Contribution ID: **121** Type: **oral presentation**

Networking for High Energy and Nuclear Physics as Global E-Science

Thursday 30 September 2004 14:00 (20 minutes)

Wide area networks of sufficient, and rapidly increasing end-to-end capability are vital for every phase of high energy physicists' work. Our bandwidth usage, and the typical capacity of the major national backbones and intercontinental links used by our field have progressed by a factor of more than 1000 over the past decade, and the outlook is for a similar increase over the next decade, as we enter the era of LHC physics served by Grids on a global scale. Responding to these trends, and the emerging need to provide rapid access and distribution of Petabyte-scale datasets, physicists working with network engineers and computer scientists are learning to use networks effectively in the 1-10 Gigabit/range, placing them among the leading developers of global networks.

In this talk I review the network requirements and usage trends, and present a bandwidth roadmap for HEP and other fields of "data intensive" science. I give an overview of the status and outlook for the world's research networks, technology advances, and the problem of the Digital Divide, based on the recent work of ICFA's Standing Committee on Inter-regional Connectivity (SCIC). Finally, I discuss the role of high speed networks in the next generation of Grid systems that are now being constructed to support data analysis for the LHC experiments.

[This is a candidate Plenary Presentation.]

Author: NEWMAN, H. (Caltech)

Co-author: ON BEHALF OF THE ICFA STANDING COMMITTEE ON INTER-REGIONAL CONNECTIVITY, (Does Not Apply) (ICFA)

Presenter: NEWMAN, H. (Caltech)

Session Classification: Wide Area Networking

Track Classification: Track 7 - Wide Area Networking