505th Command & Control Wing

Gateway to Operational Level Command

Distributed Mission Operations

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(USAF DMOC)

This Briefing is:
UNCLASSIFIED
Overview

- Distributed Mission Operations
- Virtual Flag Overview & Lessons Learned
- Growing Role of DMO Exercises
- Other Roles of DMO

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Chain of Command

Air Combat Command
Gen Keys

USAF Warfare Center
Maj Gen Worden

505 CCW
Col DiFronzo

505 DWG
Col Moskal

Gateway to Operational Level Command
505th Distributed Warfare Group
Kirtland AFB, NM

Mission
Provide high-fidelity theater synthetic battlespaces and world-class exercise control to support joint distributed warfighter training, testing and experimentation across the operational and tactical levels of war

Key Programs
• Distributed Mission Operation Center (DMOC)
• BLUE FLAG, VIRTUAL FLAG
• USAF Professional Control Force
DMO is a CSAF-directed readiness initiative

- Train warfighters and build mission rehearsal capability
- Tie C2 & ISR to the shooters
- Mix/match Live-Virtual-Constructive to meet training objectives from tactical to operational levels
- Link geographically separated simulation centers
- Link across AF, Joint, & Coalition

DMO is an Integration, Training, and Testing Effort!

- Integrate existing, emerging programs, processes, technologies to evolve DMO Capabilities

DMO Provides the Major Component of Training Transformation for the AF (CSAF, 7 Jan 03)
DMOC Simulators

- F-15 C/E
- CRC
- J-STARS
- Cobra Ball
- AWACS
- Patriot / JSWS
- UAV

- Threat & Scenario Generators
- F-22
- F-16 RTC
DMOC Accessible Networks

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As of: 14 Jun 06
Exercise VIRTUAL FLAG

- Large Force Combat Employment Exercise in a virtual battlespace

- Similar to Red Flag format, but “larger”
  - 250 - 400 participants (20+ locations)
  - Warfighters participate from worldwide locations
  - Requirements: Simulator + network + DMO capability

- 2 week exercise period
  - 1 week – academics & integration testing (decreasing requirement)
  - 1 week – execution (Fam Day + four days of 3-4 hr vul period/day)

- Scenarios → AEF Preparation
  - Range space is virtually unlimited
  - Theater-specific mission planning documentation (SPINS, ATOs, ROE)
  - Real world threat presentations (A/A, A/G, IO)
2 days of Academics (at Kirtland and via VTC)

- MWS Capabilities/Limitations
  - Sim difference training
  - Includes CAOC & Operational-level of War training

- CSAR
  - TTPs and PRC-112 operations

- Package Commander Duties and Responsibilities

- Dynamic Targeting (DT)
  - Roles and responsibilities of each MWS

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* "MATERIALISTS" ARE A MAJORITY THROUGHOUT HEARTLAND

* "FAITHFUL" ARE MAJORITY IN EUREKA AND EL DORADO; MINORITY IN HEARTLAND

* "FAITHFUL" CONSIDER LAS VEGAS TO BE BIRTHPLACE OF THEIR RELIGION

* "ROAD TO VEGAS" IS HISTORICALLY SIGNIFICANT TO "FAITHFUL"

* "FAITHFUL" CONSIDER "BRETHREN" TO BE UNCLEAN INFIDELS, UNDESERVING OF RESPECT

* "ROAD TO VEGAS" HISTORICALLY CONTROLLED BY "BRETHREN"
Virtual FLAG 06-3

- SW USA Scenario
- New Capabilities
  - J-Fires
    - Real-time coordination for Joint Kill Box procedures
  - Digital CAS Interface
    - Machine to machine interface – ASOC to JTAC tasking/reporting via TACP CAS Software
  - DMOC Su-27
    - First time configuration of F-16 simulator as Su-27
  - Aggressors (Nellis)
    - Beginning linkages with Red Flag Aggressor squadron
Virtual FLAG 06-4

- SW USA Scenario
- New Capabilities
  - Red Tactical Voice
    - Joint EP-3/RIVET JOINT capability to simulate tactical Red Air
  - Minot B-52
    - First time for integration and participation for this facility. Fly in formation w/Barksdale (2-ship).
  - Dyess B-1
    - First time run of B-1 from new DMO-equipped facility at Dyess
  - IFACT Helmet-Mounted Sight
    - Pre-cursor to JTACS-dome – first test within VF of helmet-mounted 360° view
  - AFRL/Mesa – Tested a new network (DMO) monitoring tool
VF 6-4 Numbers

- People Trained: 356 Total
  - USAF: 207
  - USA: 104
  - USN/USMC: 18
  - RAF: 27

- DMOC Sorties Flown: 33 (162 hrs, 93 participants)

- Distributed Sorties Flown: 88 (446 hrs, 263 participants)
VIRTUAL FLAG 06-4 Results

- B-1 participated from home station (Dyess AFB) for the first time
- C-17s successfully integrated
- Navy E-2C returned, four crews trained – logged NAVY RAP reqs
- Tactical Red Voice-emulator tested successfully for aircrew training
- E-3C / E-8C / B-1 / B-52 logged RAP reqs
- B-52 USAFWS Upgrade Mission Commander training
- ADAFCO / USAF JICO identified discrepancies in LINK mgmt
  - False positive EIDs of Blue Air tracks
- CAOC Operations floor integrated and trained via CAOC-N
VIRTUAL FLAG Lessons Learned

- Training is valuable even with low-fidelity sims
  - Integrate high to low fidelity sims . . . Tactical Training!
  - Exercise the entire Theater Air Control System

- Integrating Operational and Tactical level (AEF)
  - Great training for CAOC and tactical level participants
  - More needs to be done - common databases & EGs

