CRIIS Program Update for ITEA Test & Training Instrumentation Workshop

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14 May 2019

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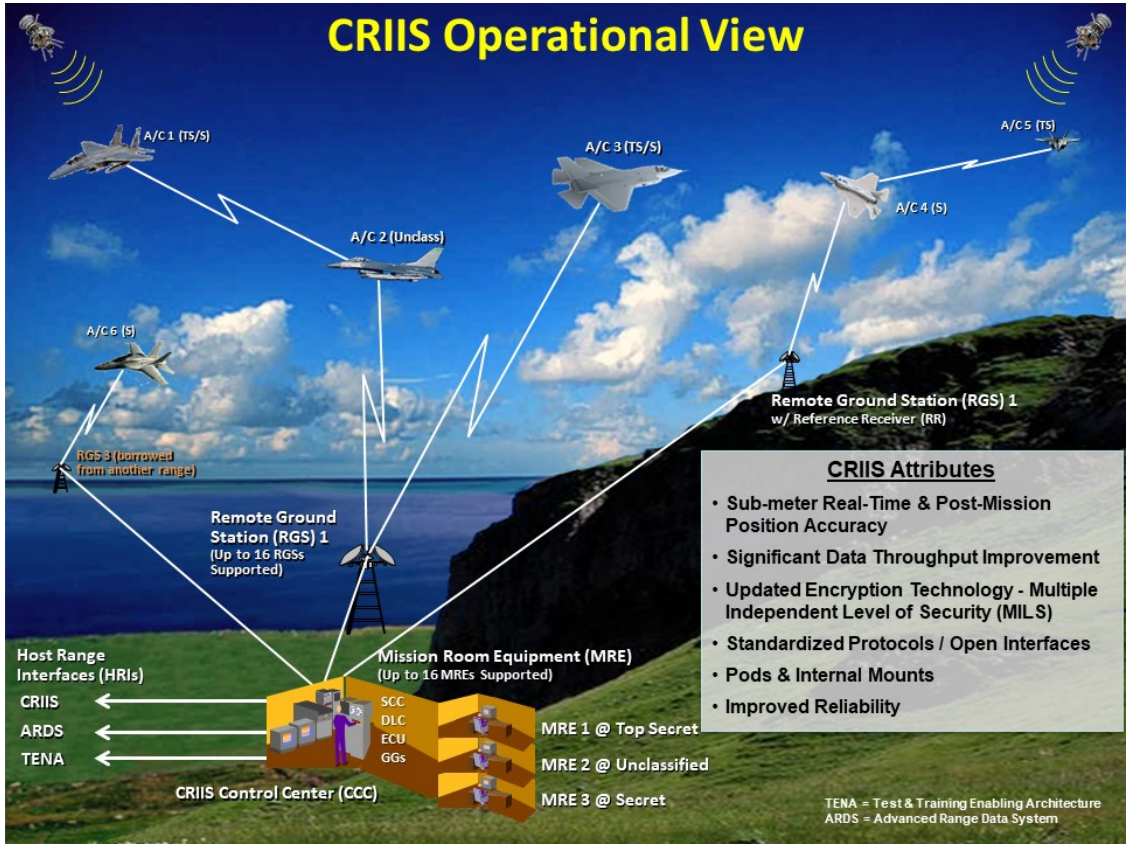
CRIIS Description



CRIIS, an OSD Central Test & Evaluation Investment Program (CTEIP) in the Production / Deployment Phase, is a Family of Systems for Airborne Data Collection

- High Accuracy Time, Space, Position Information (TSPI)
- Multiple Independent Levels of Security (MILS) up to & including Top Secret/SAR
- Increased throughput of Real-Time TSPI & Aircraft Data
- Airborne Participant Packages (Pod & 2 Internal Mounts) & Ground Systems
- Integrating on F-15, F-16, F/A-18, F-22A (SIL) & F-35 (SIL)
- Replaces Advanced Range Data System (ARDS)
- Prime Contractor: Collins Aerospace (CA), (Cedar Rapids, IA)

