Defense GameTech Users' Conference '09

Virtual Worlds Panel: Worlds of Promise

Wednesday March 11, 2009

1330-1430

Approved for Public Release.
Security and OPSEC Review Completed: No Issues.

Virtual Worlds Create a Sense of …

PLACE

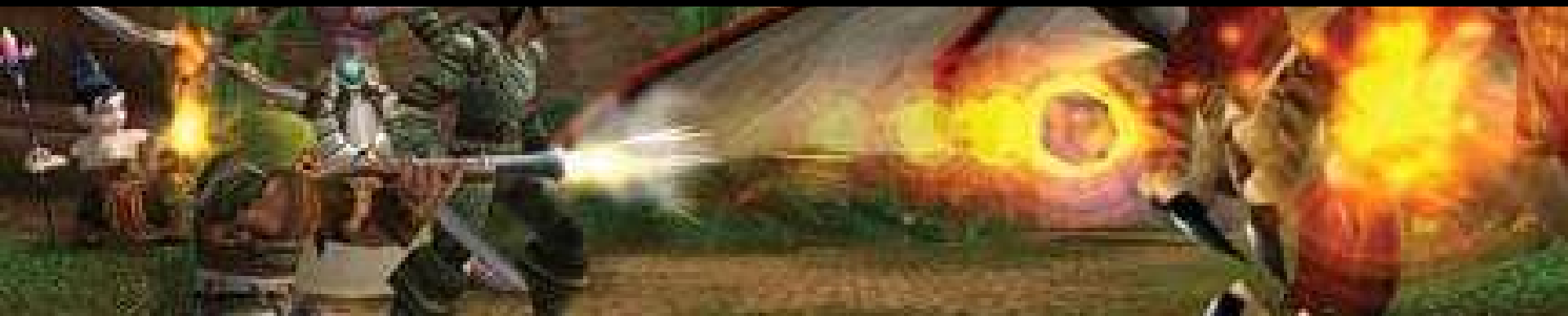
Map, Google Earth, Game Levels, Virtual Worlds

PERSON

Email, VTC, IM, MMOG, Virtual Worlds

PURPOSE

Sports, Wargames, Computer Games, Virtual Worlds



Panelists

- Roger Smith, CTO at US Army PEO-STRI
  - The Silent Chair
- Remy Malan, VP at Qwaq
  - Qwaq Forums
- Brent Smith, CTO at ECS
  - NEXUS
- Dave Rolston, CEO at Forterra
  - OLIVE
- John Lester, SL Pathfinder at Linden Labs
  - Second Life

Remy Malan

Qwaq's tagline is "Virtual Spaces for Real Work." In this session, we will look at Qwaq's approach to virtual worlds including choices we made about how users interact with the environment and each other, how information is presented, the role applications play, the extensibility of the environment, security considerations in deployment, and the role of standards.

Qwaq

GameTech March 2009

Virtual Worlds Developer Panel

Remy Malan
VP, Enterprise
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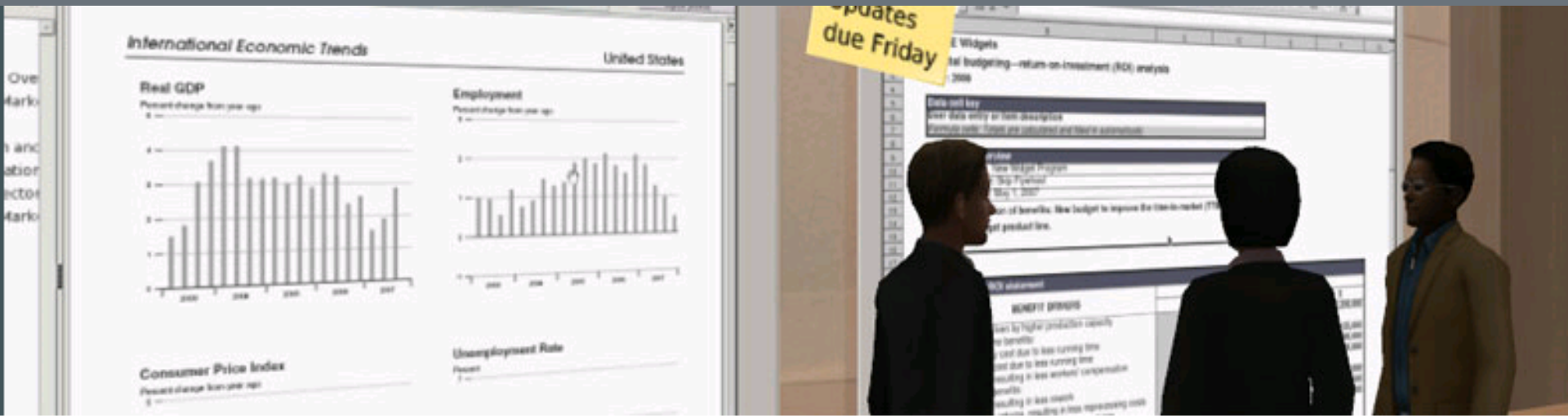
Application Collaboration

