Cost-effective architecture for accessing wavelength division multiplexed optical ring communication networks

Demand for greater bandwidth on communication networks has led to the development of wavelength division multiplexed (WDM) optical ring networks. Transmitting and receiving data in and out of WDM ring networks in a cost-effective manner is one of the critical criteria for scaling up large networks. Since the cost of accessing the ring network (transmitting and receiving data) increases with the number of network access stations (NAS), it is imperative to minimize access costs per station. This technology describes architecture for reducing the access costs to a bidirectional WDM ring network. As such, the technology is significantly more cost effective than current WDM network designs, thereby allowing feasible scalability to large networks.

Reducing hardware complexity for cheaper access to WDM optical ring networks

The cost for each NAS to access the ring includes the cost of the hardware, such as wavelength division multiplexers (WMUXs) and demultiplexers (WDMUXs), the cost for switching, the cost of the fibers in the access link, and the cost of the optical transceivers in the access link. As networks become increasingly large and complex, it is critical to reduce the cost for each NAS to access the ring in order to economically sustain large networks. This technology describes an architecture that reduces the number of WMUX, WDMUXs, and uses half as many fibers in the access link as well as half as many transceivers. The reduced number of hardware not only decreases the complexity for connecting NASs to the ring network, but it also reduces the access cost.

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Applications:

• Long haul communication routing and switching
- Data transmission from data centers and private Internet Service Providers
- Local Area Network data switching and routing

**Advantages:**
- Uses half as many fibers in the access link
- Requires less switching and transceiver hardware, which reduces infrastructure costs and network complexity

**Patent Information:**
Patent Issued (US 6,895,186)
Tech Ventures Reference: IR MS99/06/10

**Related Publications:**

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