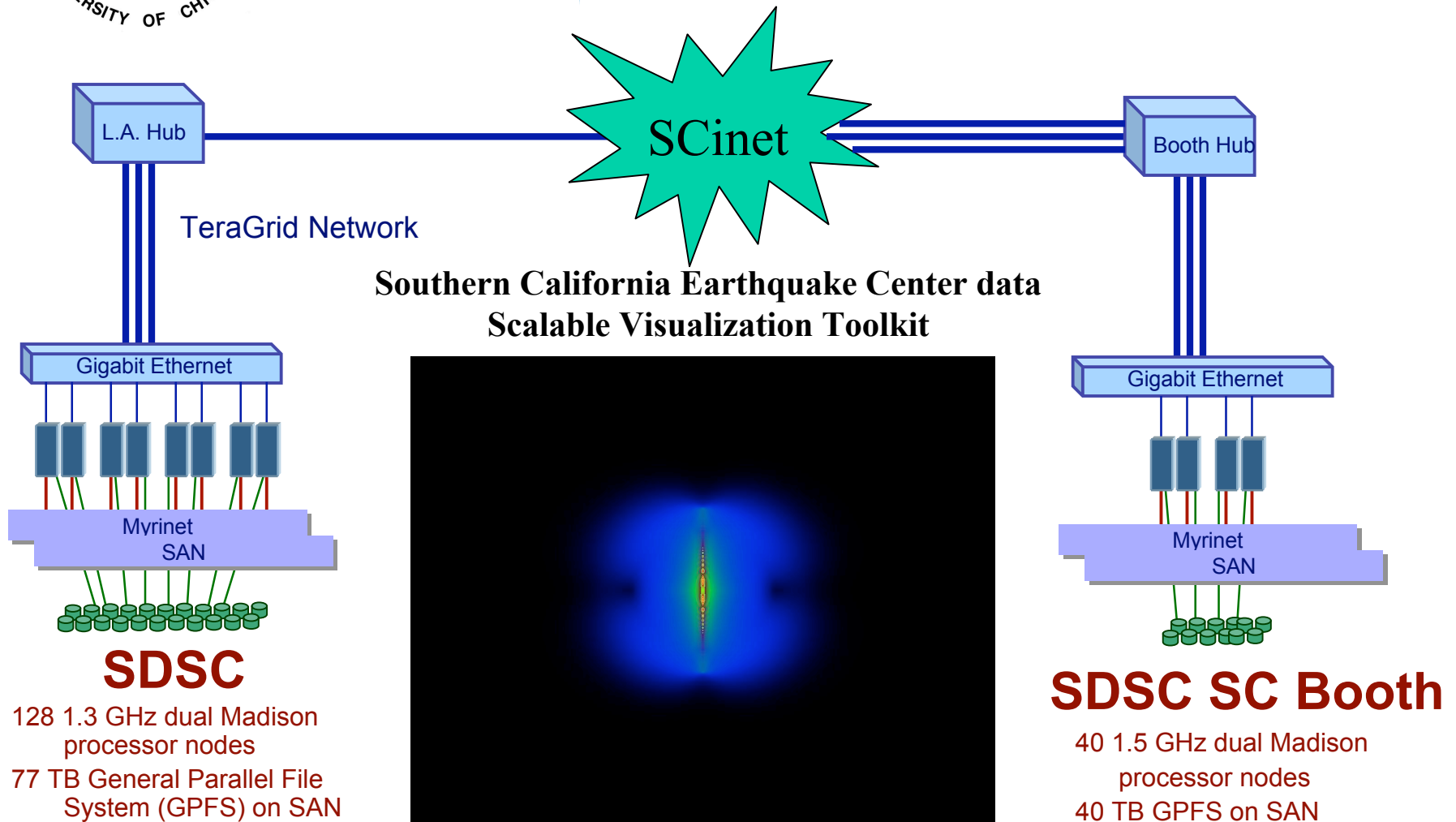


High Performance Grid-Enabled Data Movement with GridFTP

Bandwidth Challenge 2003



SDSC



Southern California Earthquake Center data
Scalable Visualization Toolkit

SDSC

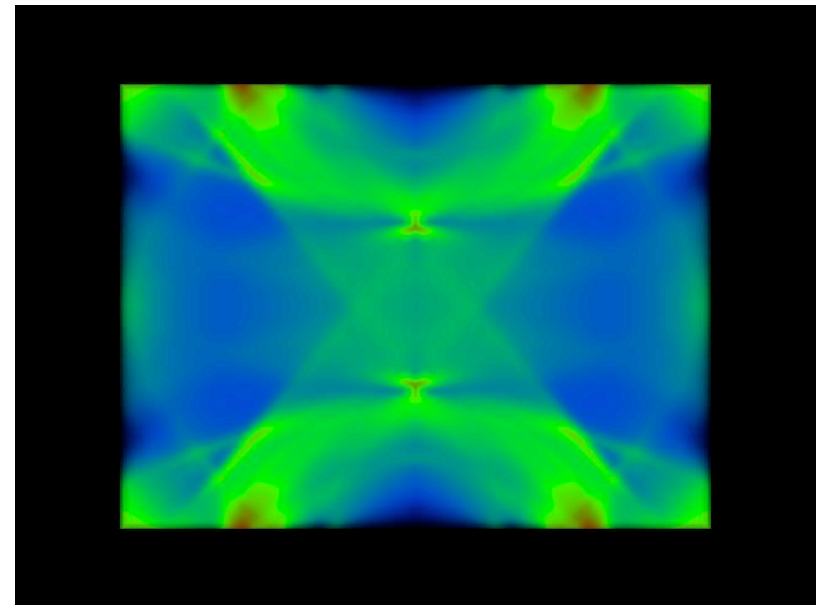
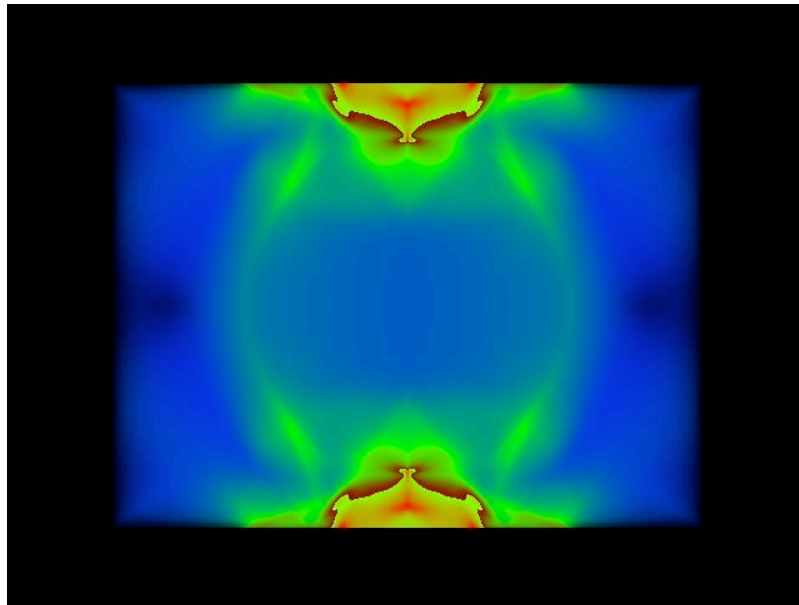
128 1.3 GHz dual Madison
processor nodes
77 TB General Parallel File
System (GPFS) on SAN

SDSC SC Booth

40 1.5 GHz dual Madison
processor nodes
40 TB GPFS on SAN

Southern California Earthquake Center

- Earthquake moving along a simple faultline
- Two snapshots from the simulation
 - Birds-eye view of the movement of the ground
 - Images are colored using a simple transfer function
 - Blue representing slow moving material
 - Red fast moving material
 - Green material moving at speeds in-between the two extremes
- Dataset consists of 600 1.1 GB files
- 3000 timesteps
- Data generated on TG Linux
- Recall time sequence data randomly



SCEC:

Geoff Ely

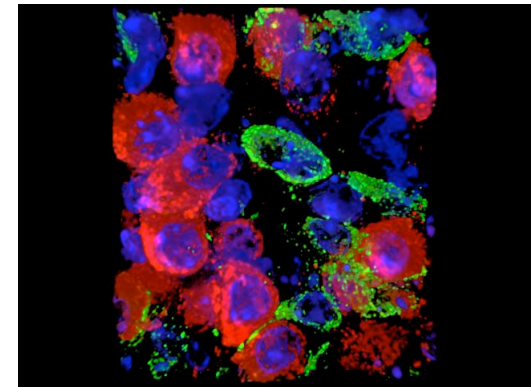
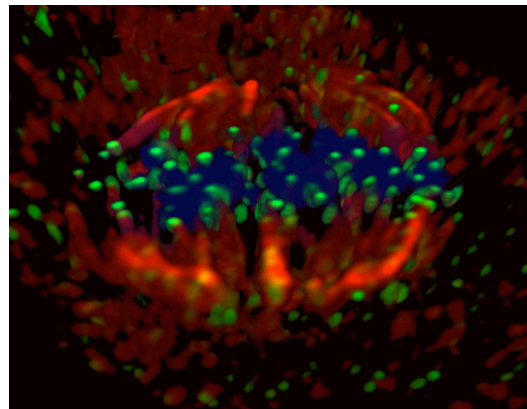
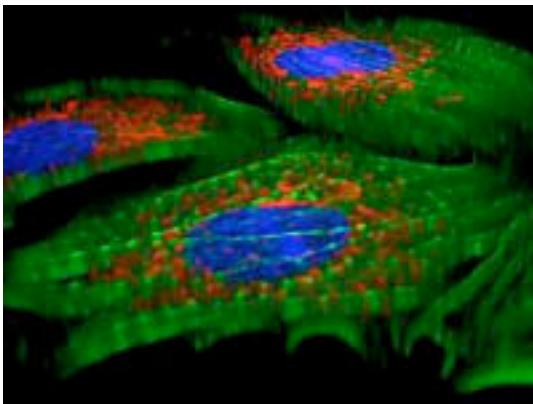
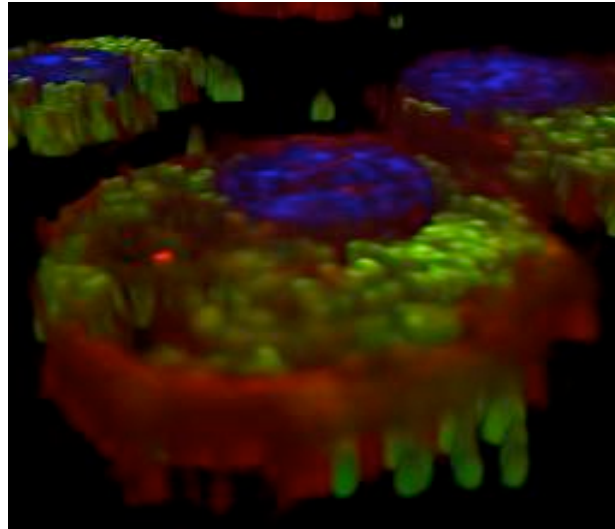
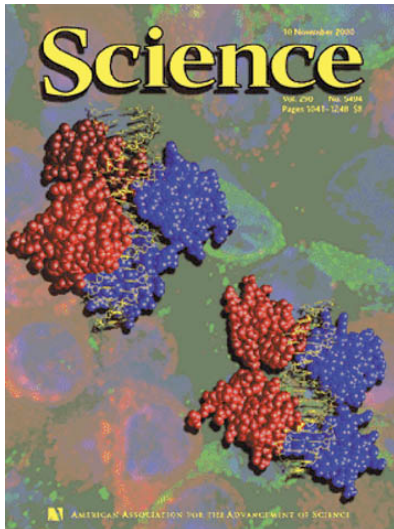
Prof Jean-Bernard Minster

SDSC

Marcio Faerman

Steve Cutchin

Other Relevant Visualizations



GridFTP

- A secure, robust, fast, efficient, data transport protocol.
- A proposed standard in the Global Grid Forum.
- The Globus Alliance provides a reference implementation.
- The striped server used in this demo is a prototype, but striping will be available in a production release next mid next year.

Striped Server

- Multiple nodes work together and act as a single GridFTP server
- An underlying parallel file system stores blocks of the file, usually in round robin fashion, across all of the nodes.
- Each node then moves only the pieces of the file that it is responsible for.
- The other side then writes the file in the same way, block round robin on a parallel file system.
- This allows multiple levels of parallelism, CPU, bus, NIC, disk, etc.