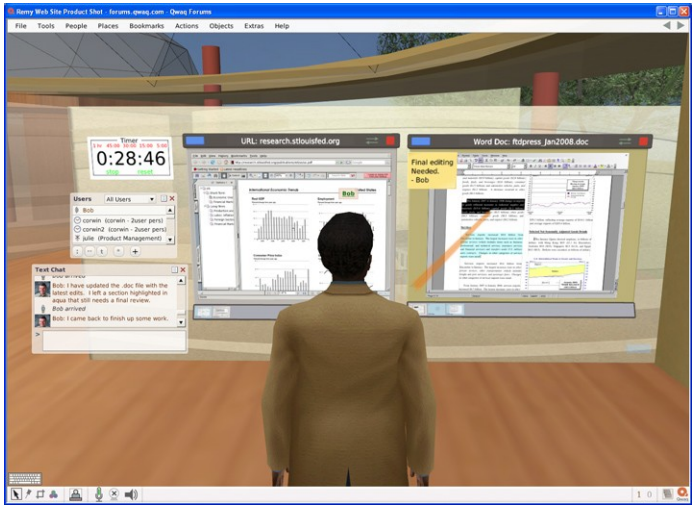


Multi-Application Sharing + Presence + Communications + Security

- Ideal for organizations with **multiple locations, multiple applications**
- Optimize the effectiveness of **staff** on distributed teams
- Efficient collaboration with ecosystem **partners: upstream and downstream**

Immersive Data, Better Decisions, Faster

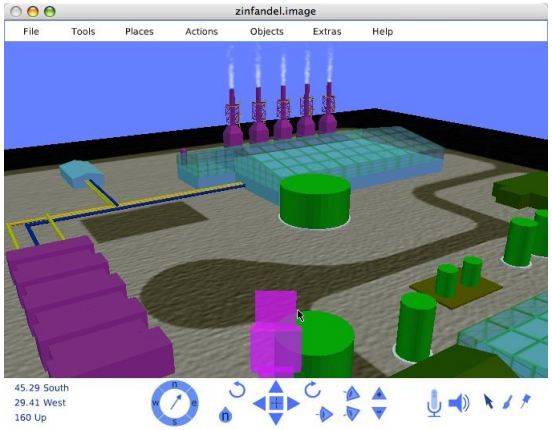
- Traditional enterprise collaboration tools (email, conference calls) are poorly suited for data-driven decision making
- “Speech – Gesture – Sketch”
  - A more natural and powerful collaboration mode for participants, and more satisfying for employees
  - Supports a wide range of personal and cultural communication styles
  - Verbal and nonverbal communication can be supported simultaneously (e.g. VoIP plus pointer in Qwaq Forums)
- Persistent 3-D “war rooms” provide intuitive context for working on multiple data sources and applications. Great quick-start for new team members.



