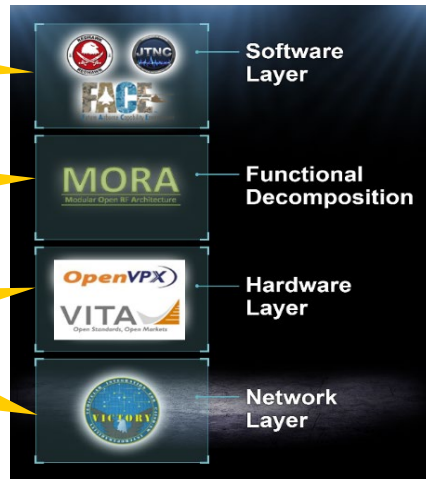
CMOSS OVERVIEW

Why Converge?

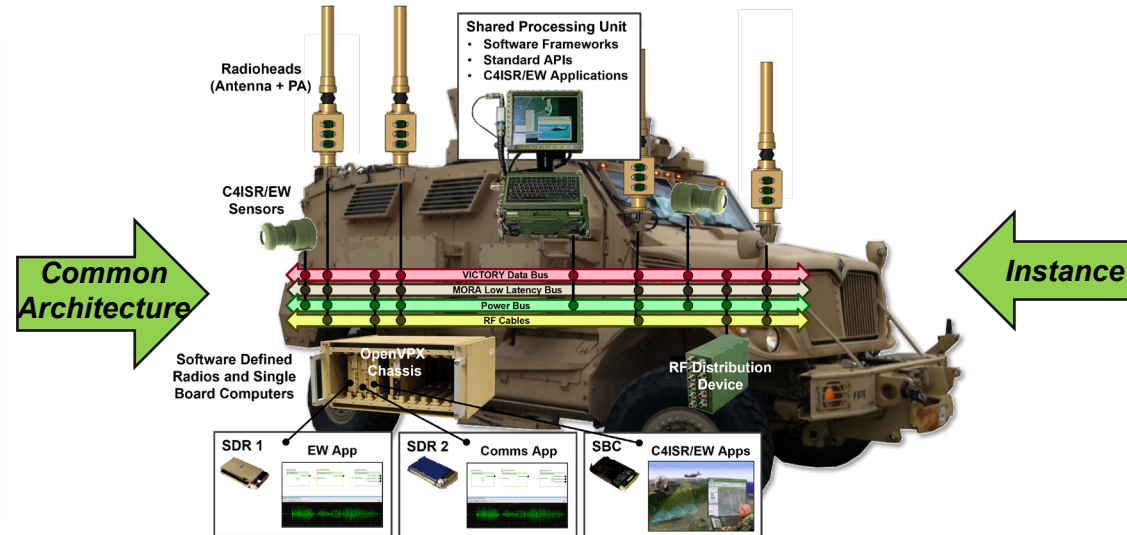


C5ISR/EW Modular Open Suite of Standards (CMOSS)

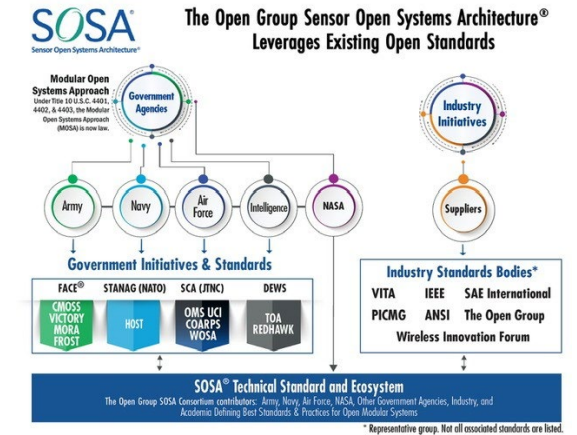
- SDR and application frameworks
- SOSA Run-Time Environments
- Modular Open RF Architecture (MORA)
 - Access and control of the RF chain
 - Radioheads (antenna + amplifier)
- OpenVPX cards and chassis
 - SOSA plug-in card pinouts
 - SOSA connectors and mounts
- VICTORY Data Bus
 - Discovery, management, and health
 - Shared data services
- SOSA System Management



