

Joint Simulation System

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30 May 01

REPORT DOCUMENTATION PAGE

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14. ABSTRACT
Mission: To provide...A computer-simulated environment...For use by CINCs, joint organizations, and the Services...To educate, train, and develop doctrine and tactics...For Joint warfighting and other operational needs

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- • **Mission/Organization**
- **Schedule**
- **Performance**
- **Integration**

Typical JSIMS-Assisted Joint Exercise



Acronyms

AAR	- After Action Review
CCWS	- Common Component Workstation
C4I	- Command, Control, Communications, Computers and Intelligence
CINC	- Commander in Chief
JECG	- Joint Exercise Control Group
JFACC	- Joint Forces Air Component Commander
JFLCC	- Joint Forces Land Component Commander
JFMCC	- Joint Forces Maritime Component Commander
OPFOR	- Opposing Forces

CINC
Establishes Training Objectives

Supporting CINC

Training Audience

Role Players

Combined Joint Task Force

Status

C4I Systems

JECG

Develop, Execute Joint Synthetic Environment

- Scripting
- AAR
- OPFOR

Orders Guidance

Orders Guidance

C4I Systems

Status

Components

- JFLCC
- JFACC
- JFMCC
- etc.

Status

C4I Systems

Orders Guidance

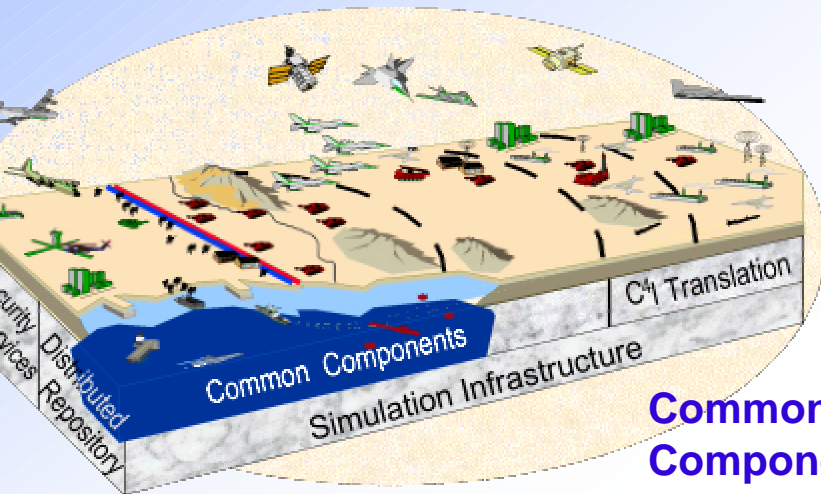
JSIMS Environment

CCWS

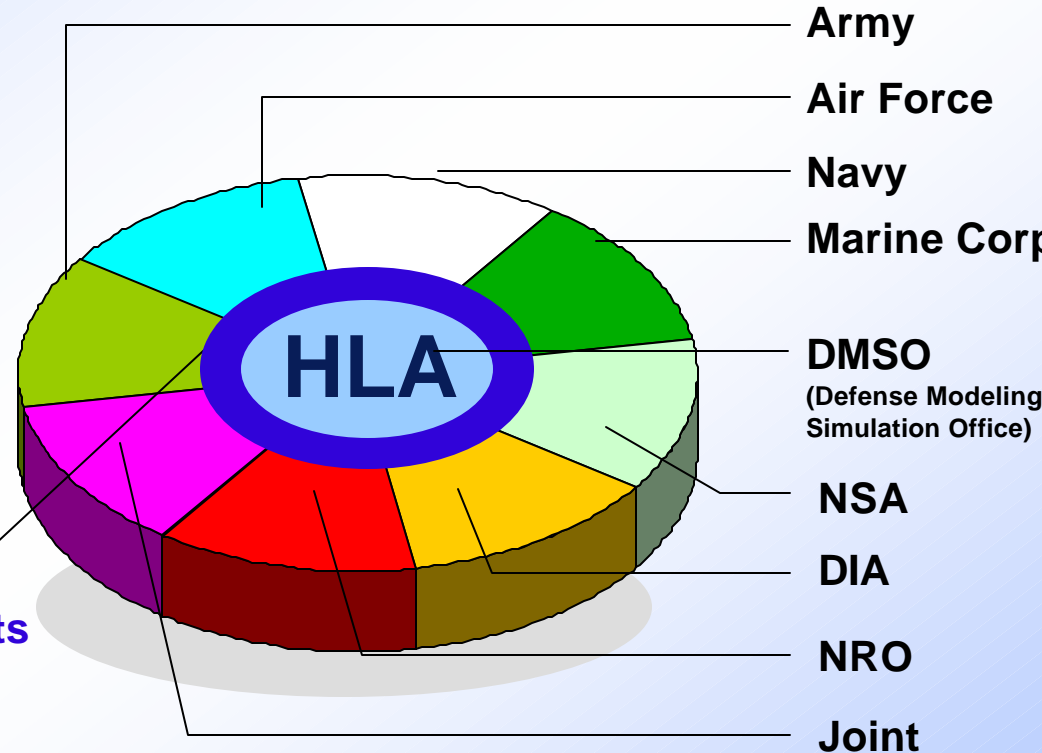
CCWS

Component Response Cells





Common Components

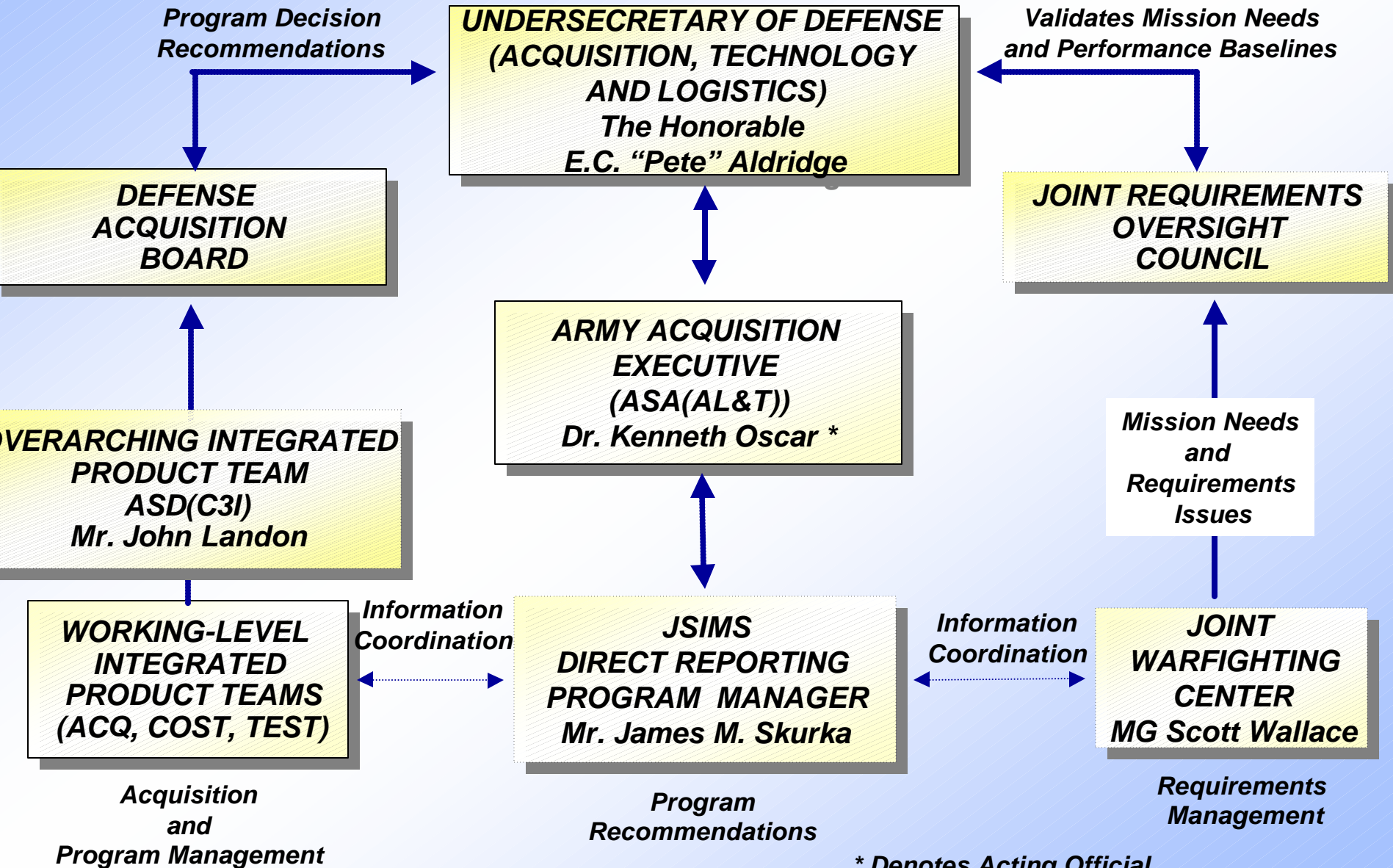


A Joint, interoperable simulation

A collaborative effort of nine Alliance partners

- Replace outdated Joint and Service legacy systems
- Real-world C4I systems ... using common components
- Distributed training ... mission planning ... mission rehearsal
- Achieve the CJCS goal to “move more electrons and fewer troops”

JSIMS Streamlined Reporting Chain



JSIMS Program Management



PM JSIMS
Mr. James M. Skurka, SES (USA)

Alliance Executive Office (AEO)
Laura Knight, SES (USN)

Executive Agents (EA)

JSIMS Requirements Control Board
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USJFCOM JWFC*

Development Agents (DA)

USA DA WARSIM/WIM
COL Randy Ball (USA)

USN DA Maritime
Ms Vanessa Hallihan, GS15

USMC DA
COL Joe Buranosky (USMC)

USAF DA NASM
COL Phil Faye (USAF)

NRO DA NATSIM
LtCol John Tillie (USAF)

DIA DA DOMINO
Mr. Peter Starr, GS15

NSA DA JSIGSIM
Mr. John Riordon, GS15

Joint DA Joint Models
CDR Jim Booth (USN)

DMSO DA RTI
COL Forrest Crain (USA)

Executive Agents



Executive Agents

