



Physical Research Laboratory, Ahmedabad

Shri Hari Om Ashram Prerit Dr. Vikram Sarabhai Research Award Lecture*

Speaker: Dr. Ashwin Gumaste

Institute Chair Associate Professor, Department of Computer Science and Engineering, Indian Institute of Technology, Bombay.

Title: Omnipresent Ethernet: From Concepts to Products - Secure Communications, Networking and Control Framework

Abstract

The talk begins with the clean-slate design problem of the Internet along with current service provider pain-points, focusing on plausible solutions, narrowing to the concept of Omnipresent Ethernet (OE). The OE concept is introduced as next generation carrier-class Internet architecture. OE extends Ethernet for end-to-end provisioning across the LAN, MAN and WAN, using concepts of Carrier Ethernet in conjunction with simple network architectural understanding. The advantages of OE such as low-latency, low energy, small foot print are discussed. OE working is presented especially in conjunction with some of the advances in Carrier Ethernet. Mapping OE to multiple layers of the protocol stack and some of the base problems that we have considered will also be showcased. A pragmatic 1-micro-second port-to-port supporting 96 Gbps cross-connect Carrier Ethernet Switch Router will be showcased. The working, analysis and the development of this architecture is discussed. OE has led to a family of products, conceptualized, designed, prototyped at IIT Bombay and now made available through DAE's PSU the Electronics Corporation of India Ltd, ECIL. An overview of these products, how these have been developed, the internal workings of the hardware and software as well as deployments in the nation's leading networks and data-centers will be discussed. Some open problems will also be presented.

The Speaker

Dr. Ashwin Gumaste did his B.E. from the University of Mumbai and M.Sc. in Telecommunications from the University of Louisiana at Lafayette, LA, USA. He did his Ph.D. in Electrical Engineering from the University of Texas, Dallas, USA. His broad areas of research interest are Optical Networks, Access Networks, Metro and Enterprise Networks and Network Algorithmics. Research carried out by him at IIT, Mumbai resulted in transfer of several technologies to industry. Dr. Gumaste has also authored several books on broadband networks. He is a recipient of the Government of India's DAE-SRC Outstanding Research Investigator Award (2010), the Indian National Academy of Engineering's (INAE) Young Engineer Award (2010).

***Hari Om Ashram Prerit Dr. Vikram Sarabhai Research Award for the year 2011, in the field of Informatics and Telematics, will be presented to Dr. Ashwin Gumaste at 15.45 hrs prior to the Award lecture, as Dr. Gumaste could attend the award ceremony held at PRL on 10th August, 2012.**

Wednesday: 11 December, 2013, 15:45 hrs.

K.R. Ramanathan Auditorium, PRL

Tea at 15:15 hrs.

ALL ARE WELCOME