

IEEE forms group to confront network traffic swells

August 21 2012, by Nancy Owano



Image: Wikipedia.

(Phys.org) -- The Institute of Electrical and Electronic Engineers (IEEE) is taking steps to come up with a new Ethernet standard capable of between 400Gbps and 1Tbps. The IEEE announced Tuesday it is forming a group focused on ringing wired Ethernet speeds up to where they will need to belong by 2015. Speeds which could peak at 1 Tbps. The announcement names the “IEEE 802.3 Industry Connections Higher Speed Ethernet Consensus Group” as the body now handed the mission to hammer out details of what will be the new standards for the next speed of Ethernet. The IEEE 802.3 Industry Connections Higher Speed Ethernet Consensus Group is to meet next month in Geneva from September 24 to September 25.

While some observers refer to the problem as a traffic “swell,” numbers

indicate it is more like a tsunami. Gregory Bell, Director, Energy Sciences Network (ESnet), and Director, Scientific Networking Division, Lawrence Berkeley National Laboratory, said that even the phrase 'big data' doesn't describe the revolution occurring in many scientific disciplines. He said one only has to consider CERN's recent announcement of a new particle, evidence that had to be sifted from gigabytes of data generated every second. He called CERN data just the tip of the iceberg.

“Within three to six years we predict the need for a minimum of 400 Gbps connectivity to meet data mobility needs of experiments in fusion, astrophysics, genomics, climate research and other fields.”

Similarly, the existence of the new group comes after findings that show the need to start working towards new standards now. The Consensus group launch has its roots in the [IEEE](#)'s assessments of 802.3 Ethernet Bandwidth, and seeing an exponential climb in global bandwidth requirements (802.3 refers to standards defining the physical and data link layer's media access control of wired Ethernet), with total traffic doubling every 18 months.

In a July IEEE 802.3 [Ethernet](#) Working Group Communication, for example, it was said that “the bandwidth associated with core networking was observed, on average, to be doubling every eighteen months.” Although there was a wide variation in aggregated bandwidth needs, said the communication, “the observed trend that the doubling every eighteen months on average of bandwidth requirements associated with core networking is still a reasonable approximation. If the current trend continues, then this translates to an increase in [traffic](#) of a factor of 10 by 2015 compared to 2010 and by a factor of 100 by 2020.”

The IEEE collected data is a reminder that the standards homework ahead is caused by far more than daily end users downloading movies or

listening to music. The IEEE has been collecting data from data center networks, high-performance computing, financial markets, carrier and cable operators, Internet exchanges, and the scientific community.

The most aggressive growth rates in network bandwidth consumption is happening in the financial sector and data-intensive science, the IEEE has found, with compounded annual growth rates of 95 percent and 70 percent, respectively.

Potential participants to help decide on the new standards are likely to include users and producers of systems and components for carriers, Internet exchanges, financial markets, data centers, networking systems, high-performance computing, and [network](#) storage and servers.

More information:

www.ieee802.org/3/ad_hoc/bwa/BWA_Report.pdf

[www.businesswire.com/news/home ... -IEEE-802.3-Tm-Group](http://www.businesswire.com/news/home...-IEEE-802.3-Tm-Group)

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