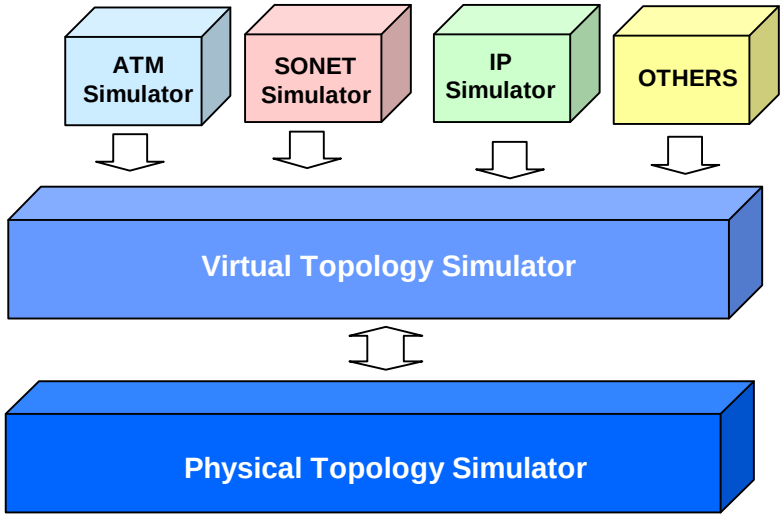
WDM Network Planning and Modeling



Goal

To speed the development of WDM technology for high speed networks.

Technical Objectives

- Develop software tools to simulate dynamic reconfiguration and physical layer characteristics of scalable WDM networks
- Develop and evaluate distributed algorithms for wavelength assignment and routing in WDM networks.
- Develop tool to analyze and design self-healing mechanisms in ring and mesh WDM topologies.

Expected Impact

- Use of the tool by participants in various standards organizations such as ITU-T, T1, and OIF to evaluate alternative proposals.
- Use by carriers to design WDM network topologies and to manage WDM networks.
- Use by researchers for protocol engineering and performance study.

Potential Customers and Collaborators

Customers

- Equipment vendors and network operators.
- Universities and research institutes.
- Standard organizations: ANSI T1,ITU-T, Optical Internetworking Forum, IETF.

Collaborators

- Optical simulation tool designers, vendors (BNeD, Bellcore)
- Physics Laboratory, NIST
- Mathematical Division, ITL, NIST
- Advanced Technology Program, NIST

Planned Accomplishments (FY 99 - 00)

- Develop a WDM network design and modeling environment which allows integration of existing analytical model and simulation software including ns2 and NIST ATM simulator. (FY 99)
- Design and implement a library of efficient wavelength assignment and routing algorithms. (FY 99-00)
- Design and implement a software tool for dynamic reconfiguration of WDM virtual topologies. (FY 99-00)
- Integration of the above software into a tool for Modeling, Evaluation, and Research of Lightwave Networks, MERLiN. (FY 99-00)