

Air Force Modeling & Simulation Training Toolkit (AFMSTT)

Advanced Net Centric Simulation for Aerospace Command & Control



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Overview

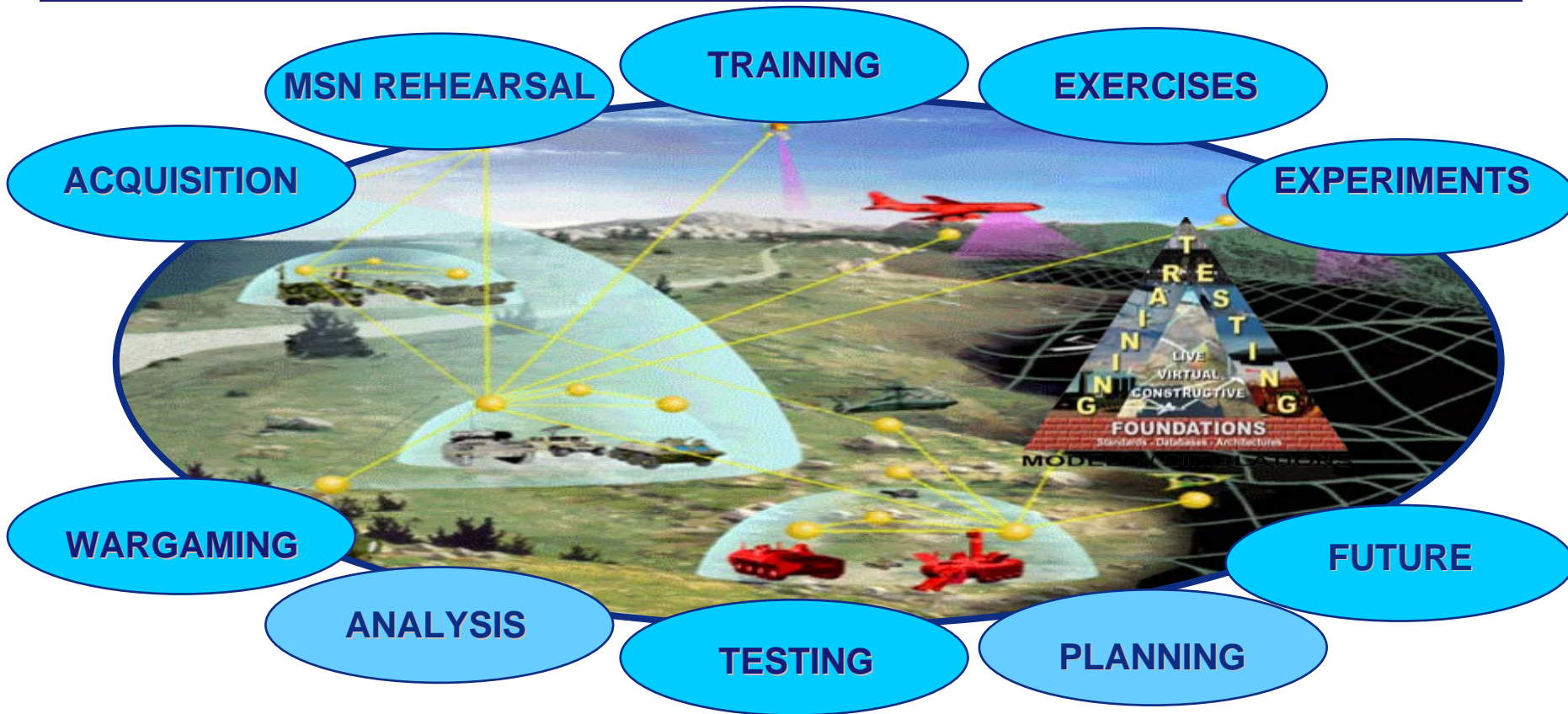


- **Winning the GWOT - M&S a Force Multiplier**
- **Why Netcentric Operations?**
- **Moving to the Global Information Grid**
- **Building a Foundation for Netcentric Operations**
- **Systems Engineering “Best Practice” Approach**



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AFMSTT Supported Disciplines



What is achieved from simulation?

