AIR FORCE LIFE CYCLE MANAGEMENT CENTER

ABAD Overview
for PACAF Engagement

19 January 2024

Controlled by: Department of the Air Force
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ABAD Overview

- **ABAD:** A base or base cluster-level point defense system integrating organic sensors and effectors into a composite track fire control network for engagement of air and cruise missile threats in support of base operations
  - **Fielding 22 total systems by FY28 (3x ALPS, 1x NKE and 1x BMC2 per system)**
  - **FY25 fielding to Guam, Oahu, +1 additional PACAF base**
  - **4x in FY26, 6x in FY27, 9x in FY28**

- **Purpose:** Mitigate joint air and missile defense (AMD) capability gaps by contributing to joint layered defense; add capability to protect ACE distributed operating locations

ABAD Description

- **The ABAD Program delivers capabilities to defend personnel, assets and infrastructure against:**
  - **Cruise Missiles**
  - **Unmanned Aircraft Systems (UAS) (includes sUAS)**
  - **Rockets, Artillery and Mortars**

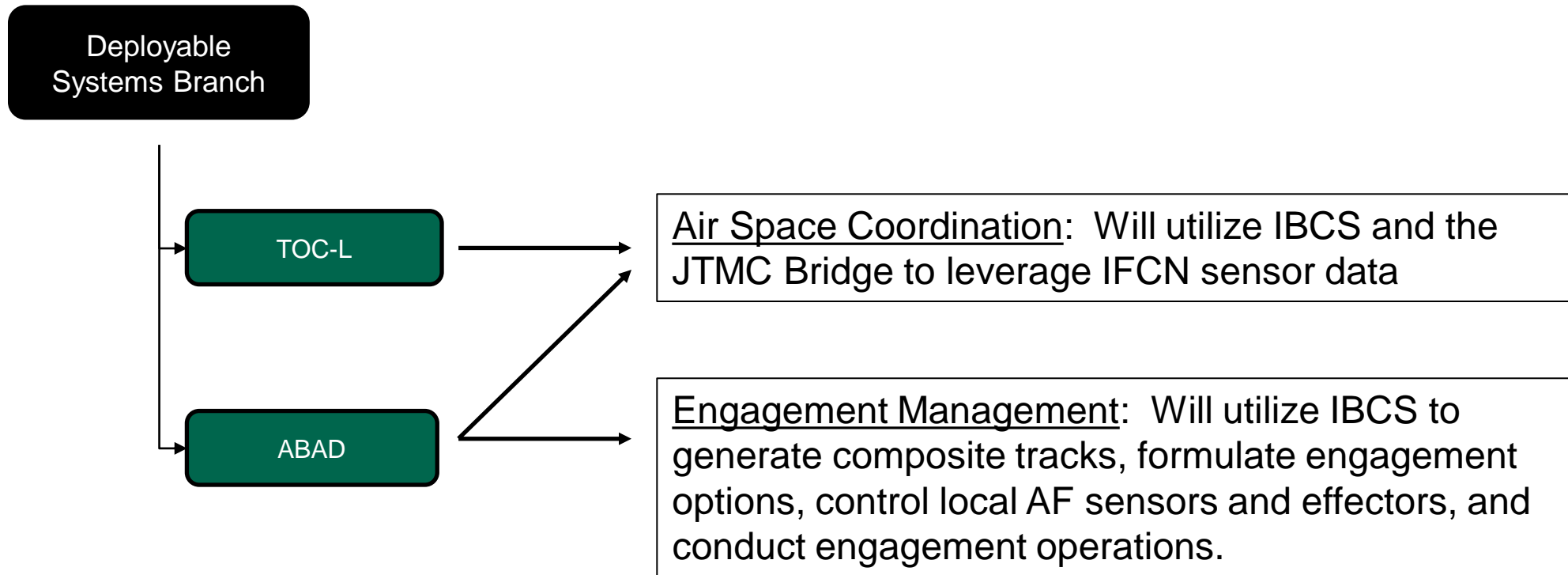| Requirements Documentation	Title/Date or Status
ABADS(C-sUAS) - Capabilities Development Strategy	CDS was approved by the VCSAF in October 2018
ABADS(C-sUAS) - Rapid Fielding Requirements Document (RFRD)	Document was approved in April 2019
ABAD - Strategic Requirements Document	Approved by CSAF 11 July 2022
ABAD BMC2- Rapid Prototyping Requirements Document (RPRD)	Approved by A5/7 2 Dec 2022