Examples of Virtual World Collaboration Applications

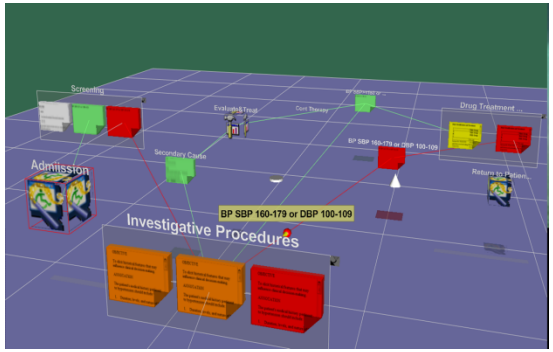
Project Management

Facilitated Meetings



Virtual Operations Center

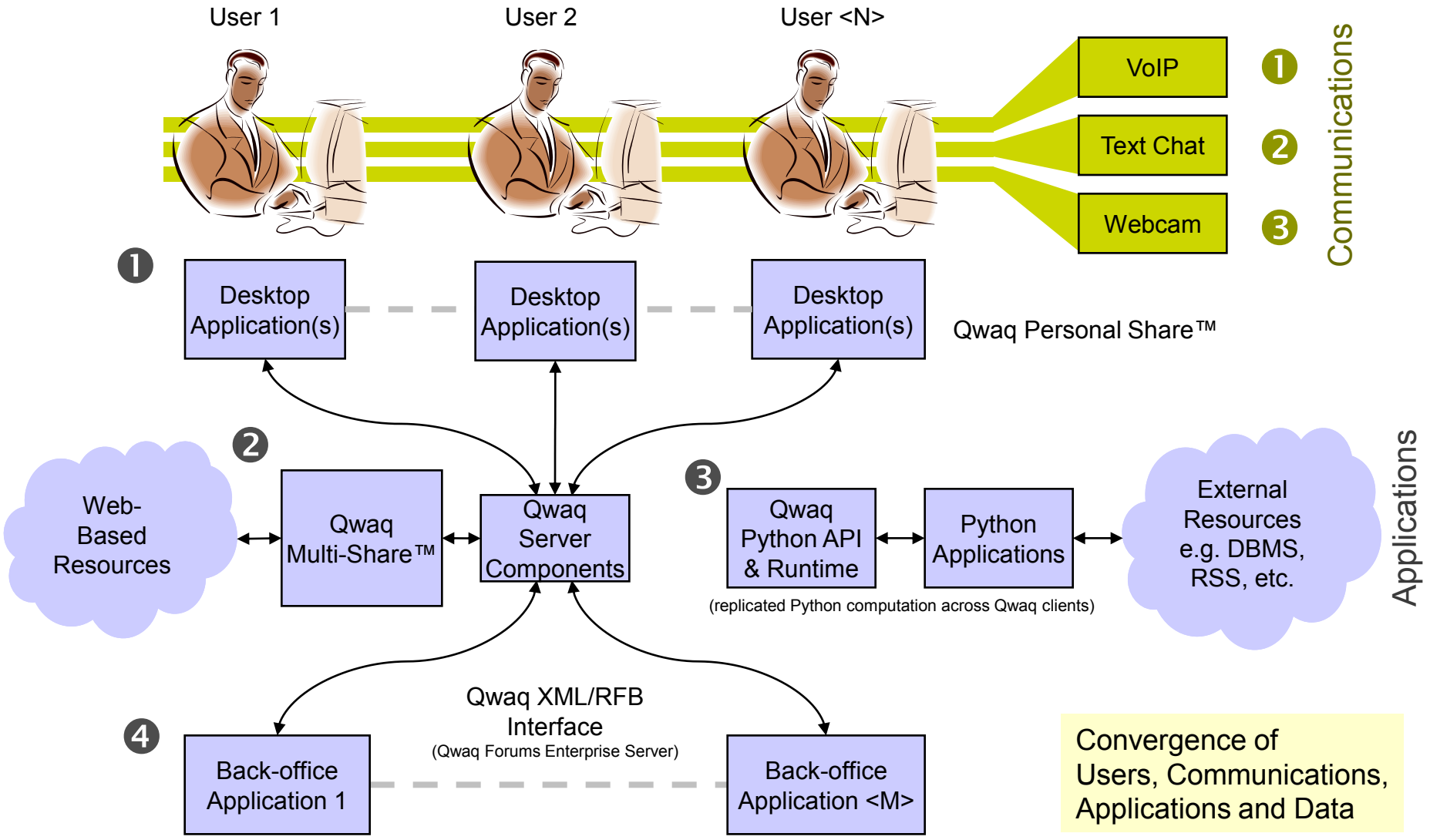
Training



Visualization

Disaster Recovery

Deployment Architecture: Users, Communications, Applications and Data



Convergence of Users, Communications, Applications and Data

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Qwaq Forums: A Standards Based Approach

- Croquet for Collaboration Synchronization
  - Open standard replicated computation model
  - Open standard 3D representation of world and persistent storage (XML based C3X and C3Z)
- Python for Extensibility
  - Python programming language using standard libraries
  - XML / RFB based integration of remote applications
- Standard 3D File Import
  - Support for COLLADA and popular file formats such as VRML, ASE, and OBJ
- Out-of-the-Box Document Support
  - Office support: Word, Excel, and PowerPoint; Adobe PDF, Images (JPG, PNG, etc.), live browser support (incl. Java)
  - Import files by drag-and-drop
  - Export files when needed. Qwaq is not a “locked in” model

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Thank You!

