

Engineering & Computer Simulations, Inc.

**COMMERCIAL SECTOR TECHNOLOGIES
SHOWING PROMISE TO BENEFIT TESTING
AND TRAINING**

ORLANDO NDIA Test and Training Conference

August 21, 2002

Introduction of Simulation-based Capabilities

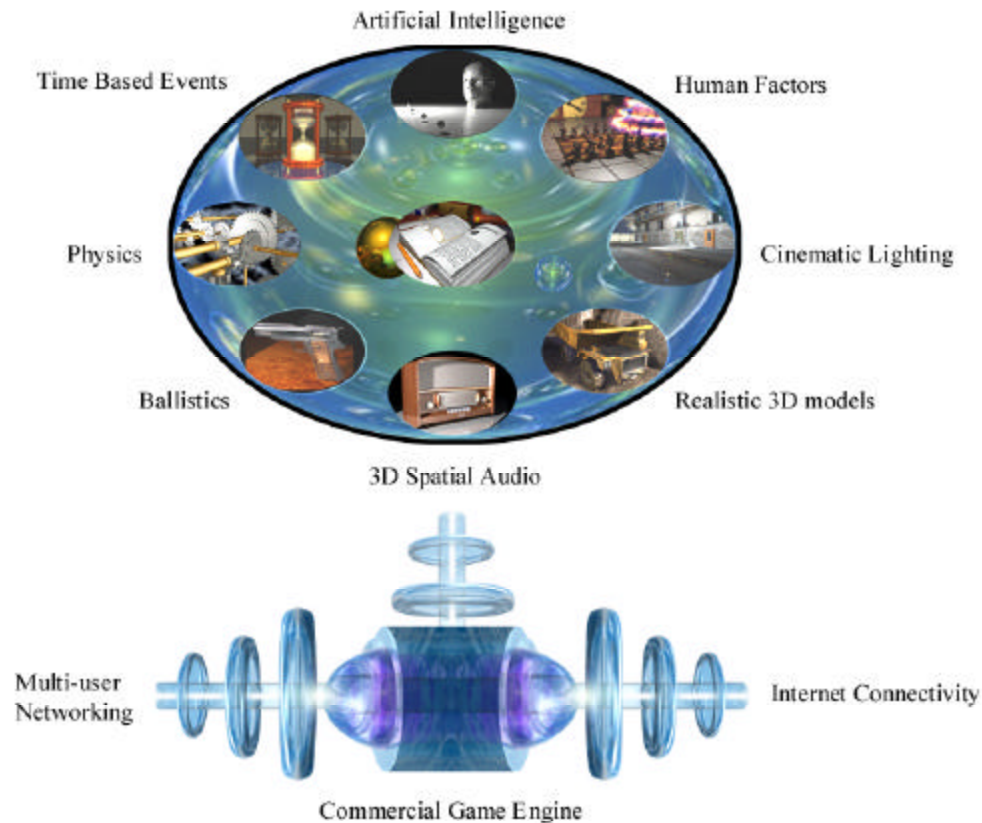
Objective

Familiarize the NDIA community with ECS capabilities that may be applied to the vision of the Department of Defense's Advanced Distributed Learning (ADL) initiative

- Commercial gaming technologies to provide visualization and simulation
- Massive multi-player networking to provide multiple levels of simultaneous training
- Integration with Parallel Discrete Event Simulation Architecture for CGF Behavior engine
- SCORM conformant ADL toolset (Learning Management System, Intelligent Tutoring System, After-action Review capabilities)



Our Approach Blends Existing & Emerging Advanced Distributed Learning Technologies



- **Commercial Industry**

- Standard PC workstations, laptops, handheld computers
- Learning Management Systems
- Secure internet hosting and transport

