

Headquarters U.S. Air Force

Integrity - Service - Excellence

Browser Client First-Person Simulation Combat Convoy Mission Rehearsal Tool 30 Apr 08



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Overview

- **Concept/Key Attributes**
 - Mission Rehearsal for Agile Combat Support (ACS)
 - Cross between Military Sim, 1st Person Shooter, & MMO
- **Combat Simulation Approaches Compared**
 - Full Scale, COTS Games, CCMRT
- **Browser Environment vs. Thick Client Run-Time**
 - Case for Action, Technologies
- **Training Effectiveness**
 - Intelligent Tutoring
 - Tutorials
 - Metrics
 - Scoring
- **Multi-User Interaction**
 - Scalability
 - Communications
- **Currency, Reusability**
 - Robust, Intuitive Editing Tools





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Concept

- This generation of Airmen learns through simulation
- Provide Airmen first-person immersion to retain currency & reinforce correct skills
- Fill Agile Combat Support capability gaps
 - Distributed Mission Ops (DMO)
 - ACS Mission Rehearsal
- Lay framework for other ACS functions
- Satisfy DoD security & accreditation
- AF Portal brings it to any .mil computer
- Saves \$\$\$ + increase accessibility

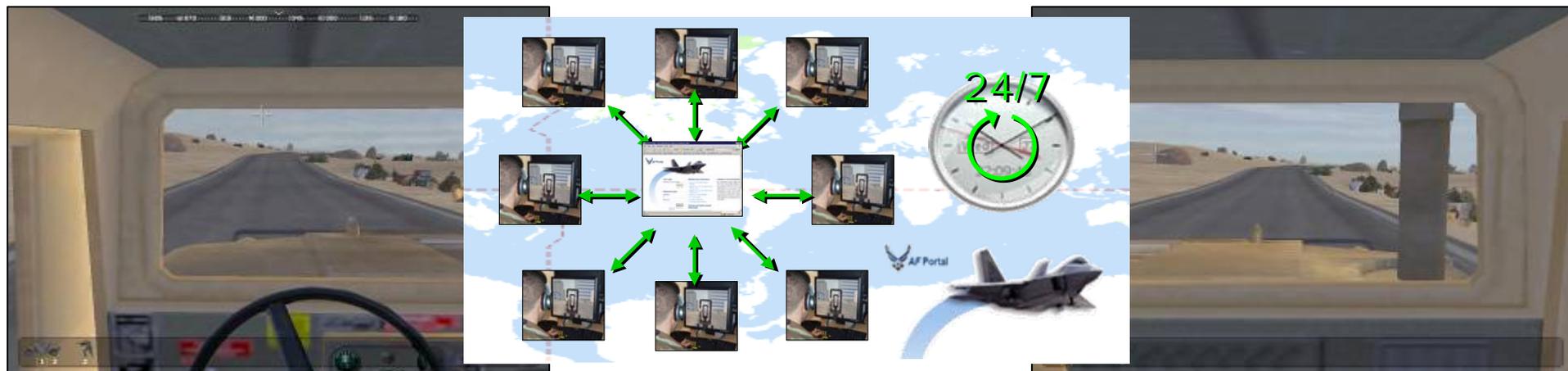




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Key Attributes

- **Immersive:** Cross between Mil Sim, 1st Person Shooter, MMO
- **Browser Based:** enterprise accessibility
- **Scalability:** 1 – 36+ users per session, VOIP, Intelligent Tutor, Auto AAR
- **Student model measures, captures, and reports performance**
- **Currency & reusability:** robust, intuitive editing suite
- **Server-side processor load, Edge Servers for static data**
- **One time mobile code & data download to cache + smaller updates**



Bring simulation to the troops using existing infrastructure

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Combat Simulation Approaches Compared

Full Scale Sim (VCCT):

- Too expensive to install at all bases
- Very high fidelity
- High \$
- Low Availability