ABAD Capability Requirements

- **ABAD BMC2:** A base or base cluster-level point defense system integrating organic sensors and effectors into a composite track fire control network for engagement of air and cruise missile threats in support of base operations
- **There are 8 distinct capabilities highlighted in RPRD:**
  - Base/Wing Commander's Battle Management and Communications
  - Generate Common Tactical Picture and maintain theater's Common Operational Picture
  - Robust Track Management and Combat ID against air and missile threats
  - Engage air and missile threats, provide analytics to assess outcomes and re-engage options
  - Networking support for TDL Management, JADC2 infrastructure interoperability, and Joint and Coalition Partners connectivity
  - Operator User Interface
  - Embedded Training
  - Mission Planning & Recording

ABAD Overview

- **Open architecture at S/Rel – compatible SW architecture w/ CBC2 SW baseline**
- **Operate independently & networked**
- **Expeditionary (~spokes) and steady state (~hubs) operations**
- **Support Wing Commander defending critical base assets**
  - **Point defense with command and control of organic sensors and effectors**
  - **Provide tactical operations picture to local Wing Commander**
  - **Provide Threat Warning to C2IMERA**
  - **Support seamless C-sUAS capability**
- **Conduct the full kill chain against all airborne threats**
  - **Detect, track, and identify threats at sufficient range**
  - **Provide Threat Evaluations and Weapons Assignments for efficient engagements of airborne threats (Kinetic / Non-kinetic)**
  - **Enable airborne Defensive Counter Air (DCA)**
- **Transmit / receive sensor/system tracks with TOC FoS & CBC2 (PADS)**
- **Leverage existing service capabilities**
  - **BC3, IBCS (w/ FAAD C2), CEC, DTFS, JTMC, JRE, etc.**
- **Integrate with Missile Defense and Early Warning Networks**
  - **IBS, C2BMC**

ABAD/TOC-L IBCS Requirement

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┌─────────────────┐
│   Deployable    │
│ Systems Branch  │
└─────────────────┘
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TOC-L

ABAD

Air Space Coordination: Will utilize IBCS and the JTMC Bridge to leverage IFCN sensor data

Engagement Management: Will utilize IBCS to generate composite tracks, formulate engagement options, control local AF sensors and effectors, and conduct engagement operations.

ABAD Program At A Glance

- **Design, <u>integrate</u>, test, and deliver ABAD BMC2 Kits starting in 4QTR 2025**

- **Description:** ABAD BMC2 is a prototype program including development and test/demonstration of an ABAD BMC2 system. Planned transition to an RFRD, fielded in FY25

- **Major Customers:** HAF/A5, A3, ACC & PACAF

- **Period of Performance:** 27 Months (contract award Sept '23)

