Minerva: Integrating GIS, 3D, and Virtual Reality

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Overview

• Unique Facility
• What Minerva is
• Projects
Inside the Decision Theater
Motivation for Minerva

- Need for a multi-screen GIS application
- Ability to ingest data from many sources
- Need to respond quickly to user request to view data
- GUI in VR difficult
Minerva is not

- Replacement for or competitor of Google Earth, World Wind, or any other well established “globe”.
- Re-invention of low-level geospatial tools.
Minerva is

• Integration of open source tools to provide user interaction of rich data sets in a Virtual Reality environment

• Unification of existing GIS tools with high-performance visualization
  – PostGIS
  – OSSIMPlanet
  – OpenSceneGraph
Minerva is

• High performance, multi-screen globe (OpenSceneGraph)

• Multiple, simultaneous connections to data sources (PostGIS, WMS)

• Many, large aerial images and terrain data-sets together in scene (via OSSIM and ossimPlanet)

• Migration of existing GIS technology to VR environments (using VR Juggler)
Minerva’s Architecture

Generic Database

- Minerva Desktop (traditional GUI app)
- Minerva Library
- PostGIS

- Minerva VR
- Minerva Library

Generic Database
User Interface
Projects

- West Nile Virus propagation
- Scottsdale Unified School District
- Chemical measurements local rivers
- Weather simulation
- Afghanistan aerials
- Housing prices
- Mars imagery
Projects → West Nile Virus
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Projects → Scottsdale Unified School District
Projects  ➔ Scottsdale Unified School District
Projects → Chemical measurement of local rivers
Projects → Chemical measurement of local rivers
Projects ➔ Chemical measurement of local rivers
Projects → Weather Research and Forecasting (WRF)
Projects ➔ Weather Research and Forecasting (WRF)
Projects → Afghanistan aerials
Projects ➔ Afghanistan aerials
Projects → Housing prices
Projects → Housing prices
Projects ➔ Housing prices
Projects ➔ Mars
Projects → SRTM error
Thanks!