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Information Assurance professionals and Virtual Worlds technologies: uses, benefits and challenges

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Demonstration1



What we will do today

- Definitions and terminology
- VWs Facts and misconceptions
- VWs applications (general and specific)
- VWs benefits and challenges
- What is next
- Demonstration
- Questions and discussion

“By 2019, Virtual Worlds will become the place the next generation lives and works”

Impact of Virtual Worlds: The online destination for the next generation?

Dr. Peter Markiewicz



Virtual Worlds are...

3D immersive, persistent environments where people meet, interact, make friends, and accomplish tasks

Imagine a world without physical borders and restrictions where you can move anywhere in less than second

Each user create virtual representation of himself and use it to LIVE in the virtual life (You choose who you want to be and how you will look like)



Virtual Worlds Terminology

Multi-User Virtual Environments

- ActiveWorlds (1997)
- There (2003)
- Kaneva (2004)
- Qwaq (2007)
- Google Lively (2008)
- Second Life (2003)

Immersion is the state of consciousness where an immersant's awareness of physical self is diminished or lost by being surrounded in an engrossing total environment; often artificial.

A virtual world is a genre of online community that often takes the form of a computer-based simulated environment, through which users can interact with one another and use and create objects.

A virtual world is a computer-generated simulated environment designed to allow users to navigate in and interact with objects and components in the virtual environment.



An avatar is the graphical representation of the user or the user's alter ego or character. It may take either a three-dimensional form, as in games or virtual worlds



VWs Facts

It is not only
online game, it is
the game of life
It is the new 3D
Internet
It is the virtual
economy
You do real work



Virtual World
is not a game.
The
environment is
virtual **But the
people are
REAL**

VWs Features

- immersive environment
- shared experiences
- role playing
- stereotypes challenged
- collaboration



General Applications

❖ Simulation and Training

- Airplane
- Ship Handling
- Dismounted war fighter
- Firefighter

❖ Entertainment

- Mechwarrior
- Unreal (games)

❖ Education

- Historical Recreation
- Virtual Gorilla
- Physics
- Biology
- Medical

❖ Scientific Visualization

- Physics
- Aeronautics
- Medical

❖ Psychology

- Perception and Cognition
- Therapy
- Pain Distraction

❖ Engineering & Design

- CAD
- Sketch
- Architectural Walkthrough

❖ Art

- Interactive and Immersive

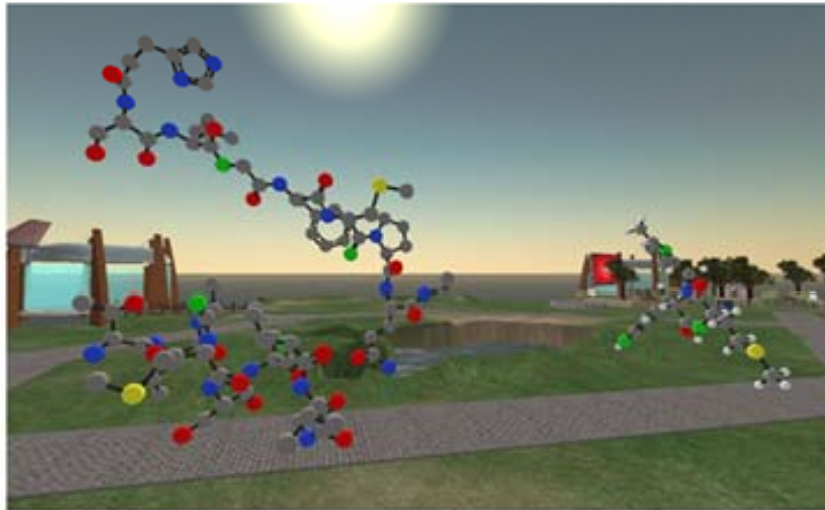
Second Life: It's Not A Game!



