

# Headquarters U.S. Air Force

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## Wargaming: Enabling the Warfighter for the future



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Overall Briefing Classification: **UNCLASSIFIED // FOR OFFICIAL USE ONLY**  
Classified By: HQ USAF/A5XS  
Reason: N/A  
Declassify On: N/A



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# *Overview*

- **Who We Are and What We Do**
- **What is a Title 10 Wargame?**
- **Where We Have Been**
- **Where We Are**
- **Wargaming Information Environment**
- **UE08, Capstone and the SLS**
- **Where We are Going**
- **Ongoing Collaboration Requirements**

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# Who We Are



**Headquarters United States Air Force**



**Deputy Chief of Staff  
Operations Plans and Requirements (A3/5)**



**Director of Operational Plans  
and Joint Matters (A5X)**



**Concepts, Strategy and  
Wargaming Division (A5XS)**



**Wargaming Branch**

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# What AF/A5XS Does

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## ■ Air Staff Operational Strategy ‘Think Tank’

- Advocating Proper Role of Air, Space, and Cyberspace Operations
- Shape Joint Issues and Concept Development



## ■ Design and Globally Execute CSAF’s Mid-Term Title 10 Wargame

- ‘Unified Engagement’ – Bi-Annual w/ Focus on Warfighting Concepts and Capabilities 10-15 Years Out
- ‘Building Partnership Capacity’ Seminars and Mini-games

## ■ Support Other Service & Joint Wargames

- Coordinate/Participate with Subject Matter Experts
- Represent Approved AF Positions
- Ensure Proper Rep of Force Structures / Capability Descriptions



## ■ We are Envelope-Pushing Integrators

- We Don’t Create Models and Simulations, We Find Ways to Adapt Them to The Challenging Wargame Environment
- Focus is On Data Translation / Integration and Office Tools

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# AFI 10-2305, 'Wargaming'

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- Implements wargaming portions of Policy Directive 10-23 'Innovation Program'
- Provides definitions
- Identifies Executive Agents & OPRs
- AF/A5X responsible for Unified Engagement (previously Global Engagement) series, to explore emerging warfighting concepts 10-15 years into the future; coordinates AF support to mid-term games of other Services, OSD, Joint Staff, Unified Commands
- AF/A8X responsible for Future Capabilities series to explore alternative futures and force structure to support strategic planning, 15-plus years out; coordinates AF support to far-term games of other Services, OSD, Joint Staff, Unified Commands

BY ORDER OF THE SECRETARY  
OF THE AIR FORCE

AIR FORCE INSTRUCTION 10-2305

15 AUGUST 2003



Operations

WARGAMING

This Air Force Instruction (AFI) implements portions of AFPD 10-23, *Innovation Program*, by establishing guidance for conduct of Air Force Title 10 wargames and Air Force participation in major Joint and Service wargames designed to impact future Air Force doctrine, force structure and employment concepts. In addition, the AFI outlines procedures and responsibilities for HQ USAF staff agencies and subordinate Air Force agencies that are tasked for wargame support. HQ USAF and subordinate units should maintain and dispose of records created as a result of prescribed processes in accordance with AFMAN 37-139, *Records Disposition Schedule*. Major Commands may supplement this AFI. Forward proposed revisions to HQ USAF/XOXS, 1480 Air Force Pentagon, Washington, D.C. 20330-1480.



# *What is a 'Title 10' Wargame?*

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- **Seminar-style event with role playing teams; theater operational to global strategic level focus**
- **Venue for continuing education of two generations of leaders**
- **Designed to get at what Commanders want to investigate**
- **Addresses Service responsibility to look at itself critically to determine capabilities & concepts needed most for future—provides opportunity for “discovery”**
  - **Capstone Game preceded by series of lead-in planning events and analysis focused workshops; post-game analysis follows**
  - **Strong joint flavor; broad coalition and interagency play**
  - **Humans drive—models, simulations, analysis tools support**
  - **Always striving to improve on process, fidelity, tools, impact**



# **Wargaming Myths & Scenarios**

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## **Wargames are not:**

- **About winning or losing**
- **Intended to prove, validate, or confirm conclusively**
- **Intended to be entity level simulations--not experiments in scientific sense**
- **Useful for examining new organizational constructs**

## **Wargame scenarios:**

- **Must be believable—not intended to be predictive**
- **Serve to achieve specific objectives and provide setting for specific AOR investigation**



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# *Wargaming Truths*

## **Wargames Do:**

- **Provide players opportunity to enhance operational planning skills and thought processes**
- **Educate broadly.....not training events per se**
  - **Educate two generations—Generals and juniors**
- **Offer opportunity for "intellectual R&D" about future**
- **Highlight to joint/coalition/interagency community emerging operational concepts**
- **Provide venue to explore specific issues identified by**





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# *Where We Have Been*

## ■ **Good Progress In ‘Wargame Information Environment’**

- Focus On Simple and Consistent Interfaces, Flexible and Powerful Access to Information
- Bring ‘Best-of-Breed’ Tools to Our Wargaming Environment
- Most Based On Microsoft Windows Platforms and Office Tools
- Visualization Tools An Integral Part of The Suite

## ■ **Use of Analytical Models and Simulation Tools**

- Attempt to Put More ‘Science’ Into The Blend of Art and Science In Wargaming
- Not Entity-level Simulation With a Run Time Interface, But Model-to-database-to-model Interfaces to Synchronize Tools
- Mix of Pregame Analysis, Onsite Analysis For Decision Support and Assessment, and Postgame Analysis

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# *Where We Are*

- **Strong Working Relationship With Microsoft Solutions Team**
  - Cooperative Effort / Bring Best Available Tools to The Fight
  - Continuously Engaged at Wargame Events and Day-to-Day IT Issues
- **Microsoft ESC ~~On~~ Staff In Staff**
  - Trusted Advisor
  - Cooperative Effort / Bring Best Available Tools to the Fight
  - Continuously Engaged at Wargame Events and Day-to-Day IT Strategy/Issues
  - Special Projects and Assignments
  - Availability to AFDW A6, SAF/XC, and Other USAF

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# *Where We Are*

- **WDC**

- Wargaming Desktop Configuration includes custom-configured security, applications, and data

- **MOSS2007**

- Asynchronous collaboration and productivity tools for document versioning, storage, and scheduling

- **OCS2007**

- Synchronous collaboration, IM, web conferencing, and local recording capability
- RoundTable

- **Server Virtualization (Virtual Server 2005 R2)**

- Flexibility, Portability and Scalability of the GameNet environment

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# NIPRNet & SIPRNet SharePoint

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- The centers of our asynchronous collaboration world
- Document sharing and versioning
- Wargame Tracker
- Leave and TDY Tracker
- Event Registration

The screenshot displays a SharePoint portal for ASXS Wargaming. The main content area is titled "ASXS Wargaming Unified Engagement 08" and features a "Unified Engagement Event Reports" section with a list of events such as "India Exercise - PACAF Building Partnership Event" and "Singapore Seminar - PACAF Building Partnership". Below this is an "UE08 Announcements" section and an "UE08 Library" section containing various documents like "AF\_Memo\_Template" and "DCDC Global Strategic Trends Programme".

