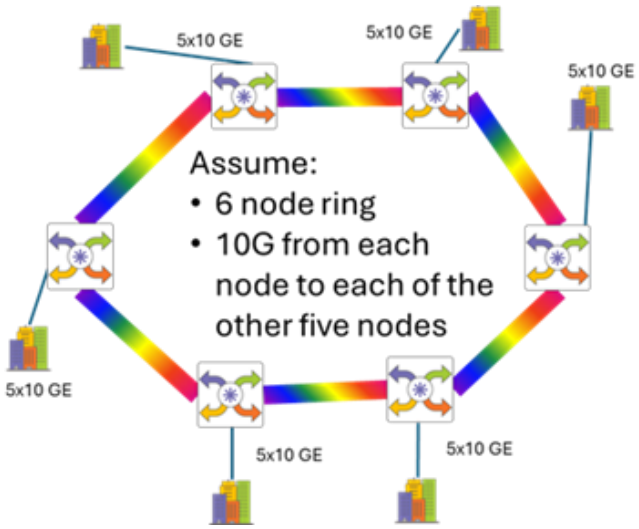
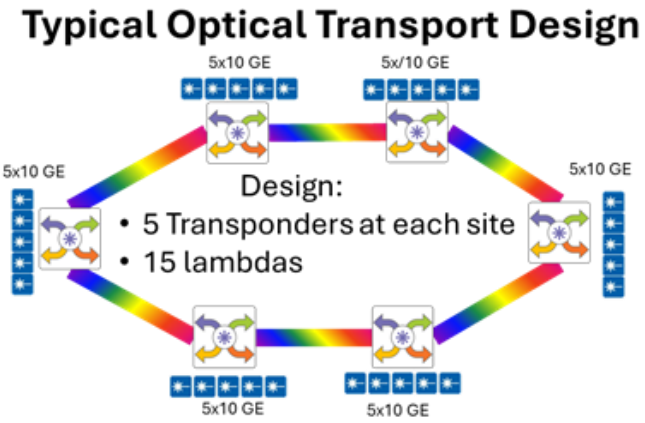
Tejas Provides Unique OTN Ring Solution

Every Communications Service Provider (CSP) utilizes optical networks to carry customer traffic. It is a competitive market and each CSP needs to provide service at the best price to remain viable in the market. As such, the optical network needs to efficiently carry the traffic demand. Usually, Optical networks are used in point-to-point configurations to provide a number of lambdas, with each lambda providing service between two sites. This approach works well when there is enough traffic between each set of sites to utilize the lambda. But what about situations with lower amounts of traffic around a ring? Consider a typical telecom requirement.



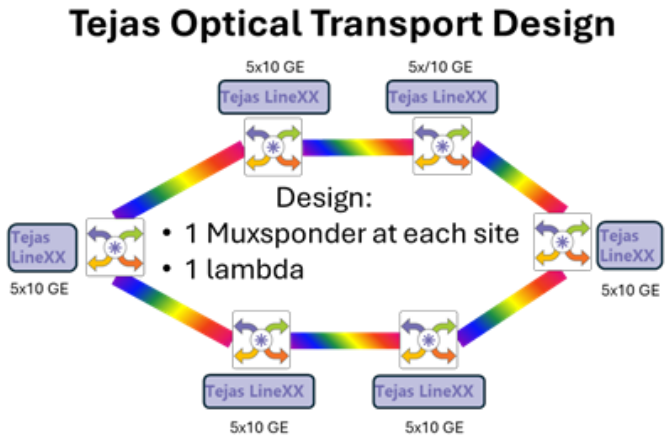
Typical Optical Transport Approach

A typical optical layer 1 solution will deploy a transponder pair, providing point-to-point connectivity between each pair of sites that need service. With this deployment paradigm, 30 transponders are used, consuming 15 lambdas.



Tejas OTN Optical Transport Approach

A Tejas OTN ring implementation can accommodate this scenario with a pair of transponders at each site. The Tejas TJ1600 series of muxponders has a pair of transponders and an OTN switch fabric on a single card. With this deployment paradigm, 12 transponders are used, connecting each node to the neighboring node, consuming a single lambda around the ring. This approach is good for Tier 2 or Tier 3 metro scenarios where it is common to have a ringed fiber architecture with a handful of 10G between sites.



Unlike our competition, Tejas muxponders have two transponders and a built-in OTN switching fabric on a single muxponder. This allows for the deployment of an OTN ring with a single muxponder. By utilizing the OTN switch fabric, some of the OTU2s can be dropped and the others passed along the ring. Without the OTN switch fabric, the competition is relegated to point-to-point lambdas between each pair of nodes, thus requiring a lot of transponders. The OTN switch fabric gives Tejas solutions more flexibility and, in this case, a more economical design.

Results

Typically, Tier 1, larger Tier 2, Data Center Interconnect (DCI) or Research and Education (RNE) networks would select the standard point to point deployment strategy, due to the larger volumes of traffic requirements between each site. Larger amounts of traffic demands are better met with a dedicated lambda between each site, i.e. the typical optical transport approach. Thus, the point-to-point approach is clearly appropriate for these situations.

The OTN Ring solution is typically beneficial to Tier 2/3 CSPs, utilities and rural optical applications. This solution is good when the customer has an optical ring and needs a handful of small capacity (say 1-5 10G) demands between multiple sites on the ring.

The objectives of the OTN ring solution can also be achieved with a layer 2 (L2) Switchsponder, ie the TJ1400P-H. Since it is layer 2, the switchsponder utilizes shared bandwidth over the Ethernet ring that is setup between the nodes. Some CSPs prefer dedicated bandwidth which is provided with an Layer 1 OTN approach. The TJ1600 muxponders with the built-in OTN switch fabric provide this Layer 1 approach. If the customer wants dedicated bandwidth for the services, then OTN is the best way to go. Unlike Tejas, most vendors have moved on from OTN solutions. A few vendors have an OTN solution, but it is usually older and you are buying the end of the stock and don't provide much future.

The Tejas Optical Solution has the capability to accommodate both architectures thus providing more flexibility to the CSP to optimize the network deployment based on their needs and improve their profitability.

If you think an OTN ring application could be beneficial to your situation, Tejas welcomes the opportunity to explore the idea with you. Just email us at sales_northamerica@tejasnetworks.com to get started.