Beddown Locations: NAS Patuxent River, Eglin AFB, White Sands Missile Range, Edwards AFB, Nevada Test & Training Range, China Lake NAWS, & Point Mugu NAWC

Airborne & Ground Subsystems

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Participant Packages

Configuration 4 Pod for Legacy Aircraft

(* Front, Center and Aft Weights are absent for Light Pod)

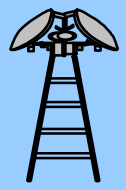
Configuration 5 Internal Mount Liquid Cooled for 5th Gen Aircraft

Configuration 6 Internal Mount Air Cooled for Legacy Aircraft

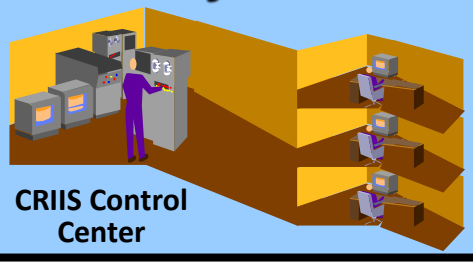
Threshold Platforms

5th Generation Aircraft — *Legacy Aircraft*

Ground Subsystems



Remote Ground Station & Reference Receiver



CRIIS Control Center

Mission Rooms

Portable Test Set

Major Range & Test Facility Base (MRTFB) and Initial Bed-down Locations

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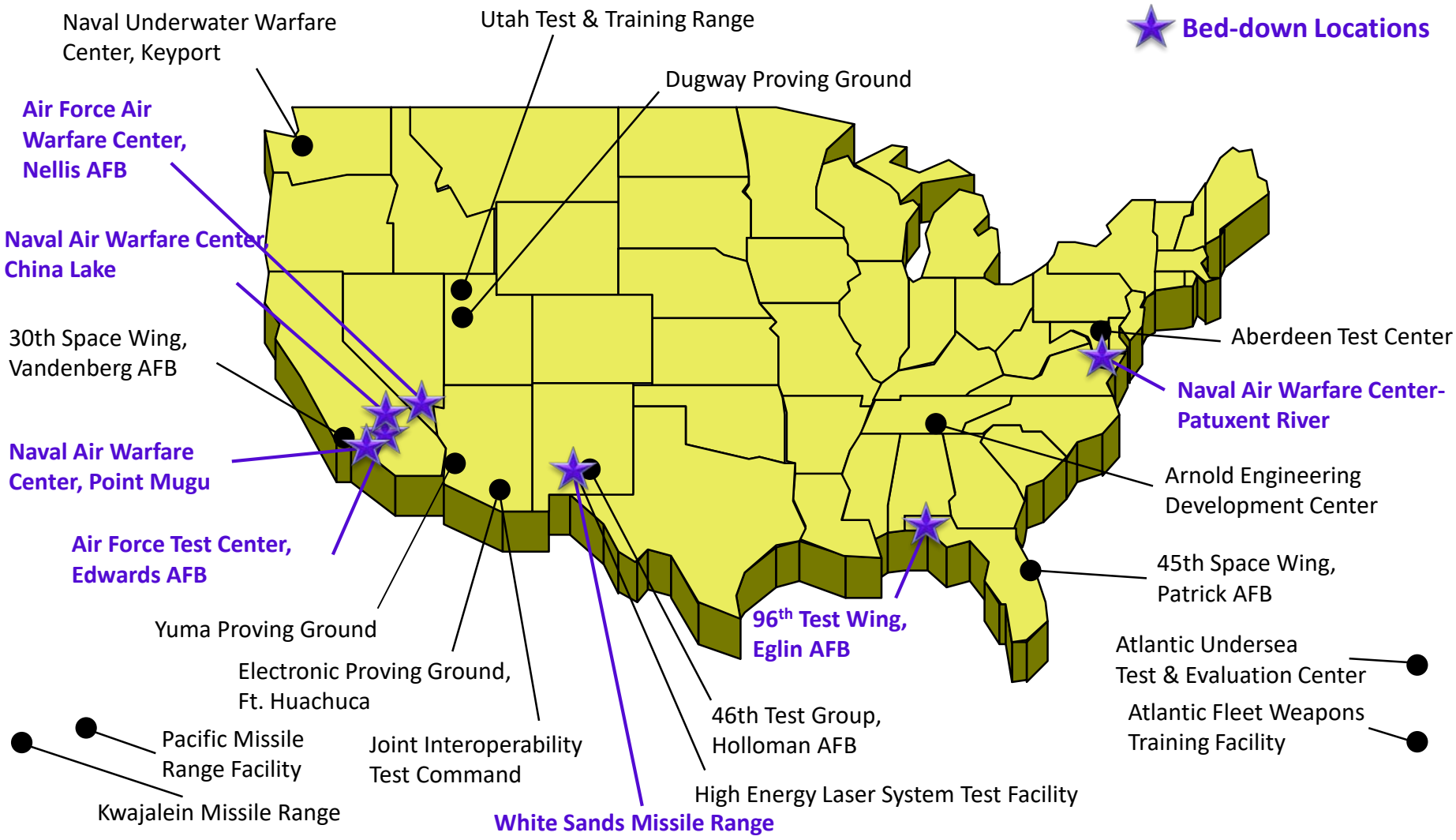