On the right side, there is a "Wargame Tracker" section with a calendar for March 2009. The calendar shows several events, including "RAAF DCAF UEA...", "UQ 09 Generating Force Seminar", "ASX Review/Comment UE08 Reports", "Schriever V (S-V) Wargame", "A3/5 Review/Comment UE08 Report", "FPC, GCJO Wargame", "Nimble Titan Pol Mil Workshop LOE#1", "CSAF Signature UE08 Report", and "FG09 Blue Force Structure Workshop".

At the bottom right, there is a table listing dates and names:

5/21/2008 8:37	Forrer Donald Ctr AF/ASXS
9/28/2007 11:11	Reinhard Derek Ctr AF/ASXS
9/2/2008 14:50	Gillette David Ctr AF/ASXS
12/16/2008 13:29	Parker Richard Ctr AF/ASXS

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# *The Wargaming Environment*

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- **Wargames are a Mix of Art and Science**
  - Primarily Human-driven Intellectual Events – Subject Matter Experts In Discussions
  - Supported By MS&A and Visualization Tools, Information Technology
- **Constantly Evolving Objectives, Methodology, Scenarios, Tools**
  - Information-intensive and Time-constrained
  - Very Limited Time to Learn New Tools or Interfaces
  - Try to Use What Participants are Used to at Work and at Home
  - Expose Participants to Game Tools Early In Planning Process
- **Capstone Events Typically Conducted at An Offsite Facility**
  - Large Stand-alone Network With Rented or Borrowed Machines
  - Network, Tools, Data, Client Images Must Be Developed and Integrated Before The Game and Deployed
  - A5XS Maintains Core Expertise and Development Lab to Do This



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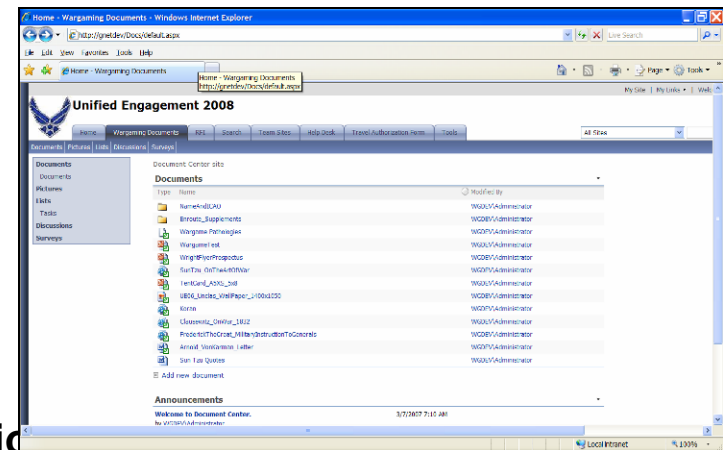
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# GamePoint (MOSS2007)

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- Intended as single integrated environment for information needs - 'One Stop Shopping'
- Built around Microsoft Office SharePoint Server 2007 (MOSS 2007)
- Access to information controlled by group policies based on player cell
- User-configurable 'pages' to support team collaboration
- Browser-based access to files, built-in process for version control
- Custom 'webparts' for access to scenario database
- Search engine
- Document libraries
- Announcements
- Request For Information system
- Database queries
- Help desk
- Chat system
- Integrating advanced search and data mining technologies, speech-to-text for recorded sessions, reverse phonetic search



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# GameNet (Virtual Server 2005R2)

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- **Scaleable from small unclassified portable system for BPC seminars, to large deployable classified system for UE capstone**
- **Stand-alone network, not connected to NIPRNet or SIPRNet**
- **Custom software and tools, constantly being updated, not certified (or certifiable)**
- **Suite of deployable laptops and laptop servers for small events, hand-carried or shipped (6 at BPC, 24 at GLOMO, 48 at JPG)**
- **Ruggedized deployable server racks for large events, intended to support up to several hundred workstations at host location**
- **Virtual Servers provide domain controllers, SQL Server for databases, SharePoint servers, mapping and imagery repositories, search engine, etc**



