New Internet2 Land-Speed Record: 6.63 Gigabits per Second

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Scientists at the California Institute of Technology (Caltech) and the European Organization for Nuclear Research (CERN), along with colleagues at AMD, Cisco, Microsoft Research, Newisys, and S2io have set a new Internet2 land-speed record. The team transferred 859 gigabytes of data in less than 17 minutes at a rate of 6.63 gigabits per second between the CERN facility in Geneva, Switzerland, and Caltech in Pasadena, California, a distance of more than 15,766 kilometers. The speed is equivalent to transferring a full-length DVD movie in just four seconds.

The technology used in setting this record included S2io's Xframe® 10 GbE server adapter, Cisco 7600 Series Routers, Newisys 4300 servers utilizing AMD Opteron processors, Itanium servers, and the 64-bit version of Windows Server 2003.

The performance is also remarkable because it is the first record to break the 100 petabit meter per second mark. One petabit is 1,000,000,000,000,000 bits.

This latest record by Caltech and CERN is a further step in an ongoing research-and-development program to create high-speed global networks as the foundation of next-generation data-intensive grids.

Multi-gigabit-per-second IPv4 and IPv6 end-to-end network performance will lead to new research and business models. People will be able to form "virtual organizations" of planetary scale, sharing in a

flexible way their collective computing and data resources. In particular, this is vital for projects on the frontiers of science and engineering, projects such as particle physics, astronomy, bioinformatics, global climate modeling, and seismology.

Harvey Newman, professor of physics at Caltech, said, "This is a major milestone towards our dynamic vision of globally distributed analysis in data-intensive, next-generation high-energy physics (HEP) experiments. Terabyte-scale data transfers on demand, by hundreds of small groups and thousands of scientists and students spread around the world, is a basic element of this vision; one that our recent records show is realistic." Olivier Martin, head of external networking at CERN and manager of the DataTAG project said, "As of 2007, when the Large Hadron Collider, currently being built at CERN, is switched on, this huge facility will produce some 15 petabytes of data a year, which will be stored and analyzed on a global grid of computer centers. This new record is a major step on the way to providing the sort of networking solutions that can deal with this much data."

About Internet2

Internet2 is a not-for-profit consortium led by over 200 US universities and a number of corporate partners from the networking and technology business, including AT&T, Intel, Sun Microsystems, Cisco Systems and others. Its purpose is to develop and deploy advanced network applications and technologies such as IPv6, IP multicasting and quality of service. It does not aim to create a new network separate from the Internet but to ensure that new applications and technologies are deployed to the existing Internet.