Joint Staff J7 Modeling & Simulation Program Update

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Agenda

- JTLS
- JLVC-2020
Following the release of JTLS 5.0 in April 2013, there are no more planned major version releases of JTLS.

Strategy for JTLS in FY13 and beyond is to maintain the latest version release (April 2013) and direct Rolands and Associates in the development of JLVC-2020 – support of Cloud Enabled Modular Services (CEMS).

- Capitalize on DoD’s investment in JTLS and R&A’s expertise and experience
  - Reuse as much of JTLS algorithms and parametric data as possible
  - Build “Scheduling module” that can be used with other simulations
    - Example: U.S. Theater Battle Management Core System (TBMCS) and North Atlantic Treaty Organization (NATO) ATO Integrated Command and Control (ICC) Air Operations schedules

- Continue grid-based terrain development and the capability to interface with JS J7’s Joint Training Data Services (JTDS) as it transitions to Common Database (CDB) format

- Expand the analytical capabilities of JTLS
FY13/14 JTLS Operation and Sustainment

• Operational enhancements, functional improvements, code fixes and ongoing maintenance to maintain reliable, stable, secure and efficient JTLS operations
• Work Software Change Proposals (SCP) and Software Trouble Reports (STR)
• Maintain/update JTLS interfaces with C4I systems and/or devices
• Maintain/update JTLS standard database and repository, networks and terrain
• Maintain/update current, federation and integration capabilities with other simulations, devices, programs and processes
• Insure DoD Information Assurance Certification and Accreditation Process
• Joint Staff J7 Exercise/Event Support
Joint Live, Virtual and Constructive (JLVC) 2020 Overview
Joint M&S and the Mandate for Change

• Unsustainability of Current M&S
  - JLVC is a federation of Service/Joint developed models (29 total)
  - Manpower (cost) intensive
  - Constant burden on integration (version control)

• DoD Mandates to Move M&S to DoD Information Technology (IT) Enterprise
  - Training enclave joining “mainstream” without being consumed
  - Joint M&S available wherever connectivity exist

• Discoverability & Accessibility
  - Driving jointness deeper = joint training context for Service use
  - Current Joint M&S is too monolithic (i.e., not composable)
  - Trainers have to compete for simulation center support

• Technology Changes
  - Cloud enables linkages now to facilitate trainer involvement
  - Hardware speed = more efficient modular software approaches
  - More can be automated to reduce manpower costs

• Efficiency
  - Trainers are unique with specific training objectives – thus need unique training environments
  - Providing a bigger, more complex training environment than trainers require is wasteful

• Fidelity
  - Trainers have varying need for fidelity (usually related to C4ISR devices stimulated by M&S)
  - One-size-fits-all approach (either JLVC or JTLS) is too restrictive

We Want Joint M&S to be:

• Relevant to Warfighter Needs
• Less Expensive to Sustain
• Within DoD IT Enterprise Framework
• Discoverable & Accessible to Home-Station
• Optimized for Cloud & Faster/Better Hardware
• A Composable Training Environment (Right-Sized)
• Interoperable with Coalition Partners
The M&S “App Store”

Composable Environment

- Foundational Modular Services
  - Time
  - Battle Space
  - Weather
  - Line of Sight

- Interacting Forces
  - Blue
  - Coalition
  - SITFOR
  - OPFOR

- Desired Fidelity (Tier-I/II/III/IV)

- Invoked Modular Services
  - Fires
  - Sensor
  - Supply
  - Cyber
  - RW
  - Detection
  - Maint
  - EW
  - Air
  - Combat
  - CBRNE
  - Schedule

- Real-Time Database
  (Geo/Forces/Wpns/Targets)

C4ISR Traffic

Stimulus

Stimulating Training Audience

CAX

White Truth
JLVC2020 Roadmap

As Is: JLVC 6.0

• 195 Tech Staff
  • 95 = JS
• 60 Tech Staff
  • Low resolution
  • Medium fidelity
• 38 Tech Staff
  • Low resolution
  • Low fidelity

To Be: JLVC 2020

• 136 Tech Staff
  • 66 = JS

30% Savings

Higher Cost and Complexity

CCMD to Tactical level exercise
High degree of fidelity required (avail in as-is and to-be) (JLVC)

Consolidate

To Be: JLVC 2020

• 136 Tech Staff
  • 66 = JS

30% Savings

Higher Cost and Complexity

CCMD & JTF Staff
High degree of fidelity requested (JTLS)

• 195 Tech Staff
  • 95 = JS

30% Savings

Higher Cost and Complexity

CCMD & JTF Staff
High degree of fidelity requested (JTLS)

CCMD & JTF CDR
Common Operational Picture only (JECS-NS/LOTS)

Up to 70% Savings

Higher Cost and Complexity

Intent
Trainers directly control the environment
Delivery via enterprise IT infrastructure
Web accessible, simple to use
• Within Joint Training Enterprise Architecture (JTEA) – broader Joint, Service, Agency context = alignment of Joint M&S with DoD Information Technology (IT) way-ahead.