CMOSS Architecture



SOSA® Technical Standard



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

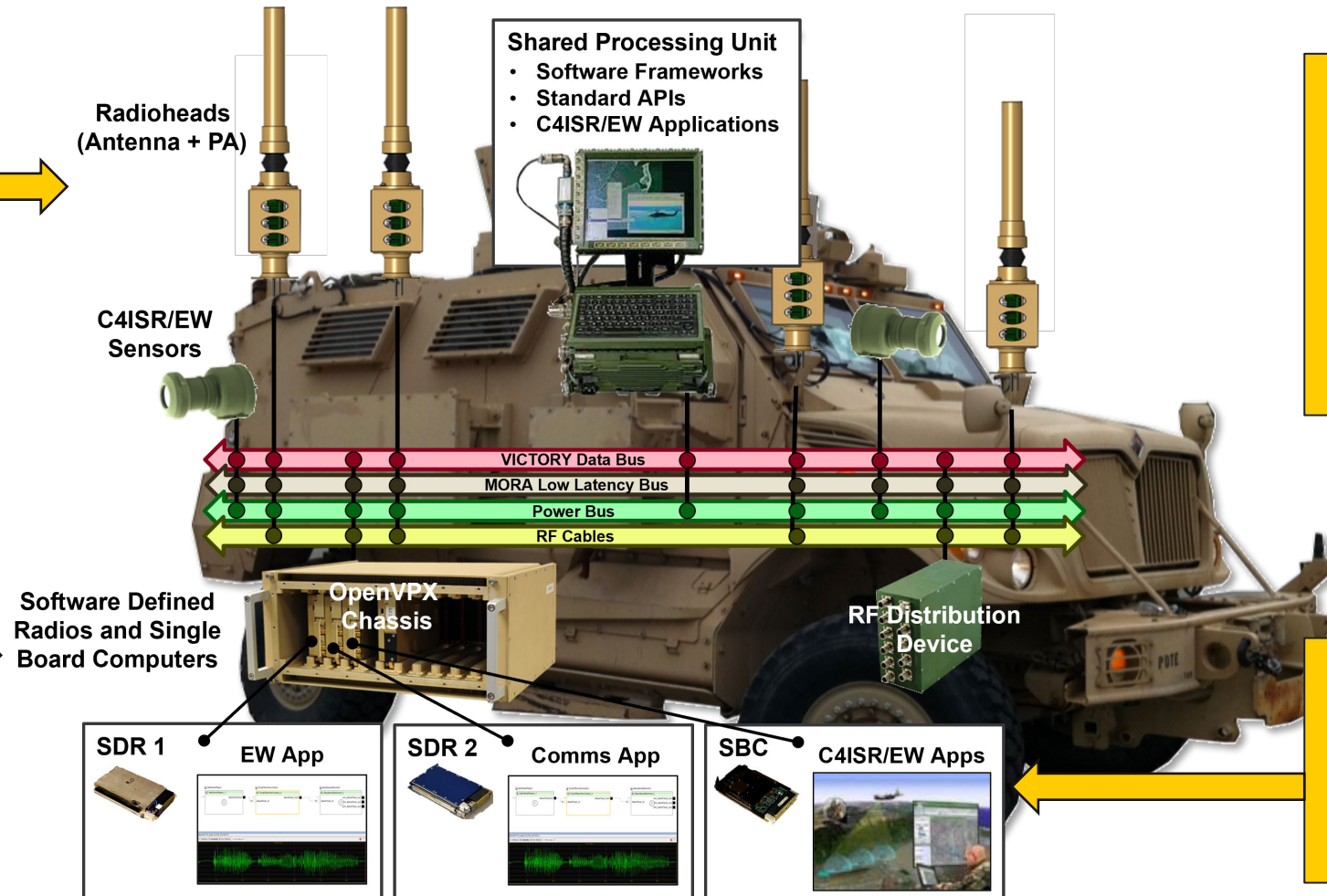
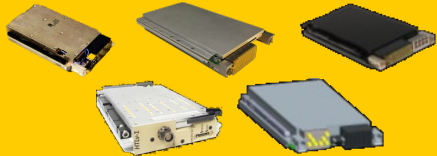
Army, Air Force, and Navy collaborate under the SOSA® Consortium to develop a holistic open architecture that leverages existing standards, maximizes economies of scale, and provides the flexibility to rapidly insert the latest capabilities to achieve Future Force Modernization.

CMOSS ARCHITECTURE



Reduces the size, weight and power footprint of C5ISR systems by sharing hardware such as antennas and amplifiers.

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

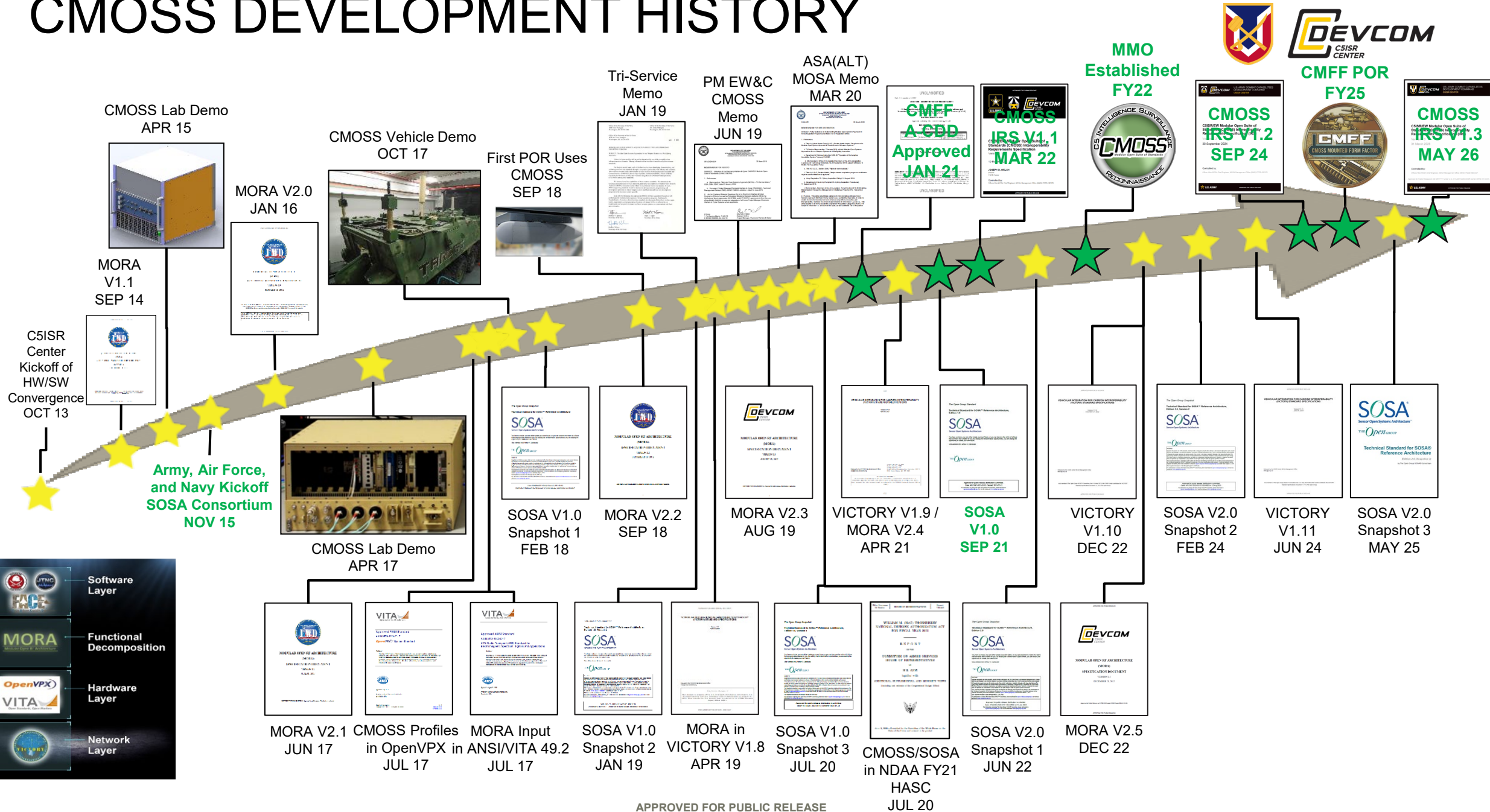


Universal A-Kit eliminates the need for platform specific integration. PMs field capabilities as cards in common chassis and antennas/amplifiers that use existing cabling.