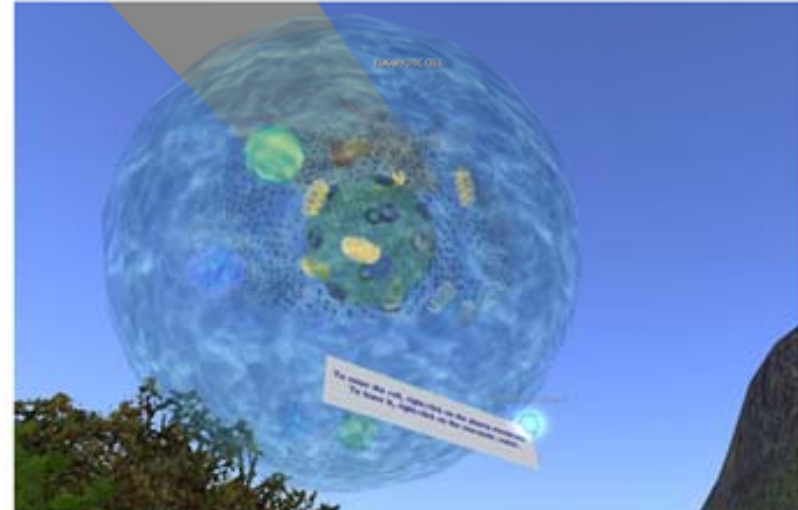
Poster sessions



Conferencing



Data visualization

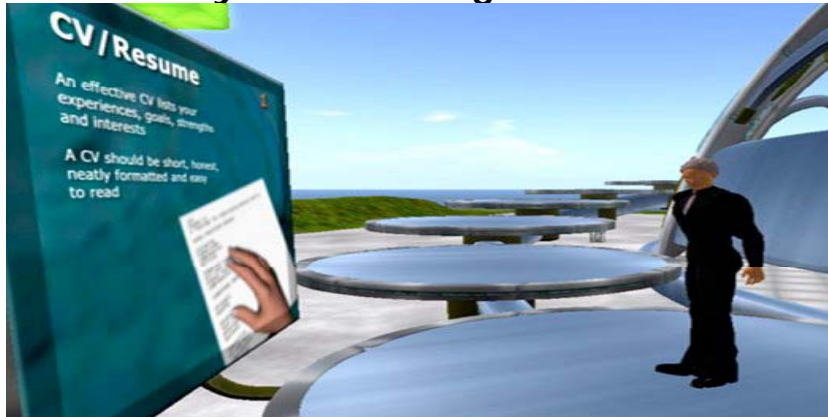


Education

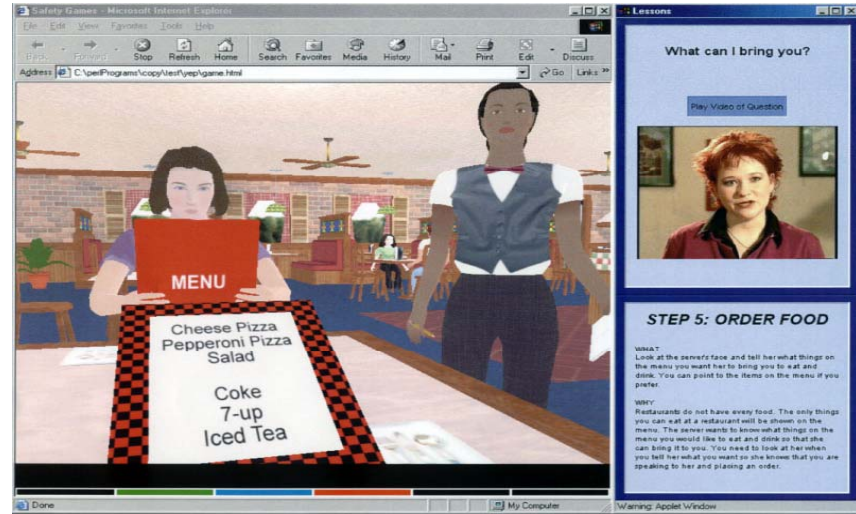
Chinese restaurant in Second Life teach chinese language



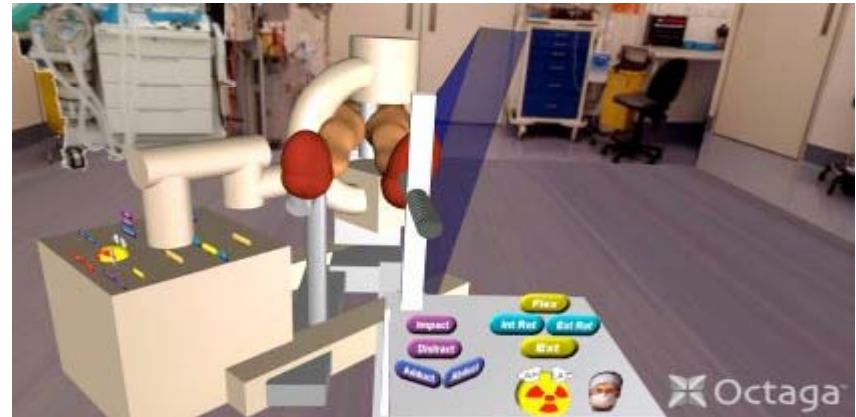
Information notice board on the stairway of learning