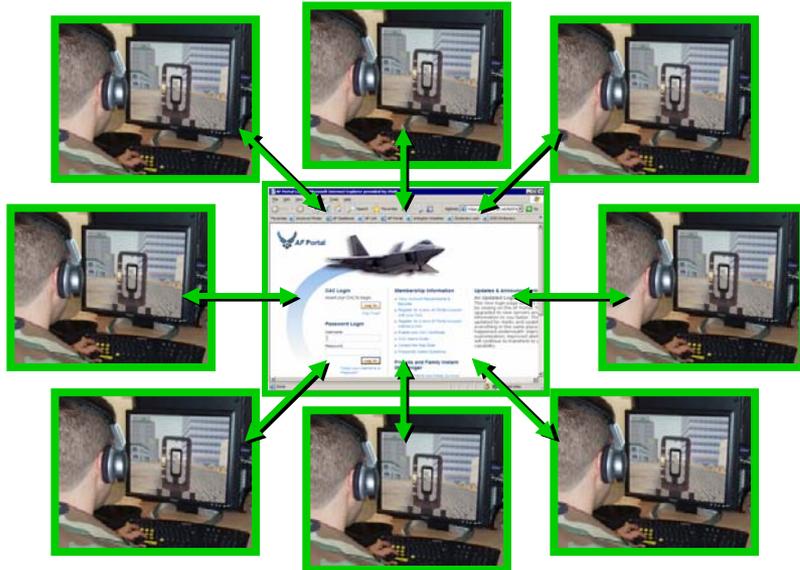
Current COTS:

- Needs dedicated Infrastructure
- High overhead
- Not "Enterprise"
- Medium fidelity
- High \$
- Medium Availability



CCMRT:

- Low overall costs
- Leverages existing infrastructure
- Uses AF Portal for "Enterprise" solution
- Readily "port-able" to DKO for joint use
- Lays framework for ACS DMO
- Medium Fidelity
- Low \$ (\$5M over FYDP)
- 24/7 Availability to everyone in AF



CCMRT provides \$B in capabilities for \$M

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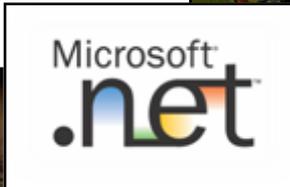
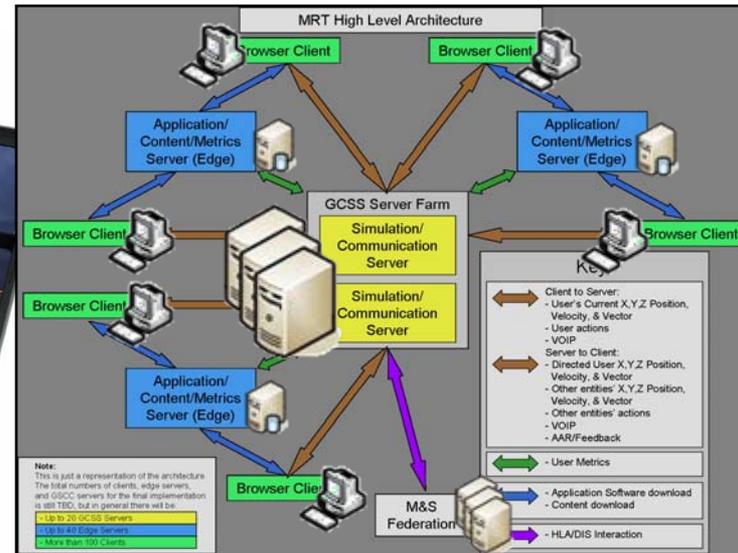


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Browser Environment

e Case for Action:

- Security
- Accreditation
- Licensing
- Admin Rights
- Distribution



Possible Technologies:

- Accredited Plug-ins
- Non-Accredited Plug-ins (ActiveX)
- Windows Presentation Foundation
- Server-Side 3D Rendering (Streaming)



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Training Effectiveness

Intelligent Tutoring

- More observant, objective, & omnipresent than humans
- Team & individual feedback: instant vs. AAR