Brent Smith

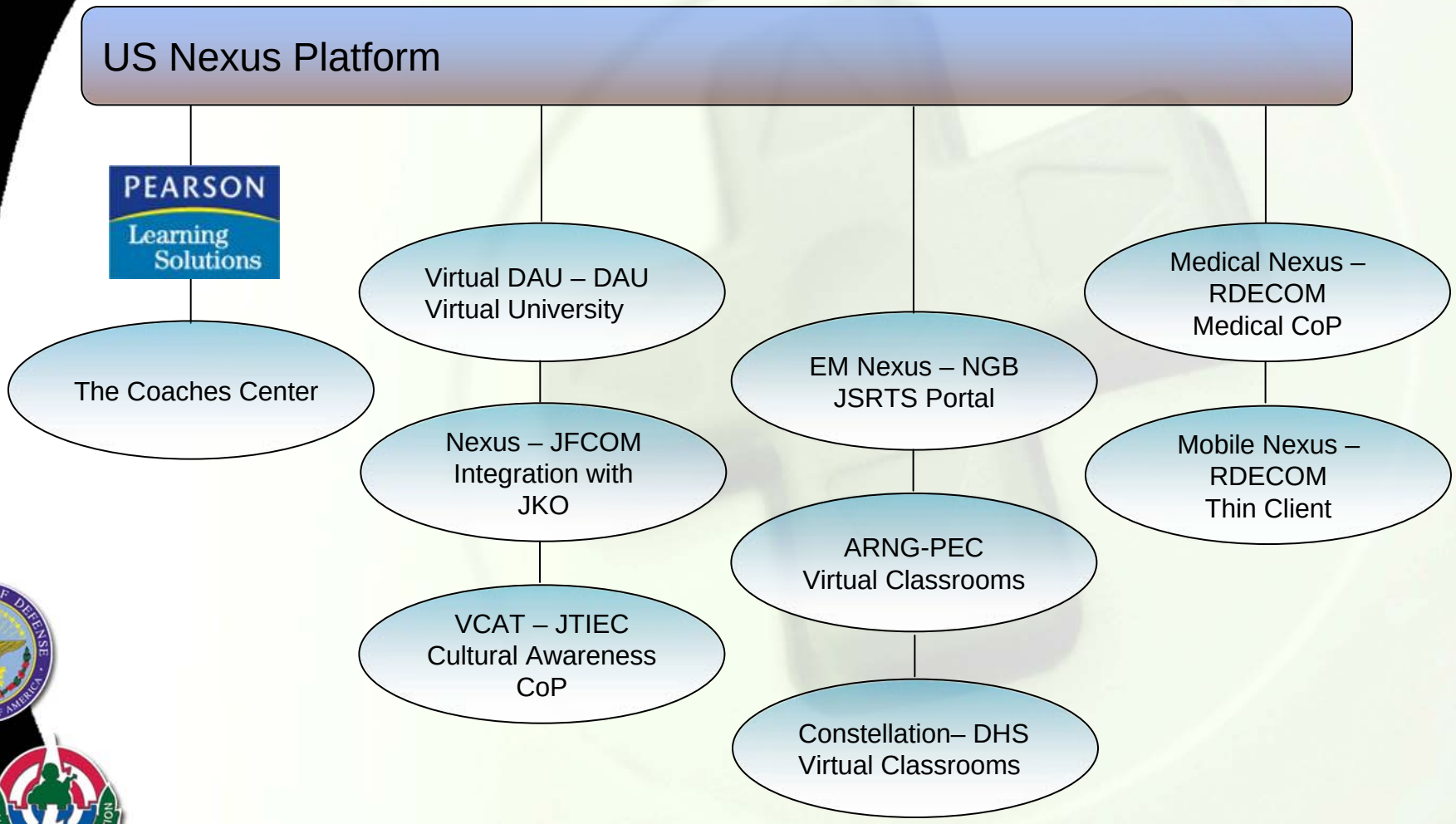
The objective of this presentation is to discuss an underlying model for communication and collaboration between Virtual Worlds and other enterprise systems within an organization. The next generation of instructional technologies will need to blend content from multiple sources while facilitating interoperability with the existing technology infrastructure of an organization. This presentation will look at policies, standards, and methodologies for coordinating learning activities, resources, people, and competencies within the context of an overarching learning systems architecture.

