

Creation in 3D Virtual Worlds

Session 1

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Overview

- 3D Virtual Worlds
- Goal of sessions and organizational details
- Quick history
- Worlds covered
- Functional characteristics
- Technical characteristics
- Tour
- Simple building if time permits

• 3D Virtual Worlds



Goal of sessions and organizational details

- Session 1, March 1: overview, technical considerations, intro to building if time permits
- Session 2, March ? : building
- Session 3, March ? : scripting
- Session 4, advanced topics if there is interest

Quick history

- Linden Labs established Second Life virtual world
- Linden Labs open sourced viewer permitting third party viewers
- Open Simulator reverse engineered second life protocols and began implementing Open Simulator
- OSGrid was established as a test grid for Open Simulator

Worlds covered

- Second Life
- OSGrid
- UNBVW test grid

Functional characteristics

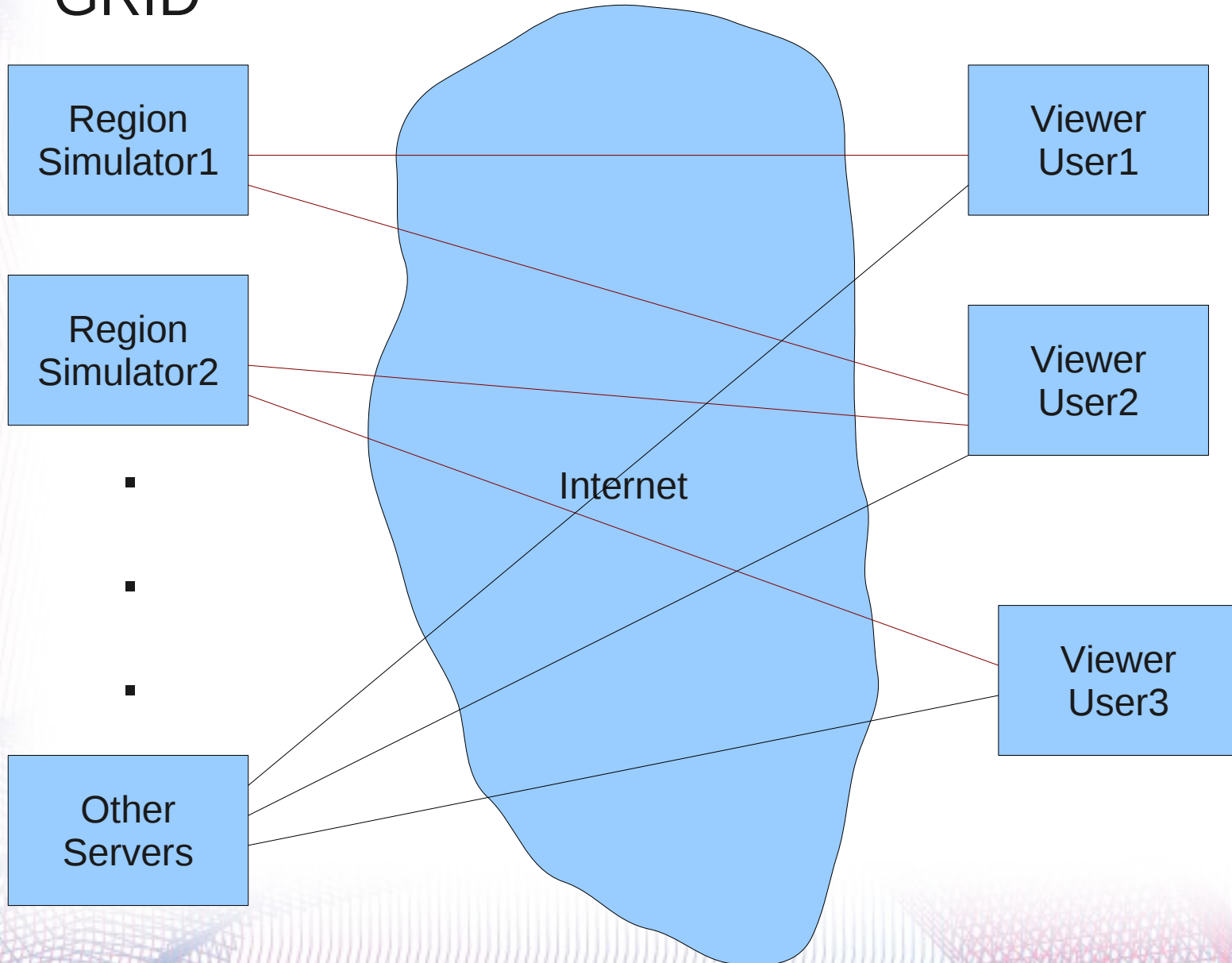
- The "world" is represented by a 3D model
- Each user is represented by an avatar, and views the world from their position
- The world persists even when a user is logged off
- Users can create objects in the world
- There may be an "economy"

Technical characteristics

- World must be implemented using available technology
- Places limits on what is achievable
- Therefore, it is useful to know how it works

A VW Grid

GRID



Region Simulator

- Region Simulator
 - Region: 256m by 256m by ?m (height)
 - Region simulator process can simulate multiple regions (somewhat independently)
 - Multiple region simulators can run a virtual machine
 - Multiple virtual machines can run on a physical machine
 - Must simulate interaction of all objects in a region at the "frame rate", e.g. collisions

Other Servers

- Asset: has an entry for EVERY object in the world
- Inventory: keeps track of what each avatar "owns"
- Grid: keeps track of the location of each region within the grid
- Login: does the authentication
- Others?

Viewer

- Receives information from and transmits information to the servers (using a protocol)
- Renders each frame from the 3D model to a 2D view window from the "camera" perspective
- Displays other information, e. g. inventory
- Accepts information from the user, e. g. avatar movement (the "user interface")
- Sends changes to the servers, e. g. new avatar position

Comparison of Grids

- Second Life
- OSGrid
- UNBVW (unbtst2)
- Metaverse

Second Life

- Commercial product (Linden Labs)
- Viewer is free
- Basic account is free (can't own land)
- Money (to Linden Labs):
 - Premium account (allows owning land)
 - Buying land, and owning land (tier)
 - Transaction fee on exchanging Linden dollars and "real" dollars
- Exchanges among users (buy, sell, tip, donate)

OSGrid

- Test of Open Simulator software (still "alpha")
- Free accounts
- OSGrid "organization" (osgrid.org)
 - Runs "other" servers
 - Runs "a few" public regions (region simulators)
- Anyone:
 - Runs a region (region simulator) and attaches to grid (free)

UNBVW (unbtst2)

- Runs on my desktop machine
- Runs Open Simulator in "standalone" mode
 - One simulator process
 - Currently two regions
 - All "other servers" in same process
 - Low performance for testing ideas only

Metaverse

- Allow an avatar to teleport (move) from a region in one grid to a region in a DIFFERENT GRID
- Issues
 - Security
 - Privacy
 - Intellectual property (e. g. authorization to copy an asset)
 - Money

Tour

Simple building if time permits