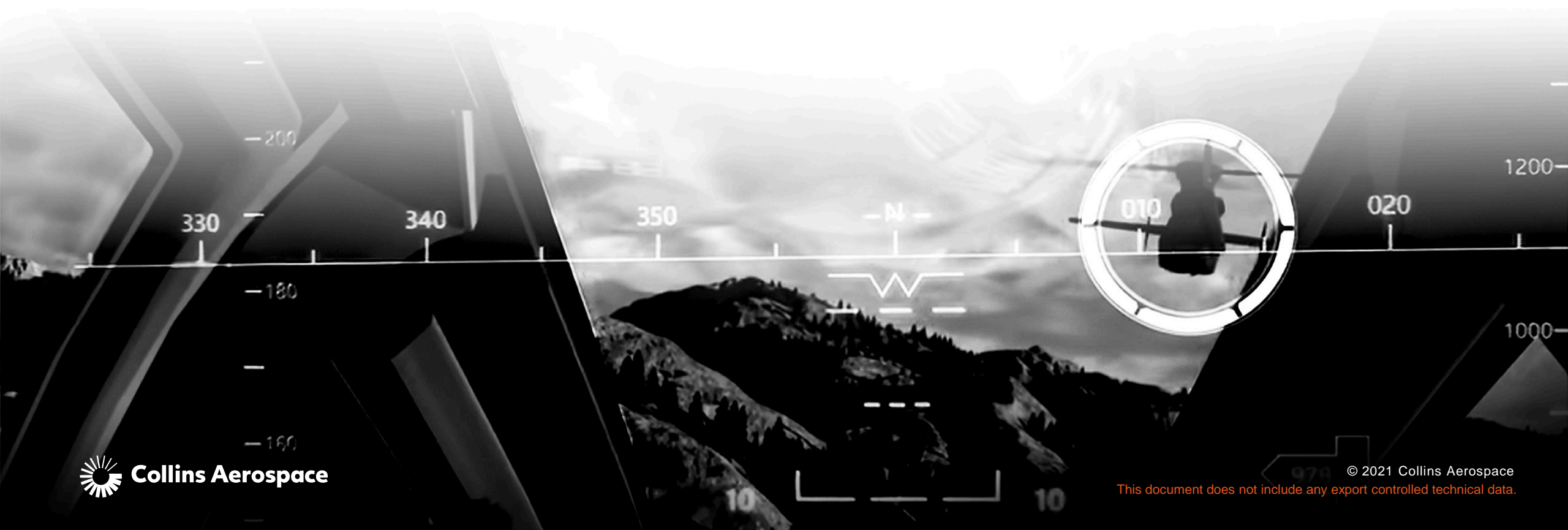


COLLINS FLEXLINK™ ADAPTIVE CONNECTIVITY SOLUTION

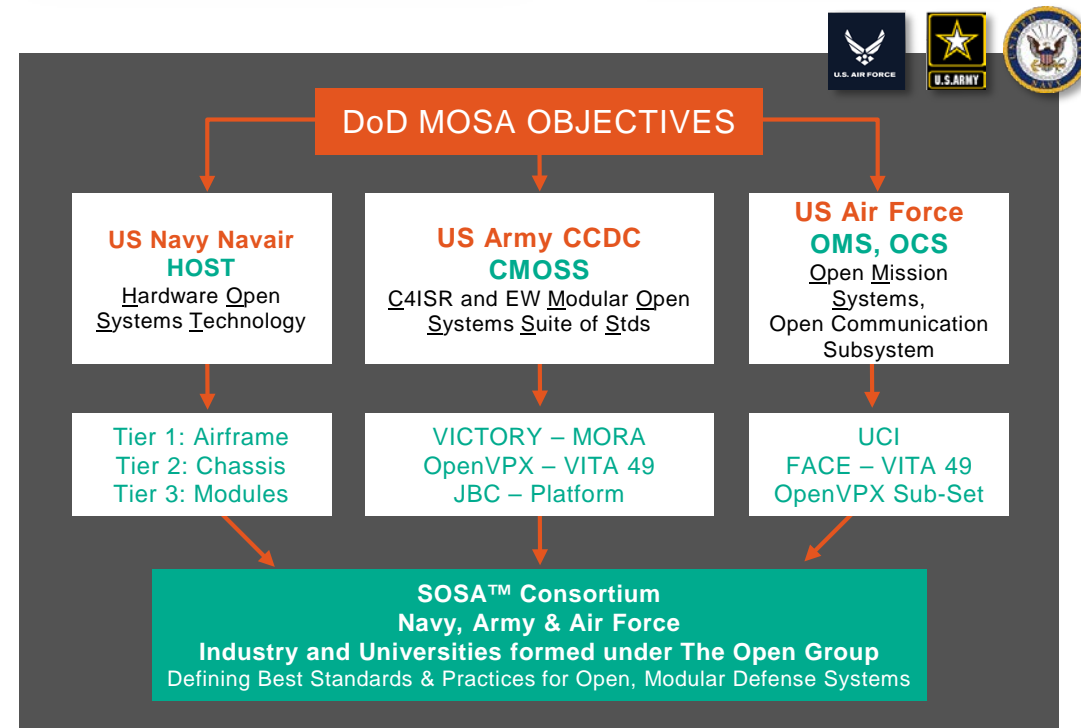
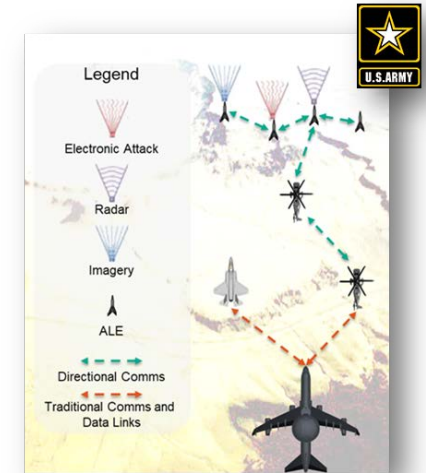
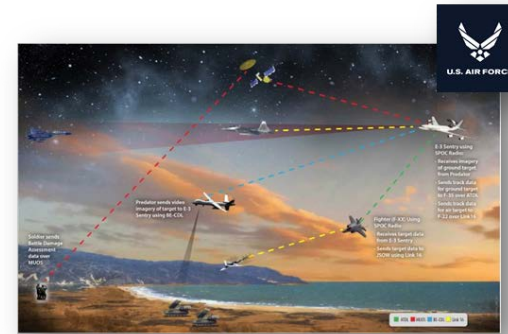
MARCH 2020



EVOLVING MISSION NEEDS

ADDRESSING JDO AND MOSA IS THE OPPORTUNITY

- **Analyzed CONOPS for Joint Multi- Domain Operations (JMDO)**
 - Concluded that **operational needs are converging**
 - Requirements to seamlessly, efficiently, and securely share information across the various domains
 - Integrated Comm, Nav, Sensors, and EW (CNSE)
- **Assessed various sources for Modular Open Systems Approach (MOSA) reference frameworks in Defense acquisition programs**
 - 3+ years to field updates & qual/cert – need to outpace emerging threats
 - Lack of IP rights and Tech Data Package – Difficult to re-compete
 - High development and sustainment costs – Lack of commonality/portability
- **Market shift to rapid OTA developments**
 - There is a need for **flexibility and agility** in adding/morphing capabilities throughout development
 - Customers may not know everything they need up front
 - Pushing vendors to have flexibility/agility
 - Support a dynamic and rapid pace as new features are requested during development, integration, or test events



