Wargaming:
Enabling the Warfighter for the future
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
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

Integrity - Service - Excellence
What AF/A5XS Does

- 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
AFI 10-2305, ‘Wargaming’

- 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
What is a ‘Title 10’ Wargame?

- 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

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
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
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
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
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
The centers of our asynchronous collaboration world

- Document sharing and versioning
- Wargame Tracker
- Leave and TDY Tracker
- Event Registration
The Wargaming Environment

- 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
GamePoint (MOSS2007)

- 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

Integrity - Service - Excellence
GameNet (Virtual Server 2005R2)

U.S. AIR FORCE

- 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
ViewPoint (Customized STK UI)

- 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
# Models & Analytical Tools

**Synthetic Theater of Operations Research Model**
- AF/A9 theater campaign model, replacing THUNDER
- Best used in pregame / postgame analysis to establish ‘bookends’, prepare assessors
- Not yet practical to use during game execution, but working on ways to streamline data preparation

**Joint Flow & Analysis System for Transportation**
- TRANSCOM tool for building TPFDD, airlift and sealift resources, analyzing closure / feasibility
- A5XS tools translate JFAST output of force closure, feed wargame database & models

**Satellite Tool Kit (STK)**
- COTS product from Analytical Graphics Inc, adapted by A5XS with wargaming interface
- Powerful 3D animated visualization of air and space sensors, combined coverage analysis

**C4ISR, Space & Missile Ops Simulation**
- SAIC model tailored to support DoD space and airborne sensor analyses
- Detailed model of end-to-end intel planning, tasking, collection, processing, dissemination

**Commanders Analysis Planning Simulation**
- MDA tool for evaluating combined defenses against threat scenario
- Quick-turn tool, calibrated by more detailed models such as EADSIM

**Enhanced Logistics Intratheater Support Tool**
- ELIST complements JFAST by providing theater transportation and distribution analysis
- Simulates movement by road, rail, inland waterway, pipeline, theater airlift (MTMCTEA)

**Space Common Op Picture & Exploitation System**
- AFSPC in-house product for space platform and sensor visualization, coverage analysis
- Some unique tools built in for wargaming, such as ASAT evaluation

**OPNET Modeler**
- COTS tool for modeling communications infrastructure, provided by AFCA SMEs
- Throughput analysis to evaluate impact of degraded ops, cross-calibrate other tools

**Hazard Prediction & Assessment Capability**
- DTRA tool for evaluating chem / bio / nuclear effects considering terrain and weather
- Plume calculations, overlays, casualty projections

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**Integrity - Service - Excellence**
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

2007

Jan
- HQ USAF Guidance “UE08 to USAFE”
- USAFE Site Survey
- EUCOM Component Engagement Meetings
- PACAF Australia BP Event
- Scenario Development Workshop
- USAFE Poland BP Event
- PACAF Singapore BP Event

Feb
- AFRL Discovery Game
- Missile Defense Workshop
- Campaign Planning #1
- USSOCOM IW Spiral
- Cyberspace Operations Workshop
- CJTF Staff JPG Workshop
- PACAF India BP Event
- 1st NSC Meeting

Mar
- PACAF Northeast Asia #2 BP Event
- USAFE Romania BP Event
- PACAF Global Hawk Forum
- Campaign Planning #1
- 2nd NSC Meeting
- 2nd NSC Meeting
- Global Mobility Wargame
- 3rd NSC Meeting
- Campaign Planning #2
- ISR Workshop
- Red Workshop
- Campaign Planning #2
- Red Workshop
- Assessment Workshop
- Red Workshop
- Deterrence Seminar
- Operational Move 1
- Senior Leader Seminar
- 30 Sep - 3 Oct
- 29 Oct – 5 Nov
- 6 Nov

Apr
- Global Mobility Wargame
- 3rd NSC Meeting
- Campaign Planning #2
- ISR Workshop
- Red Workshop
- Campaign Planning #2
- ISR Workshop
- Red Workshop
- Assessment Workshop
- Red Workshop
- Deterrence Seminar
- Operational Move 1
- Senior Leader Seminar
- 30 Sep - 3 Oct
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- 6 Nov

