

## **New High Performance Transport Protocol for High Performance Data Intensive Science Applications Demonstrated at SC09 Conference in Portland, Oregon**

**Nov. 17, 2009 Portland, Oregon**

Today, at the International Conference for High Performance Computing, Networking, Storage, and Analysis (SC09) conference, a research consortium demonstrated a new high performance transport protocol, UDX, for data intensive science applications. The UDX demonstration transported 9.3-9.6 Gbps streams using US national 7,000 mile testbed, C-Wave, based on lightpath channels within optical fiber.

Traditional Internet transport protocols were designed many years ago, at a time when networks had extremely limited bandwidth capacity. These earlier technologies provide only limited support for extremely large capacity, high volume streams required by large scale 21<sup>st</sup> century science. The new UDX protocol was specifically designed to eliminate those limitations and to optimize today's high capacity networking capabilities, especially lightpath channels implemented in high performance optical fiber channels. The UDX protocol can support sustained high performance, capacity streams across continents and the world for many hours, days or weeks.

The UDX protocol was designed by the Laboratory for Advanced Computing at the University of Illinois at Chicago. This technology is being developed and evaluated on the national TeraFlow network testbed and an extension on the national C-Wave, which was used for the SC09 demonstration. The testbed facilities, networking experiments, and demonstrations are being undertaken in partnership with the International Center for Advanced Internet Research (iCAIR) at Northwestern University. To address the challenges of 21<sup>st</sup> century large scale data transport requirements, this research consortium is designing, developing, and implementing an advanced communication services that can support data intensive traffic streams not only for individual large scale science projects, but also for more general applications such as next generation cloud computing.

These experiments and the Teraflow testbed are funded by the national Science Foundation (NSF). Additional support has been provided by the StarLight international communications exchange facility, the National Lambda Rail, and Cisco Systems.

### **About the Laboratory of Advanced Computing (LAC) at the University of Illinois at Chicago**

The Laboratory of Advanced Computing (LAC) at the University of Illinois at Chicago (UIC) was founded in 1990 and performs research in data intensive computing, cloud computing, high performance networking and related areas. ([www.labcomputing.org](http://www.labcomputing.org))

### **About the International Center for Advanced Internet Research (iCAIR), Northwestern University**

**iCAIR** accelerates leading-edge innovation and enhanced global communications through advanced Internet technologies, in partnership with the international community, and national partners. With its research partners, iCAIR conducts basic network R&D designs large scale experimental testbeds, and operates local, regional, national and international advanced prototype networks and facilities. ( [www.icaair.org](http://www.icaair.org) )

### **About the National Lambda Rail**

National LambdaRail is advancing the research, clinical, and educational goals of members and other institutions by establishing and maintaining a unique nationwide network infrastructure that is owned and controlled by the U.S. research community. Ownership of the underlying optical infrastructure ensures the research community unprecedented control and flexibility in meeting the requirements of the most advanced network applications and providing the resources demanded by cutting-edge network research. ([www.nlr.net](http://www.nlr.net))

### **About Cisco Systems**

Cisco (NASDAQ: CSCO) is the worldwide leader in networking that transforms how people connect, communicate and collaborate. ([www.cisco.com](http://www.cisco.com))

### **About StarLight**

StarLight is an advanced optical infrastructure and proving ground for network services optimized for high-performance applications. StarLight is the GLIF Open Lightpath Exchange (GOLE) in Chicago. Operational since summer 2001, StarLight has 1GE and 10GE switch/router facilities and true optical switching for wavelengths. StarLight is being developed by the Electronic Visualization Laboratory (EVL) at the University of Illinois at Chicago (UIC), the International Center for Advanced Internet Research (iCAIR) at Northwestern University, and the Mathematics and Computer Science Division at Argonne National Laboratory, in partnership with Canada's CANARIE and the Netherlands' SURFnet. ([www.startap.net/starlight](http://www.startap.net/starlight))