MOSA OBJECTIVES: OPEN STANDARDS

LEVERAGING KEY STANDARDS TO PROVIDE THE U.S. ARMY WITH THE “BEST IN BREED” MOSA SOLUTION

- **SOSA™**

- USN NAVAIR, USA PEO Aviation, USAF AFLCMC
- FACE, MORA, CMOSS and OpenVPX

- **CMOSS**

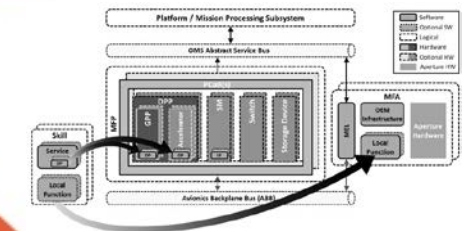
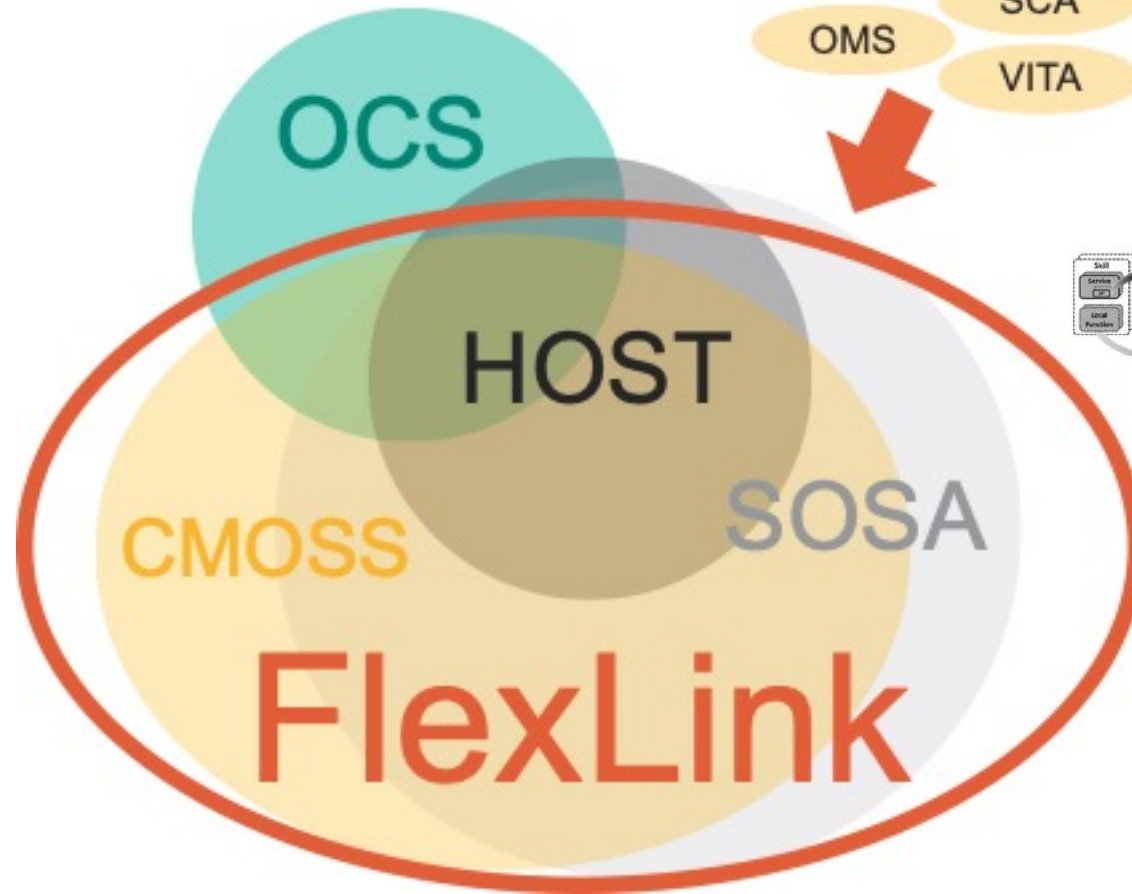
- US Army (C5ISR)
- MORA, VICTORY, FACE, SCA, RedHawk, OpenVPX

- **OCS**

- U.S. Air Force

- **HOST**

- U.S. Navy (NAVAIR PMA209)
- OpenVPX, FACE



COLLINS FLEXLINK™ ADAPTIVE CONNECTIVITY SOLUTION

BLUF

Product Overview:

- MOSA-based, CNS3 connectivity solution
 - >20% weight reduction (90 lbs. for a typical platform)
 - ~Equivalent power with greater capability vs federated
- Integrated with conformal shared antennas
 - >50% reduction in drag reference areas
- Rapid upgradeability to keep pace the changing threats



OPEN, FLEXIBLE, UPGRADABLE, SECURE, AND COST EFFECTIVE



Communication

- Provides advanced datalinks and waveforms to meet Joint Service needs and emerging threats
- Built-in gateways for seamless cross-banding of data
- Automated Primary Alternate Contingency Emergency (PACE) capability



Navigation

- Provides position, velocity, attitude and time (PVAT) and relative navigation deviations at the accuracy, availability, and reliability necessary to meet a wide variety of CONOPs