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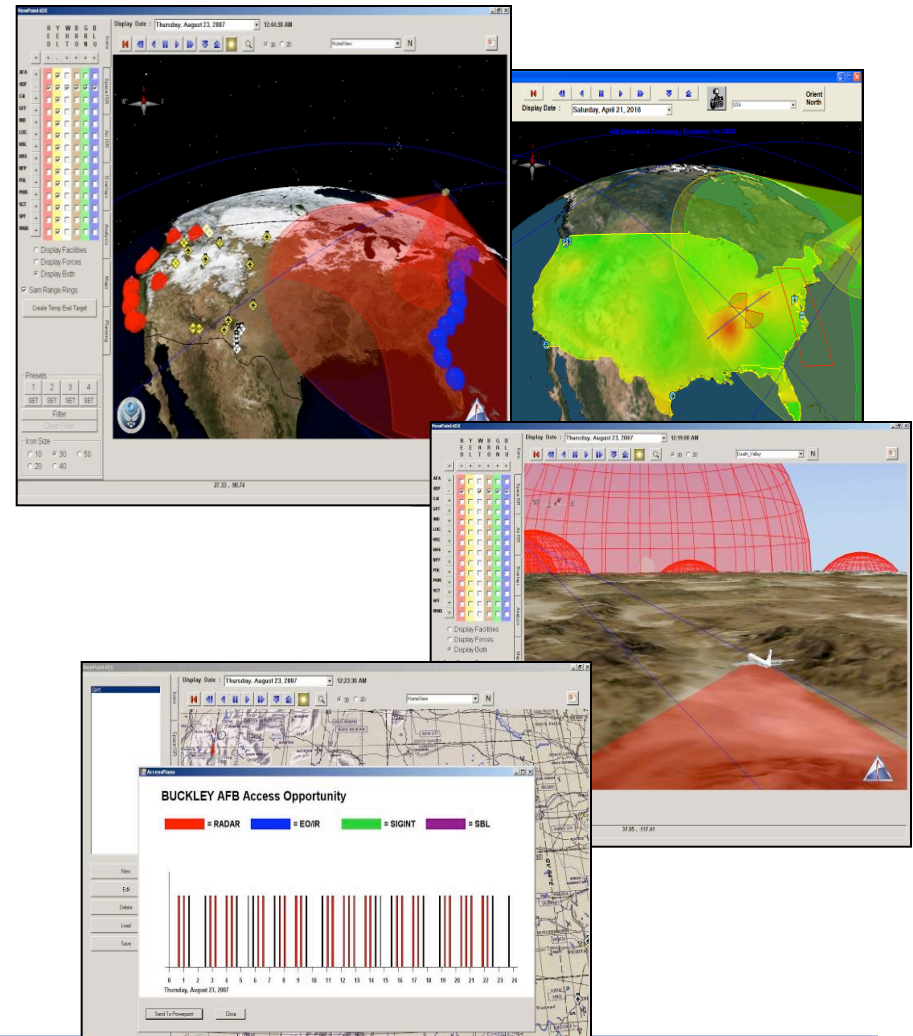
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# ViewPoint (Customized STK UI)

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- A5XS adaptation of Analytical Graphics' Satellite Tool Kit
- Simple and intuitive user interface
- Powerful visualization and analysis tools on every user's desktop
- Fully integrates space order-of-battle
- Ability to define airborne orbits with simple point-and-click interface
- Ability to analyze combined air and space sensor coverage
- Access to Wargame data, unit and facility status, custom query tools
- Robust set of NGA and custom maps, imagery, overlays
- Ability to animate, capture, export graphics directly to PowerPoint slides
- Developed on Microsoft Visual Studio





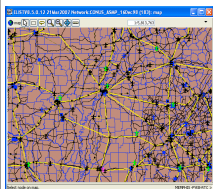

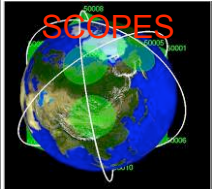
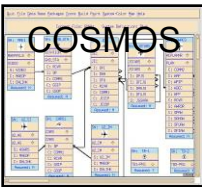
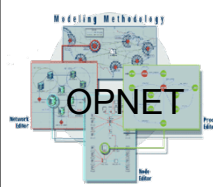
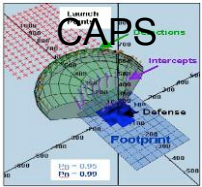
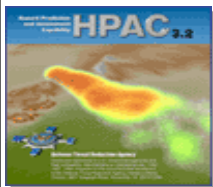
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# Models & Analytical Tools

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	<p>Synthetic Theater of Operations Research Model</p> <ul style="list-style-type: none"> <li>- AF/A9 theater campaign model, replacing THUNDER</li> <li>- Best used in pregame / postgame analysis to establish 'bookends', prepare assessors</li> <li>- Not yet practical to use during game execution, but working on ways to streamline data preparation</li> </ul>		
	<p>Joint Flow &amp; Analysis System for Transportation</p> <ul style="list-style-type: none"> <li>- TRANSCOM tool for building TPFDD, airlift and sealift resources, analyzing closure / feasibility</li> <li>- A5XS tools translate JFAST output of force closure, feed wargame database &amp; models</li> </ul>		<p>Enhanced Logistics Intratheater Support Tool</p> <ul style="list-style-type: none"> <li>- ELIST complements JFAST by providing theater transportation and distribution analysis</li> <li>- Simulates movement by road, rail, inland waterway, pipeline, theater airlift (MTMCTEA)</li> </ul>
	<p>Satellite Tool Kit (STK)</p> <ul style="list-style-type: none"> <li>- COTS product from Analytical Graphics Inc, adapted by A5XS with wargaming interface</li> <li>- Powerful 3D animated visualization of air and space sensors, combined coverage analysis</li> </ul>		<p>Space Common Op Picture &amp; Exploitation System</p> <ul style="list-style-type: none"> <li>- AFSPC in-house product for space platform and sensor visualization, coverage analysis</li> <li>- Some unique tools built in for wargaming, such as ASAT evaluation</li> </ul>
	<p>C4ISR, Space &amp; Missile Ops Simulation</p> <ul style="list-style-type: none"> <li>- SAIC model tailored to support DoD space and airborne sensor analyses</li> <li>- Detailed model of end-to-end intel planning, tasking, collection, processing, dissemination</li> </ul>		<p>OPNET Modeler</p> <ul style="list-style-type: none"> <li>- COTS tool for modeling communications infrastructure, provided by AFCA SMEs</li> <li>- Throughput analysis to evaluate impact of degraded ops, cross-calibrate other tools</li> </ul>
	<p>Commanders Analysis Planning Simulation</p> <ul style="list-style-type: none"> <li>- MDA tool for evaluating combined defenses against threat scenario</li> <li>- Quick-turn tool, calibrated by more detailed models such as EADSIM</li> </ul>		<p>Hazard Prediction &amp; Assessment Capability</p> <ul style="list-style-type: none"> <li>- DTRA tool for evaluating chem / bio / nuclear effects considering terrain and weather</li> <li>- Plume calculations, overlays, casualty projections</li> </ul>

