

Headquarters U.S. Air Force

Integrity - Service - Excellence



Enterprise Architecture for Live, Virtual, Constructive Environments (EA-LVCE) M&S Conference 16 August 2011

**Presenter: Dr. Edward Degnan
AFAMS**

USAF Challenges

	Weapon Systems	<ul style="list-style-type: none"> • Aircraft have highly classified / compartmented capabilities • Munitions have increased range and footprint • Aircraft have new sensor capabilities / roles
	Range Constraints	<ul style="list-style-type: none"> • Environmental constraints • Limited real estate & air space • Limited spectrum available
	Asset Availability	<ul style="list-style-type: none"> • OPSTEMPO limits weapon/C2/sensor systems' availability • HD/LD assets employed • Actual number in service versus requirements
	PERSTEMPO	<ul style="list-style-type: none"> • Weapons systems operators fully committed • Planning/coordination centers manning stretched • Family strains based on off station requirements
	Aging Fleet	<ul style="list-style-type: none"> • Combat Ops driving hours up • Airframes exceeding design life • Refit schedules will reduce availability
	Fuel	<ul style="list-style-type: none"> • USAF uses 64% of DoD fuel • Tankers must optimize fuel for operational missions • Changing cost for fuel
	Funding	<ul style="list-style-type: none"> • Budgets declining • Missions expanding • Competing priorities

USAF M&S Foundations

Five Year Plan 5 Focus Areas



Technical



Non Technical



Policy



Funding



Metrics



LVC-IA ENVIRONMENT

USAF Foundations 2011 Issues Prioritization

Technical Issues

- 1. Availability of Blue Authoritative Data Sources (ADS)***
- 2. Standard/consistent M&S representation spanning the entire life cycle of the systems***
- 3. Incompatibility of disparate and outdated databases, standards, and analysis tools***
- 4. Availability of Red ADS***
- 5. Develop distributed network infrastructure for analysis/wargaming***

Non-Technical Issues

- 1. Develop clear AF/DOD IA Certification and Accreditation (C&A) requirements and processes***
- 2. More effective system model and data repositories***
- 3. Documentation of M&S systems***
- 4. Technical and non-technical training, education, and awareness of USAF M&S***
- 5. Visibility of live test data to improve fidelity of M&S***

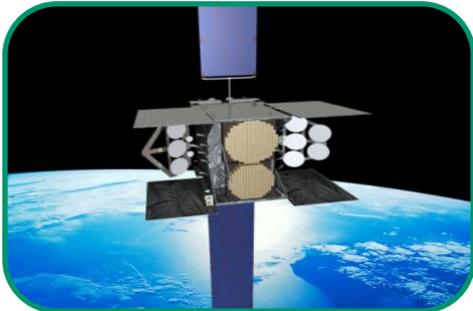
Policy Issues

- 1. Consistent, enduring LVC M&S direction and vision for the USAF (not just a single focus)***
- 2. Cross Domain Solution policies to keep pace with IA technologies***
- 3. Policy enforcement / processes to ensure model availability and access***
- 4. Policy for tasking to provide description of system capabilities at for MLS & for future years***
- 5. Integrated VV&A policies with developers/supplier of LVC products***
- 5a. Policies regarding DIACAP accreditation***

JCIDS Update - EA-LVC ICD Warfighter Requirement

Essential to support the Joint Force Commander in achieving military objectives by

Knowing the capabilities and limitations of the fighting force to execute operational requirements



Having confidence in knowing how systems will perform in every current & future mission environment



Having the ability to determine the appropriate application of force to dominate the battlespace



Affording the warfighter the ability to have fought the fight realistically before actually fighting the fight

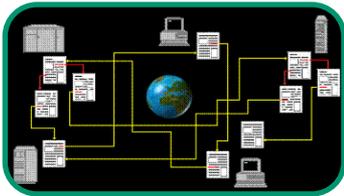


JCIDS Update - EA-LVC ICD Warfighter Required Capabilities



LVC Environment

Provide a persistent, agile, trustworthy, robust, manageable, organized, and integrated LVC Environment