OSD - AFLCMC Relationship

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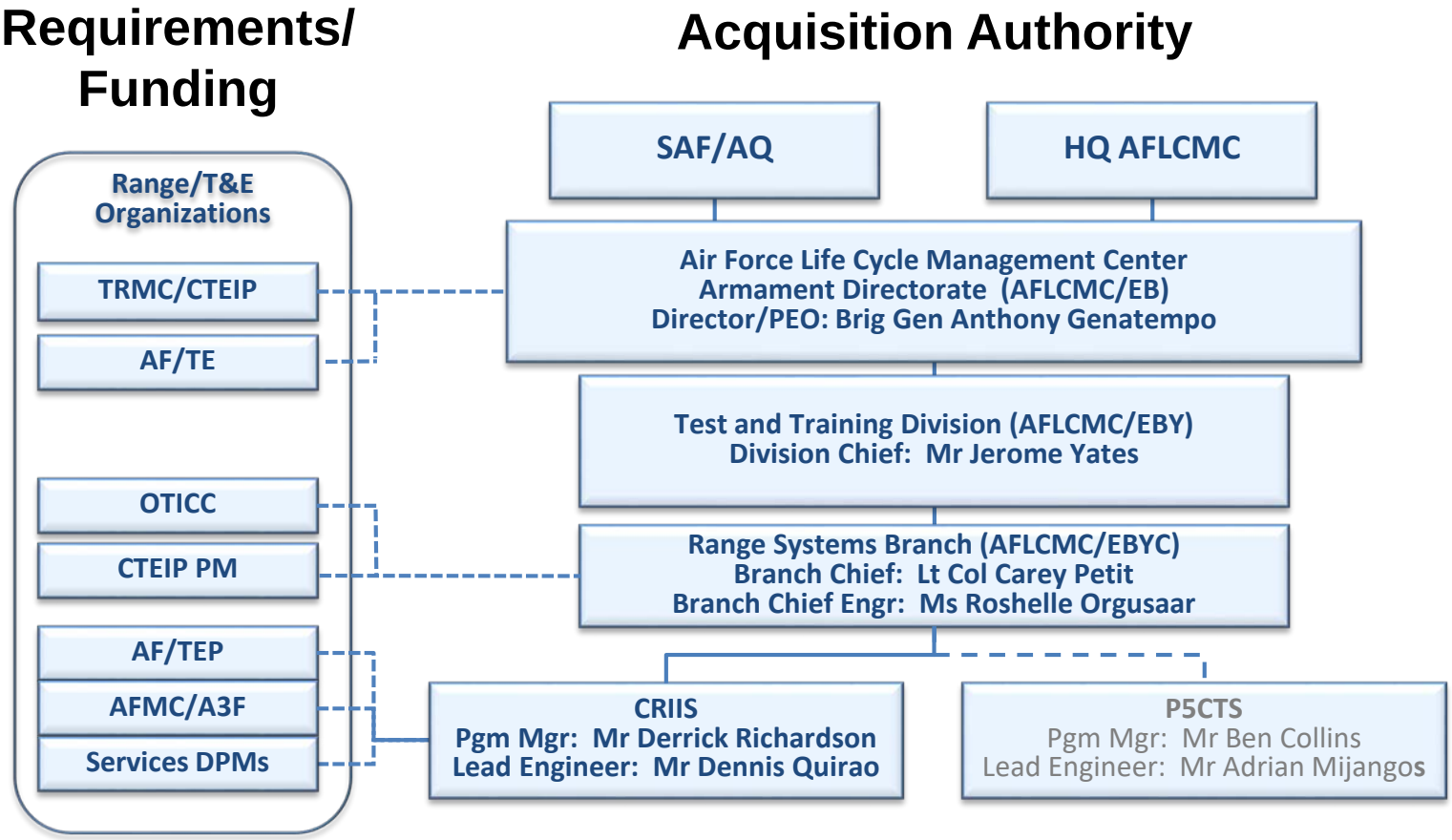