Tutorials

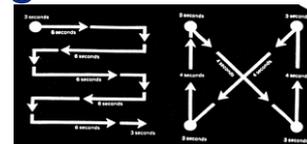
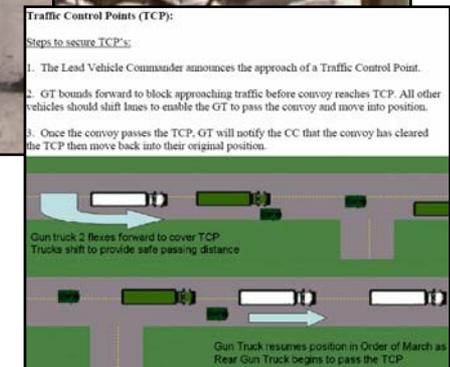
- Streaming video, multiple-choice testing, instant feedback

Metrics

- Individual & team performance-based
- Examples: Speed/interval, scanning, threat detection, reporting

Scoring

- Driven by the “student model”
- Performance details visible to supervisors/training officers
- Aggregated “Score” visible to peers...high-score board

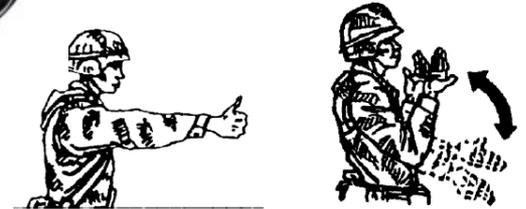




Multi-User Interaction

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- Scalable from 1 to 36+ users per session
- Human Instructor Optional
- A/I can perform all roles
- Communications
 - Menu-Driven (as needed)
 - Movement Tracking System (MTS)
 - Gestures/hand symbols
 - Proximity simulation VOIP
 - Radio simulation VOIP
- Convoy Commander leads mission brief and AAR
 - Human instructor can coach at any time
 - Intelligent tutor will provide feedback in AAR

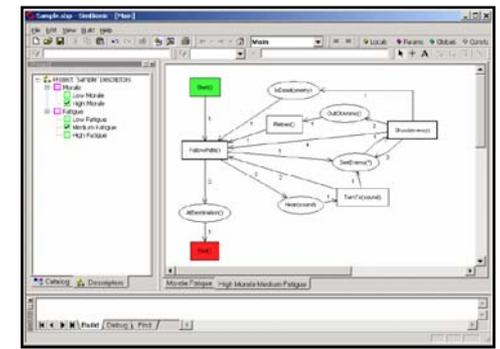
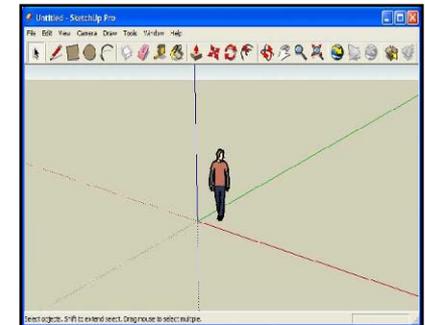
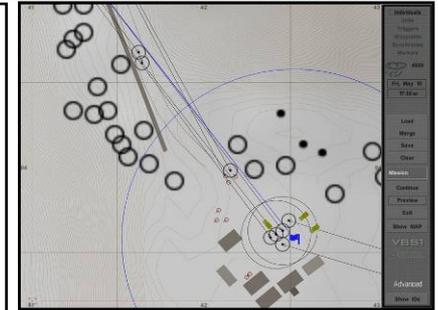
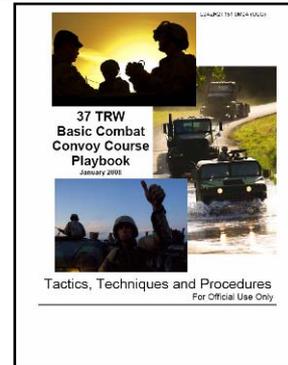




Currency, Reusability

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- Must stay ahead of enemy
- Intuitive editing tool suite
 - Scenario
- Entity (graphics, physics, behavior, AI)
 - Equipment/Vehicles/Weapons
 - Intelligent tutoring/heuristics
 - Application (re-use by others)
- **GOTS licensing**



Questions?



Custom-made product required to meet all requirements;
Framework for DoD to build other applications

Framework for DoD to build other applications
Custom-made product required to meet all requirements?

Back-up Slide: High-level CCMRT Architecture

Mission Rehearsal Tool (MRT) Platform Elements