Lays the foundation for enhanced interoperability and simultaneity amongst C5ISR capabilities.

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.

CMOSS DEVELOPMENT HISTORY



CMOSS INTEROPERABILITY REQUIREMENTS SPECIFICATION (IRS)



C5ISR/EW Modular Open Suite of Standards (CMOSS) Interoperability Requirements Specification (IRS)

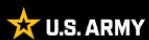
Version 1.3

31 May 2026

Managed by:

Office of the MOSA Chief Engineer

Approved for Public Release on 10 J

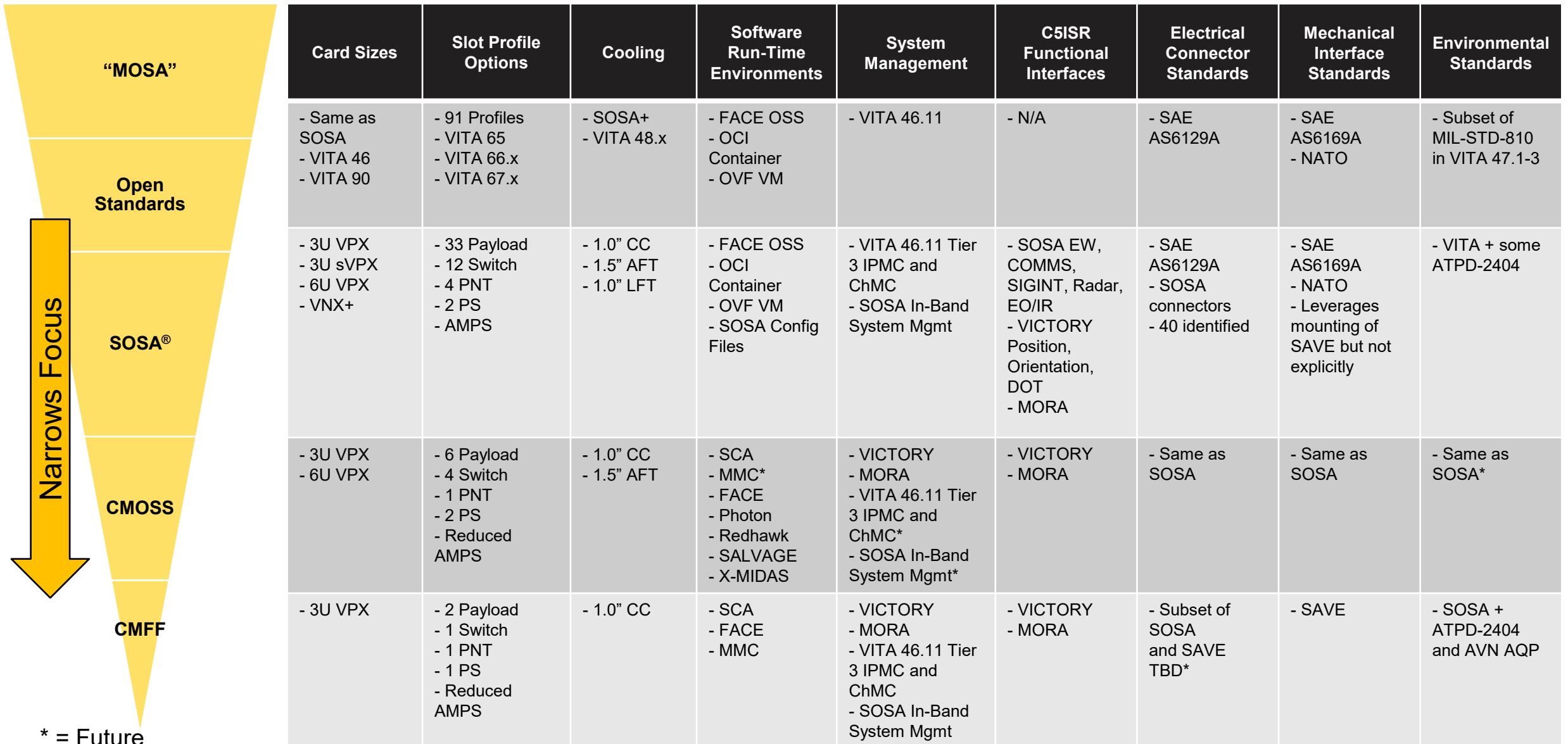


	CMOSS0079	OpenVPX	Information		v1.1
	CMOSS0080	Background: OpenVPX is a Backplane standard that uses serial fabrics with a high density connector, coupled with a systems level approach that defines standard profiles for pins, protocols, and interconnections.	Information		v1.1
	CMOSS0081	Additional information is available at http://www.vita.com/ and http://www.opengroup.org/sosa	Information		v1.1
	CMOSS0082	Systems shall contain an OpenVPX chassis with modular hardware resources that complies with the slot and module profiles in this specification to facilitate interoperability with cards developed by third-party vendors.	Threshold	Shall	v1.1
CMOSS0082	CMOSS0083	System should use 3U OpenVPX whenever possible.	Objective	Should	v1.1
	CMOSS0084	Systems and components shall use the Control Plane for the VICTORY Data Bus (VDB) and the Data Plane for the MORA Low Latency Bus (ML2B).	Threshold	Shall	v1.1
	CMOSS0085	Systems and components should implement separate domains on the backplane and plug-in cards where the Control Plane and Expansion Plane are Domain 1, while the Data Plane and Utility Plane are Domain 2.	Objective	Should	v1.1
	CMOSS0171	Systems and components that require a VICTORY Data Bus (VDB) in two domains shall use the Data Plane for a secondary VDB, where the secondary VDB and MORA Low Latency Bus (ML2B) use different Data Plane ports (e.g., DP FP and DP UTP).	Threshold	Shall	v1.3
	CMOSS0086	3U payload cards such as RF transceivers that require RF connections shall comply with a slot profile of SLT3-PAY-1F1U1S1S1U1U2F1H-14.6.11-4 as defined in ANSI/VITA 65.0, and shall have an Alternate Module Profile Scheme (AMPS) string that conforms to Table 2.	Threshold	Shall	v1.1
