NJIT

IEEE North Jersey Communications Chapter

Cost-Effective Network Architecture with TWIN

by Indra Widjaja, Bell Labs, Lucent Technologies

Date: November 6, 2003 (Thursday)
Time: 5:15 pm (refreshment starts at 5:00 pm)
Place: 202 ECEC, NJIT

About the Speaker

Indra Widjaja received the Ph.D. in electrical engineering from the University of Toronto. From 1994 to 1997 he was an assistant professor of ECE at the University of Arizona. From 1997 to 2001 he was with Fujitsu. He has been with Bell Labs since 2001 performing research in communication networks. With Leon-Garcia, he is the co-author of the textbook "Communication Networks: Fundamental Concepts and Key Architectures."

About the Talk

Per-unit bandwidth cost of a fully utilized lightpath is very low, but most end-to-end traffic demands require only a small fraction of a wavelength capacity. Conventional approaches rely on traffic grooming and statistical multiplexing to bridge the gap between wavelength capacity and end-to-end bandwidth requirement. However, these approaches result in network architectures that are complex and expensive. In this talk, we show how communication networks can be made more cost-effective through a technique called Time-domain Wavelength Interleaved Networking (TWIN), which views a network as a giant switch/router. TWIN emulates fast switching in the network core by scheduling ultrafast tunable lasers at the network edge. We discuss key challenges in practical realization of TWIN.

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