- 1) Joint Readiness
- 2) Distributed Ops
- 3) Safer Environment
- 4) Lower Cost

Integrity - Service - Excellence



Win the GWOT AFMSTT a Force Multiplier



- **Realistic/Consistent Training**
 - Integrated Live, Virtual, Constructive
 - Dynamic, interactive planning & decision support
 - M&S transparent to training audience
- **Mission Rehearsal**
 - On demand, on location training
 - Flexible scenario generation
- **Risk Reduction**
 - Safer environment for Warfighter
 - Interact with real world C2 systems

AFMSTT supported 14 major and 26 associated test/integration events last year!



Constructive Air Power Simulation Supporting Joint/Service Battlestaff



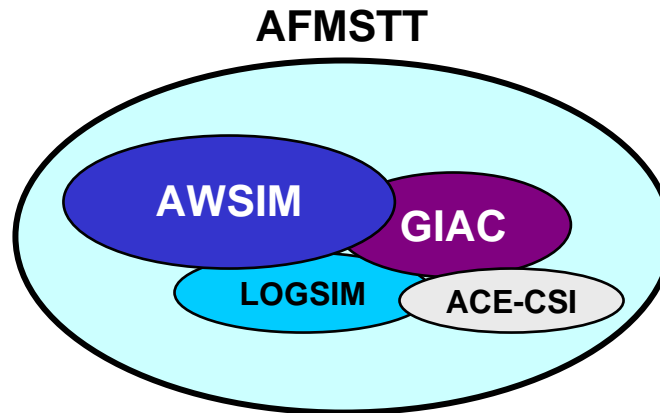
Exercise Support

- Ulchi Focus Lens
- BLUE FLAG
- Austere Challenge
- Joint RED FLAG
- Terminal Fury
- Ardent Sentry



Experimentation Support

- Joint Expeditionary Force Experiment (JEFX)
- Coalition Warrior Interoperability Demo (CWID)



Mission Rehearsals

- Unified Endeavor
- Global Thunder

Acquisition Support

- TBMCS Testing
- AF-ICE



Why Net-Centric Operations?



- **Net-Centric Operations is the ability to:**
 - Rapidly **collect** and **share** appropriate **data** in a collaborative environment
 - **Recognize** significant data
 - **Understand** the data
 - Efficiently **make better-informed decisions** by yourself or in a collaborative environment
 - **Rapidly act** (or not act) on decisions
 - Rapidly **get feedback**
 - **Understand services available**
 - Efficiently **use** those **services** (or capabilities)
 - Efficiently **provide services** for others in a manner consistent with your mission

Derived from: Network Centric Warfare, Alberts, Garstka, Stein



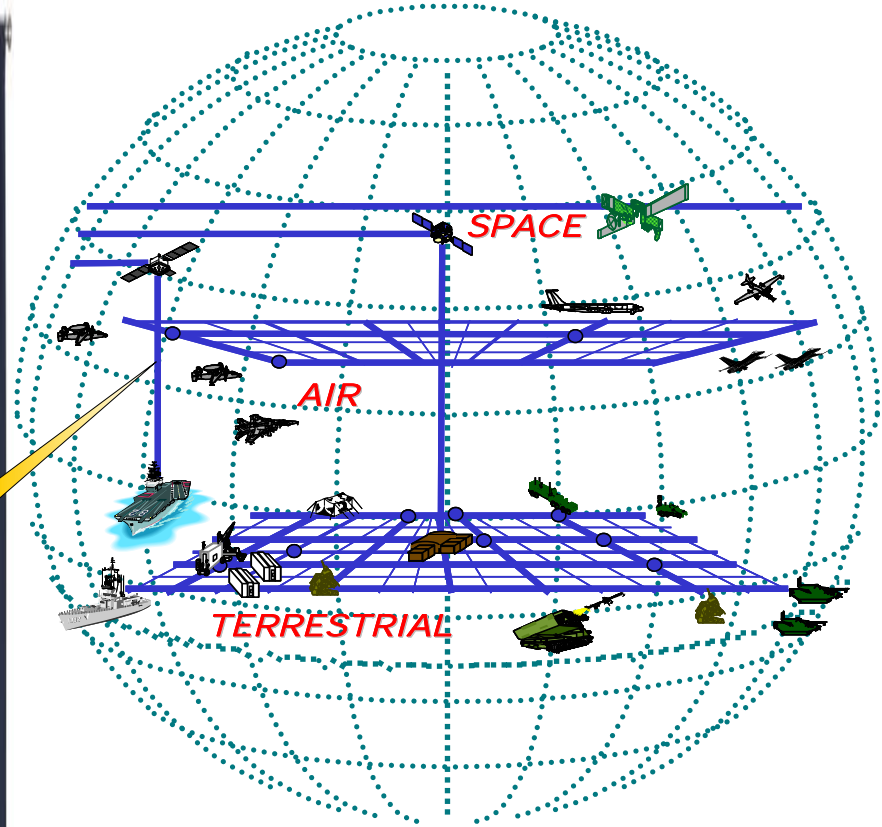
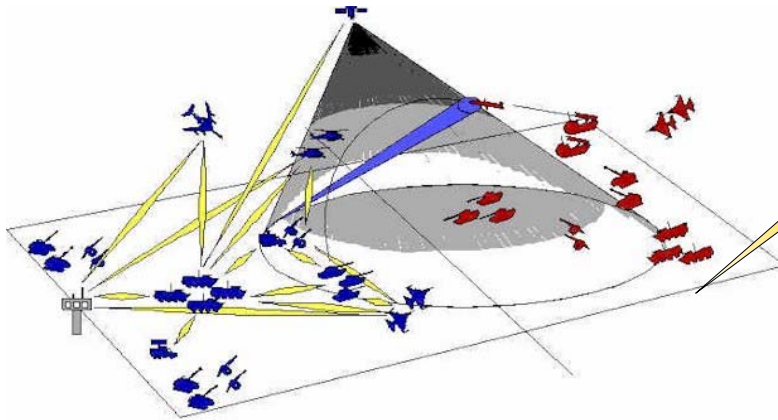
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AFMSTT with the GIG