- U.S. Army, Deputy Chief of Staff for Operations & Plans:
 - LTG Larry Ellis/BG William Webster
- U.S. Air Force, Directorate of Command and Control for Air and Space Operations: LtGen Robert Fogelsong/BGen James Morehouse
- U.S. Navy Director of Naval Training and Education (N79):
 - Dr. Allen Zeman
- Marine Corps Combat Development Command (MCCDC):
 - BGEN Thomas Jones/Dr. Mike Bailey
- Defense Intelligence Agency (DIA): VADM Thomas Wilson
- Joint Warfighting Center (JWFC): MG Scott Wallace

Interested Agencies (Also called Executive Agents)

- Defense Information Systems Agency (DISA)
- U.S. Transportation Command (USTRANSCOM)
- U.S. Special Operations Command (USSOCOM)
- National Imagery and Mapping Agency (NIMA)
- U.S. Air Force, Director of Weather (USAF/XOW)
- Oceanographer of the Navy (N096)

DoD MSEAs

JSIMS Development Partners



JSIMS Maritime -- San Diego, CA
Maritime Domain

Joint SIGINT Simulation (J-SIGSIM) -- Ft Meade, MD
Signal Intelligence, *BTG*

National Simulation (NATSIM) -- Chantilly, VA
National Intelligence Systems
Veridian/MRJ

National Air and Space Model (NASM) -- Hanscom AFB, MA
Air and Space Domain, *Raytheon*

DIA Object Oriented Model for Intelligence Operations (DOMINO)
Bolling AFB, Wash., DC
National Intel Process Modeling,
Veridian/MRJ

