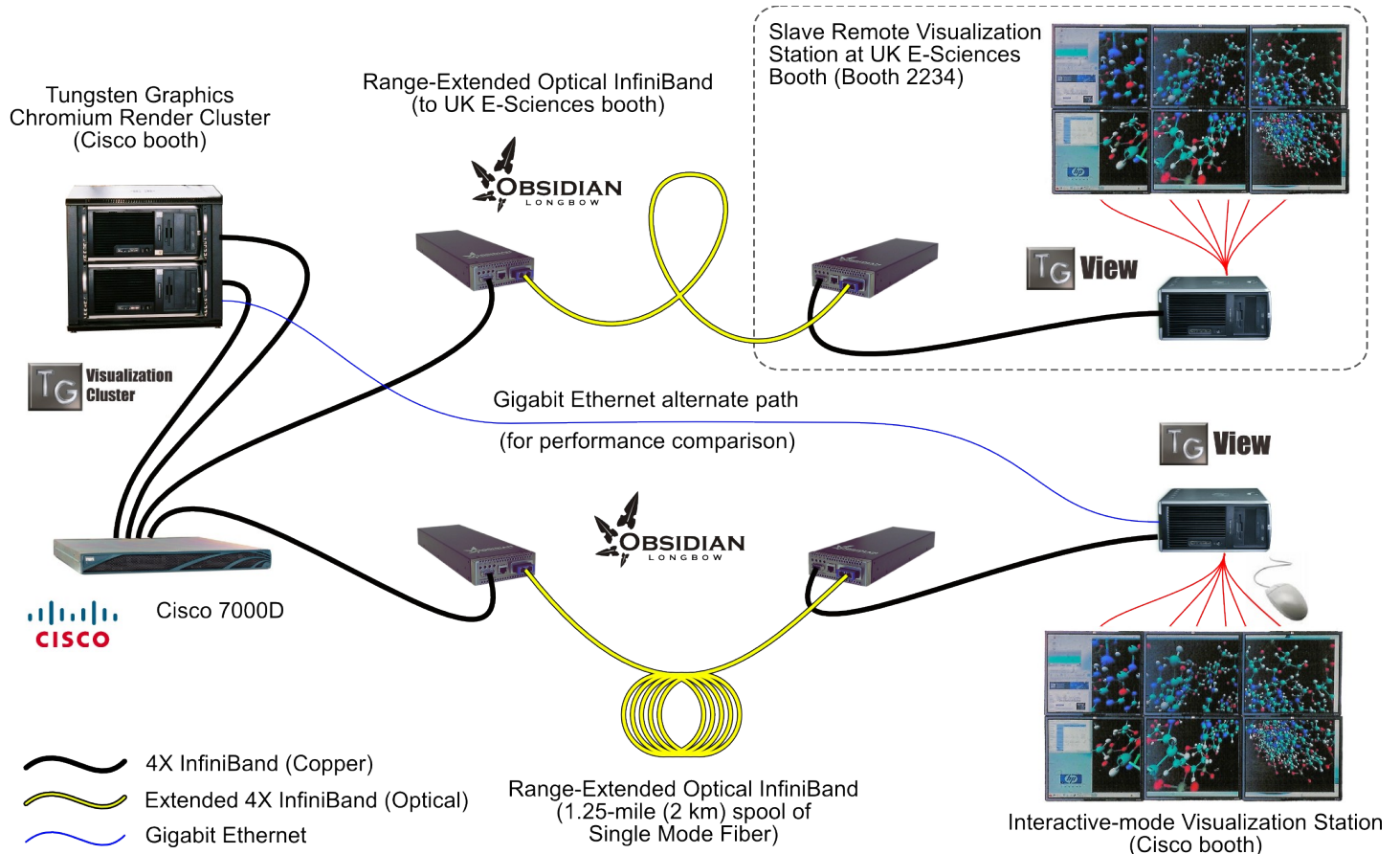


# Visualize Across Distance Without Compromise

Chromium parallel render servers from Tungsten Graphics use Cisco® Host Channel Adapters (HCAs) and InfiniBand switches to deliver scalable high-fidelity real-time visualization experiences. The range of Obsidian Longbow Campus devices extends InfiniBand connections, allowing uncompromised visualization up to 6.25 miles (10 km) from the render servers.



## The Demonstration

Scientific visualization tools demand very-high-resolution displays running at high frame rates -- understanding structures inside huge data sets requires a highly interactive approach, allowing the user to actively explore rather than just passively observe. Such high-fidelity interaction depends on a high-performance network connection between the parallel rendering machinery and the video display head. InfiniBand is a good choice because of its compelling bandwidth and latency characteristics, but copper or optical ribbon links prevent such connections from working between buildings in a campus environment.

This distance restriction makes it difficult to share access to high-value centralized visualization facilities, engage multiple remote groups in collaborative real-time efforts, or access full-throttle cluster visualization horsepower from the comfort of an office. Introducing the Obsidian Longbow Campus product to the Tungsten Graphics and Cisco Chromium parallel rendering solution removes these restrictions.

A pair of Obsidian Longbow Campus devices transparently extends the range of a standard InfiniBand link up to 6.25 miles (10 km) over single-mode fiber. Because the full 4X InfiniBand throughput and semantics are supported at a very low fixed-latency cost, the display performance is effectively identical to the locally cabled case. The frame rate is unaffected by the distance extension -- the entire system remains smooth and responsive. This demonstration includes a duplicated 3x2 panel display in booth #2234 (UK E-Sciences) using a second pair of Obsidian Longbow Campus devices.

For direct comparison, the visualization link can be switched over to a separate Ethernet link.

## The Applications

**Consolidate visualization cluster resources** -- build very powerful centralized render clusters and distribute access to them across an organization or institution. Give more rendering horsepower to users.

**Facilitate use of visualization clusters** -- distributing multiple visualization access points throughout a site promotes the use rate of the resource.

**Render to larger groups of people** -- bring high-end visualization away from the machine room -- for example, to dedicated display walls or multiple projector setups in lecture theaters.

**Access visualization facilities from personal workspaces** -- Control simulations and explore data sets from the convenience and calm of an office, no matter where the computing or render clusters are located on campus.

**Collaboration** -- share access to the visualization process across different groups within or between departments.



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