Integrated Architecture

Develop, maintain, and implement an integrated, interoperable, and quality LVC Architecture



Oversight

Educate and maintain an agile and trustworthy M&S Workforce

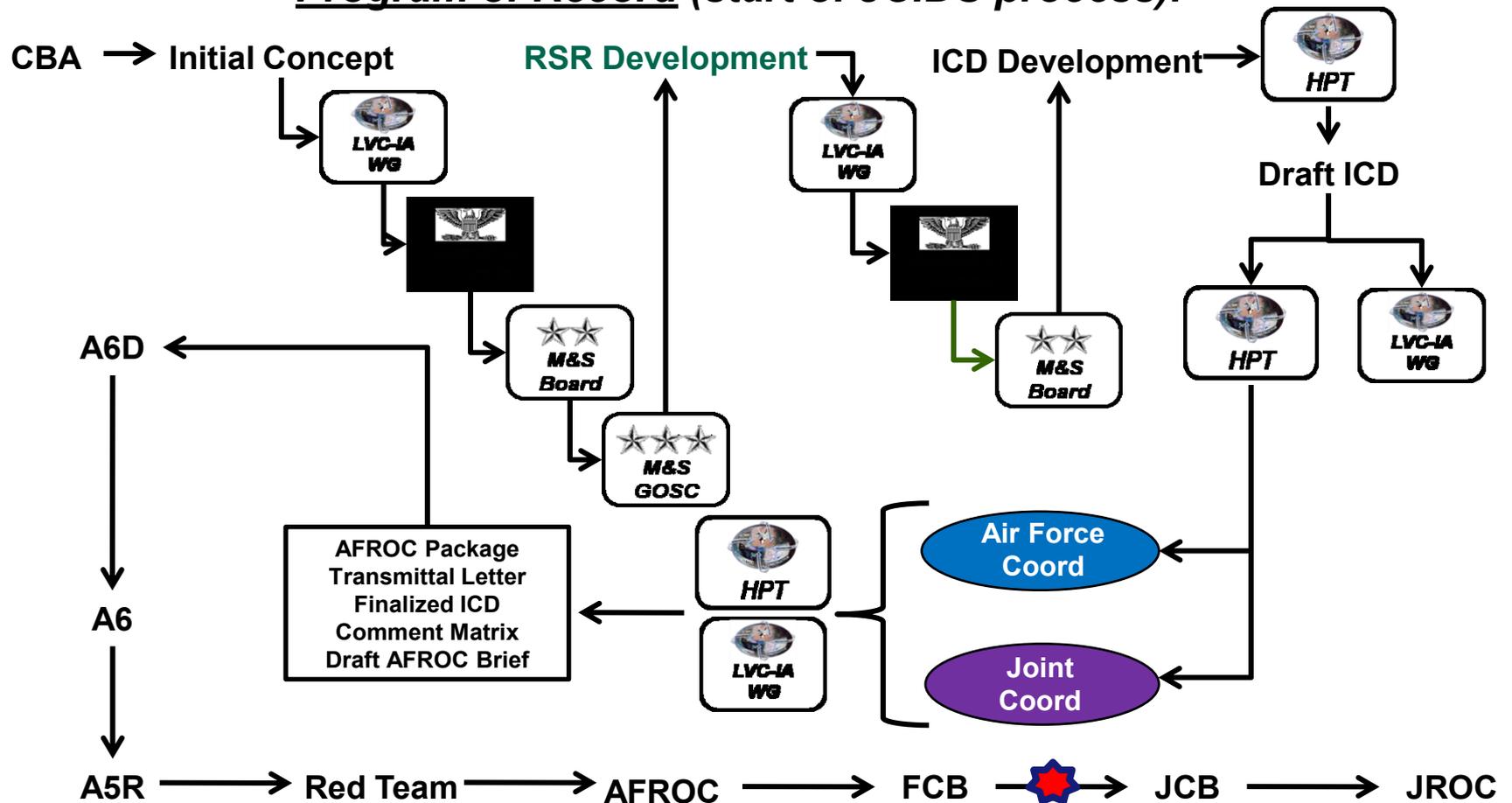


Professional Workforce