CRIIS Program Schedule

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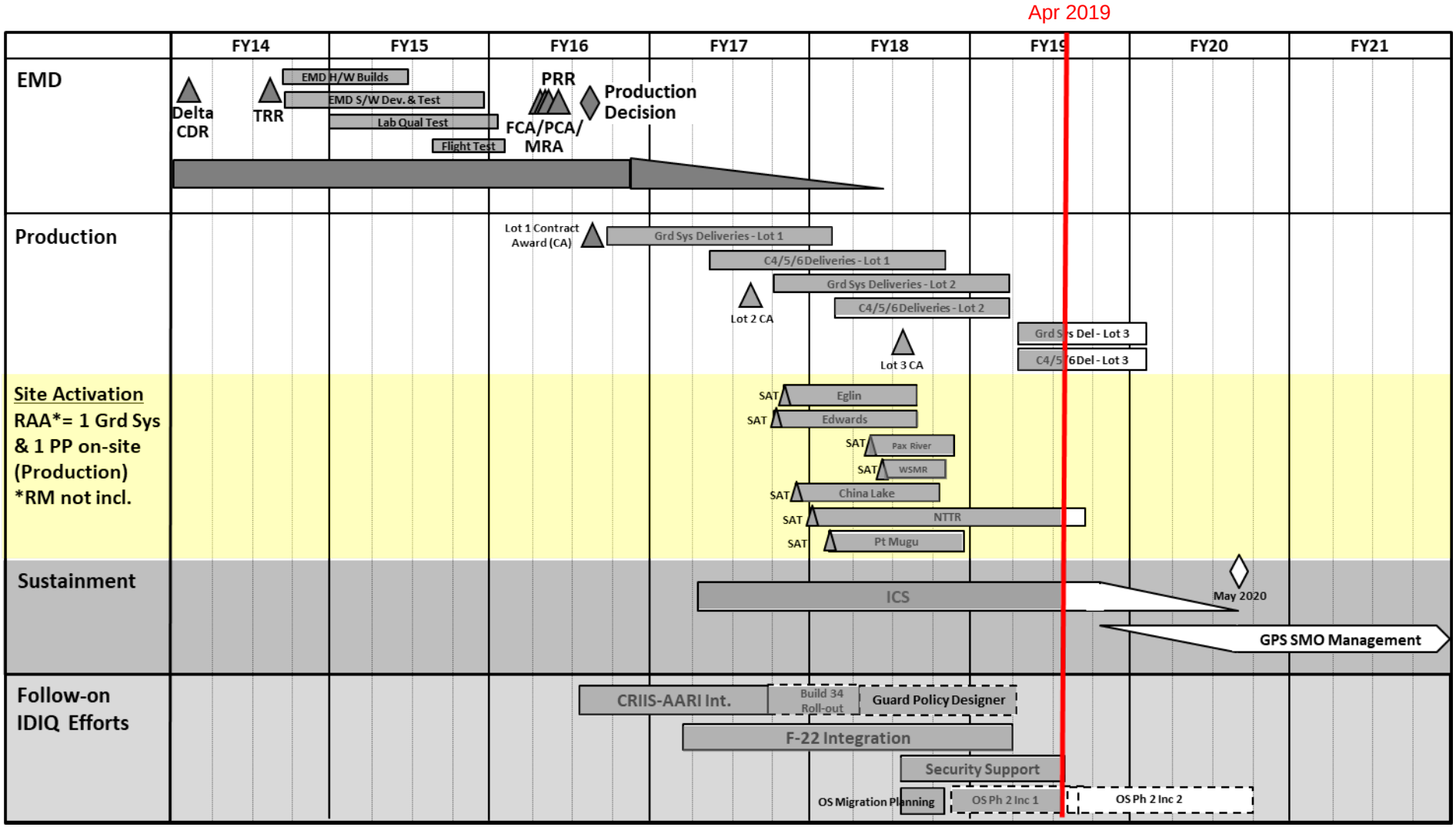