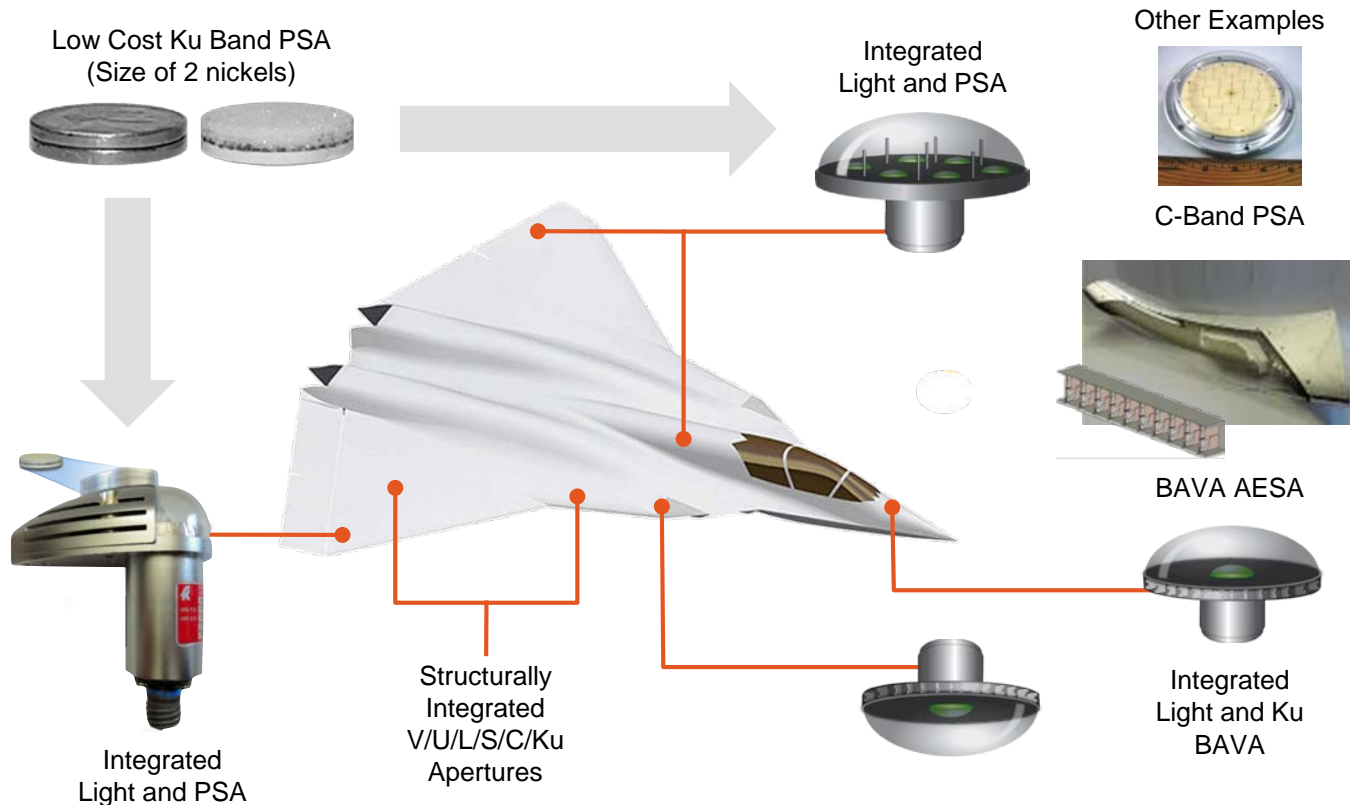


Surveillance, Sensors, Survivability

- Provides alerts, sensor, and imagery information necessary to execute multi-domain operations
- Reduced pilot workload w/ applications that process information w/ AI and Machine Learning for superior SA

DRAG REDUCTION AND APERTURE INTEGRATION

BLUF – FUSING COLLINS CORE CAPABILITIES FOR LOWER SWAP-C AND DRAG



Overview:

- Opportunity to reduce drag (75 – 100%)
- Low-Cost Omni / Directional Parasitic Arrays (PSA)
- AESA (BAVA) – High Performance
- Comm / Nav / ELINT / EW / Survivability Sensors

Modular / Conformal:

- Modular Assembly (Lighting, Sensors, Antennas)
- Conformal Inserts (Modular arrays)
- Bonded (Slots, Microstrip / Printed arrays)
- Combined assembly (GPS and Anti-collision lights)

Structural Integration:

- Antennas embedded within composite stack
- NVIS HF embedded in outer aircraft skin
- Sub-surface / Buried antennas

DRAG ELIMINATION THROUGH CONFORMAL ANTENNA, LIGHTING, & STRUCTURES INTEGRATION

SUMMARY

THROUGH AN ADHERENCE TO OPEN STANDARDS, THE FLEXLINK SOLUTION ALLOWS FOR RAPID ADOPTION OF NEW TECHNOLOGIES AND CAPABILITIES TO **OUTPACE THE THREAT**

The current hurdles today are:

- Years to field updates and/or fixes
- Emerging threats and Cybersecurity
- IP rights and Tech Data Package
- Vendor Lock
- High development and sustainment costs
- Commonality/portability
- Re-qualification and Re-certification

FlexLink addresses each of these with:

- A MOSA-based solution maximizes system flexibility using the best Open Standards for CNS3 capabilities
- Model-based System Engineering (MBSE) – an architecture designed to help *Pace the Threat*
- Maximizes processing density to reduce weight
- IP and Tech Data Package available for U.S. Government and 3rd party providers to help *Pace the Threat*
- Innovative approach to antenna structures reduces drag significantly