ENGINEERING & COMPUTER SIMULATIONS

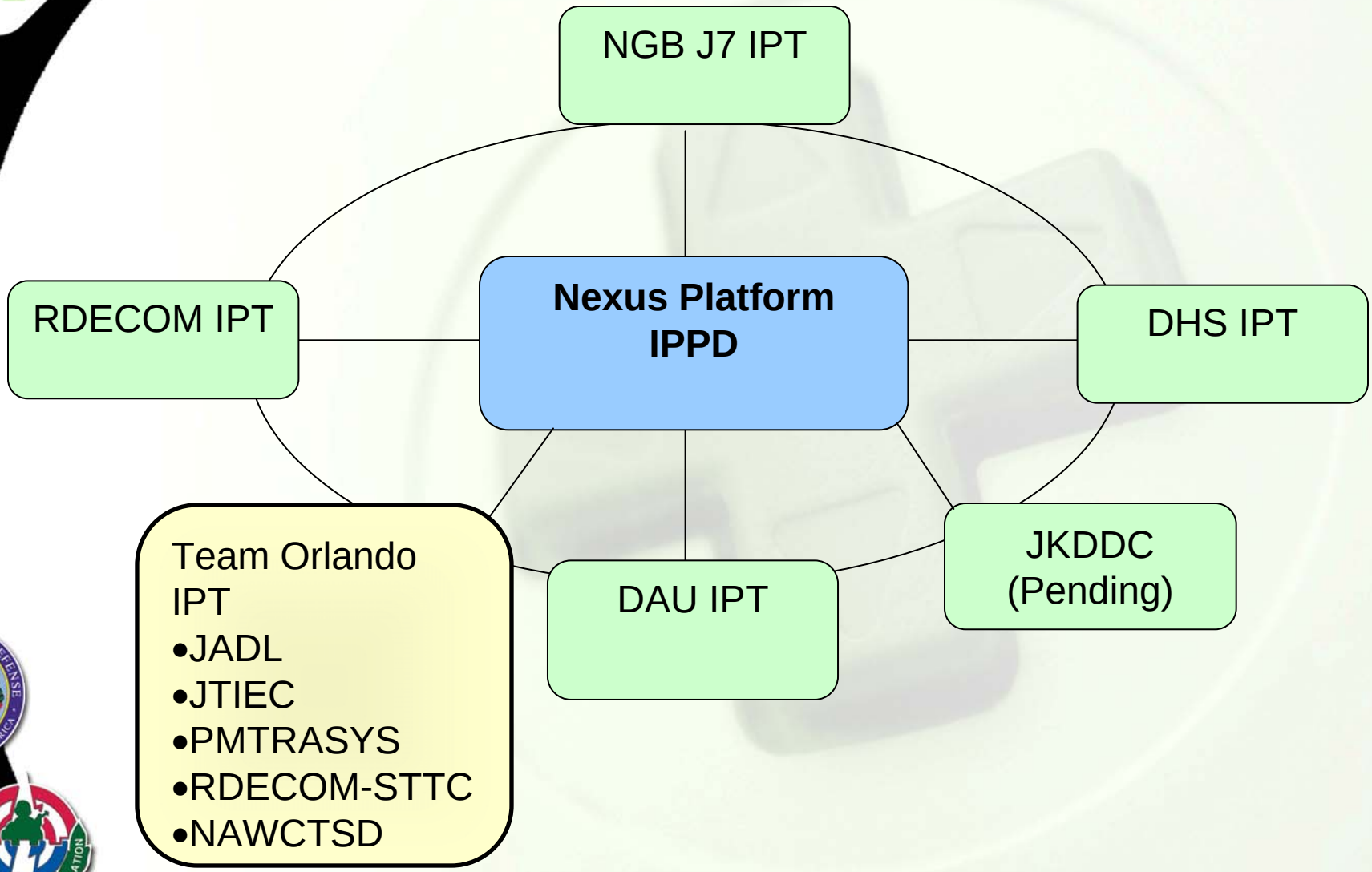
DELIVERING INNOVATIVE RESULTS

US-Nexus: A Virtual World for Government

Nexus: Early Adopters



Nexus: Integrated Product Team



Nexus: Blended Learning Strategies

- Classroom Based Learning
  - Face to Face Instruction, Mentoring, Role Playing, Coaching, Case Studies
- Collaborative Learning
  - Working with Peers, e-Labs, Virtual Field Trips, Team Exercises, Group Activities, Threaded Discussions, Wikis
  - Communities of Practice
- Interactive Learning, Simulations and Games
  - Experience and Experimentation
  - CBT/IMI Modules, Learning Objects, Interactive Games, Coaching & Simulations
- Performance Support and Reference Materials
  - Knowledge Capture / Knowledge Management
  - Web Pages, PDFs, Web Lectures, Podcasts, Videos,

Nexus: Defense Acquisition University

Nexus: DHS – Office of Infrastructure Protection

Nexus: US Army RDECOM-STTC

Nexus: US JFCOM/JKDDC

Nexus: Pearson Publishing

Nexus: Authority To Operate

- Virtual Worlds Typically Require a Client Download to Function, Making an ATO Necessary for DoD Systems.
- National Guard Bureau J7 is Currently Pursuing an Army-wide ATO, With Certification and Accreditation
- Interim ATO Expected by 2Q FY2009
- DoD-wide ATO Process has begun

Nexus: Mobile Connectivity

- Cross Platform Mobile access to Nexus
  - iPhone, Android, Windows Mobile, RIM
  - IM, Chat, Buddy Lists, Agenda Services
  - Collaboration Tools
  - Knowledge Capture / Knowledge Management
- 2D/3D Blended Content

Nexus: Social Networking

Dave Rolston

The benefits of using geo-specific representations of the real earth in gaming applications. This discussion will include a brief analysis of the process for generating new "mirror earth" databases as well as a process for importing existing simulation databases. It will also review the differences between an interactive mirror earth environment vs. a visualization environment such as Google Earth.