- Still many technical hurdles to overcome in integration
  - Low & high fidelity sims - lack of DMO standards
  - No such thing as “plug and play” . . . not yet
  - Need a Maytag, DMO-experts, and professional WF
DMO Training Spectrum

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Tactical
- Day-to-Day
- DMON

Operational
- JTFEX
- UFL
- Blue Flag
- Northern Edge

Virtual Flag
- Warfighter Focused Events

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Warfighter Focused Events (WFEs)

- Training focused tactical warfighter
  - Focused on a specific task/event
- 10-25 Participants (5-7 Weapon Sys), small White Force
- Build “On-the-shelf” training missions
  - Can be varied – dial up/down intensity/constructives
- Frequency: Eventually weekly

<table>
<thead>
<tr>
<th>CSAR</th>
<th>CAS</th>
<th>DCA-Patriot</th>
<th>SOF</th>
</tr>
</thead>
<tbody>
<tr>
<td>XINT</td>
<td>TST/DT</td>
<td>Airfield Assault</td>
<td>IADS takedown</td>
</tr>
<tr>
<td>SEAD/DEAD</td>
<td>Pipeline Protect</td>
<td>Urban CAS</td>
<td>DCA (J-kill chain)</td>
</tr>
<tr>
<td>OCA</td>
<td>NEO</td>
<td>WMD Strike</td>
<td>Others . . .</td>
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On the horizon . . .

- Longer Term Virtual Flag development
  - MCO
  - AEF / GWOT
  - HLD
  - Rapid Mission Rehearsal

- Many Longer Term Pieces (Missing)
  - Databases (for at least five potentially hot areas)
  - Scenario Generation, EGs, IO, EW, etc.
  - Training Requirements

- LVC Integration
  - Incorporating Virtual/Constructive into Red Flag (Live)
  - Incorporative Live into Virtual Flag

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Air Force M&S Thrust Areas

M&S Foundations

Preparing, Equipping and Transforming

Warfighter Readiness

Warfighter Capabilities

New & Emerging

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DMO Test Event (IAMD) Execution

- **IAMD**: Distributed exercise consisting of 4 sites
  - Distributed Mission Operations Center (DMOC)
  - Virtual Warfare Center (VWC)
  - Joint National Integration Center (JNIC)
  - Elmendorf AFB, AK

- **Scenario**: Persian Gulf (missile launch)
  - Ten vignettes
    - Increasing in type and intensity of threats
  - Final vignette consisted of multitude TBMs, cruise missiles, and aircraft threats
    - Prioritizing the threats was the emphasis on this vignette
DMO Test Event (J-Fires)

- Joint Fires Coordination Measure (JFCM)
  - Tested pre-developed procedures to replace existing joint kill box operations
  - Test conducted during VF 06-3 (June 2006)
  - Highly successful event
    - 100% of data capture requirements
    - Multitude of joint major weapon systems
  - Follow-on event will be tested in a “real world” theater
Joint Kill Chain Event (JKCE)

- JNTC funded: Provide training in a Joint Environment

- Grew out of Lessons Learned from OIF

- Goal: Minimize fratricide incidents
  - Coordinate air tracks to ensure PATRIOT missiles are targeting the correct entities

- Air Force CRC, Army ADAFCOs, and PATRIOT units
Advanced Concepts

- Joint Air/Ground Operations: Unified, Adaptive Replanning (DARPA)
  - Dynamic semi automated ATO generation
  - Testbed for CONOPS development

- Airborne Laser (ABL SPO)
  - Prototype Tactical and Weapon Displays (Warfighter in the loop)
  - TADIL-J capability

- F-16 High Energy Laser Fighter (AFRL)
  - Tactical laser
  - Evaluate design parameters and utility

- Advanced Concepts Event (AFRL)
  - CONOPS development
  - Mission tactics, C2
  - Survivability/lethality of advanced systems
Few thoughts to leave you with . . .

- DMO brings realistic training unavailable except in combat
  - Real world scenario & full-array of threats
  - Size of the training range is virtually unlimited
- Early integration and testing of new technology and TTPs
- DMO brings training w/lower costs
  - Aging airframes, rising flying hour costs
- Integrate tactical through operation level of combat
- Challenges:
  - Expand number of USAF, Joint, Coalition, external (DMO Campus)
  - Brief / Debrief tools in the distributed environment
  - Change in aviator culture (understood by younger generation)
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Questions
Virtual Flag Dates

- **VF 7-1**
  - 30 Oct – 2 Nov 06

- **VF 7-2**
  - 19-22 Mar 07

- **WFEs**
  - Beginning NLT Apr 07

- **VF 7-4**
  - 16-20 Jul
VF 6-4 PARTICIPANT LOCATIONS

KIRTLAND AFB – DMOC
E-3D (RAF crew)
CRC (729th ACS)
ASOC (Washington ANG)
Space (Schriever AFB)
F-15C (Tyndall AFB crews)
Su-27 (New Mexico ANG)
COBRA BALL (Offutt AFB crew)
JTACS (Ft Stewart, GA)

SCHRIEVER AFB
Space

MINOT AFB
B-52

DTOC + 3 ARC
A-10 (Davis Monthan AFB, Battle Creek ANG, Bradley ANG)
JTACS (Ft Stewart, GA)

FT BLISS
Patriot (RTOS)

NAS WHIDBEY ISLAND
EP-3

MCCHORD AFB
C-17

NELLIS AFB (CFACC)
CAOC-N

TINKER AFB
E-3C

FT SILL
III Corps Artillery
CGS

DYESS AFB
B-1

LACKLAND AFB
AFIWC – DICE
DIADS

BARKSDALE AFB
B-52

CHARLESTON AFB
C-17

DAM NECK, VA
E-2C

ROBINS AFB
E-8C

DOC
DMON Hub