L3DGEWorld
Demonstration

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Outline

• What is L3DGEWorld?
• L3DGEWorld Mechanics
• L3DGEWorld Features summary
• Supercomputer Monitoring
• Future Work
What is L3DGEWorld?

- Network monitoring application
- Visualising network events and actions (real world) in a 3D World (virtual world).
- Game Engine: Open Arena (Quake 3) ([http://www.openarena.ws/](http://www.openarena.ws/))

\[
\text{Real World} \quad = \quad \text{Virtual World}
\]

- Metrics/Statistics from the real world dictate entities' actions in the virtual world.
- Actions in the virtual world can influence the real world.
L3DGEWorld Mechanics

Monitoring Device

L3DGEWorld Clients

Interaction with Virtual World

L3DGEWorld Server

OpenArena Engine

States/Events Update

Possible actions taken on device

L3DGEWorld Feature Summary

Entities in L3DGEWorld can:

- Spin
- Scale
- Jump
- Roll
- Change Colour
- Oscillate speed
- Sound
- Change Model/Skin
Why L3DGEWorld?

• Visualisation of multiple states is easier to distinguish than numbers.
Supercomputer Monitoring

- 146 Cluster nodes
- Multiple Metrics can be mapped for each node to an entity.
  - CPU Usage
  - Memory Usage
  - Disk Usage
  - Packets Per Second (In/Out)

L3DGEWorld Setup (Supercomputer)

1. Telnet
2. Retrieve Metrics
3. Process Metrics
4. L3DGE Clients Connect
Supercomputer Monitoring

- Ganglia Monitoring System

![Ganglia Monitoring System Graph](image-url)

Cluster Load Percentages:
- 100+ (2.03%)
- 75-100 (0.68%)
- 60-75 (6.16%)
- 25-50 (5.29%)
- 0-25 (81.53%)
Supercomputer Monitoring

- Ganglia Monitoring System

L3DGEWorld Monitoring
Future Work

• Multimedia Work
  • Custom Maps
  • Custom Entity Models

• Game Engine Work
  • Testing network and code limits
  • More static info show (eg graphs)

• Visualisation Work
  • Testing best combinations of entity actions.

Future Work

• Alternative uses for L3DGEWorld
  • SNMP
  • Alarm Systems
  • IP Phone Management
  • Network Traffic Control
  • Motorsport Telemetry
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Questions?