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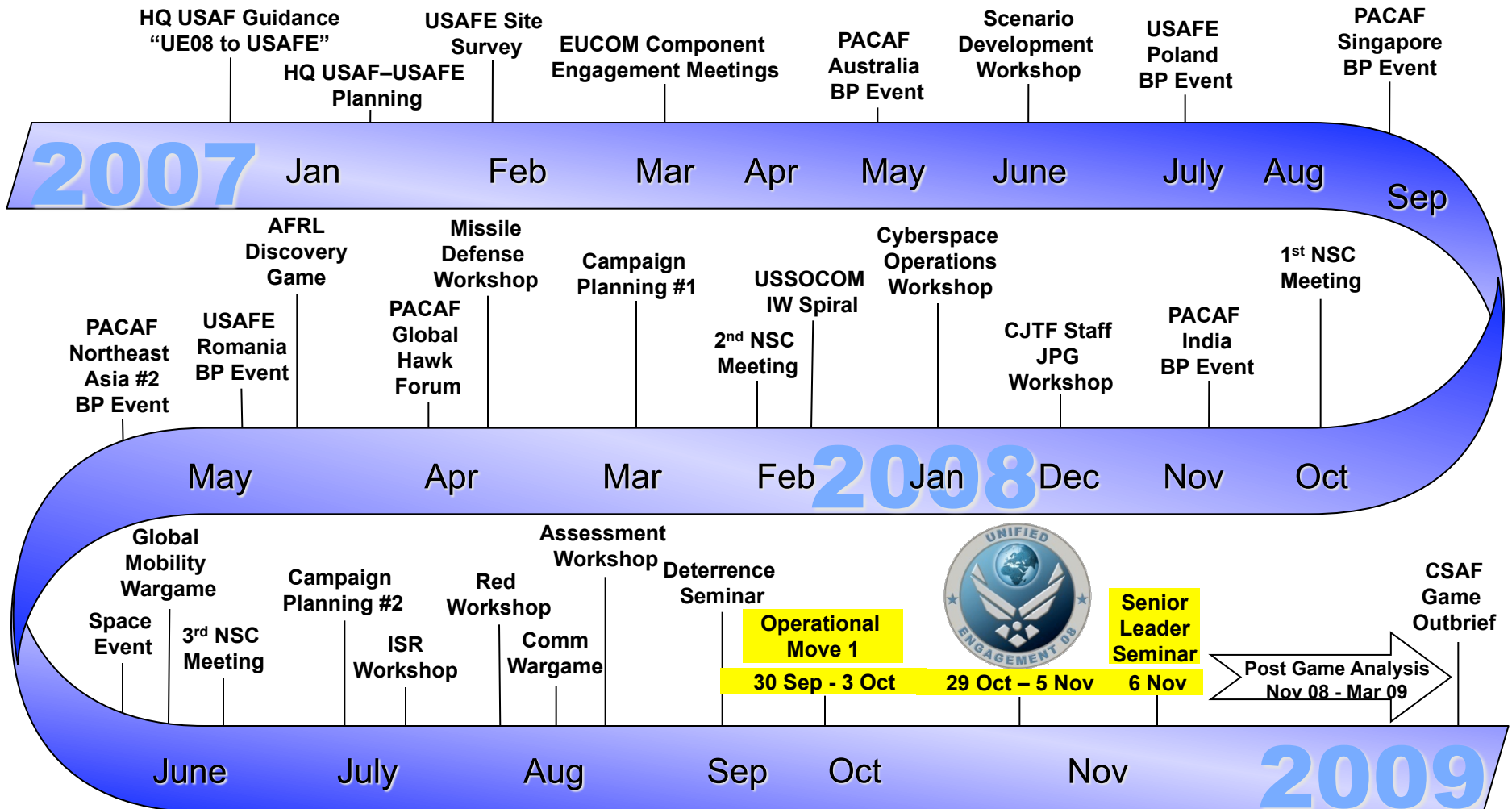
## ***UE 08 Guidance***

- **Take UE 08 to warfighters in Europe—execute Capstone Fall CY08**
- **Design, develop, & execute UE 08 in close formation with USAFE,**
- **Examine challenges facing Commanders ~ 12 years in the future—plausible scenarios and joint issues**
- **Explore Service, Joint, Interagency & Coalition warfighting concepts—advance innovative thinking on air, space & cyber power**
- **Conduct “Building Partnership Capacity” events to help nurture Theater Security Cooperation for USAFE & EUCOM**
- **Use anticipated real-world force structures of ~ 2020**



# UE 08 Calendar

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# *UE Opportunity Seized: Building Partnership Capacity*

- USAF created a mix of theater partnership events to complement the UE Capstone game
  - A series of smaller, bilateral and multilateral wargame seminars to support Theater Cooperation
  - A unique means to build partnership capacity through regional engagement



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# Unified Engagement Umbrella

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**27 Events over 2-years**

**2 Theaters**

**Europe**

**Pacific**

**8 Host Countries:**

**Germany**

**Australia**

**Poland**

**Singapore**

**India**

**Romania**

**Japan**

**US**



# UE 08 Senior Mentors

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**Mentor to the Game Director - Gen Charlie Holland, USAF ret**

**Mentors for Capstone:**

- **CJTf/CC - Gen Paul Hester, USAF ret**
- **CFACC - Lt Gen Wally Moorhead, USAF ret**
- **CFLCC - LTG Bill Carter, USA ret**
- **CFMCC - LtGen Earl Hailston, USMC ret**
- **CFSOCC - MG Geoffrey Lambert, USA ret**
- **Assessment - Lt Gen Gene Santarelli, USAF ret**
- **Red - Maj Gen Rich O'lear, USAF ret**

**Mentors for Building Partnership Events**

- **Poland Seminar - Gen John Jumper, USAF ret**
- **Singapore Seminar - Lt Gen Wally Moorhead, USAF ret**
- **India Seminar - Gen Bill Begert, USAF ret**
- **Romania Seminar - Gen Paul Hester, USAF ret**