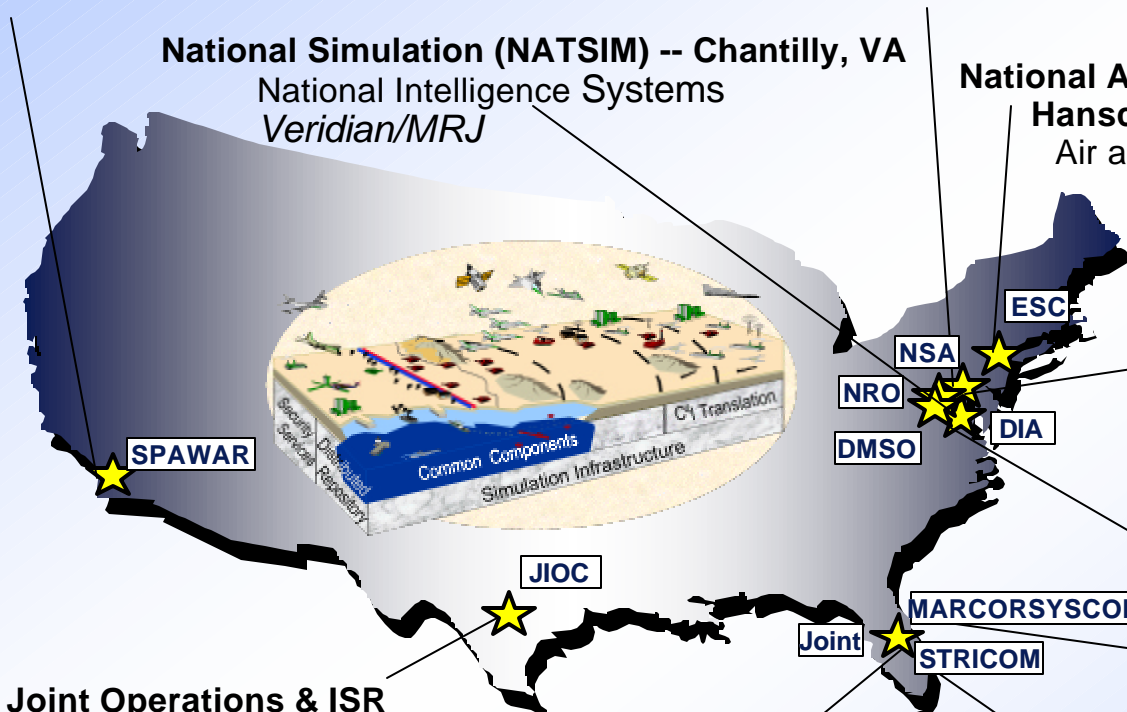
High Level Architecture (HLA) -- Alexandria, VA
Architecture, *SAIC*

USMC DA -- Orlando, FL
USMC Requirements
VISICOM

Warfighter's Simulation (WARSIM) -- Orlando, FL
Land Domain, *Lockheed-Martin*
WARSIM Intelligence Module (WIM) -- Orlando, FL
Tactical Intelligence, *Veridian/MRJ*

JSIMS Joint DA -- Orlando, FL
Joint Domain, *TRW*

NASM Joint Operations & ISR Simulation (JOISIM) -- San Antonio, TX
Airborne Sensors, *JIOC/CACI*