• Cloud-Enabled Modular Services (CEMS) is a new approach to enhance efficiency, flatten trainer to training enabler linkage, save $.  
  ➢ Modular services vice large, monolithic simulations = composable environment.  
  ➢ Optimized for cloud (Classified & Unclassified) = accessible to trainers.  
  ➢ Scalable M&S support = reduced O&S costs (30% reduction).

• JLVC-2020 is the new M&S training enabler – replacing JLVC & other Joint M&S  
  ➢ 6-year development effort with interim capability in FY16 and FY18.

• Continue collaboration with U.S. Military Services (Army, Air Force, Navy & Marines) = intellectual proponency of modular services and Service credibility.  
  ➢ Compelling logic for U.S. Services’ adoption of modularity and investment once successful.  
  ➢ Opportunity for enhancing collaboration with NATO, ACGU (Australia, Canada, Great Britain & U.S) and Pacific Rim. Emerging partnership with NATO in Exploratory Team-034 (Simulation-as-a-Service [SaaS]).

• Enhance collaboration with U.S. Combatant Commanders (CCMD) = better in meeting training requirements.
**JLVC-2020 Deliverables**

- **JLVC-2020 V 0.6 (Sep 2014):**
  - Data Structure
  - Framework for HLA Federates (JLVC 6.0)

- **JLVC-2020 V 1.0 (Oct 2016):**
  - Common Environmental Services (First Truly Modular Services)
  - Optimized for Wireless Consumption
  - Data Markup & Discovery (Rapid Data Generation - RDG)
  - Dynamic Joint Exercise Life Cycle (JELC)
    - Exercise Planning Culture Enabled with IT Solutions

- **JLVC-2020 V 2.0 (Aug 2018):**
  - Common Platform Services – Characteristics, Logistics, etc. (More Modular Services)
  - Reduced O&S Costs (Cultural Change & Tech Change)
  - Mission/Task Framework
  - Cloud Delivery

- **JLVC-2020 V 3.0 (Oct 2019):**
  - Common Effects Services (More Modular Services)
  - Scenario Management Tool = Composability
• NATO Modeling & Simulation Group (NMSG) coordinates NATO M&S efforts for NATO organizations (i.e., Joint Warfighting Centre, etc.) and is clearing house for multinational M&S initiatives.
  ➢ Specific projects are titled: Modeling & Simulation Group (MSG’s).
  ➢ DoD representative to NMSG is U.S. Department of Defense Under Secretary of Defense for Acquisition, Technology and Logistics (AT&L) Modeling & Simulation Coordination Office (M&SCO)—representing all M&S domains (i.e., R&D, training, analysis, etc.).
  ➢ J7 coordinating with NATO Allied Command Transformation (ACT) and several other nations to advance an Exploratory Team (ET-034) on Simulation-as-a-Service (SaaS).

• ET-034 (SaaS) is closely aligned with JLVC-2020 Cloud-Enabled Modular Services (CEMS) framework.
  ➢ J7 will leverage Allied Command Transformation, Great Britain, Sweden (and hopefully others) interests to collaborate on a CEMS approach toward SaaS with an end-state of purpose-designed coalition interoperability in joint M&S architectures associated with JLVC-2020.
  ➢ Intent is to transition ET into an MSG in a year or two.

• M&S relationship with Australia also very strong—particularly with existing joint M&S products—and growing. Interest down the road in Australia partnering with JLVC-2020 CEMS framework as well.
QUESTIONS?

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**JLVC2020 Cloud-Enabled Modular Services (CEMS)**

**JLVC Next-Generation Objective Capability**

**Major Components**
- Virtual Training Interface (VTI)
- Scenario Management Tool (SMT)
- Cloud-Enabled Modular Services (CEMS)
- Data Service Broker (DSB)
- Correlated Data Layer

**Collaboration Opportunities:**
- Service/Agency/JDir Intellectual partnership
- Coalition partnership (MSG)
- Funding partnership ($ investment leads to greater fidelity)
- OSD Partnership via MSCO
  - Rapid Data Generation Project
  - Geospatial Data Correlation
  - Force Development Mission Process Modeling in Virtual Environments

**3 Priority Projects**
- Modular service specification
- Data service broker prototype
- Data management schema

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"The Joint Force...will have cutting edge capabilities, exploiting our technological, joint, and networked advantage...."  
Cover Memo, DoD Strategic Guidance, January 2012