Live-Virtual-Constructive Training Network

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The information provided herein represents the Government’s best understanding of the procurement as of the presentation date. This information should be considered preliminary and subject to change.

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Mission Statement

Develop, integrate, and sustain USAF Live-Virtual-Constructive training capability to support the full range of operational training resulting in combat mission ready operators.
Program Goals

1. Develop unique systems necessary to implement the LVC training capability.
2. Establish and maintain interoperability standards for live, virtual, and constructive systems to interact in a common domain.
3. Integrate combat systems with simulators, ranges, and models to support training objectives.
4. Coordinate acquisition planning and sustainment for new and participating programs to meet warfighter LVC training requirements.
5. Advocate for necessary funding.
6. Protect LVC training participants from compromise through the LVC TN interface.
7. Require client systems’ security classification guides to include guidance for sharing training data across dissimilar, joint, and coalition partners.
High-level Operational Concept
LVC Enterprise Training Network
LCMC/WNS

PEO ACS designated acquisition lead for LVC; integrator across multiple PEOs

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Enterprise Approach

• LVC Enterprise Requirements
  – Led by ACC; HAF/A3T oversight
  – Focused on F-35 mission
  – 4th-gen capability reduces risk, provides value

• Executed by PEO ACS, integrate with participating SPOs

• Integrate w/ VTTC, Navy, Test Enterprise

• Leverage SCARS
  – Common architecture
  – Resilient cybersecurity
  – Affordable simulators
Management

• **AF/A3T: Strategy, Policy and Oversight**
  – Authority for systems operations (security/standards compliance)
  – AFAMS bridges OTI policy/requirements interface

• **ACC, AFMC: Requirements**
  – Establish L, VC, LVC training balance

• **PEO ACS: Acquisition Lead**
  – Consolidate multiple lines of effort into program(s) of record
  – Acquisition planning and execution for LVC infrastructure
  – Inform requirements
  – Integrate participating systems

• **Benefits to other platforms/MAJCOMs**
  – ACC, AFGSC, AMC, AFSPACE, AFSOC, AETC
Proposed LVC Program

- Supports Air Superiority, Agile Combat Support CFSPs
- Inc 1 LVC Infrastructure
  - Waveform design*
  - P5 freq relocation
  - V C standards (SCARS)
- Classification rule sets*
- Multiple Security Levels
- F-16 integration*
- Next-gen Threat System
- LMOC*
- Inc 2 F-35 Fusion OFP*
- Inc 3+ F-22, B-21, JTAC integration, etc.

* Critical path
Tech Development LOEs

- **5G-ATW**
  - Data volume/latency requirements
  - On-board processing requirements
  - Frequency spectrum conflicts [EBY]

- **Multiple, Independent Levels of Security (MILS)**
  - Cross domain solution requirements
  - Classification rule sets [HBZ]
  - Security clearance guide (SCG) training annexes

- **F-35 OFP**
  - LVC architecture [XZA]
  - Blk 3F Embedded Training (ET)-based LVC
  - Blk 4.x/5 LVC inject to fusion engine

- **LVC Systems Integration**
- **Augmented Reality Aggressors (3d/4th-gen fighters/trainers)**
- **RMF-based LVC architecture**
- **LVC designed for ease of use (ezLVC)**
- **Learning theory for synthetic/LVC training [AFRL/RHA]**
- **SCARS [WNS]**
- **Leverage test systems for application to training**
TReX

• Training and Readiness Accelerator
  – Other Transaction Authority (10 U.S.C. 2371b)
  – Prototype demonstrations
  – Non-traditional contractors
  – trainingaccelerator.org

• Distributed LVC (dLVC)
  – S&M processing architecture given a limited datalink
  – SLATE-like datalink specified

• Fresh, Adaptive Scenarios for Training (FAST)
  – Adjust training scripts to match student experience
  – Algorithm for implementation in sim courseware
Test-Training Continuum

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**War Planning**
- JSE
- SIMAF
- NAWC China Lake
- Edwards AFB
- NAS Patuxent River

**TTP Development**
- LM ASD
- Boeing VWC
- NTTR
- UTTR
- JPARC
- Gulf Ranges

**Mission Rehearsal**
- MTC
- USAFWC
- VTTC
- LMOC
- DMOC
- DTC
- DTOC (ANG)

**Proficiency (RAP)**
- BMC
- CMR
- Qual
- Upgrade

**WIC**
- Wing 4FL
- IP

**Exercises**
- RED FLAG
- VIRTUAL FLAG
- Predeployment

**DT** – verification of system design

**OT** – validation of system suitability/effectiveness

**Training** – acquire/reinforce skills to employ system effects

- modeled to run in real time (validated with test data)
- appropriate security (lower level to share with training partners)
- meet training objectives

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