- **Entertainment Industry**

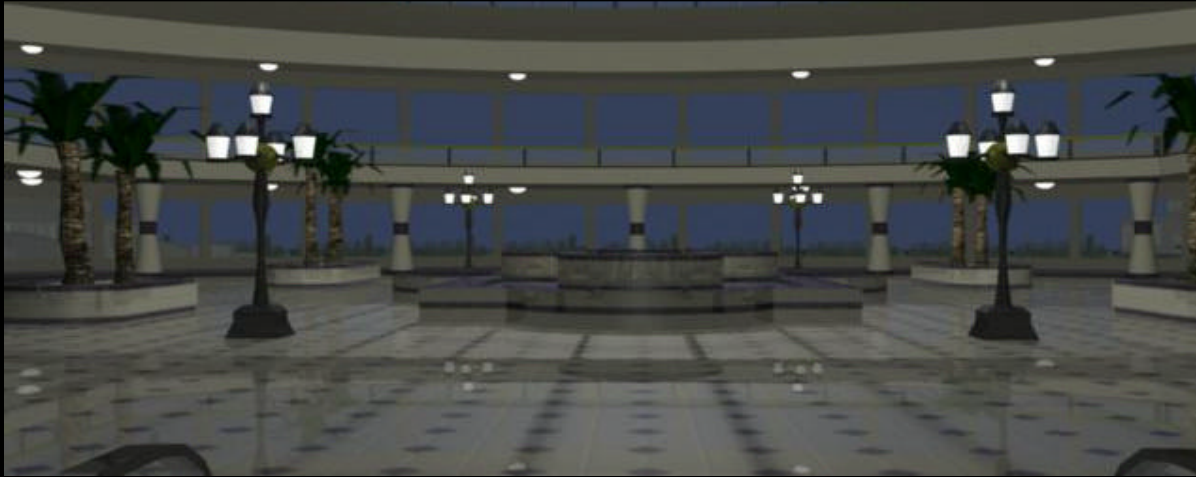
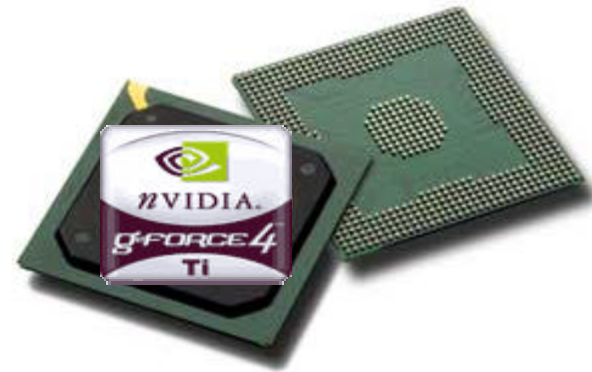
- High fidelity 3-D visualization
- PC-based gaming technologies
- Massive multi-player networking engines

- **Military Simulation Industry**

- Discrete event “War gaming” simulations
- instructor/operator training tools and services