CRIIS Production

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- Lot 1: Completed Jul 2018
  - Ground Subsystems: 80
  - Airborne Subsystems: 99
- Lot 2: Completed Dec 2018
  - Ground Subsystems: 62
  - Airborne Subsystems: 96
- Lot 3: In Progress—On Track for Completion on Oct 2019
  - Ground Subsystems: 39
  - Airborne Subsystems: 55

CRIIS MILS Architecture

Data Sorted By Classification / Caveat or Mission Number

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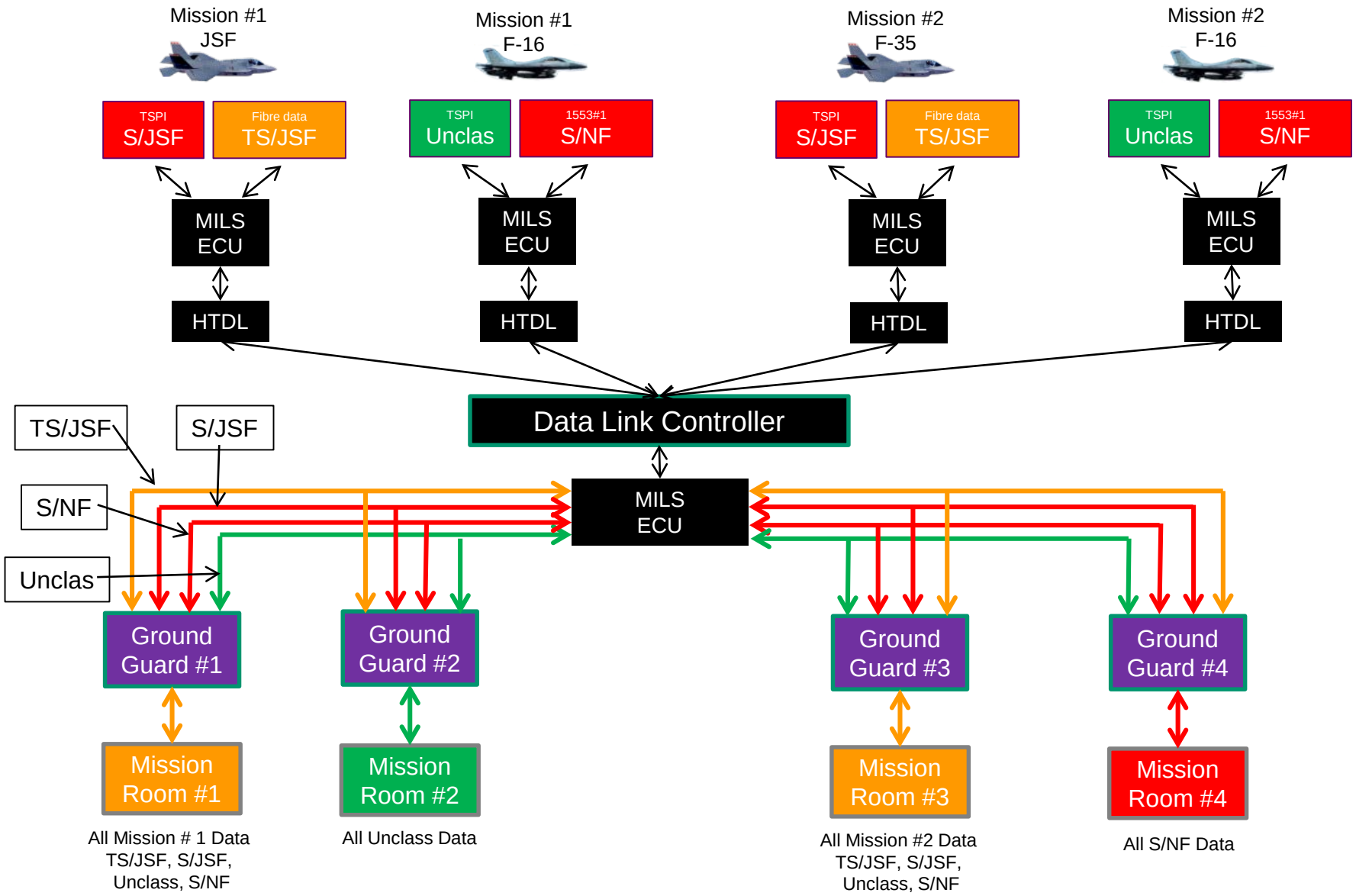

CRIIS Cybersecurity Approach

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- CRIIS Certification
  - Designed for Mission Assurance Category II Classified and Protection Level 4 using Multiple Independent Levels of Security (MILS)
- Risk Mgt Framework approach is CRIIS “Assess Only” package
  - DT&E Authorizing Official (AO) initial review in Apr 2018 – shared common controls
  - RDT&E AO office approved in Nov 2018
- Cross Domain / Site-Based Security Assessments (SBSA) completed for Eglin & Edwards
  - Cross Domain installs completed for Eglin, Edwards, Pax River, WSMR, China Lake & Pt Mugu
  - Cross Domain SBSA (additional system security feature) paves way for test range ATOs

Host Range Inherits CRIIS Controls for Their ATO

CRIIS Air-to-Air Range Infrastructure (CRIIS - AARI)

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- 1st Delivery Order under ID/IQ Contract designed to support emerging & unplanned requirements
- CRIIS-AARI Capability:
  - Software mod to CRIIS datalink capabilities to enable collection of specific avionics & weapons data based on triggering events
  - Fielding completed 30 Apr 19 and integrates w/ AARI infrastructure currently at NTTR

CRIIS Integration on F-35

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- Nevada Test & Training Range (NTTR) is lead agent for CRIIS Air-to-Air Range Infrastructure (AARI) capability on F-35
  - Using legacy interim solution to meet F-35 flight test schedule
  - CRIIS-AARI capability fielded for install to delivered CRIIS Production subsystems
- Config 5 – Fibre Channel (FC) Internal Mount airborne participant pkg enables CRIIS functionality on F-35 test a/c
  - Includes CRIIS-AARI capability engineered as replacement for legacy system
- Initial Config 5 – FC units delivered to NTTR in May 2018 to support F-35 subsequent testing