**Mentor for Global Mobility Wargame:**

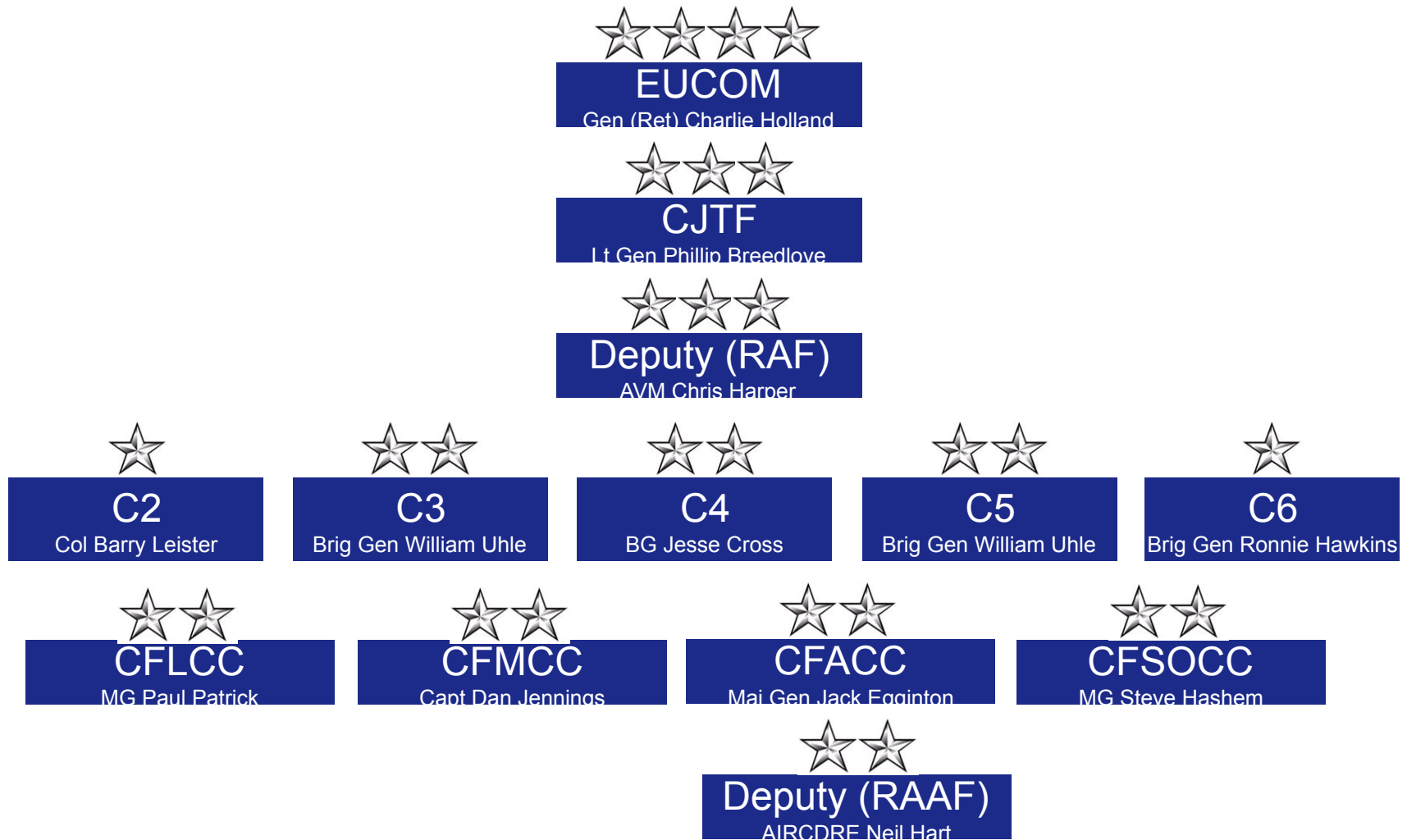
- **Gen Tony Robertson, USAF ret**





# CJTF & Component Commands

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# ***UE08 SLS – Senior Leadership Seminar***

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- **Held at the end of the UE08 Capstone**
- **Review of Game Play with Initial Look at Insights**
- **Classified Web Conference**
  - **14 Sites CONUS/OCONUS**
  - **1CBCS SatShot from Edelweiss to Ramstein AB to SIPRNet Cloud**
  - **Approximately four hours in length**
  - **OCS 2007 via SIPRNet**
    - **Event Content**
    - **Voice**
    - **Video**
    - **Recorded Stream**

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# *Obstacles to Overcome*

- **Lessons Learned in UE06 SLS**
- **Landline connections to SIPRNet not Available**
  - **SatShot through a narrow mountain pass**
  - **>700ms delay**
  - **Maximum Pipe size of 1.44Mbps (KIV7 Stability)**
- **Various Locations CONUS/OCONUS**
- **Very Late Acceptance of RSVPs**
  - **Two On the Day of the Dress Rehearsal**
  - **One on day of event**
- **Limited technical staff at remote locations**
- **Firewall and Proxy Issues (Who owns it?)**
- **Policy discrepancies regarding Client Installation**
- **FUD**

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# ***Connectivity COAs***

- **OSC Web Conference (LiveMeeting)**
- **DCO Button Two (Adobe Connect)**
- **Slide Decks and STEs**

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# ***SLS Attendees - Remote***

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<b><u>LiveMeeting Participants</u></b>	<b><u>Current Position</u></b>
■ Gen Norton Schwartz (Pentagon)	CSAF
■ Gen Roger Brady (Ramstein AB)	USAFE/CC
■ Lt Gen Dan Darnell (Pentagon)	AF/A3/5
■ Lt Gen Dave Deptula (Pentagon)	AF/A2
■ Lt Gen Ray Johns (Pentagon)	AF/A8
■ Lt Gen Rusty Findley (Scott AFB)	AMC/CV
■ Maj Gen Bill Rew (Pentagon)	UE 08 Game Director
■ Maj Gen Anthony Przybyslawski (Randolph AFB)	AETC/CV
■ Maj Gen Mike Hostage (Hickam AFB)	PACAF/CV
■ Maj Gen Floyd Carpenter (Barksdale AFB #2)	8 AF/CV
■ Maj Gen Richard Webber (Pentagon)	AF/AA3/5
■ Maj Gen Steve Miller (Maxwell AFB)	LeMay Center Commander
■ Maj Gen William Lord (Barksdale AFB #1)	AFCYBER(P) Commander
■ Brig Gen Thomas Andersen (Langley AFB)	ACC/A5
■ Brig Gen Joe Lanni (WP AFB)	AFMC/A3
■ Mr. Joseph Rouge (Pentagon)	Dir, NSSO