May
- Global Mobility Wargame
- 3rd NSC Meeting
- Campaign Planning #2
- ISR Workshop
- Red Workshop
- Campaign Planning #2
- ISR Workshop
- Red Workshop
- Assessment Workshop
- Red Workshop
- Deterrence Seminar
- Operational Move 1
- Senior Leader Seminar
- 30 Sep - 3 Oct
- 29 Oct – 5 Nov
- 6 Nov

Jun
- Deterrence Seminar
- Operational Move 1
- Senior Leader Seminar
- 30 Sep - 3 Oct
- 29 Oct – 5 Nov
- 6 Nov

2008

Feb
- Campaign Planning #2
- ISR Workshop
- Red Workshop
- Campaign Planning #2
- ISR Workshop
- Red Workshop
- Assessment Workshop
- Red Workshop
- Deterrence Seminar
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2009

Integrity - Service - Excellence
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
Unified Engagement Umbrella

27 Events over 2-years
2 Theaters
Europe
Pacific
8 Host Countries:
Germany
Australia
Poland
Singapore
India
Romania
Japan
US

Capstone Event

Workshops / Seminars / Integrated Wargames

Building Partnership Events

Mobility
Comm
ISR
Space
Irregular Warfare
Missile Defense
Cyber
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
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
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
Connectivity COAs

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

- LiveMeeting Participants
- Gen Norton Schwartz (Pentagon)
- Gen Roger Brady (Ramstein AB)
- Lt Gen Dan Darnell (Pentagon)
- Lt Gen Dave Deptula (Pentagon)
- Lt Gen Ray Johns (Pentagon)
- Lt Gen Rusty Findley (Scott AFB)
- Maj Gen Bill Rew (Pentagon)
- Maj Gen Anthony Przybyslawski (Randolph AFB)
- Maj Gen Mike Hostage (Hickam AFB)
- Maj Gen Floyd Carpenter (Barksdale AFB #2)
- Maj Gen Richard Webber (Pentagon)
- Maj Gen Steve Miller (Maxwell AFB)
- Maj Gen William Lord (Barksdale AFB #1)
- Brig Gen Thomas Andersen (Langley AFB)
- Brig Gen Joe Lanni (WP AFB)
- Mr. Joseph Rouge (Pentagon)

Current Position
- CSAF
- USAFE/CC
- AF/A3/5
- AF/A2
- AF/A8
- AMC/CV
- UE 08 Game Director
- AETC/CV
- PACAF/CV
- 8 AF/CV
- AF/AA3/5
- LeMay Center Commander
- AFCYBER(P) Commander
- ACC/A5
- AFMC/A3
- Dir, NSSO
The Chiefs View (Sample)

Active Speaker Window →

Main Content Area →

Panoramic Camera Output →

Integrity - Service - Excellence
“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
Acknowledgements

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

- Hyper-V
- SCVMM
- Vista / WIN7
- MDT2010 and WAIK
- Token Activation
- OCS2007 R2

- Surface
- T-Rex
- Distributed Operations
- 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
T-Rex Overview

- Facial Recognition
- Voice Recognition
- Speech to Text
- OCR
- Indexing of all Digital Assets
- Indexing of all Metadata
- Search
**UE Design Evolution**

**UE04 – Wargaming Community / Air Centric**
- CJTF
- Joint Support Team
- Other Components

1st Active Duty GO CJTF CDR
Co-sponsored with JFCOM

**UE06 – Take the game to the Warfighter (PACAF)**
- CJTF
- JFCOM (CONUS)
- CFACC
- CFMCC
- CFLCC
- CFSOCC

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

**UE08 – Take the game to the Warfighter (USAFE)**
- UCCs
- CJTF
- CFACC
- CFMCC
- CFLCC
- CFSOCC

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

**UE10 – Distributed Wargaming (PACAF)**
- UCC
- LNOs
- CJTF
- CFACC
- CFMCC
- CFLCC
- CFSOCC

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

*Integrity - Service - Excellence*
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
Where We Are Going and What We Are Learning

- 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
What We Learned About Sharepoint
Challenges Bringing Sharepoint to NIPRNET / SIPRNET

- 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 includeds 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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