

Technologies for a Petabit Network

H.-J.Grallert

Professor Technical University Berlin and
Managing Director
Fraunhofer Institute for Telecommunications,
Heinrich-Hertz-Institut (HHI), Germany



Abstract:

New services and the evolution to a multimedia broadband internet are constantly requesting more bandwidth. Currently the data traffic doubles every year without having any saturation in sight. Increasing numbers of FTTx ports will lead to a global core network with petabit traffic, offering 10 Gbit/s access for everybody and everywhere. Supporting this data rate growth is an enormous challenge for the photonic components involved on the transmitter and receiver side. Today's inversed pricing structure - one 40G transceiver is much more expensive than forty 1G transceivers - shows that there is not yet an equilibrium between industry demand and component performance. In addition, the migration from today's dominating intensity modulation to combined phase and amplitude modulation at reasonable component cost requires mass introduction of new technologies with monolithic and / or hybrid integration, silicon photonics and several new device concepts. The next ten years in the system and component segment will be an exciting area, where excellence in technology and performance will again be as important as excellence in managing the manufacturing costs and energy efficiency. Based on the experiences gained from telecom industry photonics will play a major role in biomedical and health care applications as well as in complex security monitoring and surveillance systems.

Biography:

H.-J.Grallert received his M.Sc. and Ph.D. degrees in Communications Engineering from the Rheinisch-Westfälisch-Technische-Hochschule Aachen, Germany, in 1974 and 1977, respectively. For his doctorate thesis he received the 1977 award of the German Information Technology Society (ITG). He joined the Fraunhofer Institute for Telecommunications, Heinrich-Hertz-Institut (HHI) for the first time in 2004 as a consultant. In April 2005 he became managing director of the institute. Since 2005 he is full professor for Telecommunications at the Technical University Berlin at the Institute for Communications Systems. Before working for the HHI he was Managing Director of Marconi Communications Ondata GmbH and Vice President of Marconi Optical Networks, Backnang, Germany (2001-2003). From 1981 to 2001 he was with Siemens AG, Munich, eventually as Member of the Board and Senior Vice President of Siemens Information and Communication Optical Networks. Until now he is member of several committees e.g. General Chair of ECOC 2000 in Munich, and of ECOC'07 in Berlin. He vice chairman of Optical Technologies Berlin and Brandenburg, Germany and member of ITG in the committees for "Optical Transmission Systems".