GLOBAL IPv6 SERVICE
LAUNCH EVENT

IPv6 Demo

Remote Instrumentation – Digital Video over IPv6

Figure 1: An example of the Tomographic reconstructed Node of Ranvier

Figure 2: A pool of scientific instruments

This demonstration shows two applications streaming live data from an intermediate-voltage electron microscope (EM) and a high speed laser scanning multi-photon light microscope (LM).

High resolution digital video is streamed from the national Center for Microscopy and Imaging Research (NCMIR) at the University of California, San Diego (UCSD) enabling viewers to monitor and/or control the instruments in real time. The two live data streams depict biological samples at two different scales of magnification. The first shows a sample at the scale of light microscopy (sub-micron) and the second at the scale of electron microscopy (angstrom).

This demo illustrates the work of researchers at the NCMIR, who are developing the Telescience Project (https://telescience.ucsd.edu). The project merges technologies for remote instrumentation, Grid computing and federated digital libraries of cell-level structural data to create a cyber-infrastructure for collaborative biomedical imaging.

This demonstration shows a system that is fully compliant with IPv6 and features the effective use of Digital Video over this protocol. The streaming video over native IPv6 networks is delivered to the conference over the Internet2, GÉANT, and BELNET research networks in collaboration with UCSD.

The use of IPv6 in applications of this nature facilitates the remote access of key scientific instruments. Mobile IP, using IPv6, will extend the usage model for remote microscopy.