GT Globe: A Web-based Interoperable 3D Visualization Tool for Collaborative Common Operational Picture

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GT Globe is a true breakthrough solution for distributing and visualizing 3D spatial information over the web. Built on cutting-edge streaming technology, *GT Globe* is capable of working with data sets of unlimited size. Map and image data, 3D models and terrain data can be delivered to a wide variety of clients over distributed networks.

The military needs distribution and visualization systems for handling large spatial data sets. Mission planning and scenario analysis requires sharing of large image, terrain data and 3D models. Simulation and analysis of modeled points of interest are no longer a luxury, they are a necesity. Modern planing and analysis requires that visualization of multi-resolution spatial data sets be done as quickly and as easily as possible.

2D methods for displaying such data exist, however they are not suited for displaying terrain surfaces wich require 3D displays to analyze correctly. Today's 3D visualization systems suffer for various reasons. Many are not network based, making it impossible for personel to share and update incoming data to multiple stations or field units. Many 3D systems are not multi-resolution, making analysis of a point of interst at both global and a local scales tedious, if not impossible. Systems currently in use that are both network ready, and multi-resolution suffer some of the greatest flaws, a lack of interoperability. To provide high performance visualzation, these systems must rely on proprietary data storage formats, making their data hard to manage, update, and share with other existing Geographic Information Systems (GIS) currently in use by the military.

TECHNICAL INNOVATIONS OF GT GLOBE

The *GT Globe* system is a complete solution. Client, server and data management technologies are seamlessly integrated. The competitive advantages of *GT Globe* include:

- Our Streaming technology provides ultra fast data handling to facilitate the use of very large spatial data sets over a wide range of networks.

- On-the-Fly 3D visualization capabilities that can draw from information from a wide variety of heterogeneous data sources.

- Interoperable and fusion on-demand from multi-source data. *GT Globe* is easily integrated into existing standards based networks.

- A fast multi-resolution graphics engine offers a multitude of visualization and analytical capabilities. GT Globe allows for simulations of vehicles on real world data.

- Dynamically updating true 3D terrain geometry allows for endless physics based simulation possibilities.

## MAJOR CAPABILITIES OF GT GLOBE

By providing access to large amounts of data from a multitude of sources, *GT Globe* offers tremendous potential to the military community. With access to distributed on-the-fly data, *GT Globe* allows for:

- Multiple users to analyze data simultaneously, for dynamic battle planning.

- A multi-resolution interactive mission planning environment.

- In cockpit visualization of mission scenarios.

- Tracking of forces and threats at multiple scales.

- Simulations of plumes and their effects on various potential targets.

- Immediate visual updates to new data and new points of interest at the click of a button.

- Interoperable and open access to multiple servers remotely.

GeoTango's *GT Globe* is a network based 3D visualization system capable of streaming large spatial data sets. By accessing multiple networks, *GT Globe* allows multiple concurrent users access to the same battlefield data. It showcases the power of interoperability by using Open GIS Consortium (OGC) standards, accessing multiple data sources simultaneously. By linking to multiple OGC sources, *GT Globe* makes previous interoperability problems a thing of the past. Such on-the-fly visualization of multiple source data makes *GT Globe* an invaluable tool for battlefield analysis and planning. By being truly 3D, it offers unlimited expansion in the future, as simulations and combat operations can be performed on dynamic and rapidly updating terrain features. Interactive local-to-global tactical 3D interactive mission planning over a network is now possible. Live updates to data sources make the tracking of forces and threats over multiple distributed systems a reality. From plume simulations, to in-cockpit fly-troughs, *GT Globe* lets your operators see and explore the world like never before.
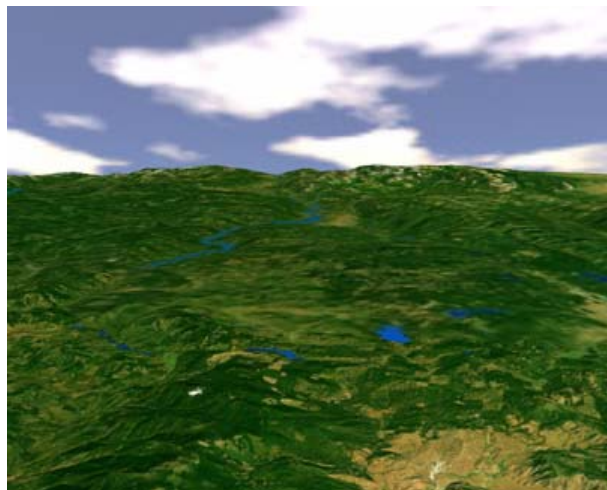
GT Globe offers network based multi-resolution terrain, image, and vector based visualization.
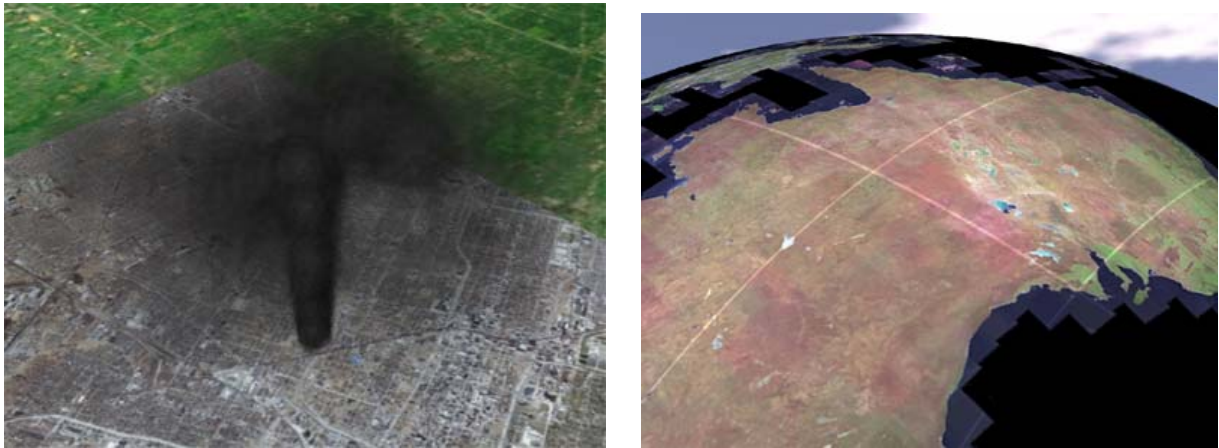
3D Plumes can be simulated on the 3D globe data (above right.) GT Globe can link to OGC servers (above left) to stream imagery from multiple sources.

THE FUTURE OF GT GLOBE

GT Globe was designed to be tailored to the individual needs of its users. With *GT Globe* you will be able to:

- Collaborate live with other operatives during mission planning and analysis.

- Accurately simulate multiple vehicle types on real world terrain.

- Perceive battleground scenarios as they truly are, based on weather information and time of day.

- Create your own plug-ins for unlimited analysis potential of your data.

- And much more...

GT Globe has been showcased, at this year's Joint Warrior Interoperability Demonstration (JWID '04) conference, to critical acclaim. As part of the Common Operating Picture for the 21st Century (COP21,) *GT Globe* was shown to be a proven system for the multi-resolution visualization of large global data sets over the web.