Provide Oversight and policy guidance to ensure compliance

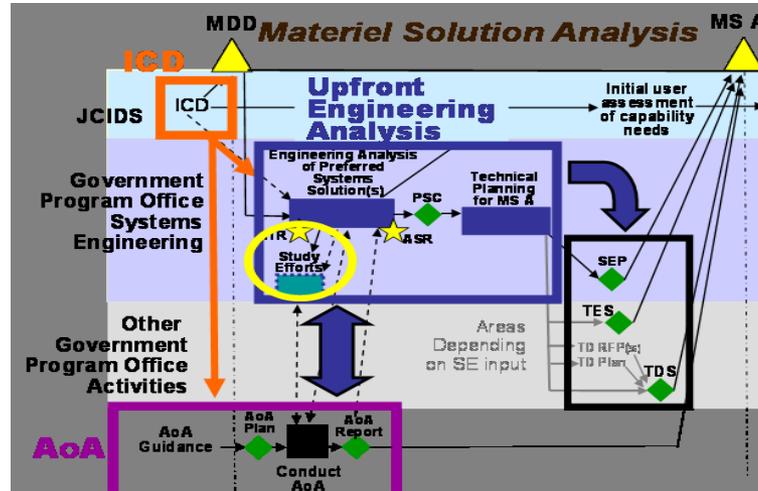
USAF Foundations JCIDS Update

Establish a Program Element and / or if determined it is justified a Program of Record (start of JCIDS process).



