Glimmerglass
Optical Cyber Solutions

With undersea fiber-optic cables providing the backbone of international telecommunications, the ability to rapidly and remotely provision, monitor and reconfigure light paths on these optical fibers is becoming critical. Outages and downtime seen in the past from cable breaks, equipment and software failures are no longer acceptable.

Create

Glimmerglass Intelligent Optical Systems provide a breakthrough, scalable solution to enhance resiliency and improve availability of submarine networks while reducing operating costs

Monitor

Reconfigure

Landing Stations

Landing stations are the boundary between the undersea cable side (the wet side) and the terrestrial network (the dry side). At these sites, wavelengths on the undersea cable fibers are terminated and each light path is connected to transmission equipment on the dry side. Landing stations are frequently in remote locations which are expensive to man and hard to reach for emergency service calls.

A significant problem at these landing stations is the failure of wavelength transponders. Emergency replacement of the expensive and delicate wet side line cards is complicated and can lead to more equipment damage or extended outages even when performed by a specialized technician. A carrier has addressed this problem by using purely optical, photonic switching systems from Glimmerglass to improve network availability and reduce operational costs.

Glimmerglass Solution

Glimmerglass, the leader in optical layer management solutions, provided a truly effective solution. By placing a Glimmerglass Intelligent Optical System between the wet and the dry side termination equipment, the carrier was able to create, monitor, and reconfigure wavelengths between transponders at the physical layer. This setup allowed for extremely efficient, rapid and remote management of light paths at the landing station.

Additionally, the system was able to detect faults either independently, as in the case of loss of light events, or in conjunction with networked test equipment for cases of signal degradation. In the event of such a fault, a remote operator could easily command the IOS to direct traffic around the failed transponder. Thus, what would have been an outage lasting hours is now downgraded to minutes, and emergency repair actions are shifted to scheduled service calls.

Once traffic has been restored, test equipment attached to the Glimmerglass Intelligent Optical System can be remotely switched into the failed light path for in-depth analysis of the underlying problem. Loopbacks can also be remotely initiated to further isolate faults.
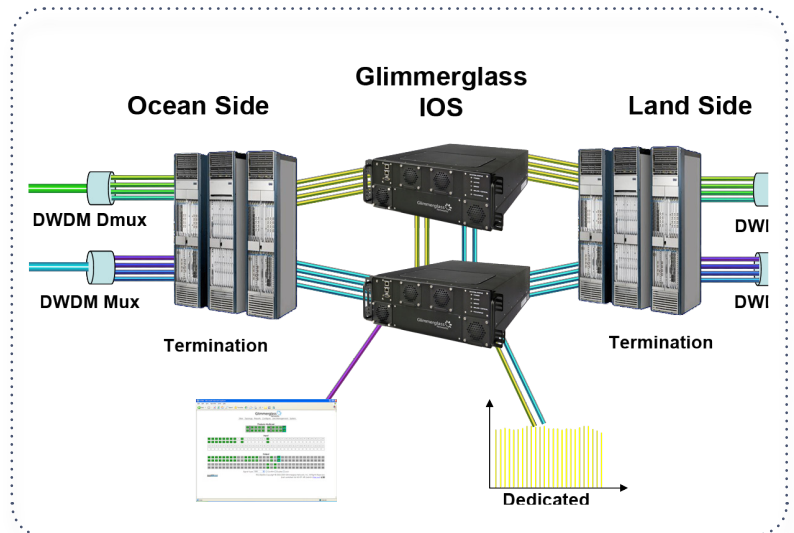
Remote Wavelength Management Configuration

Benefits

In summary, Glimmerglass Intelligent Optical Systems provide significant cost and network availability benefits for submarine cable landing stations:

- Decreased Operating Cost

  - Reduces need for staff at remote locations

  - Downgrades emergency repair situations to scheduled service calls

  - Simplifies future cable upgrades because of data rate and format transparency

- Increased Network Availability

  - Significantly reduces down time caused by failed line cards

  - Empowers network operators with visibility of connections between the wet and the dry sides of the submarine network prior to any network failure

  - Facilitates the process of fault isolation and network testing

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