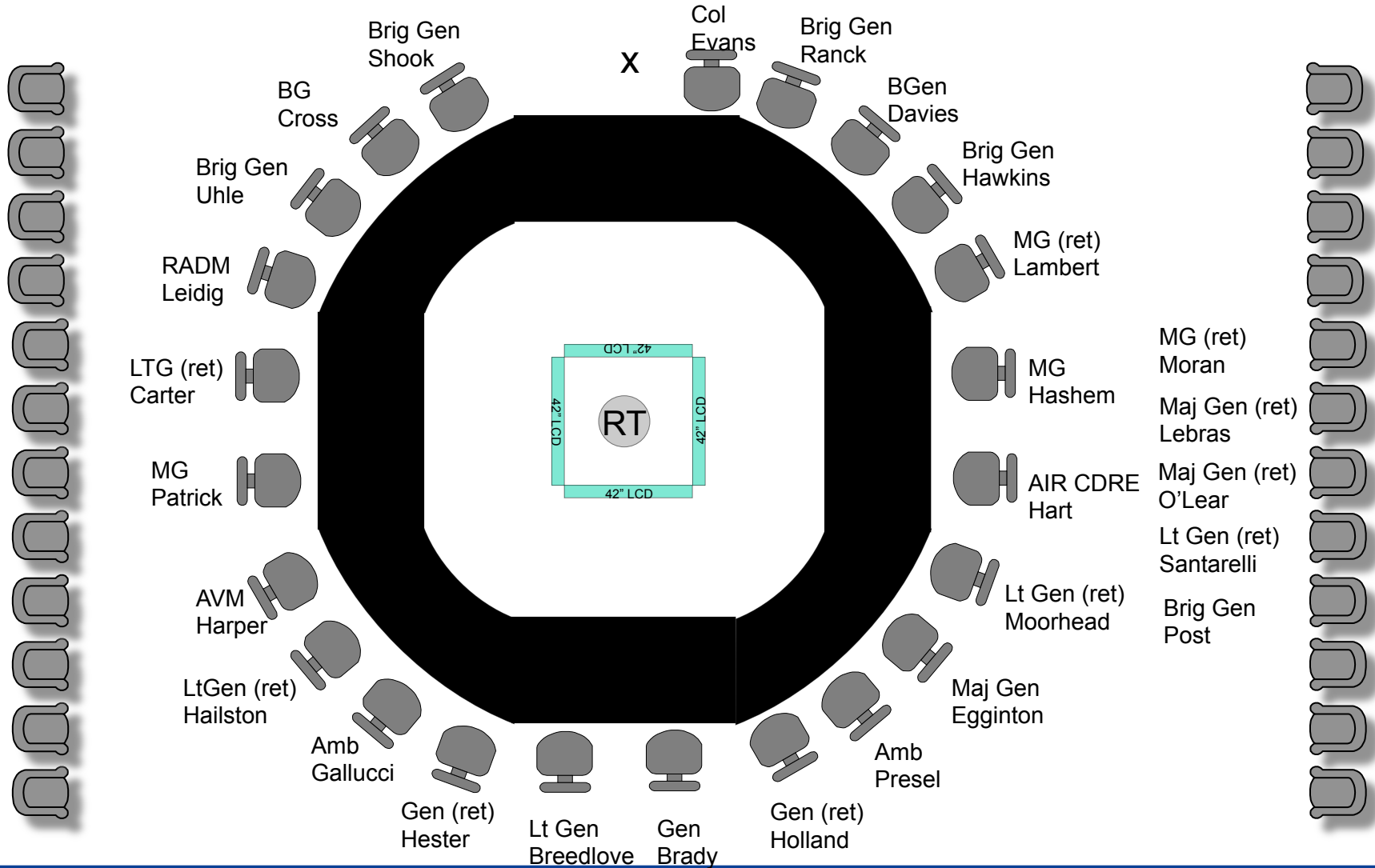
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# SLS Seating



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# *SLS – Edelweiss Setup*



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# The Chiefs View (Sample)

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Active Speaker Window →

Main Content Area →

Panoramic Camera Output →

The screenshot displays a Microsoft Office Live Meeting window titled "Microsoft Office Live Meeting - wg.mil". The interface is divided into three main sections:

- Active Speaker Window:** Located in the top-left corner, it shows a video feed of a man in a suit speaking. Below the video is a "Voice & Video" control panel with options for "Voice & Video", "Options", and "Ad Test".
- Main Content Area:** The central part of the window displays a circular seating chart titled "UE 08 SLS Seating". The chart shows a large circular table with 24 seats. The seats are arranged in two concentric rings. The names of the participants are listed around the table, including: Brig Gen Shook, Brig Gen Ranck, BGen Davies, Brig Gen Hawkins, MG (ret) Lambert, MG (ret) Moran, Maj Gen (ret) Lebras, Maj Gen (ret) O'Leary, Lt Gen (ret) Santarelli, Brig Gen Post, Lt Gen (ret) Moorhead, Maj Gen Egginton, Amb Presel, Gen (ret) Holland, Gen (ret) Brady, Lt Gen Breedlove, Gen (ret) Hester, Amb Gallucci, Lt Gen (ret) Hallston, AVM Harper, MG Patrick, AIR CDRE Hart, MG Hashem, RADM Leidig, Brig Gen Uhle, BG Cross, and LTG (ret) Carter. A central "RT" logo is visible in the middle of the table.
- Panoramic Camera Output:** Located at the bottom of the window, it shows a wide-angle view of the meeting room. Several participants are seated around the table, and a large screen in the background displays the same seating chart.

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# ***SLS Feedback from the Field***

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- **“Everything worked well at Barsksdale (8 AF). Things went so well, that Lt Gen Elder would like to use this on the NIPR side for future VTCs. Can you send me the ROE of how we can get this up and running here?”**
  - MSgt Miller USAF ACC 8 AF/CCA
- **“From a technical standpoint, I thought the UE08 SLS was an outstanding success. I thought there would be much more latency with that many users. Hats off to Mr. Schene and his crew. They made set-up and configuration simple and easy.”**
  - TSgt Perry, NCOIC, Executive IT Support
- **“I liked that thing. That's pretty neat.”**
  - Maj Gen Przybyslawski, AETC/CV

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# ***Acknowledgements***

- **USAFE A6 Office**
- **1CBCS**
- **AFDW A6 Office**
- **WARCAP Staff (SAF/XC)**
- **Edelweiss Staff (AFRC)**
- **Remote location SLS POCs/Techs**