USAF Foundations JCIDS Update – Post JROC Decision

ICD to MDD to AoA Study Plan to AoA Report

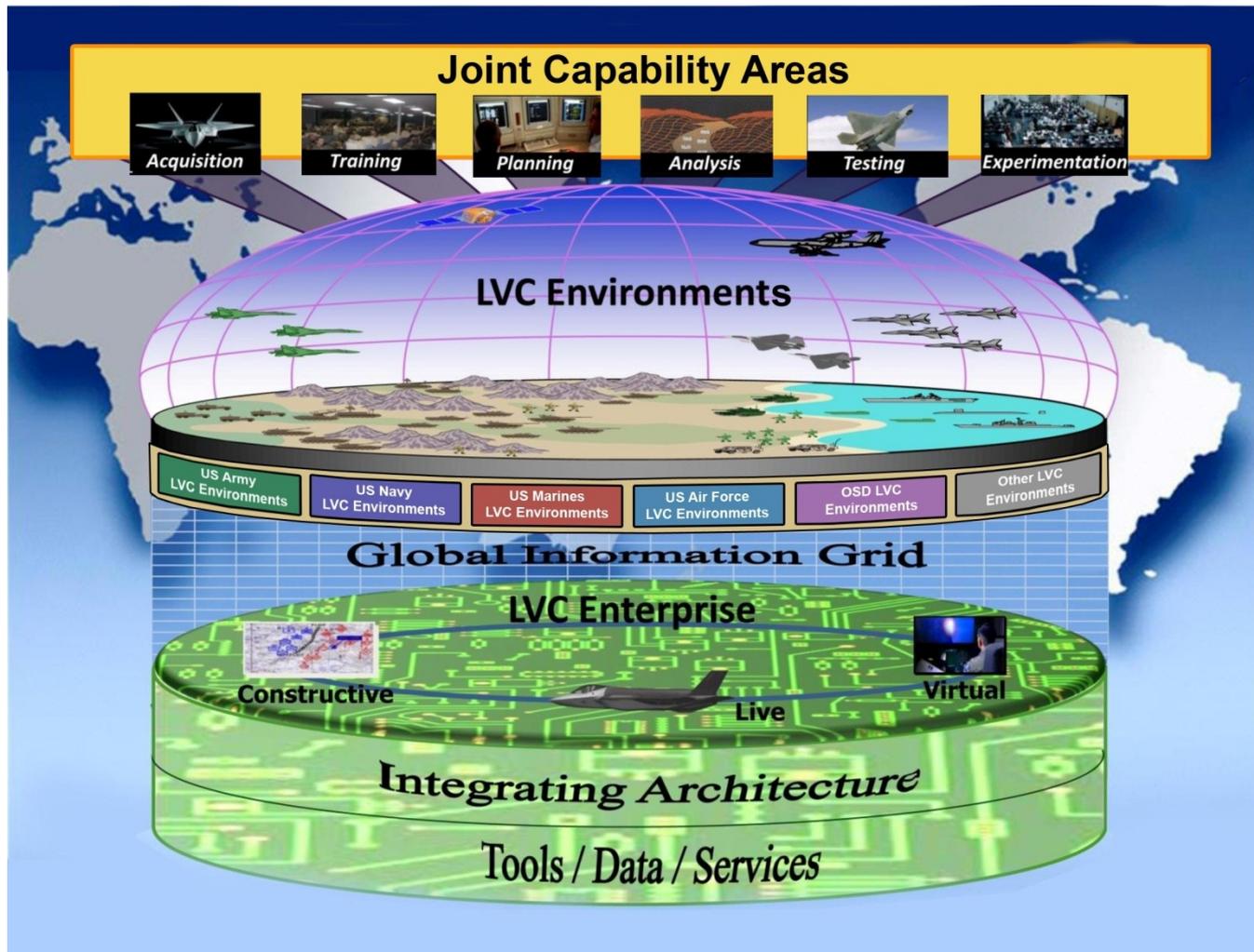


Pre JROC Activities	45 Days Conduct MDD	30 Days Finalize AoA Study Plan	9 Months Conduct AoA	Deliver AoA Report	Staff AoA Report
Draft AoA Study Guidance Draft AoA Study Plan	Approved ICD AoA Study Guidance (CAPE) Funding for AoA		Threats & Scenarios Technologies & Alternatives Employment Concepts Effectiveness Analysis Cost Analysis Alternative Comparison		