AFMSTT

- Real C2 Data and Interfaces
- Simulated Air Battlespace Data



**Integrated M&S and C2 Environments that support
Net Centric Operations (NCO)**

Integrity - Service - Excellence



Moving to Netcentricity using NESI tenants



Net-centric Enterprise Solutions for Interoperability (NESI)

- **Implementation guidance to facilitate the design, development and usage of information systems for net-centric warfare**
- **Effective for migrating deployed applications using a phased approach**
- **Based on industry best practices**
- **Cross-Service effort between Air Force (ESC) and Navy (PEO C4I & Space)**
 - **Army & DISA participated informally**



Systems Engineering “Best Practices” Approach



- **Incremental Approach**
 - No wholesale re-write of code base
 - No impact to current operations tempo/event support
- **Collateral requirements**
 - No impact to toolkit performance
 - No increase in AFMSTT footprint



Systems Engineering “Best Practices” Approach (Cont)

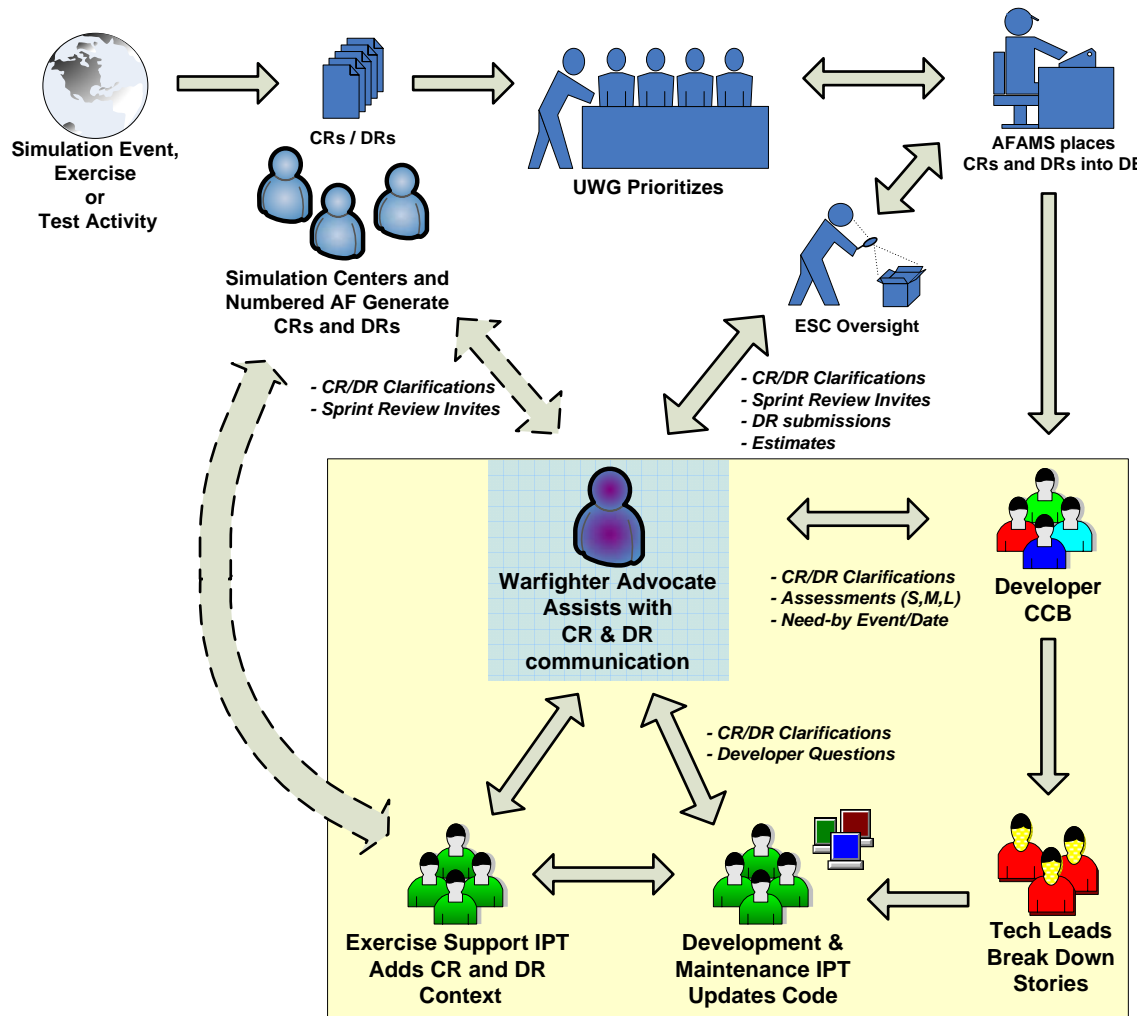


- **Architecture requirements**
 - **Integrate within Current Acquisition Framework**
 - **Design for Location Independence**
 - **Increase Collaboration**
 - **Separate business, data and presentation logic**
 - **Service Oriented Architecture (SOA)**

**Proven, Effective Techniques...Bringing legacy systems
into the 21st Century**



Agile Acquisition Development Framework





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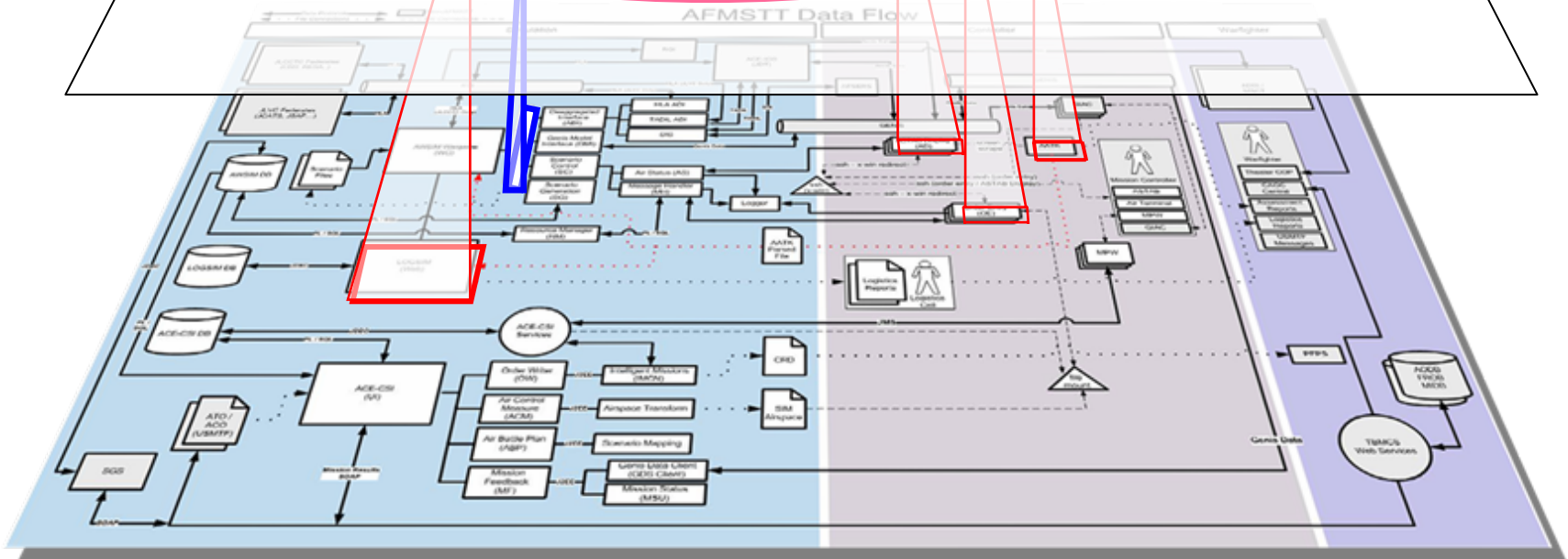
Exposing Data