SPAWAR

JIOC

NRO

DMSO

NSA

ESC

DIA

MARCORSYSCOM

Joint STRICOM

Agenda

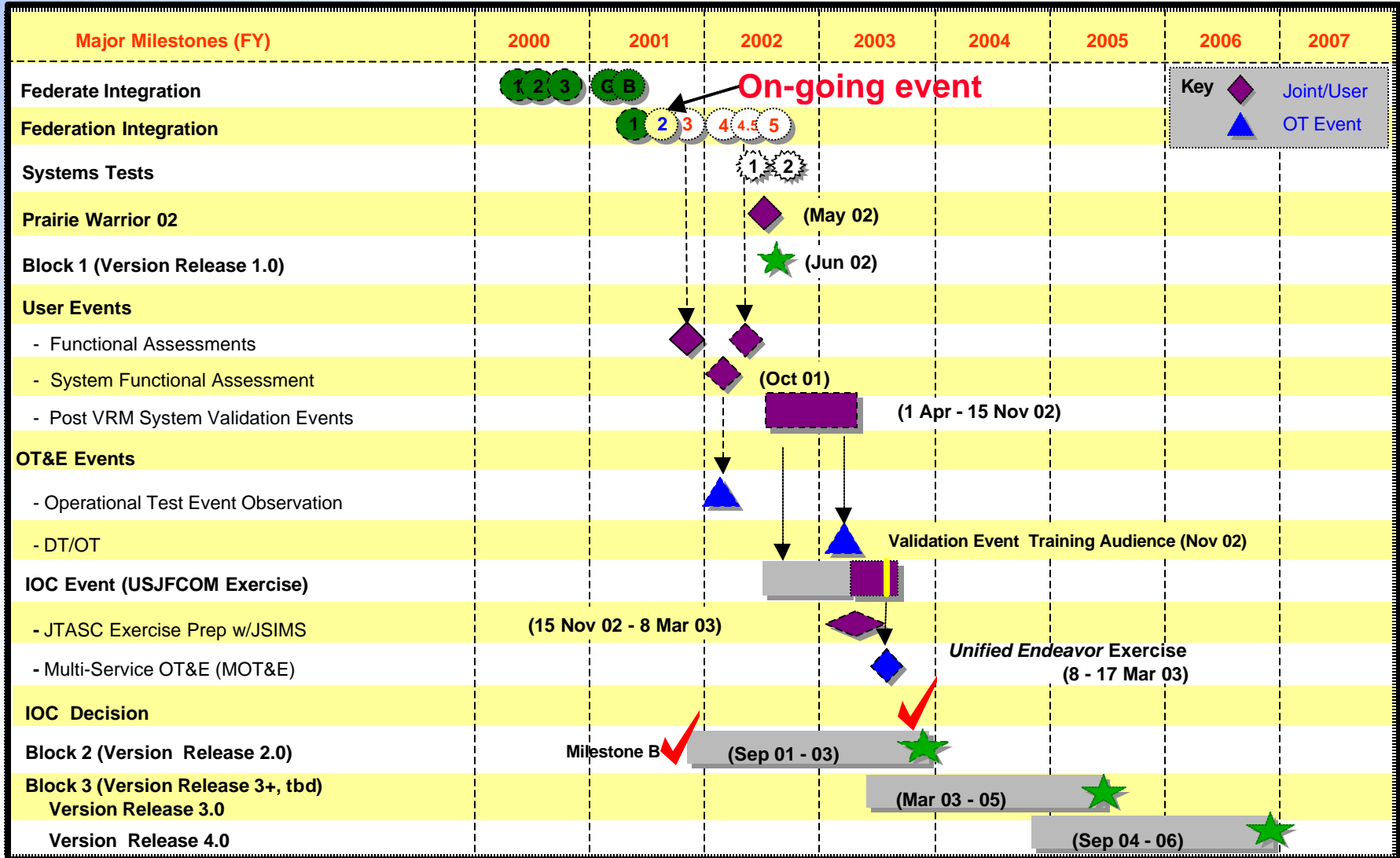


- **Mission/Organization**
- • **Schedule**
- **Performance**
- **Integration**

JSIMS Program Integrated Master Schedule



As of 15 May 2001



JSIMS Blocks



FY01

FY02

FY03

FY04

FY05

FY06

FY07

FY08

Block 1

Version 1.0

Joint and Components Training

Block 2

Version 2.0

*Service Title X Training
- replace "JTC"
- first experimentation use*

Block 3 (V3.0+)

Version 3.0

*Increasing Joint, Service
National capabilities,
interfaces and
automation*

Partners
sequence
their
requirements

JSIMS Requirements
Control Board
sequences
"common"
requirements

Version 4.0

Version 5.0

Evolutionary Acquisition

Blocks include:

- one or more versions
- MOT&E

Block 4 Block 5

IOC Training Event

Unified Endeavor Exercise



Training Audience:

- Joint Task Force – training to three-star Joint and Combined Task Force Commanders and their staffs

Purpose:

- Preserve and Advance Joint Operational and Warfighting Skills

Complexity:

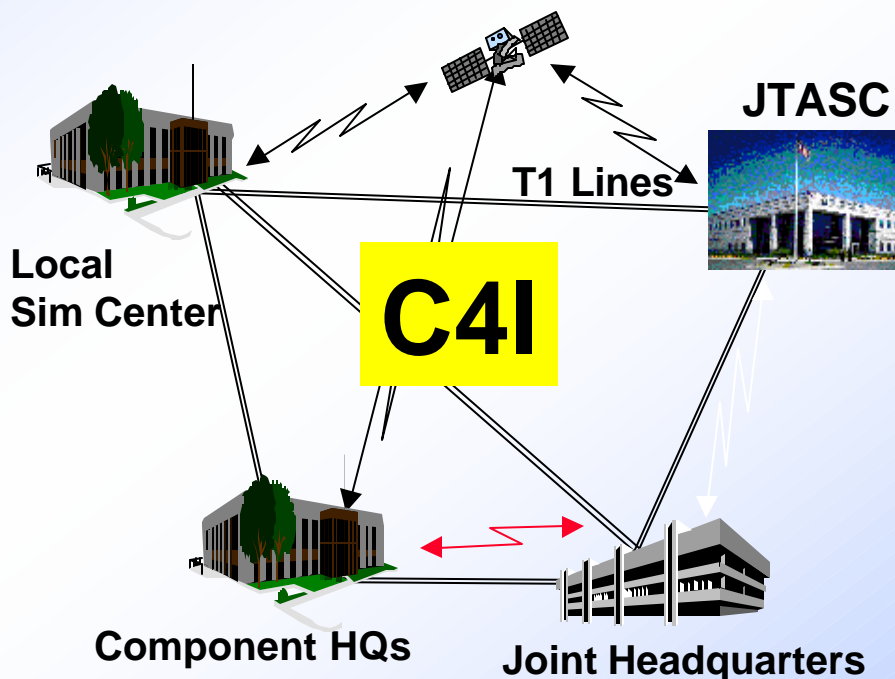
- Distributed exercise to multiple world-wide sites
- 159 Joint Mission Essential Tasks (JMET) total ... 66 JMETS on JTF HQ Staff JMETL

Scope:

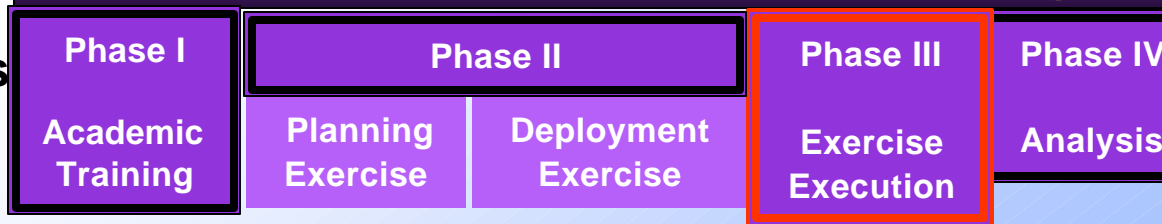
- Focus on CINC training plans

Size:

- 3,000 – 5,000 personnel
- 80,000+ mandays
- 8-15 distributed sites



JTF Commander and Staff Training



Agenda



- **Mission/Organization**
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IOC Key Performance Parameters (KPP)



- KPP 1 - OPERATIONAL TASKS AND CONDITIONS

- Support **CINC/JTF with Components** Training as defined in the JSIMS Universal Capabilities List (JUCL) J3 Minimum
- Support training of **CINC Joint Mission Essential Task Lists (JMETL)** and Service Task List items

- KPP 2 - C4I INTERFACE

- Provide full common operational picture (COP) integration with GCCS, JMCIS, TBMCS, ATCCS, JWICS, AND GTN

- KPP 3 - DISTRIBUTED ENVIRONMENT

- Distribute to geographically separate participants, given a DOD network infrastructure

- KPP 4 - SYSTEM UPTIME RATIO

- Demonstrate system availability at least 90% during a 14-day computer-aided exercise, 24 hours per day