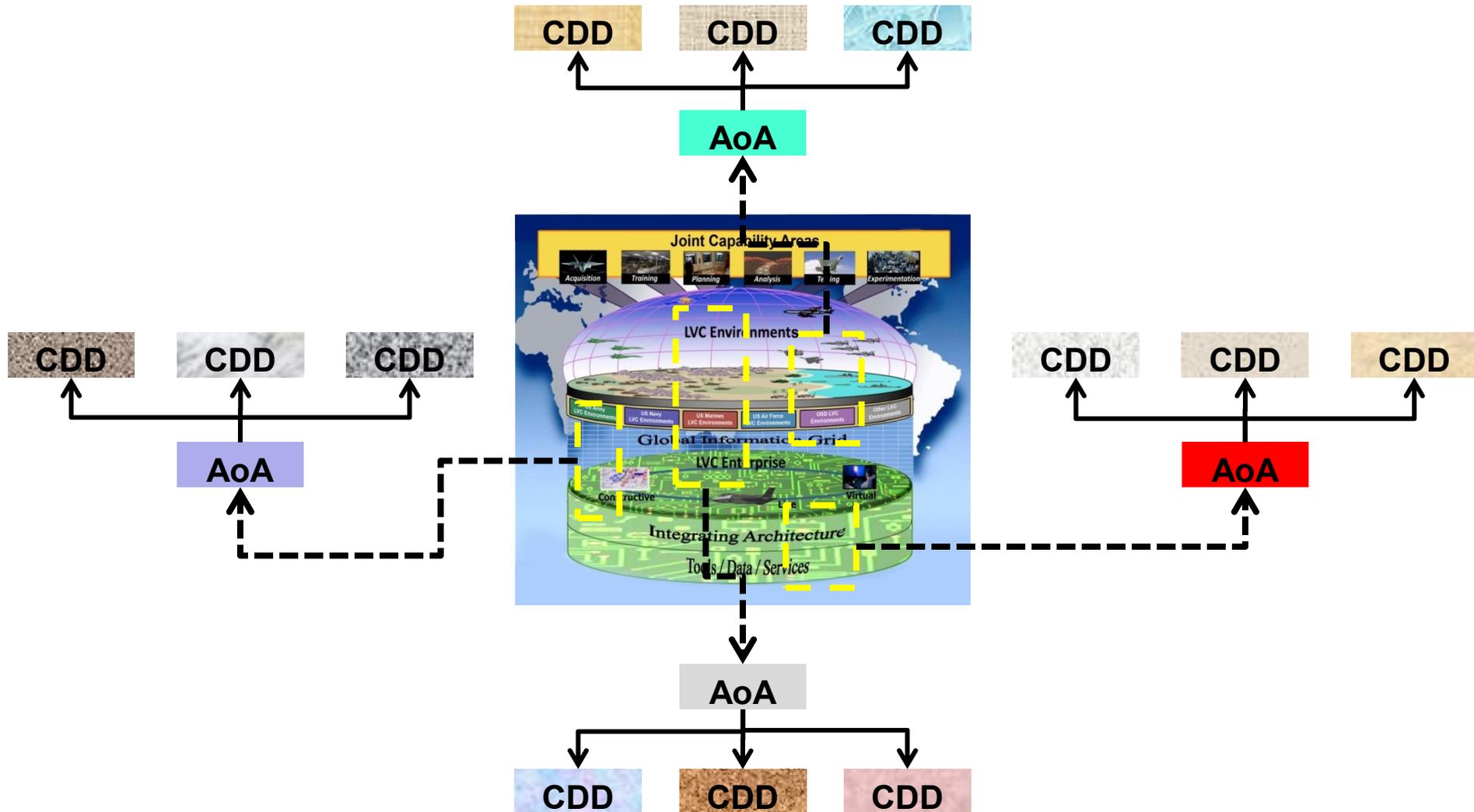
AoA Scoping: Functional Communities

- **Initial Pre-MDD meetings determined the scope of the initial AoA will address the following communities:**
 - **Training (LVC-OT)**
 - **Education**
 - **OT portion of T&E functional community**
- **Selections based on:**
 - **Greatest Need/Urgency**
 - **Mature technology to make positive incremental steps**
 - **Leadership emphasis**
 - **Architecture Backbone: USAF-USN POM 13 Strategies Memo, 3 Dec 2010**
 - **JSTF: USSTRATCOM Space M&S Capability Memo, 28 July 2010**
 - **5th Gen Training: HQ ACC DMO & LVC Funding CORONA Briefing, 30 May 2010**