CMOSS0086	CMOSS0087	Connections on the front of these payload cards shall only be used for key fill, maintenance, and discrete signals that can't be sent over the ML2B.	Threshold	Shall	v1.2
CMOSS0086	CMOSS0088	RF connections shall comply with Pinout D1 as specified by Table 13.3.7.4-1 (ANSI/VITA 67.3 14 SMPM Contacts-6.4.5.6.4 Coaxial Pin Designation) in SOSA Technical Standard Edition 2.0, Snapshot 3 and repeated in Figure 3.	Threshold	Shall	v1.3
	CMOSS0089	3U payload cards such as single board computers (SBCs) and general-purpose graphics processing units (GPGPUs) that don't require RF connections shall comply with a slot profile of SLT3-PAY-1F1U1S1S1U1U2F1H-14.6.11-0 as defined in ANSI/VITA 65.0, and shall have an AMPS string that conforms to Table 2.	Threshold	Shall	v1.1
CMOSS0089	CMOSS0090	Connections on the front of these payload cards shall only be used for key fill and maintenance.	Threshold	Shall	v1.1
	CMOSS0143	3U payload cards such as SBCs and GPGPUs that require coax and/or optical video connections shall comply with a slot profile of SLT3-PAY-1F1U1S1S1U1U2F1H-14.6.11-17 as defined in ANSI/VITA 65.0, and shall have an AMPS string that conforms to Table 2.	Threshold	Shall	v1.2
CMOSS0143	CMOSS0144	Connections on the front of these payload cards shall only be used for maintenance.	Threshold	Shall	v1.2

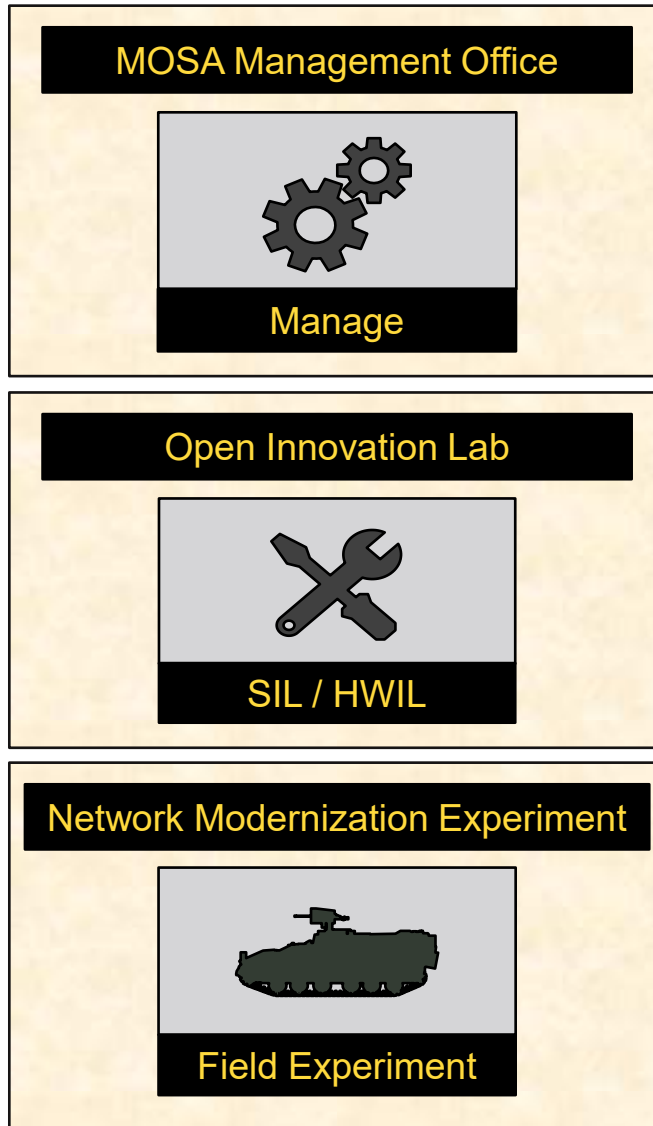
- Managed by the C5ISR Center MOSA Management Office (MMO)
- Evolved from verbiage included in prior solicitations and SOWs
- Includes requirements that can be referenced in contracts by:
 - Directly citing the document (preferred)
 - Copying specific requirements relevant to a program
- Identifies sections of open standards that are required by CMOSS
 - VICTORY component types and applicability
 - MORA component types and applicability
 - Allowed OpenVPX plug-in card profiles and form factors
 - Required software frameworks
 - Recommended connectors and mounts
- Restricts options to facilitate portability and reuse
- Additional details can be found in the standards themselves

“CMOSS Easy Button” ensures standards are referenced consistently resulting in clear requirements and greater portability.

