

Research on Networking and Cybersecurity

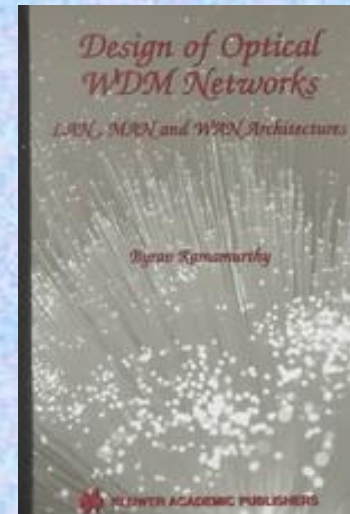
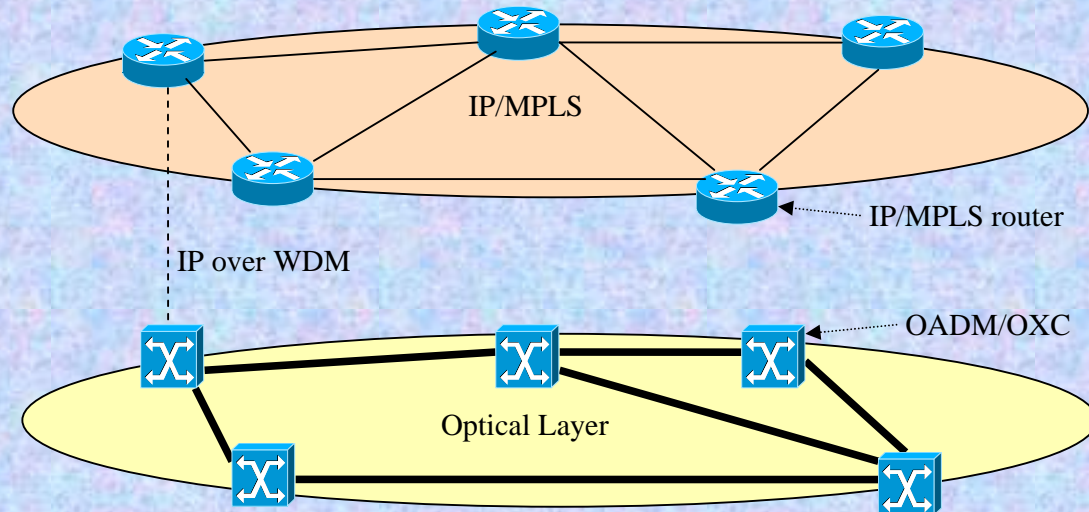
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Next-Generation Optical Networks

- Optical transport layer
 - Wavelength division multiplexing (WDM)
 - wavelength switching, signaling
 - cost-efficient, intelligent and automatic



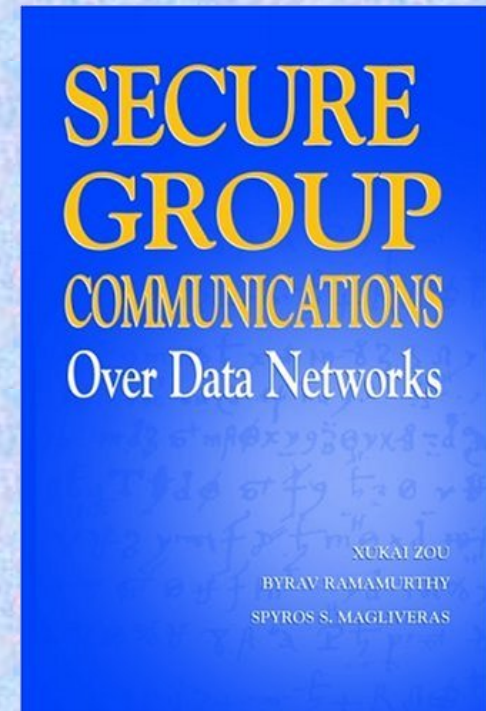
Internet2 HOPI: Hybrid Optical and Packet Infrastructure

Wang Yao, Traffic Grooming in Next-Generation Optical WDM Mesh Networks, PhD dissertation, August 2005.

Mengke Li, Cost Efficient Design of Waveband Switching in Optical Wavelength-Division Multiplexed Networks, 2005.

Secure Group Communications

- Group of members wish to setup a secure conference
- Computation of a group key
- User join – Backward secrecy
- User leave – Forward secrecy
- Wired and wireless (ad hoc) networks



Ravi K. Balachandran, Secure Group Communications over Wireless Ad Hoc Networks, MS thesis.

Xukai Zou, Secure Group Communications (SGC) and Hierarchical Access Control (HAC), PhD dissertation.