SIMULATION:
Shared Memory

SERVICE

- LOGSIM
- AATK
- ASTAB Display
- Order Entry (OE)
- New Capabilities



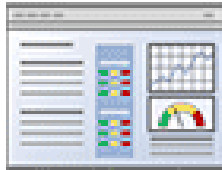


Building a Foundation for Netcentric Operations



Composable
Collaborative
Tailorable

Dash Board



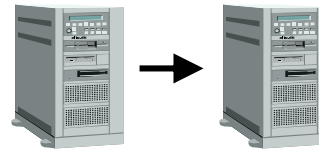
Publish

Reporting



Publish

M2M



Publish

Real Time Information

Data Services Layer



Logistics



Parametric



Order Stack



Enumerations



C2



Missions



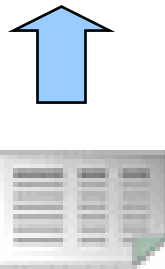
SA

Game State Data

Existing Data



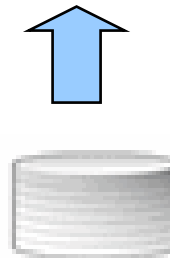
Other Models
(LOGSIM, ACE-CSI...)



Flat Files



User Input



RDBMS

Siloed & Complex

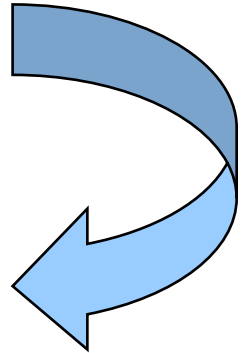


Benefits/ New Possibilities



An AFMSTT data service will promote...

- **Access to virtual battlespace information using established commercial standards**
 - SOAP/WSDL
 - REST
 - XML message protocol
- **Improved Model Controller Efficiency**
- **Provides Integration Engine for LVC environment**
- **Enhanced capability for analysis/agile acquisition**





Benefits/ New Possibilities



and unlock untapped investment!

- **Easy integration of new capabilities as training missions change**
 - Flexible, Adaptive Functionality Reuse
- **Location Independence**
 - Reduced set-up time & travel costs
 - Collaborative Event Planning/Managing
 - Reachback to center of excellence

FASTER, CHEAPER, LESS RISK

Integrity - Service - Excellence



New/Emerging Netcentric Capabilities



- **Enhanced Reachback**
 - 24X7 Help Desk
 - FAQ Portal
- **Re-architected Distributed Mission Planning Workstation**
 - Java Message Service replaced direct queries
 - Preserved core business logic
 - Solution was transparent to end users
- **JTEN node connection from ESC integration facility**

We're Proud



We're Pumped



Providing Capability to the Warfighter



Summary



- **M&S provides a low cost option for validating war fighter missions pre-execution, real world systems, and a broad array of AF disciplines (acquisition, test, etc)**
- **Adaptation to changing GWOT mission is critical**
 - **Modernization can be achieved through sensible “localized” wins focused on scaling in a net-centric way**
- **Provides continued innovation in netcentric capabilities to provide relevant capability to the user anytime, anywhere**

**Bringing a very valuable legacy simulation into
the 21st Century !!**



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Questions?

Integrity - Service - Excellence