AFOTEC Cybersecurity Challenges

Mr. William C. “Budman” Redmond
Executive Director, Air Force Operational Test and Evaluation Center
Albuquerque, NM

Distribution A: Approved for public release; distribution is unlimited
Overview

• AFOTEC Mission…Background
• Cybersecurity challenges
  – 5th Gen system of systems terrain
  – Model and Simulation
  – Cybersecurity testing

• Closing Thoughts & Discussion
Mission

Test and Evaluate New Capabilities in Operationally Realistic Environments to Inform Warfighters and Influence National Resource Decisions
Today’s AFOTEC

AFOTEC Headquarters
Kelly Field, TX

Operating Location
Joint Strike Fighter Program Office
Arlington, VA

Detachment 2

Operating Location
Everett, WA

Space and Missile Systems Center
Los Angeles AFB, CA

Operating Location
Nellis AFB, NV

Operating Location
Buckley AFB, CO

Detachment 1

AFOTEC Headquarters

Detachment 4

Operating Location
Hurlburt Field, FL

Operating Location
Nellis AFB, NV

Operating Location
Buckley AFB, CO

Detachment 6

Operating Location
Vandenberg AFB, CA
F-35 & F-22 as a System-of-Systems

**EOTS**
Low Profile Window
Optimized for Visibility & Configuration Integration

**Radar**
Half the Weight, Half the Cost Goal Being Realized

**ICP**
COTS Technology Refresh Demonstrated

**Common Components**
Economy of Scale Savings

**Cockpit**
Projection
Display Technology for Enlarged Screen Area and Availability

**Open Architecture / Software**
Standard Interfaces, Loose Coupling, Object Oriented Design, Commercial Tools for Simpler Integration

**EW**
More Capability at 1/2 the Cost -
Digital Modules, Production Processes, Apertures

**DAS**
Demonstrated Significant Contributions to Situation Awareness

**CNI**
Critical H/W Elements and S/W Reuse Demonstrated

**Weapons**
Finalized Carriage Concepts Support All Weapons

**Mission Support**
Finalized Carriage Concepts Support All Weapons
“A System-of-Systems-of-Systems”

- Link 4/ACLs, ICLS
- Link 16
- LAN/WAN/Internet
- UHF/VHF Voice/Data
- SATCOM 2 Way Voice/Data

Link -16
Aviation & Air Defense Assets
- F-16
- F/A-18
- Blue SAMs
- V-22
- AWACs
- JSTARS
- E-2
- AEGIS
- JFAC

Beyond Line of Sight
SATCOM

Joint Tactical Radio System (JTRS)
Functionality
Variable Message Format
VMF

Ground Forces

Autonomic Logistics Information System “ALIS”

Global Supply Chain Mgmt

94 Information Exchange Requirements to Ensure Interoperability Across US and Coalition Forces

3/23/2016 Docs 55445
Cyber testing

- Complex task to define “cyber boundaries”
  - Must take a system-of-systems approach
  - Information assurance & Risk Management good for IA but what about Mission Assurance?
  - Cyber testing is life cycle testing

- Cyber warriors are “HD/LD” assets
  - Can’t grow them fast enough to meet demand signal
  - Need to grow weapons and platform experts and space expertise
  - Need to educate everyone in this area

- AFOTEC is reaching out for assistance:
  - To the Total Force for assistance
  - To AFRL--bringing a “STEM” analytical approach to security
  - To AF Test Center to partner on assessment teams
  - Taking advantage of intern programs