- **ABAD CONOP (in draft):** HAF/A3TY developing w/ ACC & PACAF

- **ABAD program transitioned to PEO C3BM portfolio Oct '23**

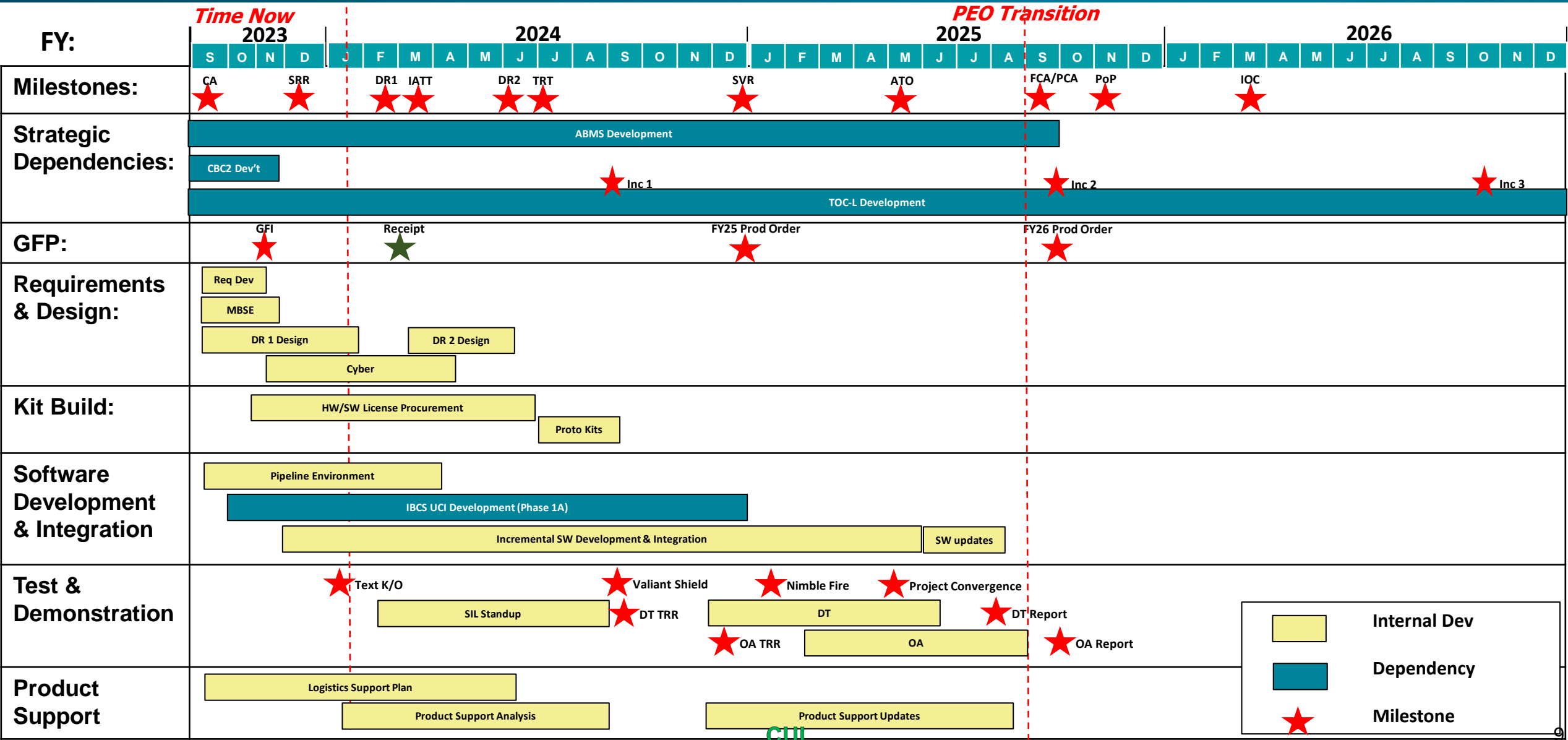- **Future POR transition partner:** AFLCMC/HBU