CRIIS Config 5 (2 box internal mount)

CRIIS Integration on F-22

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- Procurement incorporated into Lot 2 & 3 buys
  - Using Config 5 – 1553 Internal Mount and Portable Test Sets (PTS) to support T&E requirements
- F-22 Technical Management Review held 11-13 Dec 18
  - F-22 SPO / Lockheed Martin approved integrated cable harness; other integration previously accepted
- Delivery Order completed / closed 22 Dec 18

CRIIS Operating System (OS) Migration

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- CRIIS developed w/ Windows 7-based OS; USCYBERCOM & OSD CIO have directed migration to Windows 10 or other compliant OS
- Seeking Windows 7 extension for continued system ops until new OSD CIO-compliant OS available
  - Plan of Action & Milestones (POA&M) signed by AFMC (RDT&E) AO (SES) & AF Weapons PEO (1-star)—now being staffed for SAF CIO approval/concurrence
- Implementing OSD CIO-compliant OS–Red Hat Enterprise Linux v7.5
  - Projected lower lifecycle costs by ~$4.5M over 10 yrs w/ Linux v7 vs Windows 10
- CTEIP Dir (w/ OTICC support) agreed to fund OS migration
  - Initial FY18 funding provided w/ follow-on funding to be received incrementally
  - OS Migration Planning Phase 1 DO awarded 10 Apr 18 – complete
  - OS Migration Implementation Phase 2 DO (Inc 1) awarded 18 Sep 18; Inc 2 pending

CRIIS Sustainment Strategy

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- Services approved sustainment strategy on 22 Apr 16
- CTEIP-funded activities include:
  - Initial Spares
  - Interim Contractor Support (ICS) in effect thru May 2020
  - Operating System migration from Win 7 to RHEL 7
- PO manages initial field & sustainment of production assets
  - CRIIS hardware in RAMPOD database for '..ilities' statistics/FIAR compliance
  - PO developed T.O. & training baselines – distributed via ETIMS / NATEC
- PO engages CRIIS Users Group & Electronic Trajectory Measurement Group Meetings – addresses product & range integration concerns

Strategy approved in LCSP; Transition Plan w/ GPS SMO & Ranges Approved

CRIIS Transition Activities

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- May 2020 – CRIIS Program authority transfers to GPS SMO
- Mar 2018 – CRIIS Transition Plan signed by CRIIS PO, Tri-Service Dep PMs & OTICC Reps…Dep AFPEO for Weapons concurred
- 2018 – Transferred 35+ CRIIS program docs & H/W drawings to GPS SMO; S/W executables available thru ESDS at Hill AFB
- Jan 2019 – NSA Unit Partnership Agreement (UPA) for KOV-74 sustainment submitted for signature by Navy Dep PM
- Feb 2019 – Transferred 2000+ consumables to USN GPS SMO w/ accountability & FIAR responsibilities
- Ongoing: Lot 3 Production & IDIQ Delivery Orders (DOs)

CRIIS Program Summary

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- CRIIS is a Next-Gen Test Range Instrumentation System
  - 0.5 Meter Real-time TSPI Accuracy Under High Dynamics
  - >5x More Data Throughput than Legacy ARDS
  - Encryptor NSA-Certified up to TS Data--Certified for Use--Only Needs ATO
  - Multiple Independent Levels of Security (MILS)
  - CRIIS-AARI A/C Interface & Custom Message Capabilities
- Executing Production & Fielding Operations
  - Production Lot 1 & 2 completed, ICS, Lot 3 Deliveries Ongoing
- On-going Effort for OSD CIO-Compliant Op Sys (RHEL v7)
- Program Transition to GPS SMO Continues—Target 31 May 20

Questions