LAYERED STANDARDS



C5ISR CENTER MOSA MANAGEMENT OFFICE (MMO)

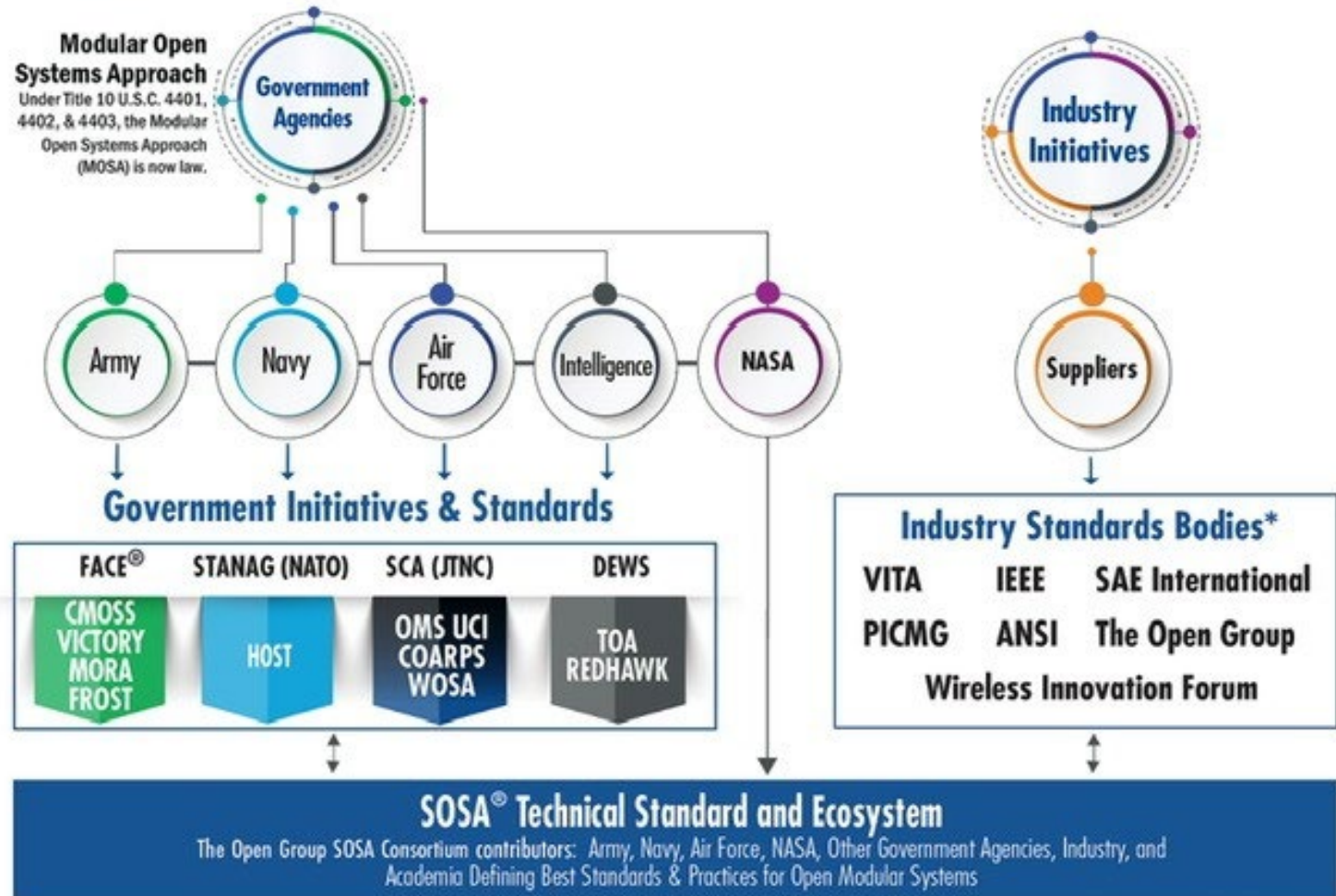


- Manage and mature standards
 - Develop and maintain the CMOSS and VICTORY specifications
 - Develop compliance tools and support compliance verification
 - C5ISR Center lead for standards bodies such as the SOSA Consortium
 - Coordinate with external MOSA activities
- Coordinate MOSA usage across C5ISR Center
 - Review S&T projects and identify cross cutting opportunities
 - Allocate MOSA implementation funding for labs, experimentation, and matrixed SME support
 - Facilitate technology transition of CMOSS-aligned products
- Provide MOSA support to the acquisition community
 - Consolidate resource requests for MOSA support facilities and staff
 - Support inclusion of MOSA in policy and programs
- Coordinate/represent MOSA with external partners including USAF, USN, FVEY, and Industry

SOSA® - THE STANDARDS “MELTING POT”



The Open Group Sensor Open Systems Architecture® Leverages Existing Open Standards



* Representative group. Not all associated standards are listed.

The **SOSA® Consortium** is adopting and aligning Government and Industry standards to create a common DoD-wide Open Systems Architecture standard

- Enables reuse across Services, Agencies, and Programs
- Maximizes Government investments
- Capitalizes on collective expertise of over 180 member organizations

CMOSS defines an instantiation of the SOSA reference architecture which provides the necessary specificity to achieve the Army's reuse and portability goals