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Advancements in Mirror Worlds
Gametech 2009

Dave Rolston
Chairman and CEO

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Traditional Virtual World Applications

Data courtesy of Stanford University and TATRC

Characteristics of Mirror Worlds

- Virtual worlds that correspond to real places
- Various levels of fidelity
- Distinct from Whole Earth *visualizations*
  - Walk about on the surface
  - Interact with world elements – drive cars, open doors, etc.
- Object locations based on real-world telemetry – GPS, RFID, etc.
- Connect to various real-world databases
- May be persistent

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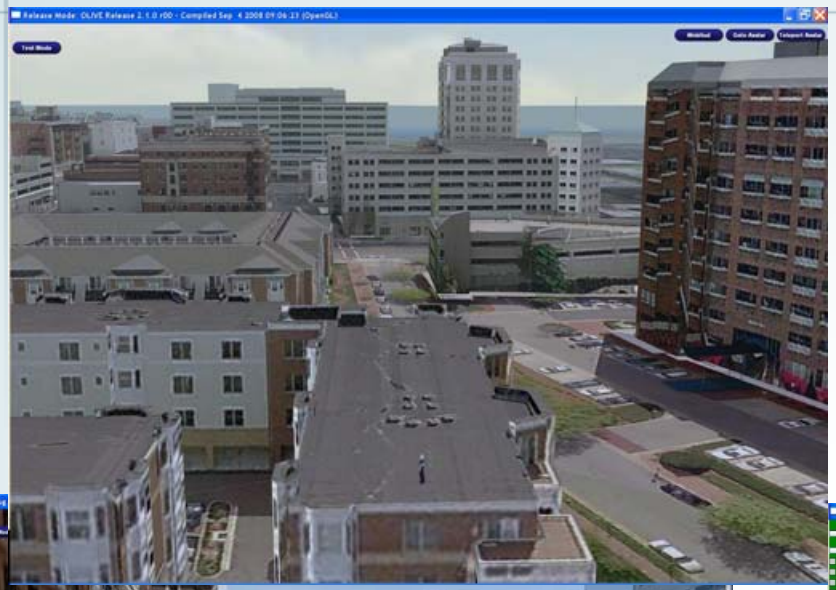
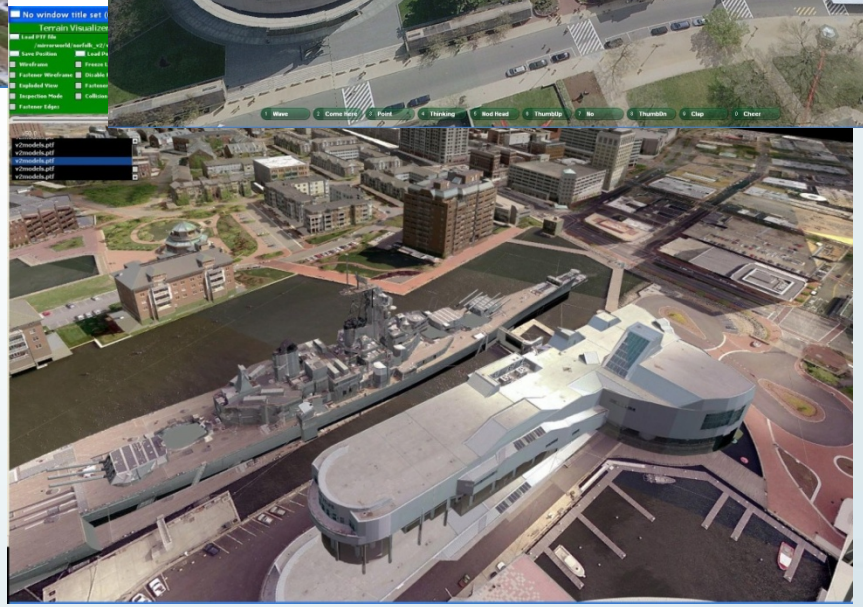
Mirror Worlds – Examples