- **Contracting Summary:**
  - **Development (FY23-24): Rapid Prototyping**
  - **Leverage existing AF Indefinite Delivery/Indefinite Quantity (ID/IQ) contracts and compete the award to deliver a procurement ready system**
    - **Contract Type: CPFF**
    - **Period of Performance: 27 months**
  - **Production (FY25-28): Rapid Fielding**
    - **Prototype follow-on contract to procure the required systems to outfit a pre-defined number of airbases globally.**
    - **Contract Type: TBD by PoR – current contract has unpriced options for interim ktr support for 1 year, production of 3x ABAD systems**
    - **Period of Performance: FY25-29**
  - **Sensor Procurement (FY25-28): Utilize either an existing Army or stand-alone contract to procure the required sensors to outfit a pre-defined number of airbases globally.**
  - **Sustainment (FY25+): Compete contract for sustainment of fielded systems.**
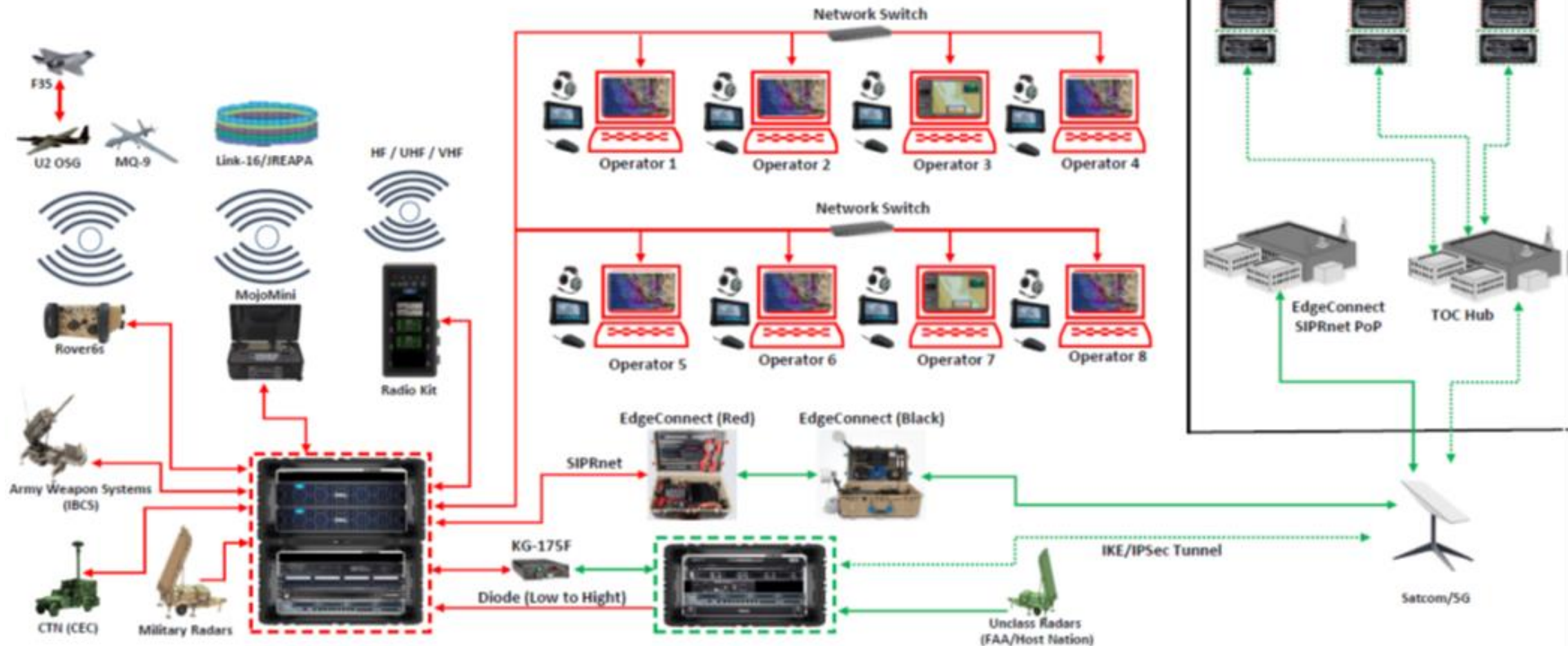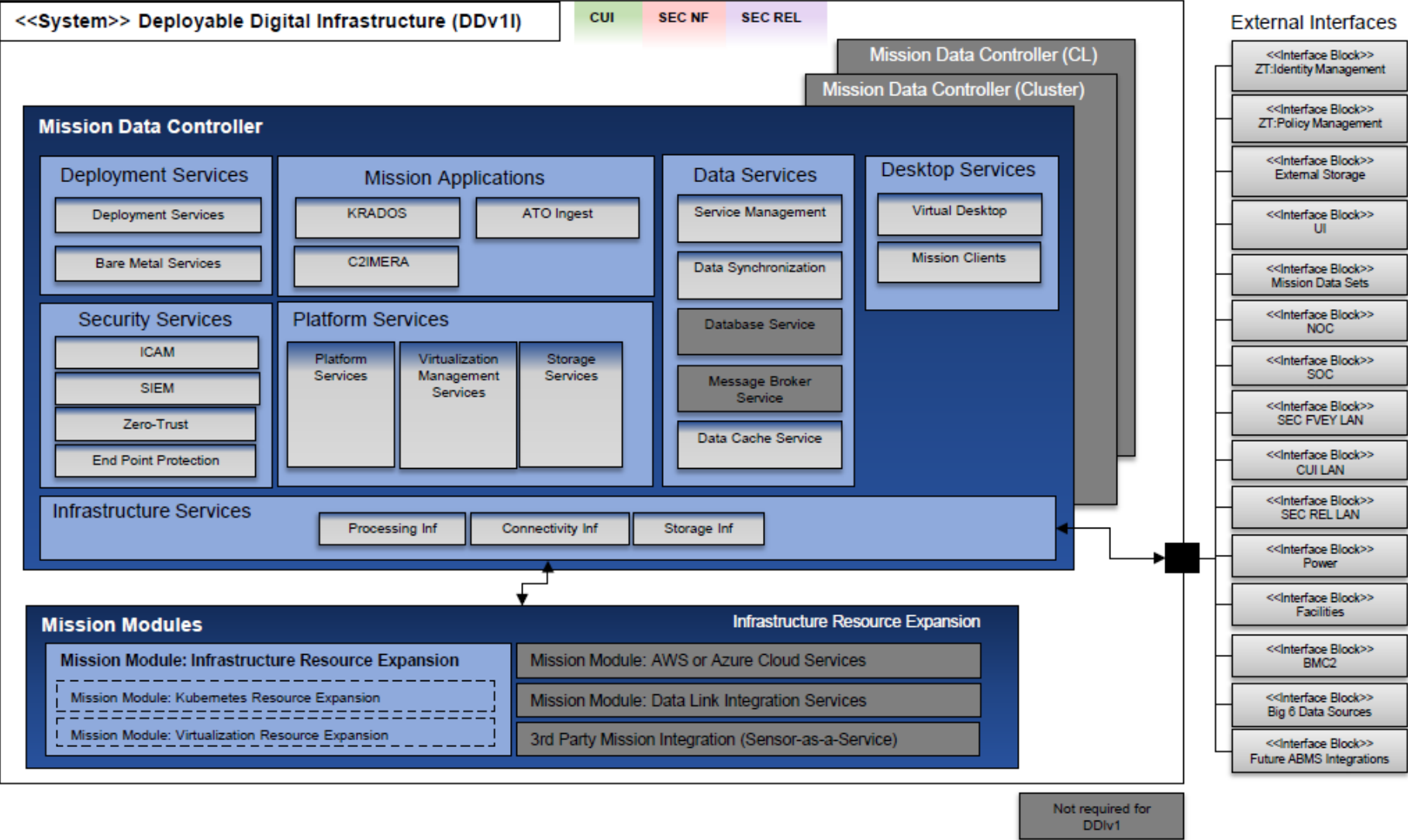
Schedule