Groundwater monitoring: Wireless sensor networks

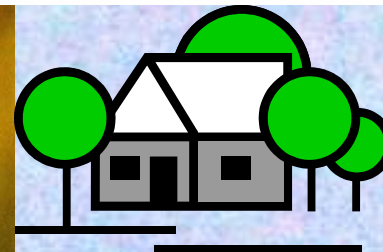
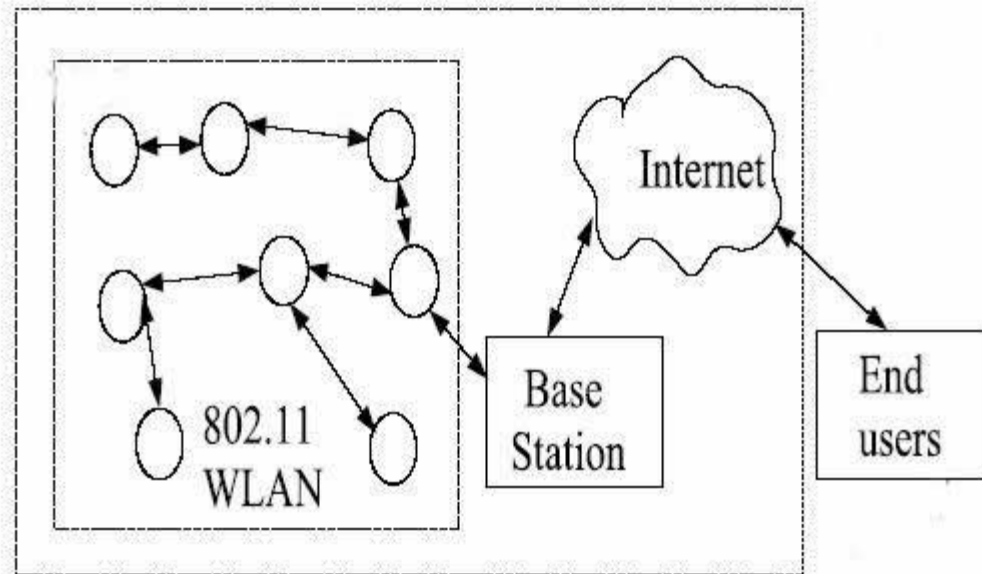
Routing

Security

Power issues

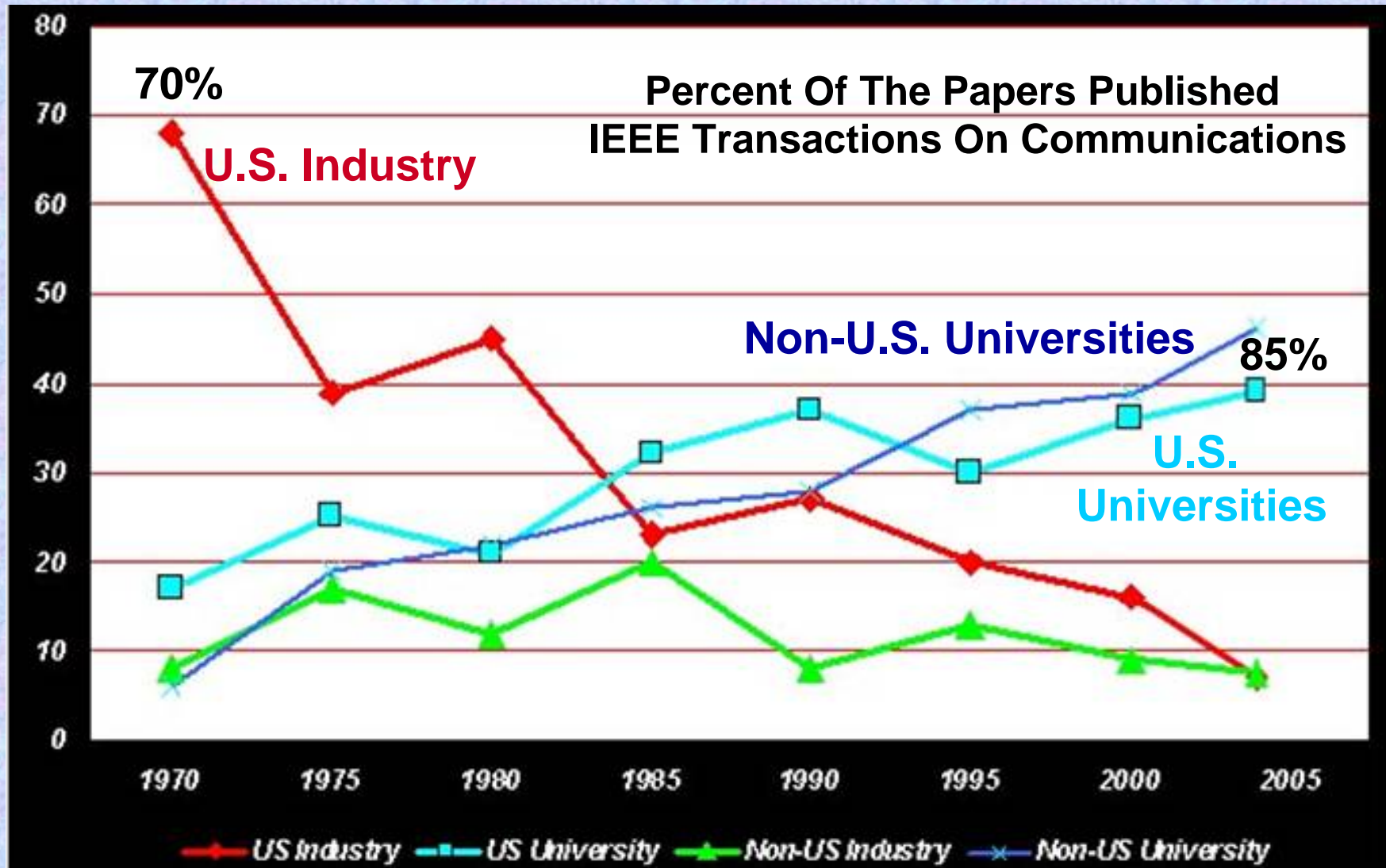
Real-time

Deployment



Srikanth Anumalla, Groundwater monitoring using smart sensors, MS project.

Where is Telecommunications Research Performed? A Historic Shift



Source: Bob Lucky, Telcordia/SAIC