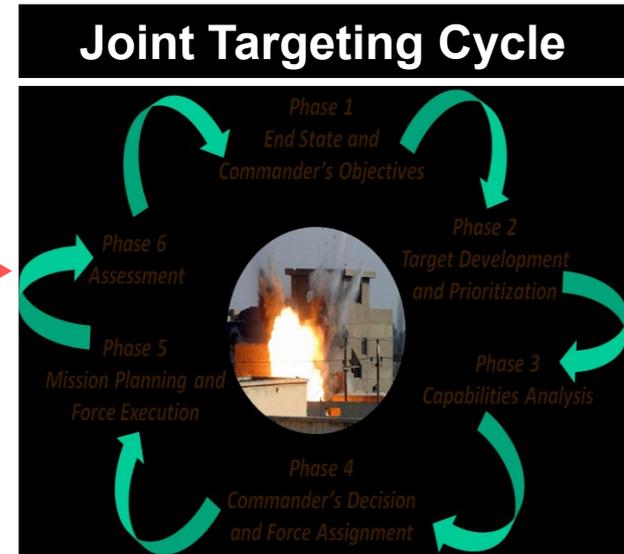
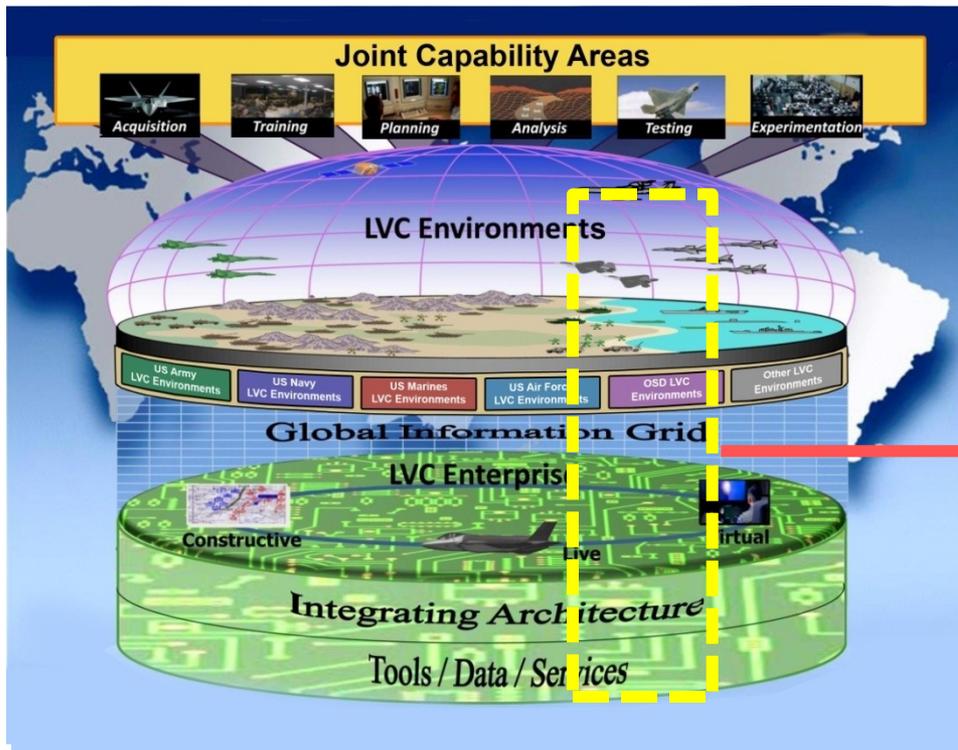
AoA Scoping EA-LVCE OV-1



