AFCEA Luncheon
Development Planning Directorate Overview

Scott W. Beidleman, Colonel, USAF
Director, Development Planning Directorate
XR Vision and Mission

• **Vision**
  Be the preeminent source of solutions for America’s future military space capability.

• **Mission**
  Deliver affordable and resilient solutions for future military space capabilities.

![Decreasing Budget v. Increasing Threat](image.png)

- Blue: Budget
- Red: Threat

**Raiders Lead the Way…Charting the Future**
Executing the Mission

IDEAS  TECHNOLOGY  DEMONSTRATIONS

Capability Needs  

Future Capability

New or existing SPO

MDD  

Strategy Guidance  Joint Concepts  Capability-Based Assessment  Material Solution Analysis  Technology Development & Prototyping  Engineering & Manufacturing Development

AOA
“Need to look at smaller satellites, to consider disaggregation of our big satellites to increase our resiliency, and to decrease the cost of our major programs.”

General William L. Shelton, Air Force Space Command Commander
28th Annual National Space Symposium
Disaggregated Architectures—When it Works

- Potential for increased resiliency
- Reduces price per capability
- Improved tech insertion

Policy Implications
- Greater efficiency in ground ops
- Cost Modeling
Hosted Payloads

- Hosted Payload Office
  - Identify payload opportunities
  - Identify hosting opportunities

- Potential Future Payloads
  - OPIR: CHIRP+
  - SATCOM: W/V Band Experiment
  - SSA: SKIPRAY
  - Weather

- Hosting Opportunities
Hosted Payloads

- **Award IDIQ Contract (SMC 2012 Commitment)**
  - The means for integration, test, and early operations
    - Payloads developed under separate contracts
  - Pre-qualifies commercial vendors
  - Accelerates award of payload-specific Delivery Orders
  - Target events: Industry Day ~ Mid July; RFP ~ Mid September

- **Publish Hosted Payload Standard Interface Spec (HPSIS)**
  - Defines payload/spacecraft (PL/SC) interface requirements to:
    - Assure compatibility with multiple SC buses
    - Minimize integration time, complexity and costs

- **Develop Hosted Payload Interface Unit (HPIU)**
  - NSA type-accredited IA solution
  - Controls Red-Black interface between PL/SC
  - Potential for auto-promotion of SC data
SMC’s rapid development effort demonstrating that NanoSats can perform space missions in an affordable and resilient manner

- 16 Months ATP to SV delivery (Aug 2012)
- The 1st AF NanoSat mission - delivers (3) 1st generation miniature SEM sensors

Potential Future Payloads
- SSAEM Follow On
- GPS NavSats
Conventional Strike Missile (CSM) Overview

Operations Thread:
1. ISR through national means
2. Target strike approval by POTUS or SECDEF
3. USSTRATCOM COA development and selection
4. Warning Order, EXORD sent
5. Alert/Generated CPGS weapon system launched
6. PNT-aided terminal guidance, target impact <1 hour
7. BDA thru national means
8. Follow-on, persistent ops
## FY 12 Activities

### MDD Preparations
- AF Concept Description

### Weapon
- Kinetic Energy Projectile Arena & Sled Test
- Advanced hypersonic weapons dev

### Thermal Protection Systems
- TPS roadmap development
- HTV ERB review

### Aerodynamic Characterization
- Wind tunnel testing

### Other areas
- MSIC threat analysis
- Treaty Constraint review

## FY 13 Efforts

- Focus on Concept Design & Technology Risk Reduction in four key areas:
  - Aerodynamic Characterization
  - Thermal Structural Integration
  - Hypersonic Weapons
  - New Booster Alternatives

- Expect to proceed with contract actions in Oct 12

Estimate ~ $100M investment over three years to industry and government partners
Weapons Test Objectives

• Assess tungsten fragment interaction with complex carbon-carbon aeroshell shape
  – Characterize shadowing and aeroshell breakup effects
• Provide data for lethality comparison to 2010 Arena Test
  • Anchor modeling and simulation codes

850lb warhead; 30,000 fragments

10g tungsten cube fragment packs
Future Spacelift Architecture

- Common Booster Architecture Study (CBAS)
  - Examine integrated spacelift & CSM booster mission requirements
  - Identify affordable propulsion technologies and system options that can support a wider range of boost vehicle applications
  - Completed Sep 2012

- Minimum Cost Design (MCD) Study
  - Tech maturation effort in support of launch systems built to minimize cost compared to performance optimized systems
  - Completed Sep 2012

- Commercial RBS Study
  - Explore an industry-led RBS development initiative defining business case, risk reduction strategy and investment requirements
  - Contract PoP: Apr - Aug 2012
    - Andrews Space, The Boeing Company & Lockheed Martin
  - Baseline business case anchored to 13 launches/year

- AFRL Pathfinder
  - Subscale flight vehicle to evaluate Return To Launch Site (RTLS) rocketback maneuver aeromechanics and flight controls
  - TO1: Refine rocketback tradespace requirements & complete detailed Pathfinder Conceptual Design (Complete Fall 2012)
    - Andrews Space, The Boeing Company & Lockheed Martin
  - TO2: Down-select to single contractor (Complete Dec 2015)
    - Design, fabricate & flight test Pathfinder vehicle
Everything Else…

- **Ongoing Technology Efforts**
  - PEO/TEO
  - SBIR
  - SERB
  - MWIG

- **FY 12 DP Efforts**
  - Ground Based Strategic Deterrence
  - Overhead Persistence Infrared - JOIST
  - Network Management
  - Future Flight Safety Strategy
  - Rapidly Deployable Space
  - Space Environmental Monitoring
  - Military Utility Analysis – Support of the Resilient Basis Study

- **FY 13 DP Efforts**
  - Space Environmental Awareness for Space Craft Anomaly Resolution
  - Range Modernization
  - Tri-layer Communication Integration Resiliency

- **Modeling and Simulation Transition**
Questions?