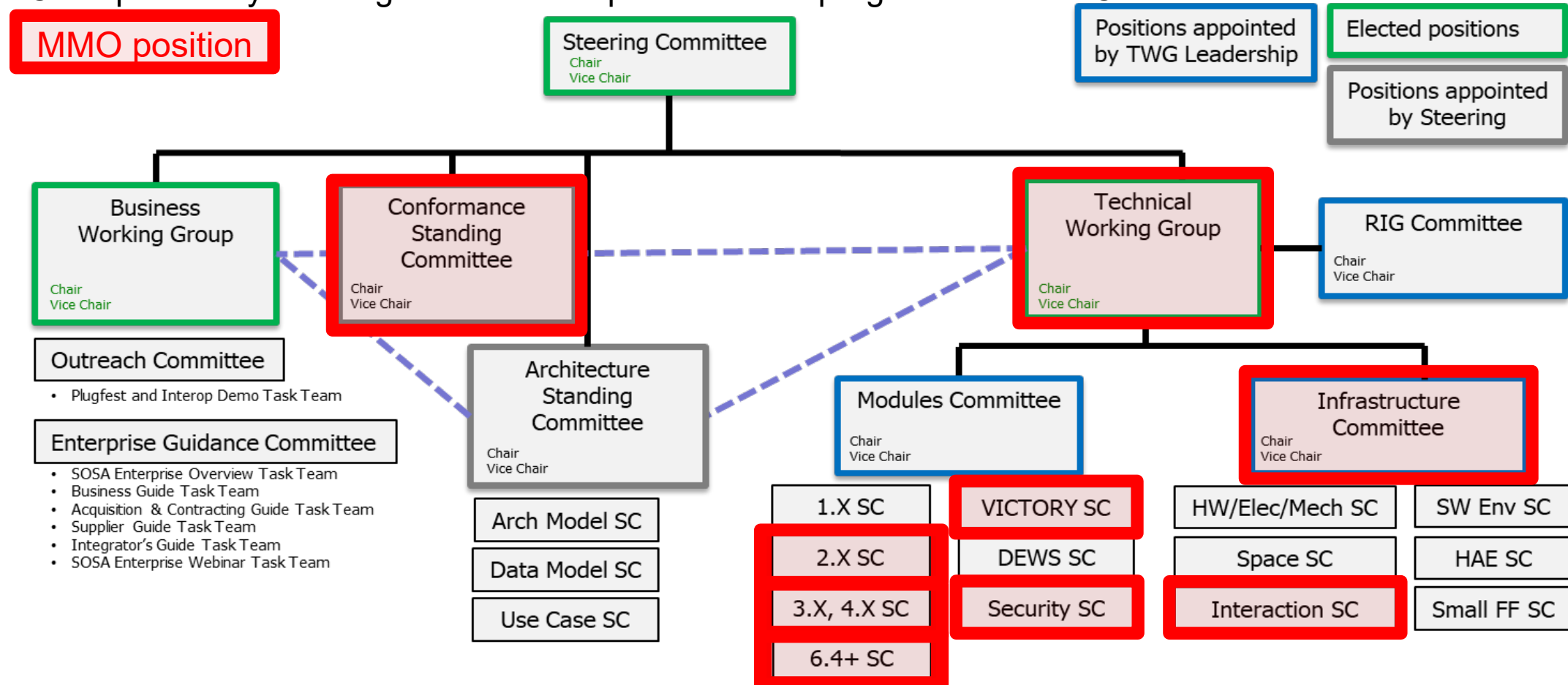
- Developed and maintained by the Army to support Army procurements
- Respond to program office schedules and needs

SOSA® CONSORTIUM LEADERSHIP



Serving in key SOSA Consortium leadership positions allows the MMO to:

- Maintain CMOSS/SOSA/Industry alignment
- Educate and integrate C5ISR Center ideals and products to the community
- Champion Army's driving needs and requirements for programs such as CMFF

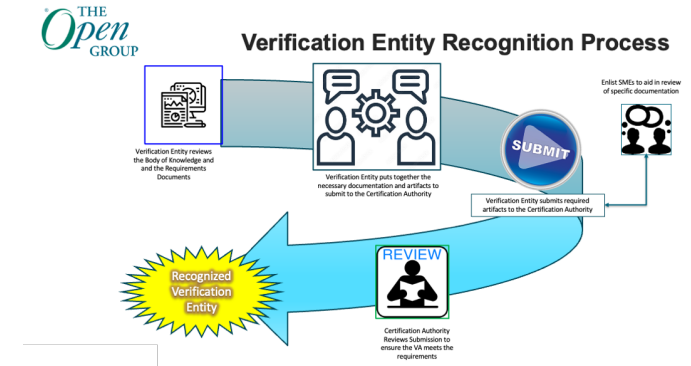


SOSA® VERIFICATION AUTHORITY



- Working to get the C5ISR Center Open Innovation Lab (OIL) approved as a SOSA Verification Authority (VA) to support the SOSA Conformance Program and Army programs utilizing CMOSS standards such as CMFF

- Will provide the Army with in-house, CMOSS-aligned support for conformance verification units, procedures, and tools
 - OIL currently maintains Cooperative Research And Development Agreement (CRADA) with many CMOSS-aligned industry partners
 - Organic VA will enable rapid validation and adoption of new standards and emerging capabilities



Intent to Become a Recognized SOSA Verification Authority

SOSA
Sensor Open Systems Architecture

This form is designed for Organizations that wish to be considered as a Recognized SOSA Verification Authority.

See the Certification Authority Website for details on the Recognition Process.

Any field with an asterisk is a mandatory field.

Name of Organization *

Which Conformance Sets Would You Verify? (Check all that apply) *

- ☐ 14.8.7 SOSA Slot Profile
- ☐ 14.6.14 SOSA Slot Profile
- ☐ 14.6.13 SOSA Slot Profile
- ☐ 14.6.11 SOSA Slot Profile
- ☐ 14.4.15 SOSA Slot Profile
- ☐ 14.4.14 SOSA Slot Profile
- ☐ 14.2.17 SOSA Slot Profile
- ☐ 14.2.16 SOSA Slot Profile
- ☐ 3U Power Supply
- ☐ Electro-Mechanical
- ☐ Software Run Time Environment

Note: List as of FEB 26

VICTORY SUSTAINMENT



- The VICTORY Standard Specifications document was contributed to the SOSA® Consortium
 - Reduces cost by leveraging an existing Industry-Government consensus-based standards body
 - Maximizes efficiency of individuals developing the specifications by reducing meetings
 - Fosters alignment between CMOSS/VICTORY and SOSA
- MMO actively participates in the SOSA Consortium to sustain VICTORY
 - Maintain and publish updates to the VICTORY Standard Specifications
 - Develop change proposals for Army programs such as CMFF
 - Develop Verification Matrices for the SOSA Conformance Program
- MMO actively performs VICTORY sustainment activities beyond the SOSA Consortium
 - Maintain and improve the VICTORY Compliance Test Suite (CTS)
 - Maintain and manage access to the VICTORY Wiki, File Share, and Help Desk
 - Provide engineering support, respond to data calls, and provide basic acquisition support to SOSA and CMOSS related programs such as CMFF