NOTE: KPP 2 being updated based on guidance from JCS J6/J8

JSIMS Block 1 (IOC) Functionality



Joint	<ul style="list-style-type: none"> • 18 Joint Models: CINC, CINC/J1-J6, CJTF, JTF/J1-J6, NCA, JFACC, JFLCC, JFMCC 	<ul style="list-style-type: none"> • C4I Interface to GCCS • Role Player Functions 	
Army	<ul style="list-style-type: none"> • Maneuver • C2 • Perceived Truth 	<ul style="list-style-type: none"> • Artillery • Rotary Wing Aviation • Terrain 	<ul style="list-style-type: none"> • Logistics • NBC • Intelligence
Navy	<ul style="list-style-type: none"> • Ship Platforms • Warship Motion & Sensors • Underway Replenishment 	<ul style="list-style-type: none"> • Weapons & Engagement • Basic Ocean • Flight Operations 	<ul style="list-style-type: none"> • Naval Bases & Ports • Ship/Ground Engagements • Submarine/Air/Surface Warfare Operations
USAF	<ul style="list-style-type: none"> • AF Fixed Wing Missions • Civil Environment • AF Organizations & Airbases 	<ul style="list-style-type: none"> • Generic FWA Platforms • Missiles • Satellite Platforms 	<ul style="list-style-type: none"> • TBMCS - Air Tasking Order, ADSI • Some Airborne Sensors (JOISIM) • Electronic Warfare (JOISIM)
USMC	<ul style="list-style-type: none"> • Landing Plan Execution • Waterborne & Air loading, assault, landing 		
Agencies	<ul style="list-style-type: none"> • MASINT, HUMINT, ELINT Model Support 	<ul style="list-style-type: none"> • C4I Interfaces (ASAS, CSP, CGS, AEPDS) 	<ul style="list-style-type: none"> • Full SIGINT Capability • Full IMINT Capability • Collection Management
Alliance Common Components	<ul style="list-style-type: none"> • Simulation Engine, MDDI, CASS • Security Common Components 	<ul style="list-style-type: none"> • AAR, User Workstations, Scenario Preparation 	<ul style="list-style-type: none"> • HLA Common Components (FCM, Technical Control, JCL, RTI)

Note: JSIMS IOC functionality is defined in the ORD by the KPPs

Agenda



- **Mission/Organization**
- **Schedule**
- **Performance**
- • **Integration**



- Fall 1999
 - Reorganized at the direction of Dr. Etter and Dr. Gansler
 - Big Bang approach abandoned
 - DoD High Level Architecture (HLA) adopted
 - New leadership team drawn from beyond JSIMS
- Spring 2000
 - Postulated a new overall design

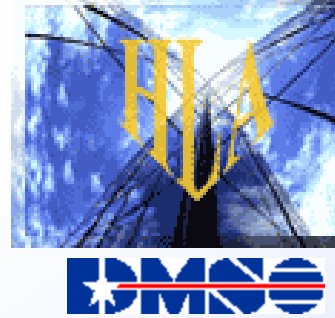
Architecture Definition Approach



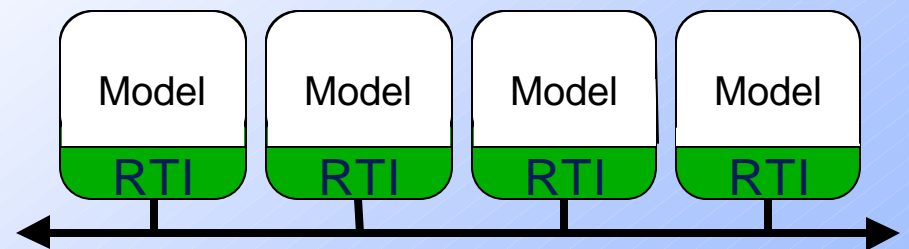
- Beware the cost of coordination
 - Minimize dependence
 - Trade duplicate effort for consensus
- Evolve through experience and not supposition
 - Lead with experimental investigations
- Six week cycle for documentation and discussion

A software architecture can be no more cohesive than the organization that employs it.