Virtual restaurant to teach children restaurant etiquette



The virtual operating room
showing the traction console



Thinking Beyond Ordinary

VWs Education Applications

Virtual Education Classes



Virtual Campus



Class Projects



Virtual Classrooms



Demonstration2



VWs Audit/Accounting Application



VWs Audit/Accounting Application

The screenshot shows a virtual world interface for an accounting application. At the top, a menu bar includes File, Edit, View, World, Tools, and Help. The title bar reads "Teaching 4 44, 144, 22 (PG) - Really Engaging Accounting" and the system clock shows "6:20 AM PDT" with a currency value of "L\$52,520".

In the center of the virtual space, a large, semi-transparent accounting equation is displayed: $Assets = Liabilities + Equity$ and $\$1000 = \$0 + \$1000$. Below this, a character named "Head Bean Counter Robins Hermano" is visible. To the left, there is a blue cube with a white 'i' icon.

A chat window at the bottom displays the following messages:

- ALE_1.0 whispers: The accounting model has been reset (El modelo contable se ha restablecido)
- ALE_1.0 whispers: Your Accounting Equation is not in balance, continue entering the transaction or touch the model to start over (Su contabilidad ecuación no está en equilibrio, seguir introduciendo la operación o tocar el modelo para empezar de nuevo)
- Asset whispers: Assets 'debited' standby for increase (Espera cargado 'activos' para aumentar la)
- ALE_1.0 whispers: Congratulations, the accounting equation is balanced (Felicitaciones, está equilibrada la ecuación contable)
- Equity whispers: Equity 'credited' standby for increase (Espera acreditado "equidad" para el aumento)

The bottom interface features a "Local Chat" input field with the text "Click here to chat." and buttons for "Say", "Gestures", "Communicate", "Fly", "Snapshot", "Search", "Build", "Map", "Mini-Map", and "Inventory".