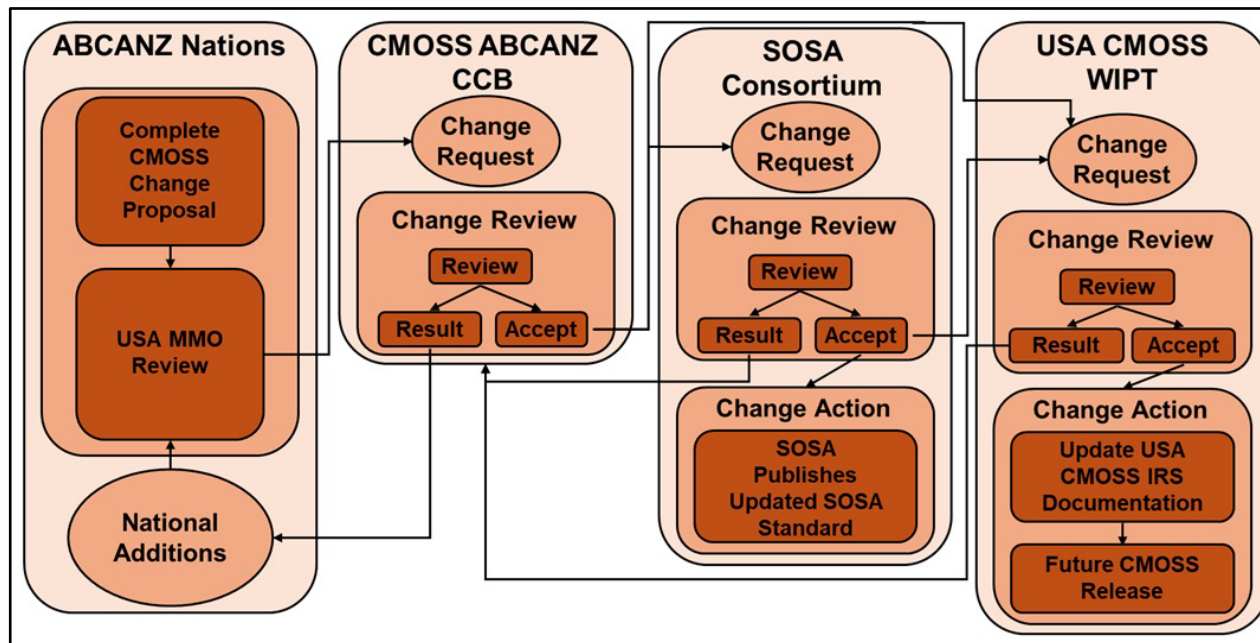
Army remains committed to the use and sustainment of VICTORY

ABCANZ STANDARD 2181



Supporting alignment between CMOSS and ABCANZ Standard 2181 (Mission Partner Environment Procedural Standard)

- Effort between American, British, Canadian, Australian, and New Zealand Armies for military interoperability
- Allows ally nations to adopt CMOSS standards and implement CMOSS/SOSA aligned products
- Enables seamless multinational operations
- ABCANZ Standard 2181 Annex O (CMOSS Management) maps national architectures to CMOSS, and provides a framework for ABCANZ nations to request updates to CMOSS/SOSA via the MMO



CMOSS IRS PLANNED UPDATES

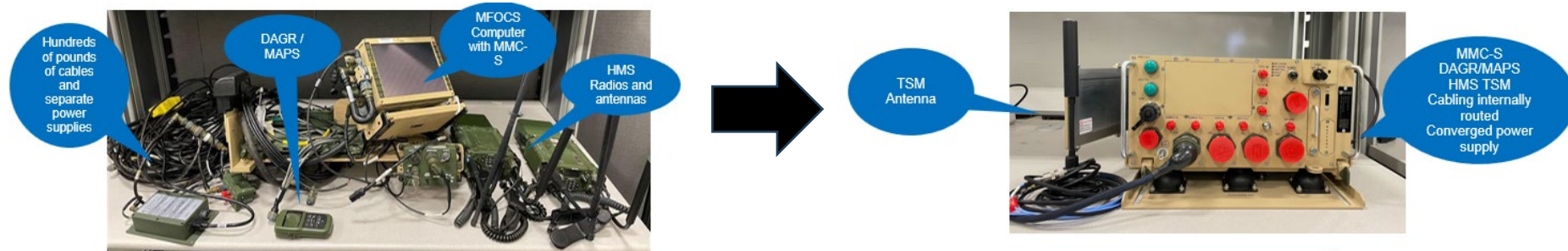
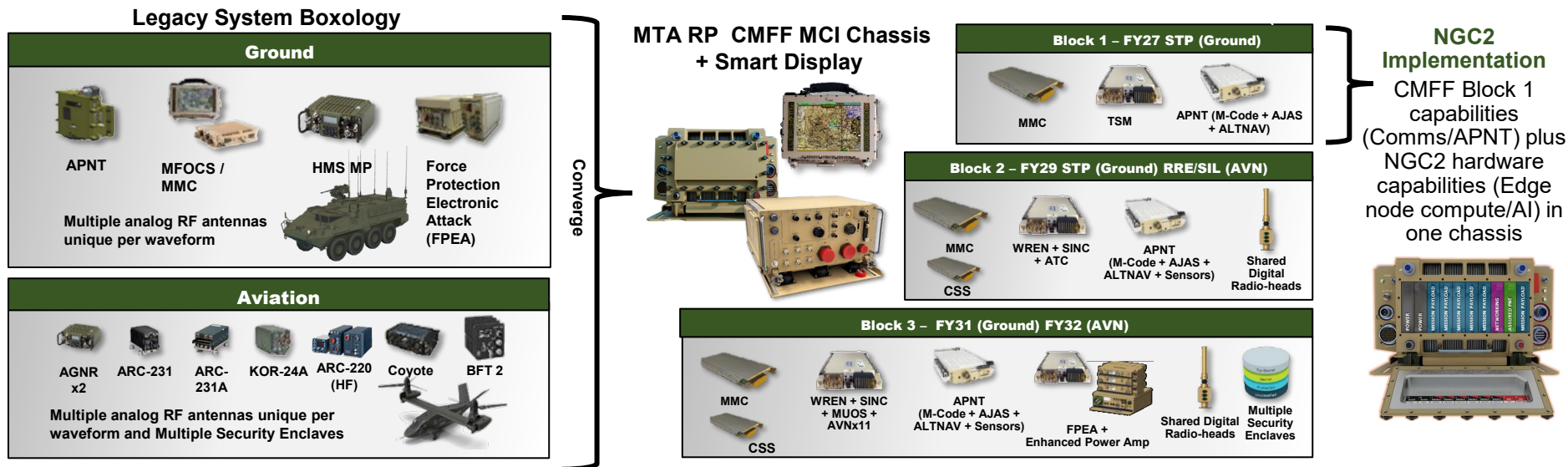