AoA Scoping Application Area



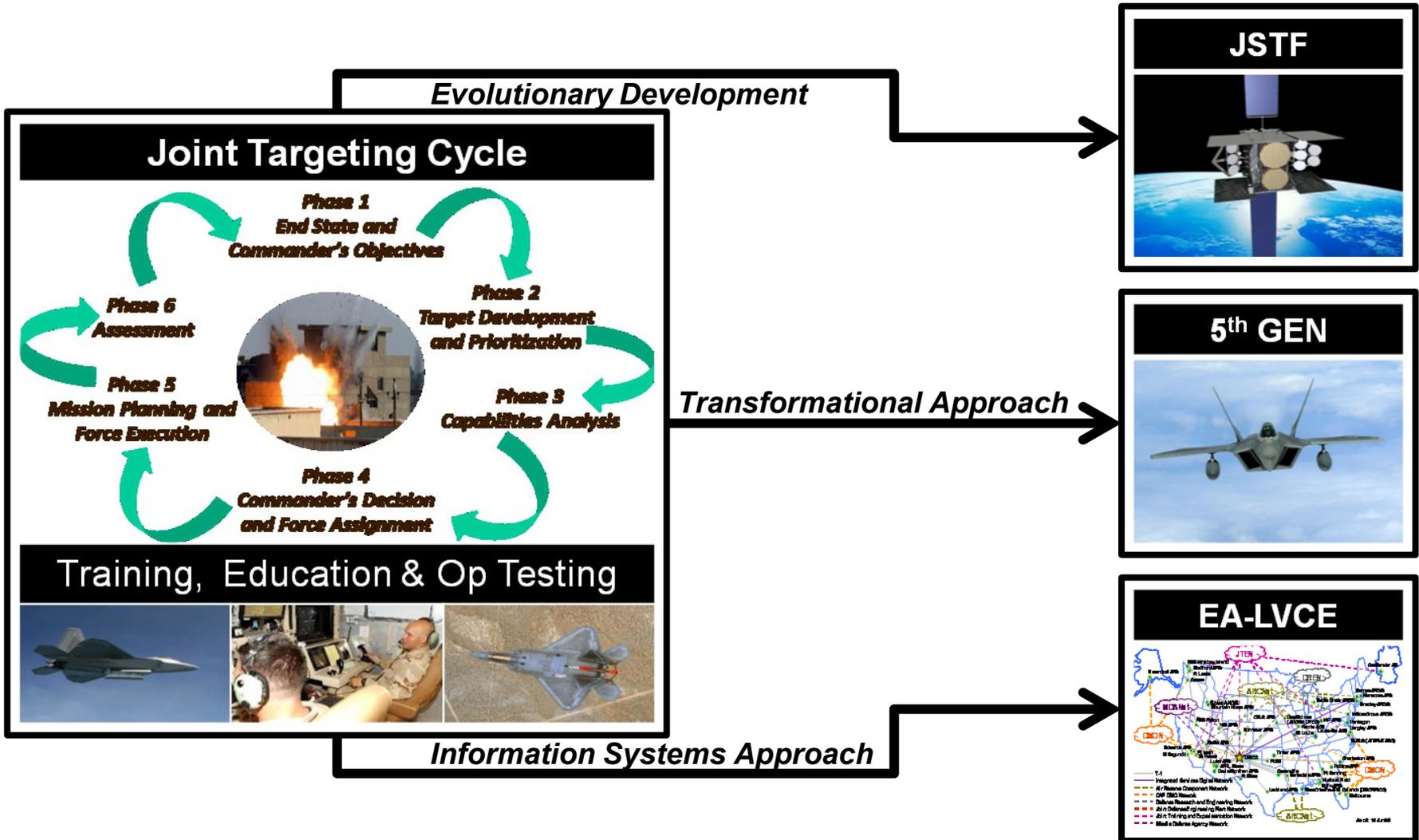
AoA Scoping Application Area



Training, Education & Op Testing



AoA Scoping Application Area



AoA Scoping

Initial Draft Problem Statement & Scope

- **EA-LVCE AoA Problem Statement:** The warfighter does not have an enterprise architecture for LVC systems that provides persistence and interoperability across multiple LVC environments to operate seamlessly at varying security levels and multiple representation levels to meet operational requirements.
- **AoA EA-LVCE Scope:**
 - **Determination of a technical architecture supporting a seamless LVC environment that enhances education, training, and operational test activities focused on:**
 - **A standardized architecture(s) transport system**
 - **Connectivity of 5th gen to the standardized transport system**
 - **Joint Space Training Federation interoperability through the standardized transport system**
 - **Determination of the Joint Space Training Federation environment based on operational priorities that will incorporate the standardized architecture transport system to support the Joint community.**

Summary

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- To fully realize the benefits of a live or simulated environment, a persistent, on-demand, cross-domain, integrated LVC capability is required.
 - CBA and ICD are the first step in a long process
 - Provides the warfighter requirements and required capabilities
 - Identifies gaps in having the required capabilities
 - Shows there are possible non material & material solutions
 - An approved ICD gets to the next step – review by MDD to begin an AoA
 - Non material solutions are implemented DOTMLPF-P Change Recommendations (DCRs) not the ICD
 - A Program of Record is not determined until after the completed AoA
 - **Tuesday Return on Investment + EA-LVCE Breakout Session**
 - Greater detail on 5 Year Plan, Priorities for 2012 & AoA way ahead
 - Support required will be back briefed on Thursday
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Any Questions?