Time Now

PEO Transition

FY:	2023	2024	2025	2026
	S O N D	J F M A M J J A S O N D	J F M A M J J A S O N D	J F M A M J J A S O N D

Milestones:
- CA
- SRR
- DR1
- IATT
- DR2
- TRT
- SVR
- ATO
- FCA/PCA
- PoP
- IOC

Strategic Dependencies:
- ABMS Development
- CBC2 Dev't
- Inc 1
- Inc 2
- Inc 3
- TOC-L Development

GFP:
- GFI
- Receipt
- FY25 Prod Order
- FY26 Prod Order

Requirements & Design:
- Req Dev
- MBSE
- DR 1 Design
- DR 2 Design
- Cyber

Kit Build:
- HW/SW License Procurement
- Proto Kits

Software Development & Integration
- Pipeline Environment
- IBCS UCI Development (Phase 1A)
- Incremental SW Development & Integration
- SW updates

Test & Demonstration
- Text K/O
- Valiant Shield
- Nimble Fire
- Project Convergence
- SIL Standup
- DT TRR
- DT
- DT Report
- OA TRR
- OA
- OA Report

Product Support
- Logistics Support Plan
- Product Support Analysis
- Product Support Updates

Legend:
- Internal Dev
- Dependency
- Milestone

TOC-L INC 1 CONFIGURATION

IBCS Integration – contract award Dec '23
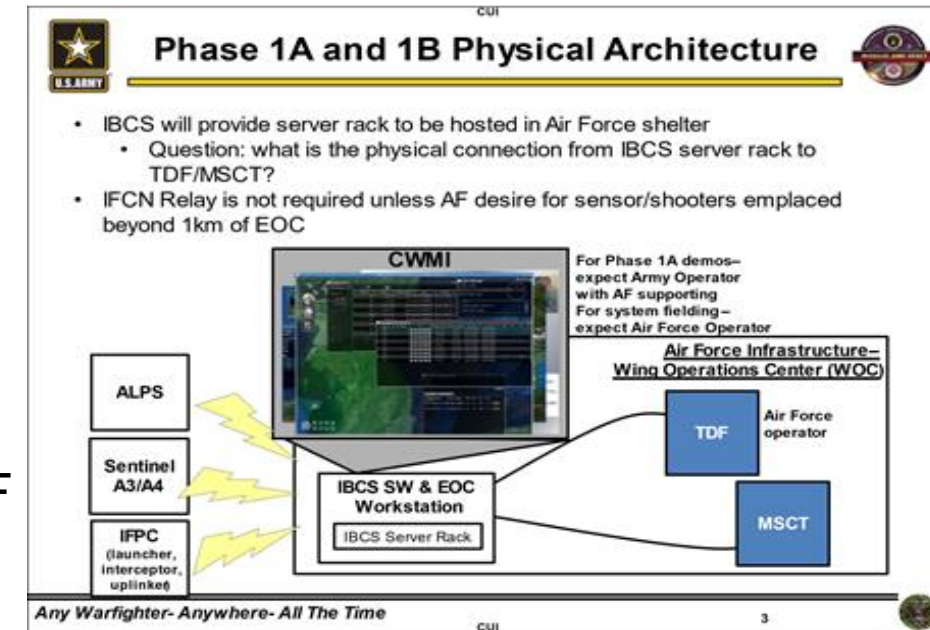
- **Phase 1A:**
  - IBCS provides data to ABAD via UCI interface
    - IBCS Global Tracks and AMR's into MSCT via UCI
    - Sensor/Weapon status, and engagement status and plans to TDF
    - Limited changes to IBCS, just exposing data in UCI format
- **Phase 1B:**
  - Instantiate in Task Force config, IDD, Statuses, etc.
  - Embedded training
  - IBCS ingestion of Track States and ID
  - Initial CWMI GUI development to support merge into TDF
- **Phase 2:**
  - CWMI is optional
  - IBCS accepting Engagement Commands from TDF
    - UCI Broker will need to keep IBCS "Happy" with TDF providing actions vice CWMI

Phase 1A and 1B Physical Architecture

- IBCS will provide server rack to be hosted in Air Force shelter
  - Question: what is the physical connection from IBCS server rack to TDF/MSCT?
- IFCN Relay is not required unless AF desire for sensor/shooters emplaced beyond 1km of EOC

Any Warfighter- Anywhere- All The Time

Other Contracted Efforts

- **IBCS UCI modifications (DMEA, SMDC, PEO M&S contract vehicles)**
  – Critical UCI messaging exchanges between IBCS and BC3
  – Integration into ABAD for testing

- **Non-Kinetic Effector**
  – Integration, Testing and Fielding

- **Johns Hopkins APL – Sept 23 – May 24**
  – Sensor laydown and suitability study (in support of ALPS/MELPS)
  – Investigate Auxiliary Support

- **Infoscitex**
  – AFSIM support
  – CAPSTONE subcontract support for Architecture

Test

- **Test priorities:**
  - Conduct full system DT (ideally) on production representative configuration – by ~ Aug 24
  - Conduct Operational Assessment

- **DT Statement of Capability (SOC) between XA & 96 TW signed Aug 23**
  - Lead DT Org: 46th Test Sq; supported by 48th Cyber Test Sq and 45th Test Sq
  - AFOTEC Det 2 designated with Lead OA responsibilities

- **ITT Standup**
  - Stakeholders: 96 CTG, AFOTEC Det 2, HAF/A3Y, ACC, PACAF, PEO C3BM, HBU, Army PEO M&S IFRCO / IFMC, MDA, ShOC-N, and prime contractors

- **Primary objective: Demonstrate ABAD BMC2 with ALPS and designated effector.**
  - Dedicated event or coordinated with JIAMDO. Probably at Pt. Mugu.
- **Secondary objective: Demonstrate ABAD BMC2 external interfaces.**
  - No effectors. Could include ALPS. Focus on ABAD BMC2 with simulated or live sensors.
  - NCR IADS JADOC-D. WAS, Sentinel A3 and NASAMS all present with JTMC Bridge to Wallops Island – Live sensor data.
  - CSSN C&C Live Fires. WSMR in Mar 25 and Jun 26. Many sensors with IBCS and CEC.
  - Capstone 4 / 5. Feb-Mar 24/25. Army lead Joint event. Mix of live and virtual elements.
  - USAF WSEP Events at Tyndall or Hill AFB (UTTR)
- **Tertiary objective: Demonstrate ABAD BMC2 integration with IBCS enabled weapons and sensors.**

BACKUP