- CMOSS IRS V1.3 (MAY 2026)
 - Align with SOSA Technical Standard Edition 2.0, Snapshot 3
 - Require VICTORY Standard Specifications V1.11
 - Direction of Travel and Orientation updates to add rate and acceleration fields to support the Aviation community
 - Add requirement for systems and components that require a VICTORY Data Bus (VDB) in two domains
- CMOSS IRS V2.0 (DEC 2026)
 - Align with SOSA Technical Standard Edition 2.0 (Released)
 - Require VICTORY Standard Specifications V1.12
 - Require TLS 1.3 in accordance with NIST guidance
 - Ethernet and Dual Ethernet connector updates to align with the UK Generic Vehicle Architecture (GVA)
 - Streaming Audio updates to support connection management and Push-To-Talk (PTT) signaling
 - Add support for Small Form Factor using VNX+ (VITA 90)
- Ensure CMOSS specifications support Army priorities such as CMOSS Mounted Form Factor (CMFF), Next Generation Command and Control (NGC2), and Counter Unmanned Aerial Systems (C-UAS)

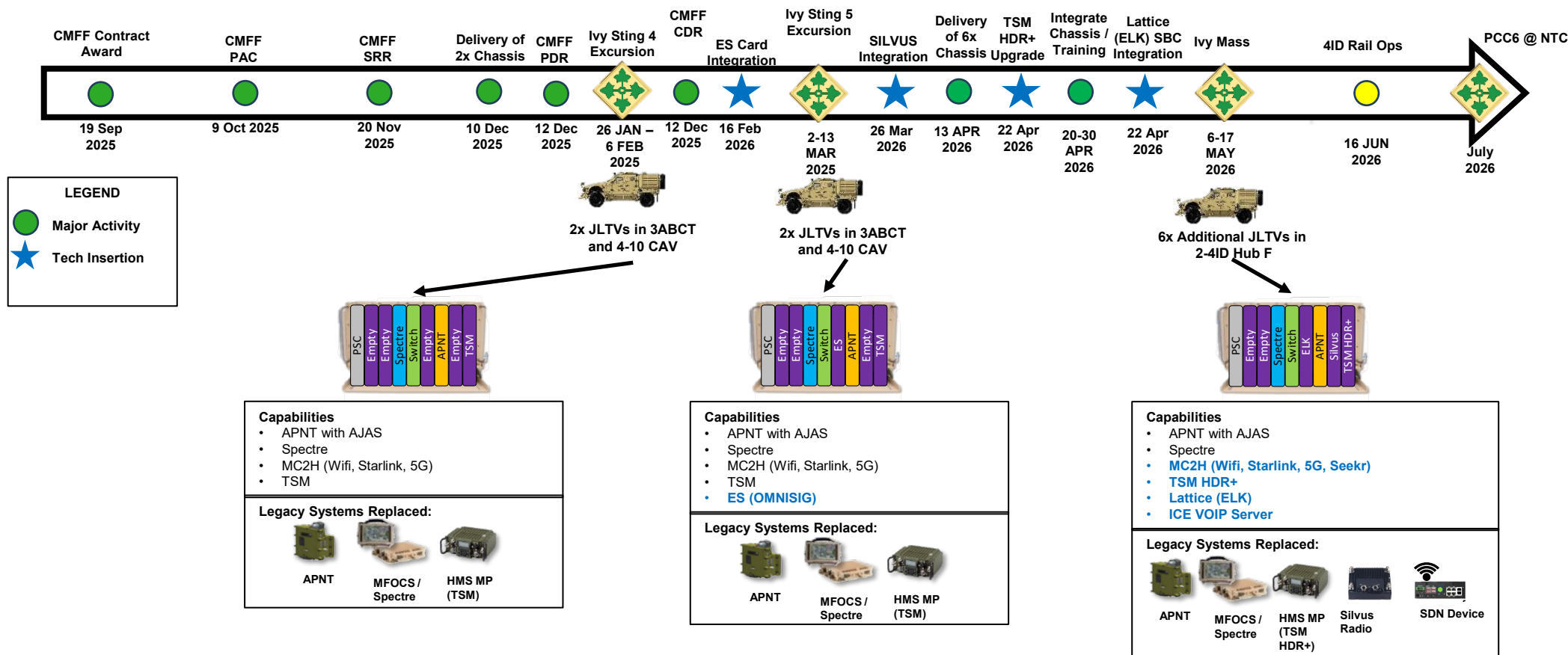
CMOSS MOUNTED FORM FACTOR (CMFF) CMFF ARCHITECTURE AND IMPLEMENTATION



Mission Statement: To provide the Army a capability that will converge communication, situational awareness, and positioning, navigation, and timing (PNT) capabilities into a single Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance/Electronic Warfare (C4ISR/EW) Modular Open Suite of Standards (CMOSS) compliant form factor (chassis) mounted on selected military platforms that can be employed on an operational environment.



CMFF Equipping and Rapid Tech Insertion Timeline



CMOSS Standards enabled CMFF to rapidly integrated new cards and software to add capabilities to the same chassis within 3 months



Access CMOSS here:



Joint Communications
Marketplace (JCM)



SAM.GOV

CMOSS Point of Contact:

U.S. Army DEVCOM C5ISR Center
MOSA Management Office (MMO)
MMO@army.mil

THANK YOU.