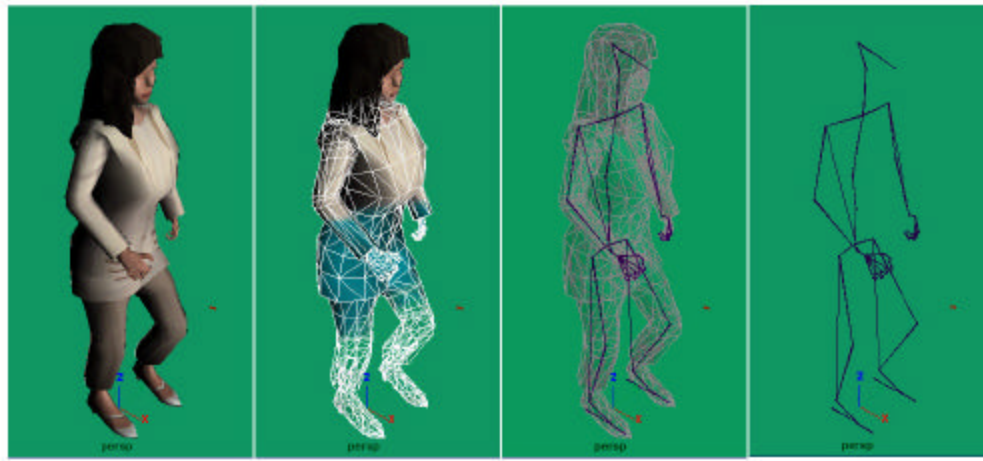
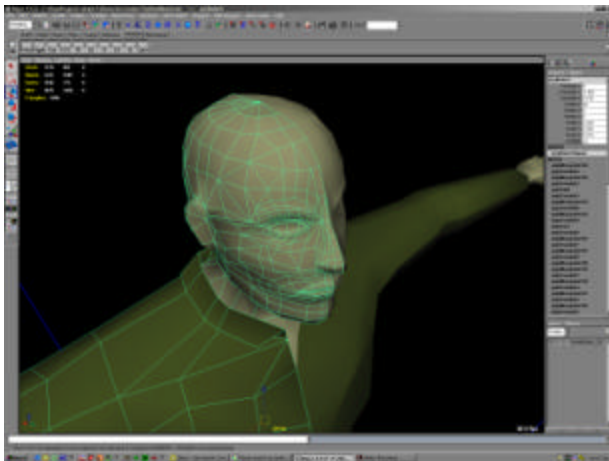
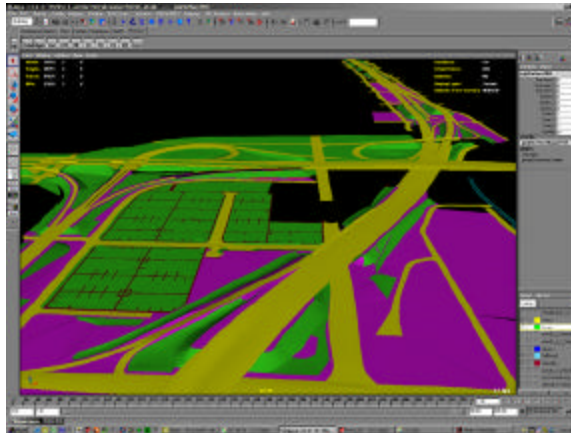
What is Commercial Gaming Technology?

- Game engine - Non-game specific technology
 - Commercially available engines
 - components
 - Rendering/Culling
 - Physics
 - Special effects
 - Artificial Intelligence
 - Networking
- 3D model generation / environment development
 - Lighting
 - Audio



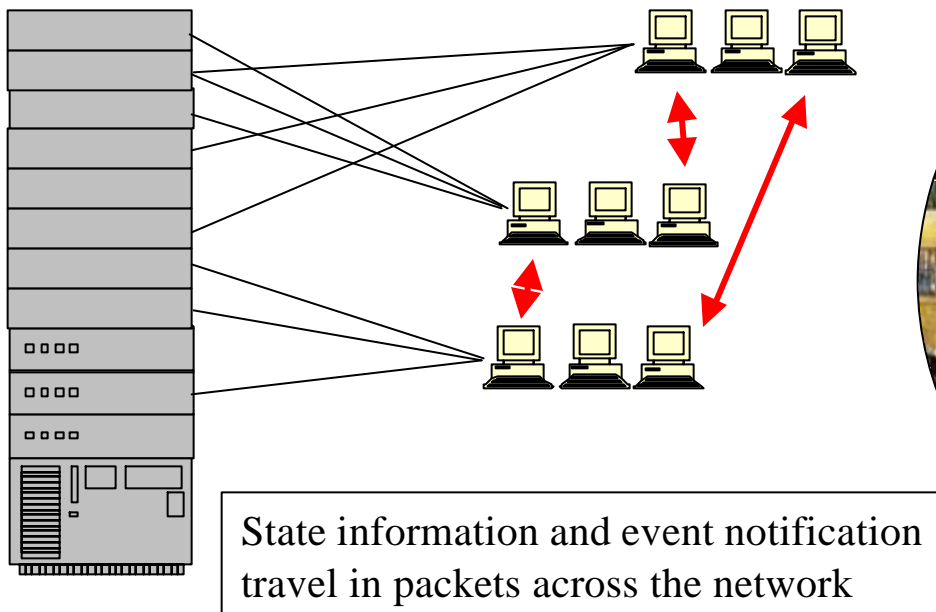
Standard Game Development Tools:

- Programming
- 3D modeling
- Texture Editing
- Audio
- Asset Management

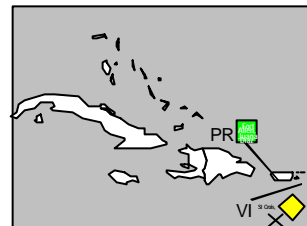
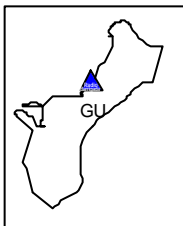
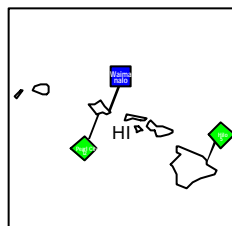
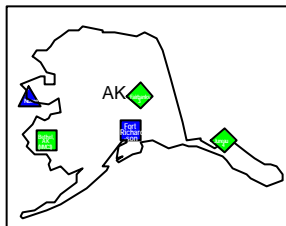
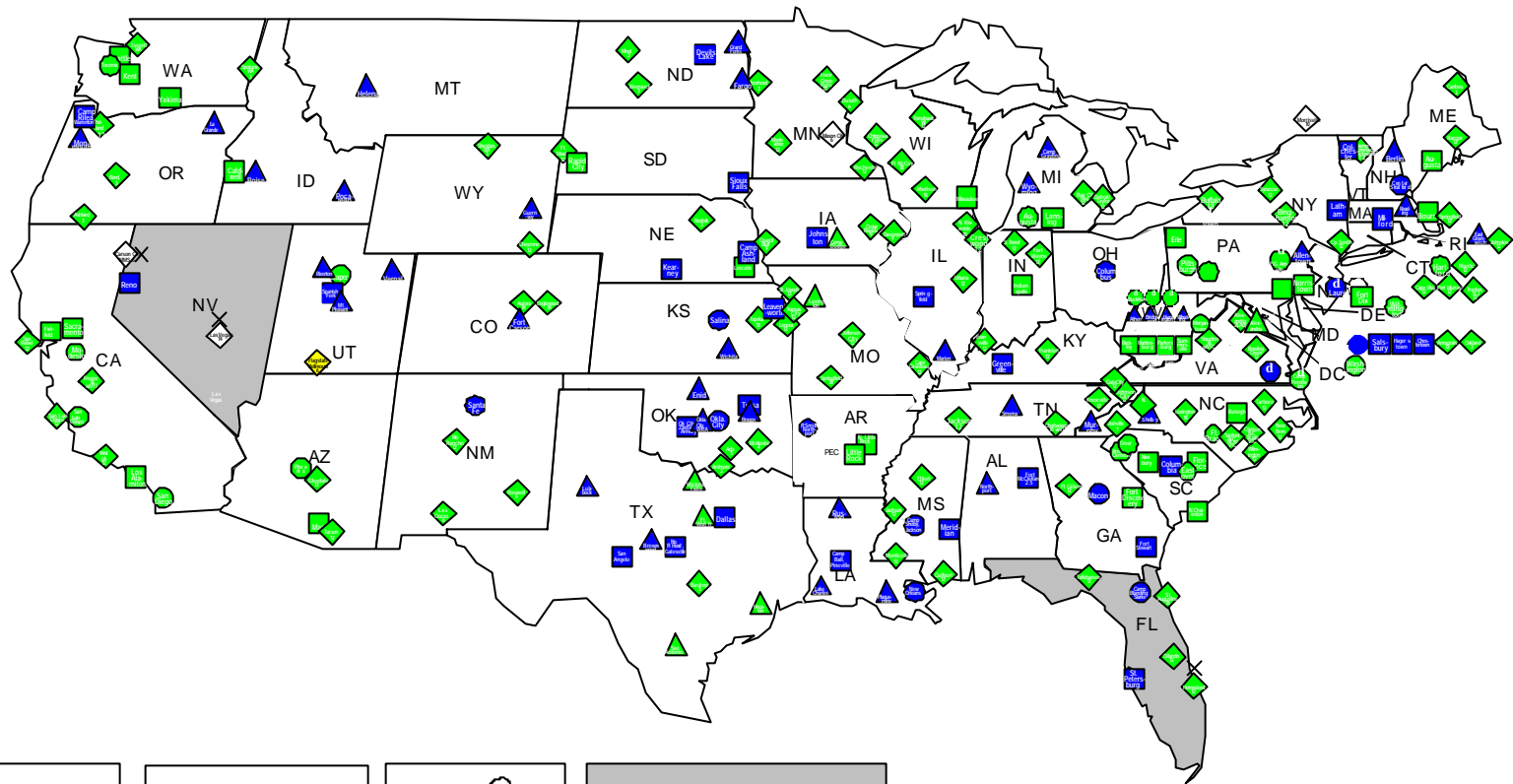