VWs Information Security Application

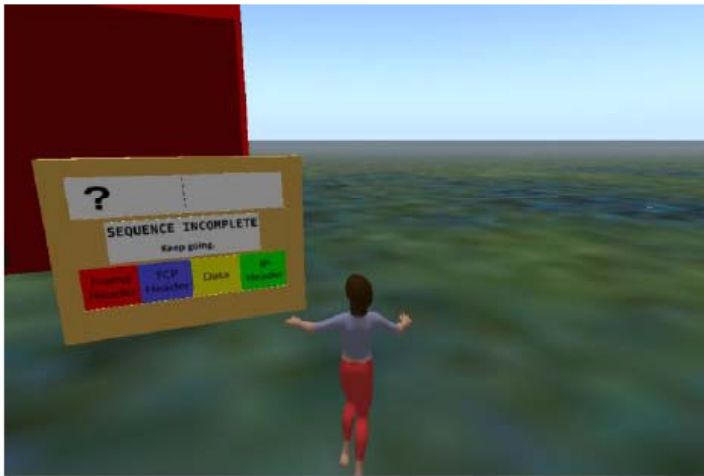


Figure 1: The Packet Assembly Board

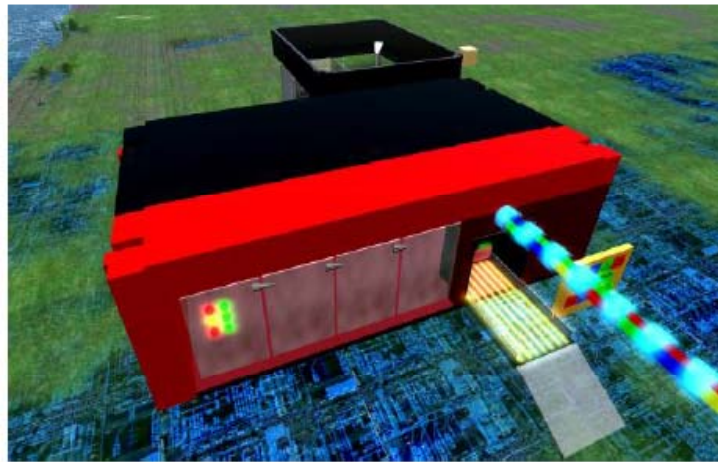


Figure 2: Red Team Base

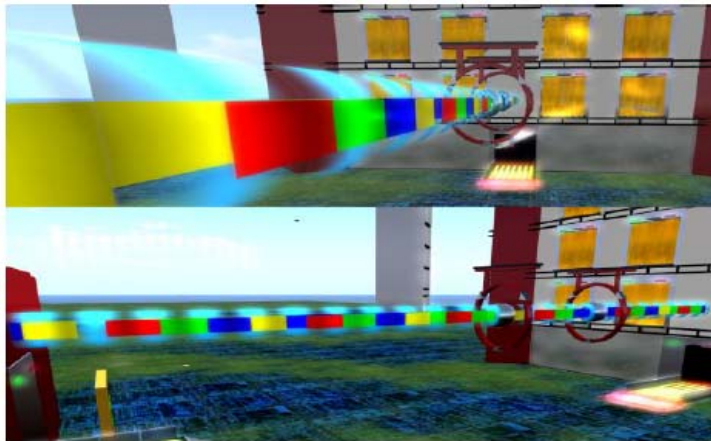


Figure 3: Pipeline Showing Packet Flow

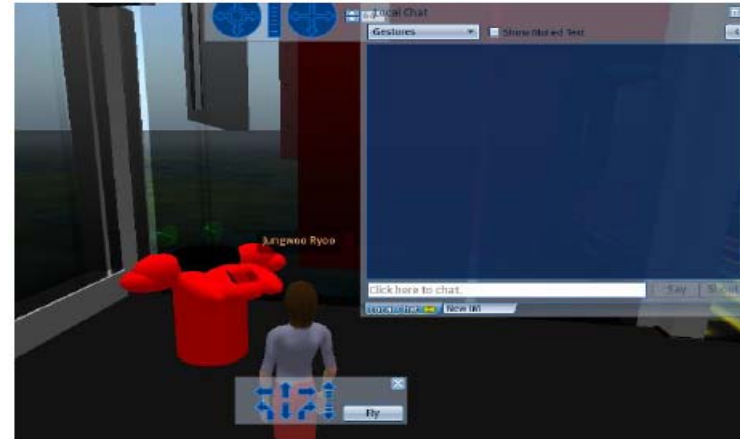


Figure 5: The Attack Console and Chat Window



VWs Information Security Application

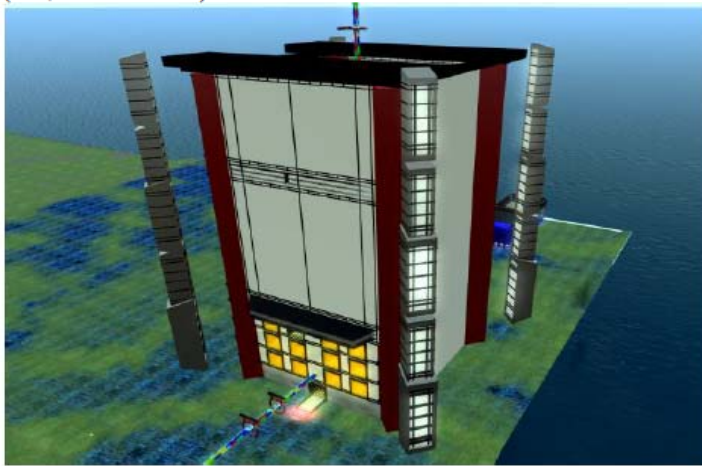


Figure 4: Gateway Connected to the Cloud (Internet)