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# *Where We Are Going*

- Hyper-V
- SCVMM
- Vista / WIN7
- MDT2010 and WAIK
- Token Activation
- OCS2007 R2
- Surface
- T-Rex
- Distributed Operations

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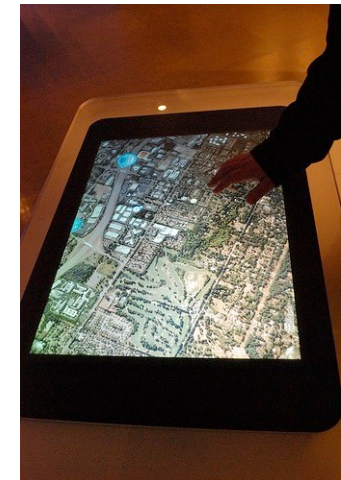


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# Surface



- Evolution of GUI interface → NUI interface
- Paradigm shift from traditional single-user operability to multi-user interoperability within the Wargame Information Environment
- Realization of next-generation interactive visualizations
- Expedition of scenario composition through touch, gesture, and object recognition
- Ability for non-technical user interaction through creation of parallel simulated and real world processes



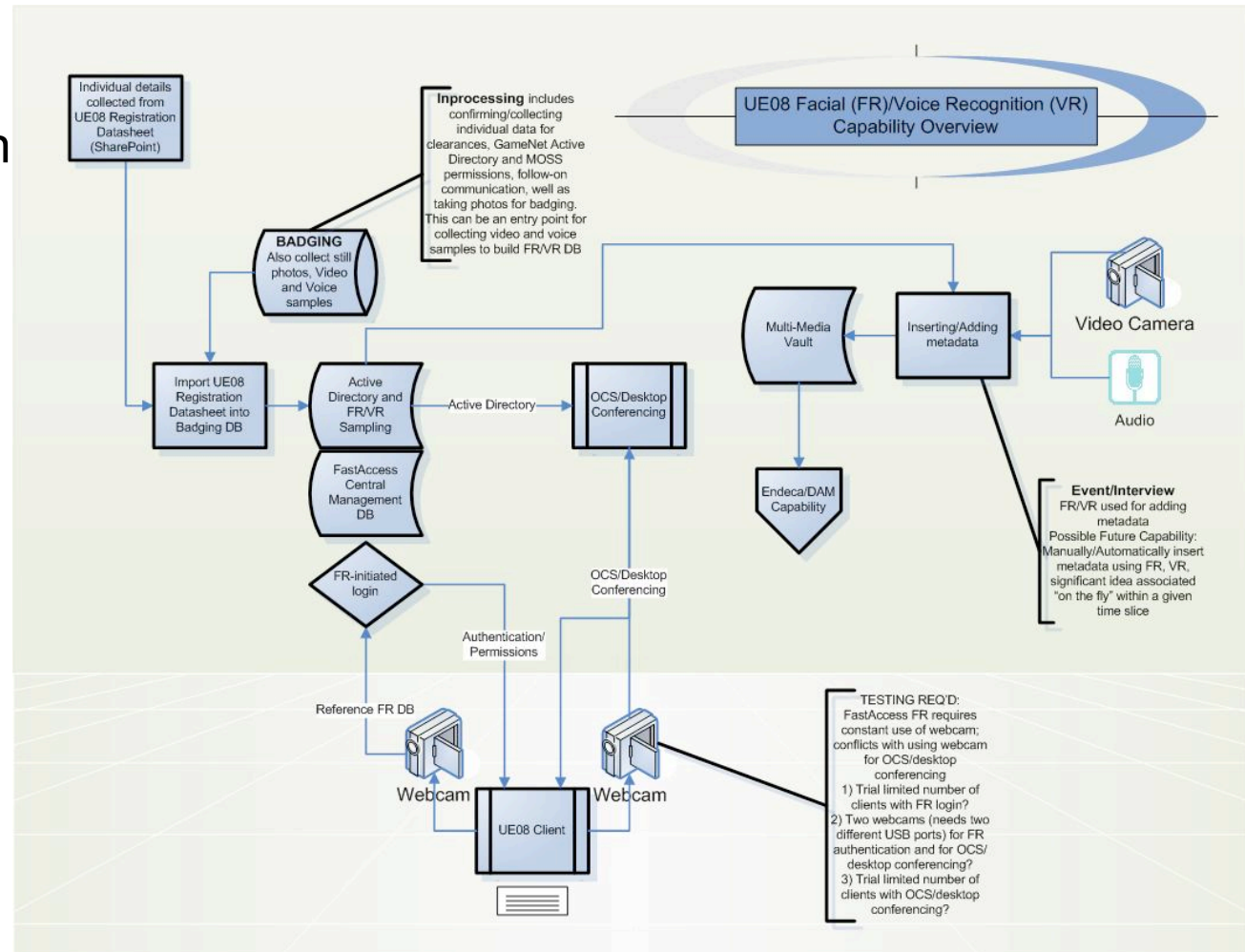
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# T-Rex Overview

- Facial Recognition
- Voice Recognition
- Speech to Text
- OCR
- Indexing of all Digital Assets
- Indexing of all Metadata
- Search



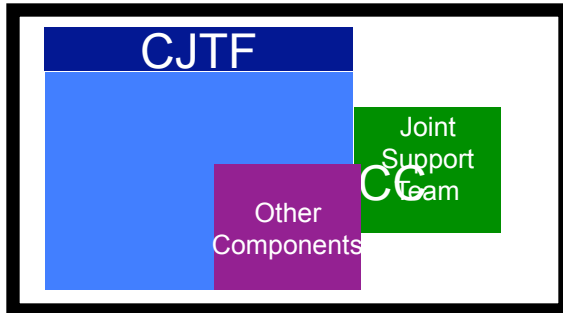
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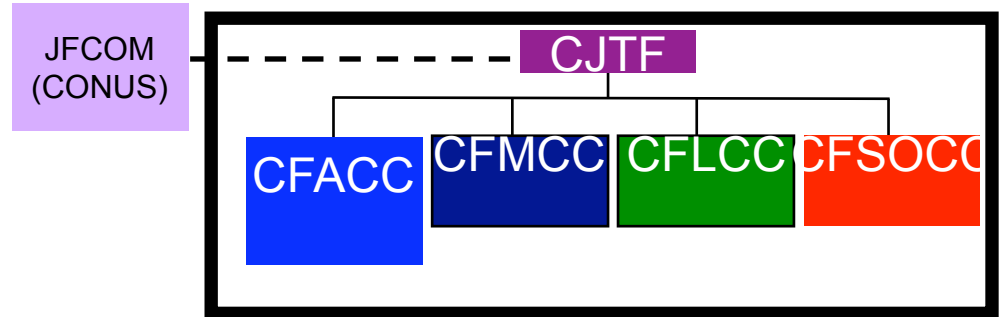
# UE Design Evolution