Training Content Development & Delivery

- Gaming Technology may enhance an existing training curriculum or be the pillar for future training curriculums
- Modular development allows unlimited new training situations to be developed to expand the capabilities of the application and to model new threats, tactics and procedures
- Scalable user base to address individual training to large unit training from geographically dispersed locations
- Training could be delivered via existing military infrastructure



Leverage existing Classroom installations and Infrastructure to provide Geographically Dispersed ADL



US Army National Guard's DTTP classroom distribution



Transport and Distribution



Classroom

Subject Matter Expertise

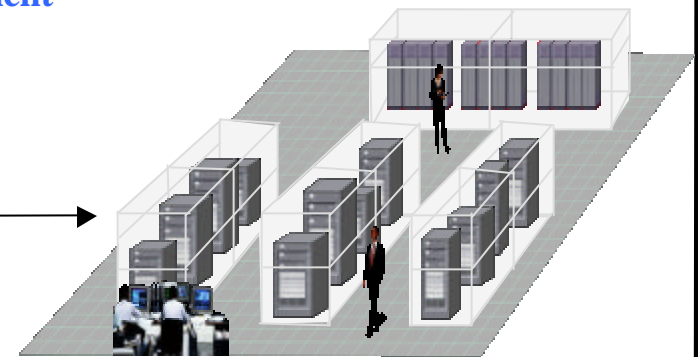
Internet/VPN Deployment

Training may also be delivered via a fully managed web hosting environment

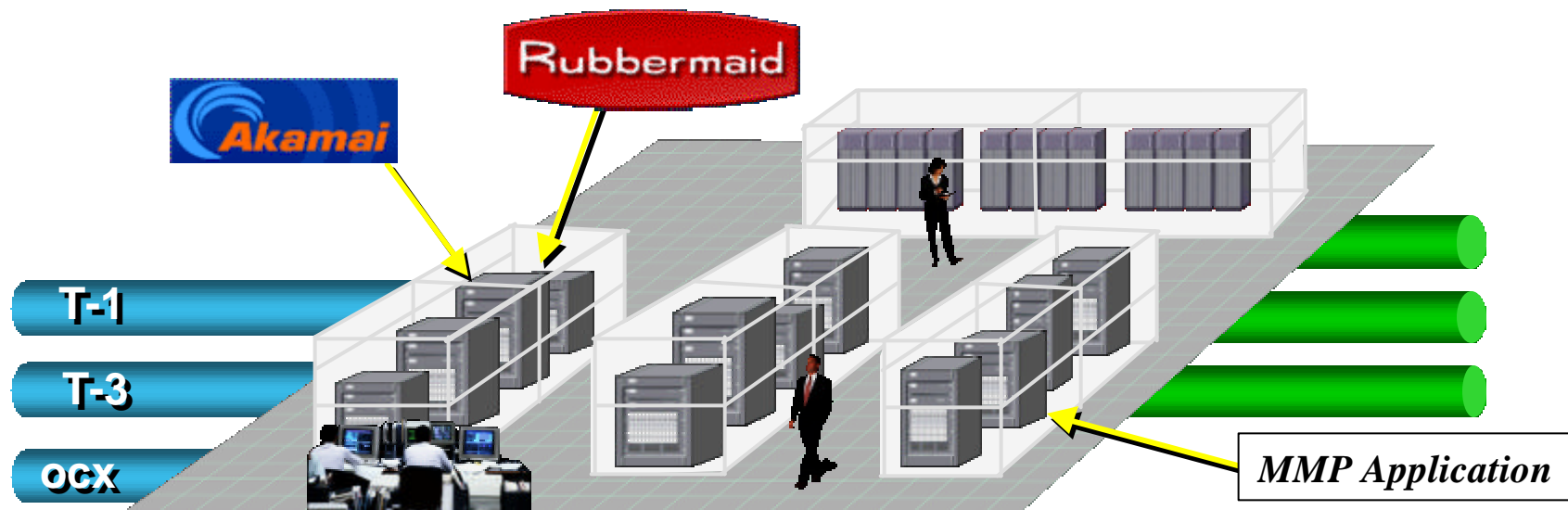


Development Facility

New Content & Capabilities



Application Hosting



NEWS RELEASE !!!!

