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The IEPM group at SLAC is monitoring network connectivity and End-to-end performance for sites involved in High Energy Nuclear and Particle Physics. As such, the members of the group work closely with the Energy Sciences Network (ESnet), Internet2, the U.S. D.o.E funded laboratories, laboratories throughout the world, and Institutes and Universities throughout the world involved in data intensive science.

The Internet End-to-end Performance Monitoring (IEPM) Group has its origins in 1995 in the WAN Monitoring group at SLAC, which monitored links to many sites that SLAC collaborates with by using the IP Ping facility.

The ESnet Network Monitoring Task Force (NMTF) quickly become involved in the project and the work was extended to cover ESnet sites. Several DOE Labs installed the PingER monitoring software which greatly improved our knowledge of the network.

In April 1997 the International Committee on Future Accelerators (ICFA) created the Network Task Force to cover the needs of the High Energy and Nuclear Physics (HENP) community.

In 1998, the Cross Industry Working Team (XIWT) adopted the PingER tools developed out of the above efforts and used them to monitor their member sites.

In July 2001, there are 32 monitoring sites around the world, and over 3500 links are monitored.

In late 2001 and the start of 2002, a new project, IEPM Bandwidth to the World, was proposed to provide a simple, robust infrastructure for, and to make, analyze and report on more intense network and application monitoring for links that utilize high performance networks (e.g. ESnet, Internet2 and Academic & Research network) and applications such as Grid enabled bulk data replication. Read more.

The IEPM group also provides outreach beyond ESnet and HENP. In 2002, following a Round Table on Developing Country Access to On-Line Scientific Publishing: Sustainable Alternatives organized by the Abdus Salam International Center for Theoretical Physics (ICTP) we set up a collaboration with the ICTP electronic Journal Distribution Service (eJDS) to extend the PingER project to develop a monitoring project aimed at better understanding and quantifying the Digital Divide.

We also provide tailored monitoring pages for BaBar, CDF, D0, Fusion CIT, ICTP/eJDS PPDG, RHIC, as well as providing or supporting: public web pages on network monitoring tools, a tutorial on Internet Monitoring, reverse traceroute server support and code, support for industry led projects for network measurement. and prediction. We have given invited lectures and talks to students and assistance to developing countries such as Pakistan, the Caucasus region and Romania. In the last 5 years we have presented over 70 talks and published 13 papers. Many of these have been for organizations like ESnet, Internet 2, IETF, the ITU and ICFA as well as at CHEP and PAM international conferences. We have collaborations with the IPPM/Surveyor team, the NLANR Active Measurement Project (AMP) and the RIPE Test Traffic Project and NLANR NIMI project and host measurement tools at SLAC supporting each of them. We also collaborate with Daresbury Lab in England on the effectiveness of QoS techniques, and with Rice University and LANL on the SciDAC funded INCITE project. We had exhibits and demonstrations at SC 2000, SC 2001 booth picture, iGrid2002 and SC2002. We also did a demonstration for the Honorable Donald Evans, Secretary of Commerce U.S. in August 2002 at Stanford.

In a more esoteric vein we also had an exbibit at the San Francisco Museum of Modern Art (SFMOMA) from February to July 2001. Our work with the Stanford Music department related to monitoring the Internet with sound was also reported in the New York Times on December 19, 2002 in an article entitled An Aria with Hiccups: The Music of Data Networks.