## UE04 – Wargaming Community / Air Centric



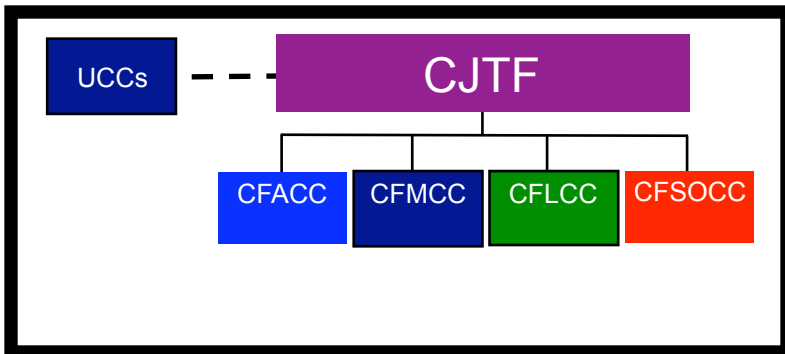
1<sup>st</sup> Active Duty GO CJTF CDR  
Co-sponsored with JFCOM

## UE06 – Take the game to the Warfighter (PACAF)



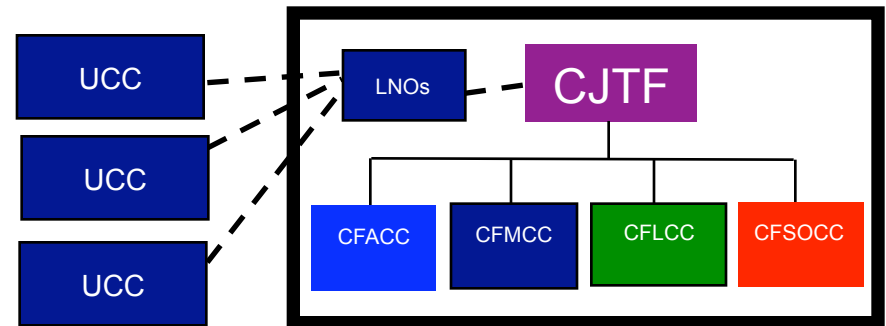
1<sup>st</sup> Three Star CJTF CDR in Service Game  
Reachback to JFCOM “Global Support Cell”

## UE08 – Take the game to the Warfighter (USAFE)



More robust CJTF – truly joint HQ  
More Comprehensive Combatant Command  
Representation present

## UE10 – Distributed Wargaming (PACAF)



Leverage IT for greater reachback to Combatant  
Commands to better address Cross-Command  
relationships

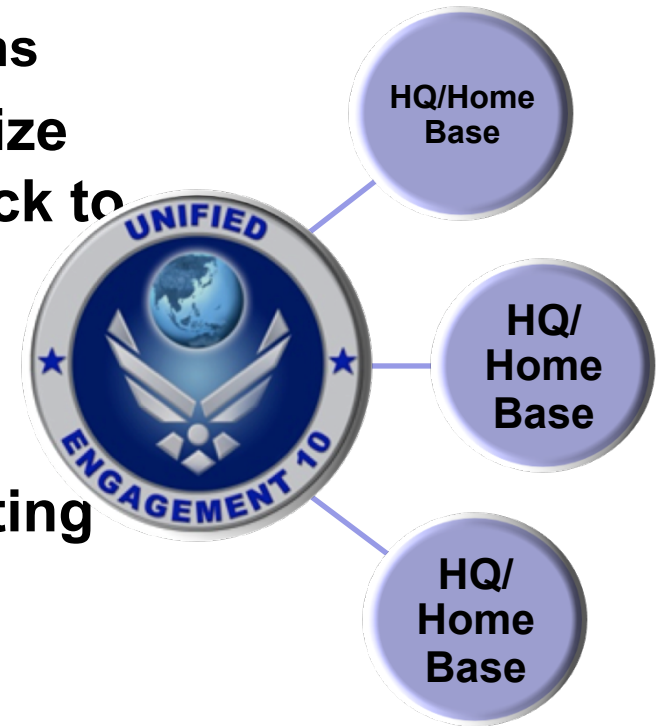
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# Distributed Operations Overview

- UE06 & UE08 took the game to the players
- UE10 will take the game to more players and more locations!
  - UE08 GameNet (250+ players at one location)
  - One or More Remote GameNet Locations
- Take the game to the warfighter, optimize joint participation, and enable reachback to supporting Combatant Commands
- Allows for more COCOM's GO/FO participation
- Allows for Realistic Supported/Supporting COCOM issues to surface



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# *Where We Are Going and What We Are Learning*

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- **Advancing Model Integration**
  - Machine-to-Machine Interface
  - Maximize Human Interface
- **Advancing Visualization Tools For Planning**
  - Satellite Took Kit
  - Surface Table
- **Advancing Search and Knowledge Mining**
  - Smart Agent (“Listening watch”) Searches
  - Voice and Facial Recognition -- Recall and Cuing
  - Analytically-oriented visual search returns

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# ***What We Learned About Sharepoint***

## ***Challenges Bringing Sharepoint to NIPRNET / SIPRNET***

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- **As Customer, 4-year Process of Discovering and Resolving Challenges**
- **Difficult to Find Top-level Architects and Connect With Policy Makers**
- **Though Proactive and Well Resourced, must accommodate DoD, Army and AF Security Policies**
- **Though SharePoint is Being Widely Pursued By HAF and MAJCOMs, architecture that includes non-.mil users is at odds with AF/Army/DoD Portal Concepts**
- **Requirement to Collaborate With Non-.mil/.gov Partners**
- **Routine Web-conferencing Still a Dream Outside Local Enclaves**

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# Questions?



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