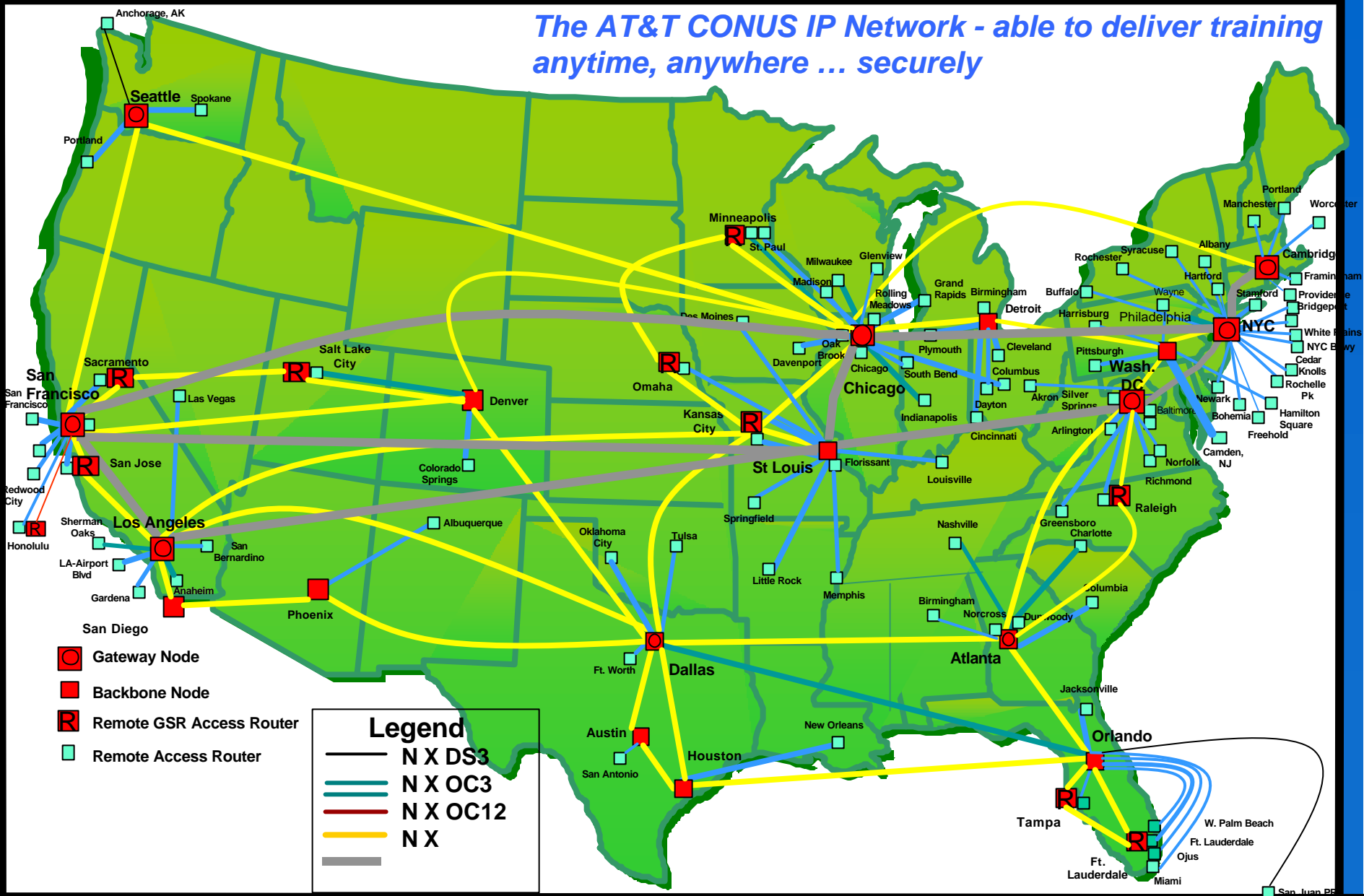
FOR RELEASE WEDNESDAY, MAY 22, 2002

AT&T Teams With Sony Online Entertainment In Hosting European Expansion Of Highly Successful EverQuest(R) Game

LOS ANGELES – Sony Online Entertainment Inc., a worldwide leader in massively multiplayer online gaming, announced at the Electronic Entertainment Expo show here today that it has chosen AT&T as its hosting provider for the European portion of the global expansion of its *EverQuest*® game.

“Expanding our global online gaming community has been a top priority since day one,” said John Smedley, chief operating officer, Sony Online Entertainment. “With more and more *EverQuest* gamers coming online, we needed a hosting provider that could guarantee superior performance. AT&T’s rock-solid hosting infrastructure enables us to now deliver the best possible gaming experience for hundreds of thousands of players around the world.”

The AT&T CONUS IP Network - able to deliver training anytime, anywhere ... securely



Modeling Computer Generated Forces with Intelligent Agents (IA's)

Three Layer Approach

- **Controller Layer** contains primitive behaviors.
- **Sequencer Layer** selects and assigns primitive behaviors.
- **Deliberator Layer** communicates with Sequencer and processes complex algorithms such as psychological, cultural, and emotional behavior models. It then communicates back to the Sequencer.
- Each layer operates as an intelligent agent in the simulation.



Behaviors are broken into three computational layers for each Intelligent Agent

IA's will use AI and Machine Learning

- **Frames** store key information that can be “recognized” later.
- **Scripts** store operational data and procedures that can be accessed and combined with other scripts.
- **Memory Organization Packets** allow a hierarchical, object oriented approach to memory storage and recognition.