Data courtesy of Lockheed-Martin

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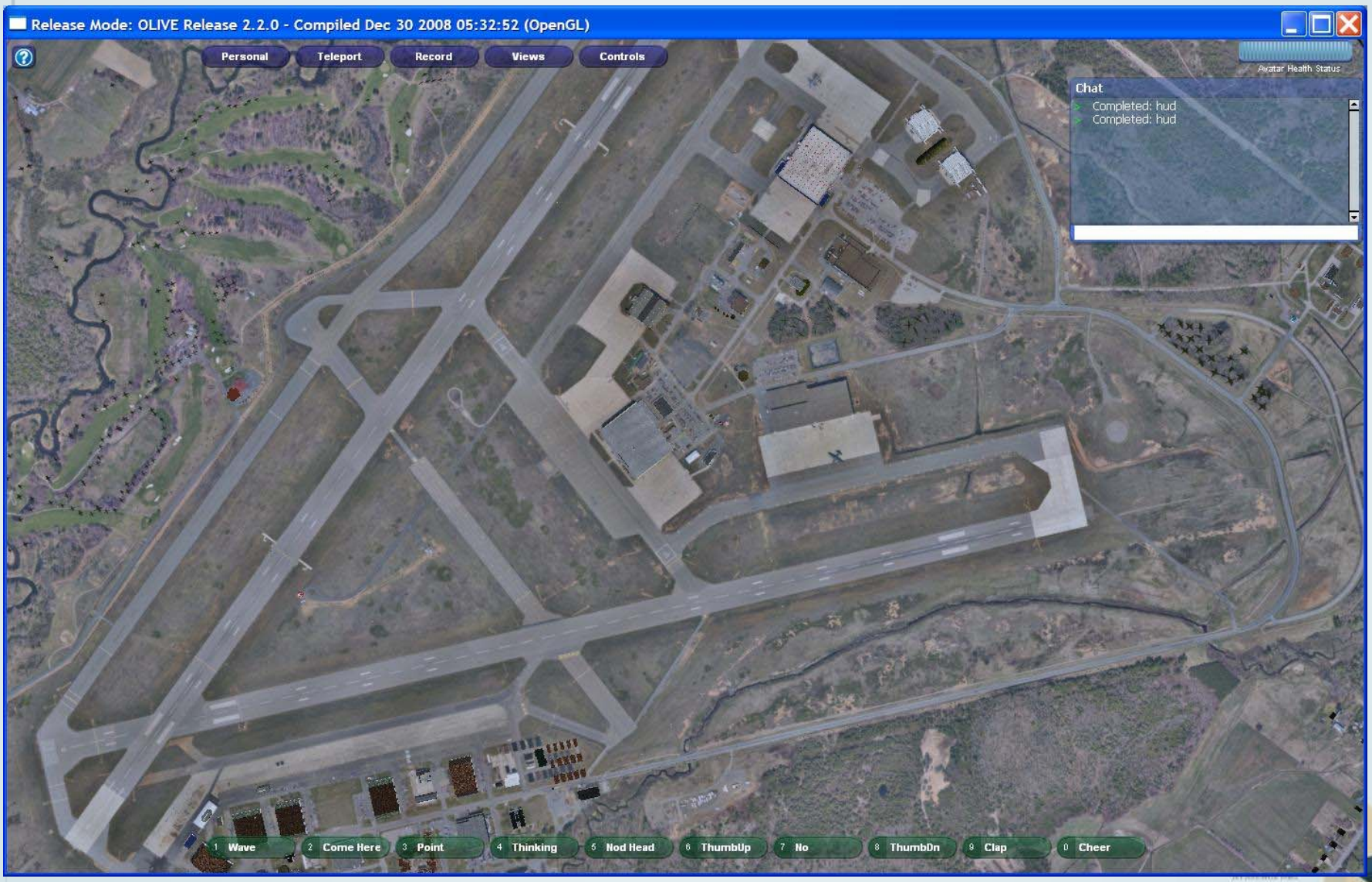
Import of Legacy Databases



Applications and Advancements

- Training
- Mission rehearsal
- Location familiarization
- Operations management
- Interface to legacy urban data
- Time machine

- Overlay of imagery and video
- Construction of video

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Virtual Worlds Business

- Games have the luxury of working in a closed environment
  - Typically, custom data formats per title or technology
- Real-world systems have to aggregate and disseminate data in many directions
  - Many different formats and protocols
- It is important not to lose the interactivity of games, as that delivers a lot of human factors value!

The Challenge: Interactive, Interoperable Terrain

- Scales to real-world size (~6,378 km radius Earth)
- Look realistic to the “Xbox generation” (<mm resolution)
- Fully geo-referenced (avoid flying pedestrians)
- Overcome the data format Babel
- Support physical simulation
- Support interactive (optimized) clients

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Interoperable Virtual World Terrain Requirements ("The Wish List")

- Looks good
- Incremental distribution
- Extensible
- Robust
- Vendor independent
- Security support
- High performance
- Whole earth capable
- Geospecific
- Accelerates collision
- Underground, overhang, skyscraper indoors, …
- Pageable file access
- 64-bit clean
- Live updates

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What We Are Doing:
The Paged Terrain Format (PTF)

- Free database specification *and code*
- Delivers whole-earth, round-earth, WGS-84 data
- Optimized for game experience with real-world data
- Allows multiple separate channels of data
  - E g simulation, collision data, IR, …
- Uses advanced classification-based rendering
  - “This is grass” allows sub-millimeter texture resolution
    - Currently, tools are similar to game development
  - Also supports traditional imagery