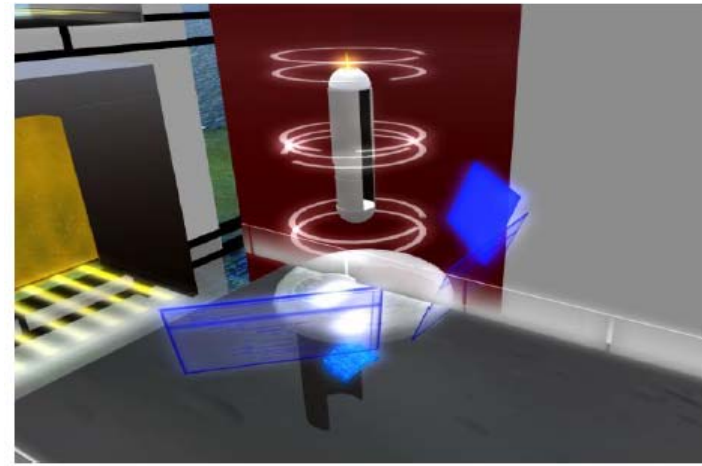


Figure 9: Patch Delivery Service

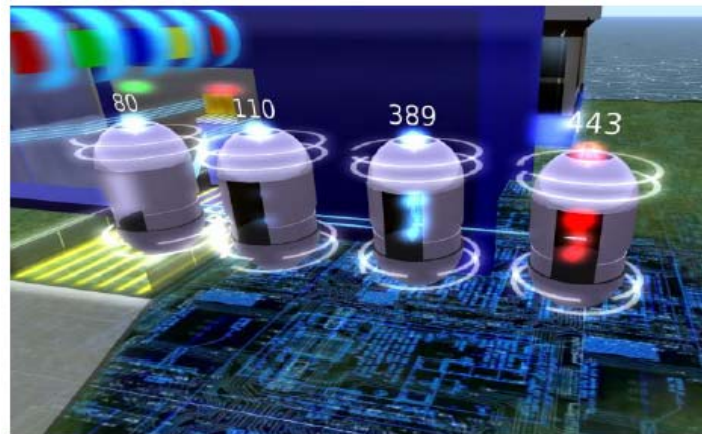


Figure 8: Ports at the Blue Team Base

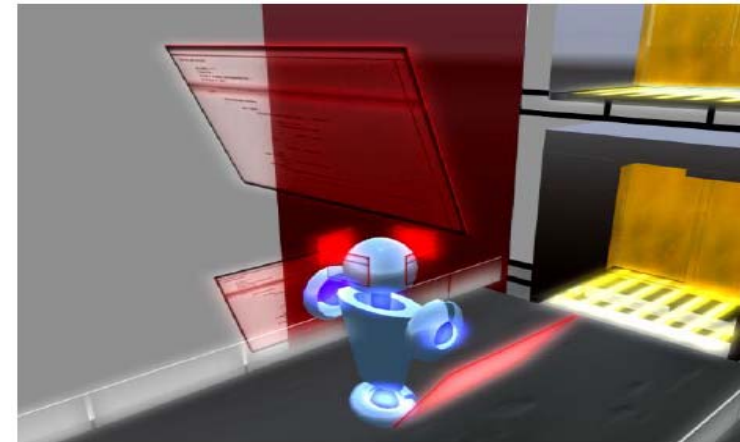


Figure 10: The Consultant Bot Issuing Quiz Questions

ISACA[®]
Trust in, and value from, information systems
Jeddah Chapter

Thinking Beyond Ordinary

VWs benefits and challenges

Benefits

- Collaboration across agencies
- Collaboration from anywhere
 - Telework
 - Collaborative work projects
 - Education and training
 - Continuity of Operations
- Synchronous Communication
 - Text chat
 - Voice
 - Body movement
 - Desktop sharing
- 3-D representation of objects
- Intelligent agents and bots
- Avatar personalization
- Presence and Transference
- It is fun

Challenges

- Emerging Technology
- Learning Curve: Movement and actions are not intuitive
- Client on agency/organization desktop image
- Security (working across agencies)
 - Avatar level
 - Network level
- Content
 - Cost of development
 - Ability to share content
- Worlds are not interoperable
- Identity
- Privacy

What is next..

What in it for Information Assurance professionals?

- Learning, training and Teaching (Interactive Education)
- Orientations
- Projects management (collaborations & communication)
- Virtual teams (different places but real time)

How virtual worlds can change the profession? What will add?

- Simulation of IT controls, risks and countermeasures
- Simulation of information security environments
- 3D Visualization of Enterprise Architecture, Attacks, network flow
- Role-playing scenarios

How to audit and secure the VWs?

- What controls, risks and threats to organizations?
- What are the skills needed to audit VWs?



Demonstration 3

Demonstration 4





Questions & Discussion