Learning is essential for realism
and to prevent stagnant training

IA's will model Cultures and Emotions

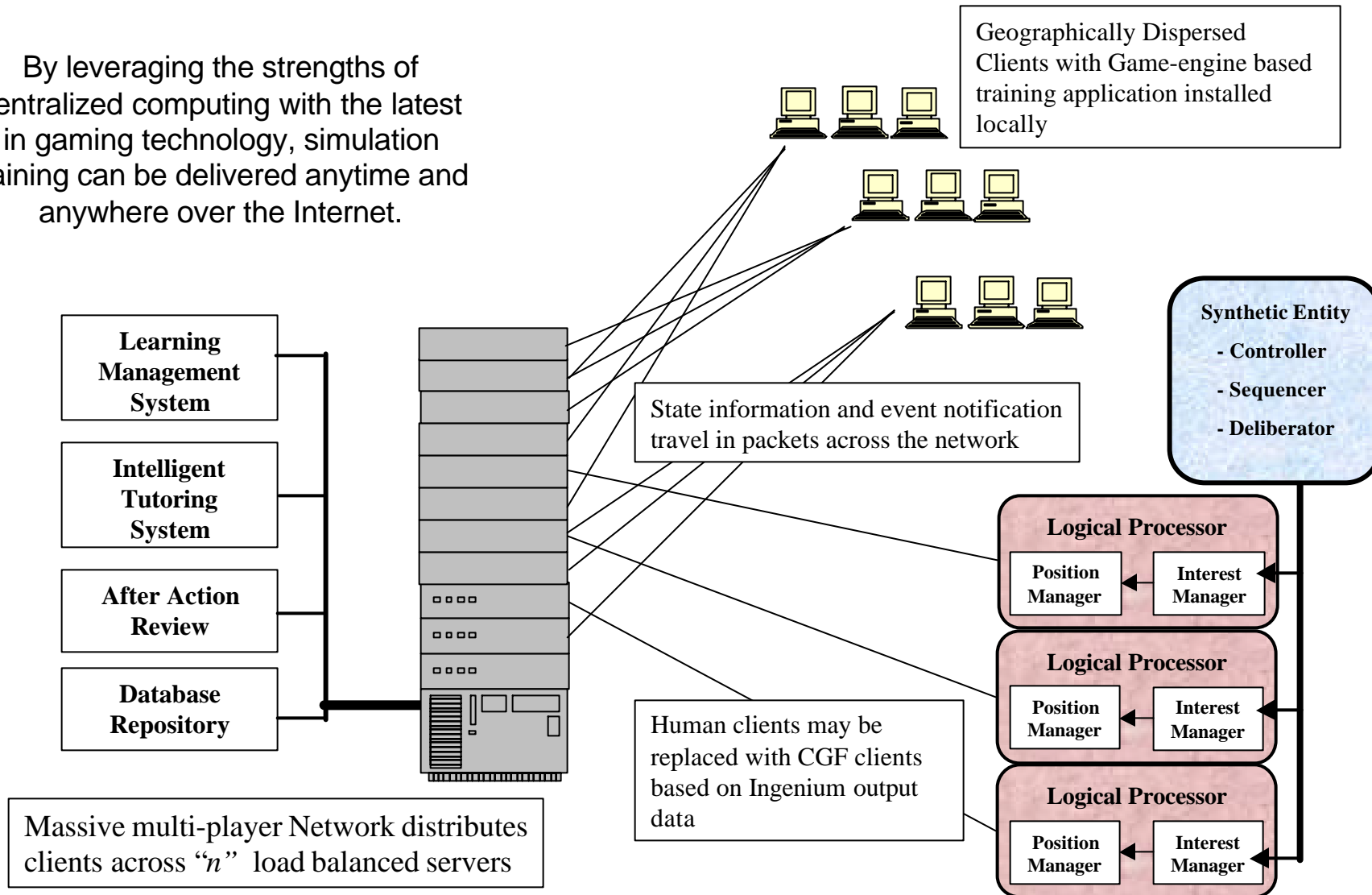
- **Personality Models** incorporate traits like inquisitive, shy, etc.
- **Need-Based Behavior** models the entities ability for survival and goal success.
- **Temporal Emotions** model the impact of emotions on an entity over time, e.g. anger may override other behavior models for a short period of time.

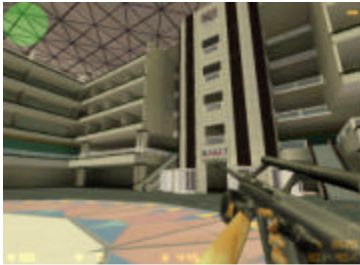
Cultural bias and emotions add a new, desperately needed dimension to behavior modeling



SYSTEM ARCHITECTURAL OVERVIEW

By leveraging the strengths of centralized computing with the latest in gaming technology, simulation training can be delivered anytime and anywhere over the Internet.





Thank you

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