JSIMS Architecture



- Based on the DoD High Level Architecture
 - Joins systems, **federates**, into groups, **federations**, for some purpose based on a common federation object model.
- Software organized into large components
 - Library
 - Application
 - Domain Federates
 - Support Federates
- Components assembled incrementally



JSIMS Architecture



Two separate federations for security reasons

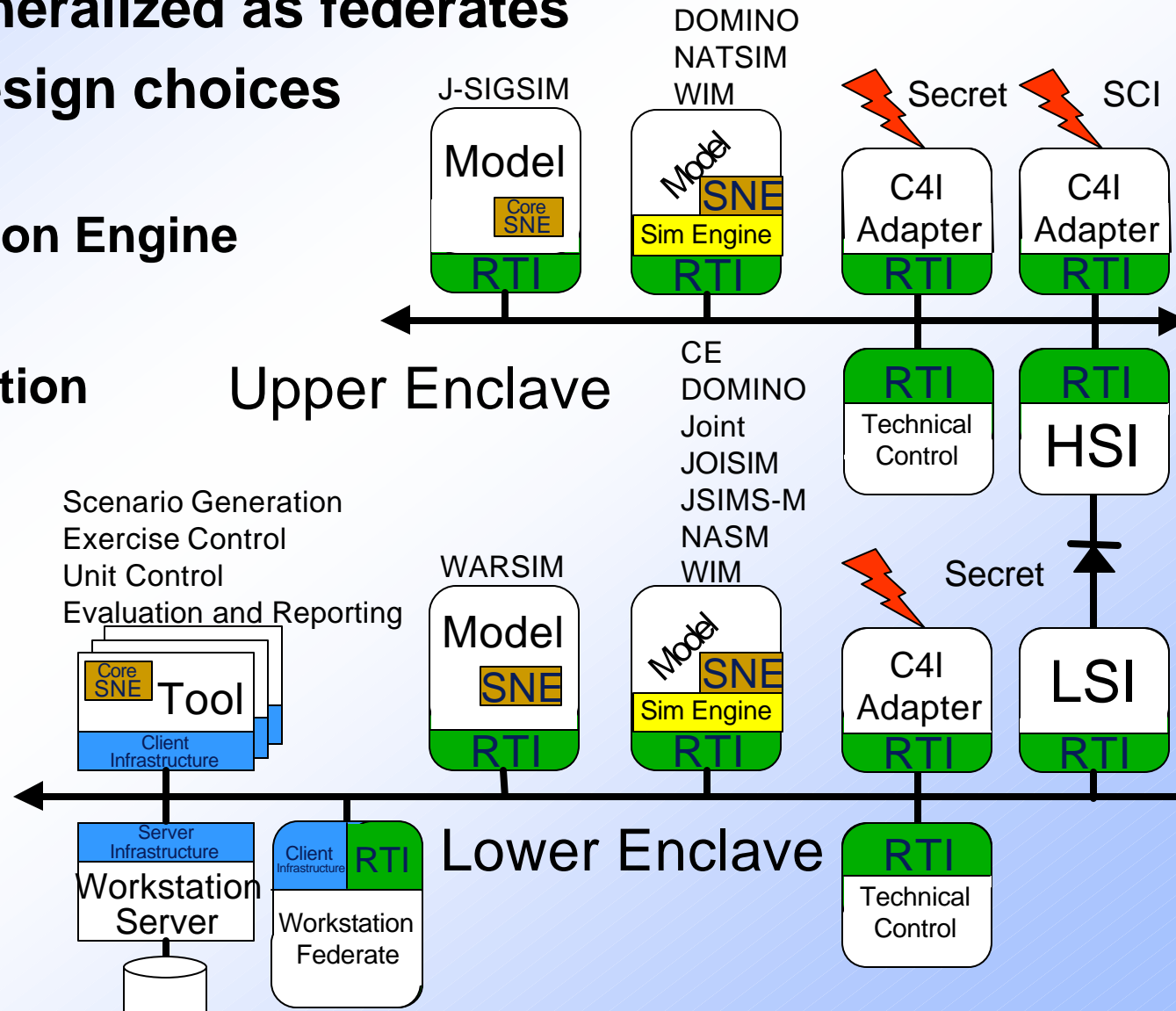
C4I interfaces generalized as federates

Modelers have design choices

- Direct HLA
- Alliance Simulation Engine

Common tools

- Scenario Generation
- Workstation





JOINT SIMULATION SYSTEM (JSIMS)

JSIMS ALLIANCE ACROSS THE NATION

MISSION

To provide...
 A computer-simulated environment...
 For use by CINCs, joint organizations, and the Services...
 To educate, train, and develop doctrine and tactics...
 For Joint warfighting and other operational needs.





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