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Future Work (Partial List)

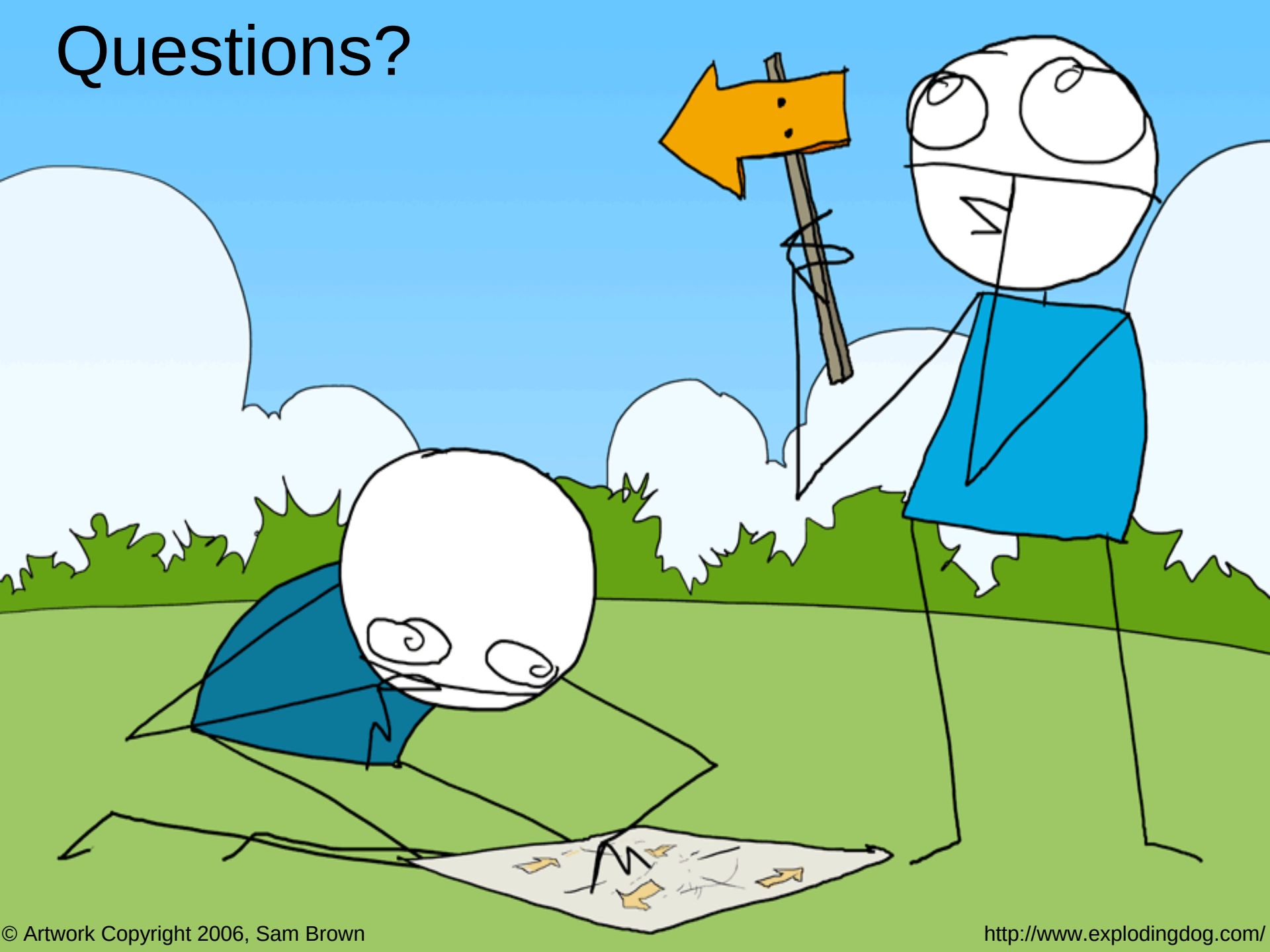
- Real-time Networked Updates
  - Currently, you get “real time” or “networked”
  - The system design enables the union of the two
- Runtime Implementation
  - Improvements to OLIVE™
  - Adoption in other runtimes
- Source tools support
  - Intermediate format ingest is great for what it does
  - Direct support in Creator, Terra Vista, ESRI, …

John Lester

Immersive 3-d online virtual worlds are a new medium for education and training, giving the government and military a platform for collaborative work, simulation, and experiential learning. John will give an overview of Second Life as a platform for innovative learning environments, providing examples of current military, educational and academic uses as well as ideas for future exploration and strategies for success. During the presentation John will also give a live demonstration of Second Life, allowing attendees to see firsthand examples outstanding projects and spaces in the virtual world.

Linden Lab

Questions?



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http://www.explodingdog.com/