TEJAS® NETWORKS

Customer

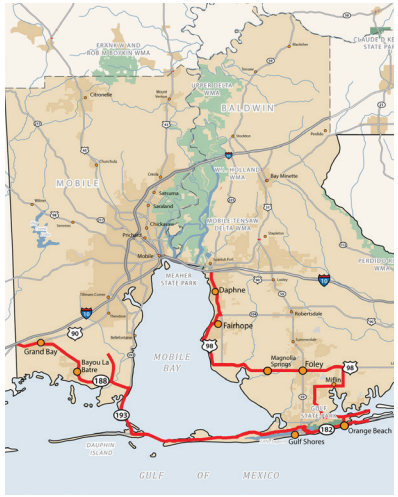
A large member-owned telecommunications provider which provides advanced services to connect thousands of homes, small businesses and industries from high-definition video streaming to remote connections used Tejas to upgrade their network infrastructure.

Challenge

The explosive growth in data traffic driven by high-speed internet access technologies and the rising usage of powerful smartphones with high-quality multimedia capabilities is challenging telecom infrastructure providers to evolve a cost-effective solution to address rapid fiber exhaustion and increase the backhaul capacity

Solution

- Deployed TJ1600 which optimizes 1G and 10G transport by using OTN switching to efficiently pack and route traffic through the network by offloading high bandwidth services directly onto the DWDM optical layer
- Multiple chassis options with OTN switching and aggregation as well as DWDM in the same platform



Tejas Networks cost-effectively upgrades the access backhaul infrastructure of a US based regional Carrier

A regional carrier in the state of Alabama that serves many residences and businesses with high quality telecom services was facing issues with supporting the burgeoning bandwidth demands, while conserving fiber resources. This was the key consideration to upgrade the access network backhaul. Tejas deployed a 100G DWDM solution, based on the TJ1600 packet optical transport platform, which minimized cost and provided industry leading quality and network performance. The TJ1600 reduced operations costs with a single platform for all backhaul requirements, which avoided the need for multiple devices at any site and also provided a single network management system.

Challenges faced

The customer's fiber network provides access to some of the fastest internet speeds in the country, including gigabit access in many areas. The immediate need was to deploy reliable and scalable backhaul capacity from PON access sites to intermediate PoPs and their core network. In order to make the upgrade successful, the below challenges had to be addressed:

- **Data traffic growth:** The increased subscriber base coupled with a massive surge in network traffic from home broadband and business users resulted in severe capacity pressure on the existing backhaul network
- **Fiber depletion:** The increased need to serve multiple 10G uplinks from remote GPON nodes rapidly exhausted fiber resources. The main constraints in adding more fiber were the capex and logistics of deploying fiber in large geographies and also the time and cost it takes to provide fiber to access sites.
- **Latency requirements:** Increased video streaming resulted in more stringent end-to-end latency requirements
- **Compatibility:** The new solution had to integrate seamlessly with the existing backhaul infrastructure

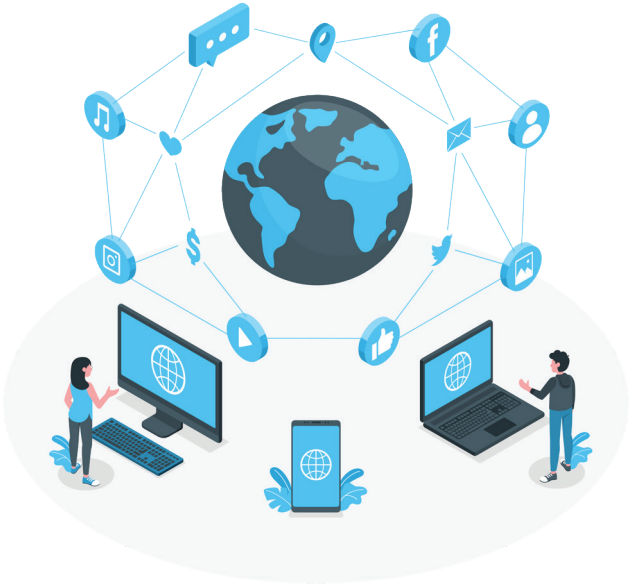
Tejas Networks Solution

Tejas deployed the TJ1600 which supports OTN switching and aggregation, WDM transport, and an integrated optical line system. Tejas uses the proprietary, Software-defined hardware™ technology to implement OTN aggregation and switching in order to reduce the overall cost of the equipment. Software-defined hardware™ replaces expensive off-the-shelf technologies for OTN and allows Tejas to integrate features that would often be provided by multiple chip sets with a single low cost chip. It also allows for new features to be added to the equipment via software that would typically require new hardware, even after the equipment is already deployed. This capability also extends the life of the equipment. Software-defined hardware™ allows Tejas to provide one of the most cost effective platforms in the industry.

The TJ1600 also provides GMPLS coupled with ITU-T G.8080 based GMPLS control plane software, highly resilient networks with multiple levels of protection can be created with ease. Using GMPLS in combination with standard 1+1 protection, the TJ1600 supports 1+Reroute and 1+1+ Reroute options providing for mesh restoration backup of 1+1 protection. Tejas' GMPLS control plane enables this capability for OTN (L1) today and will do so for DWDM (L0) in the near future providing for even more protection flexibility.

> Converged platforms such as TJ1600 eliminate duplication of hardware and the additional cost of short-reach optical inter-connects between multiple co-located systems. These solutions also yield considerable savings in space and power consumption. When converged platforms are further combined with advanced CDC-ROADM capabilities and GMPLS, greater savings can be achieved.
>
> **-Paul Harrison,**
> Senior Vice-President, Sales, USA
> Tejas Networks

With Tejas Networks' suite of management tools network evolution is much easier to manage. Point and Click technologies allow for more accurate service designs, more efficient routing and better fault correlation. Accurate alarming and "fault to affected service mapping" enables fault resolution prioritization. Enhanced network element backups and simple remote software upgrades reduce operational costs while enhancing reliability. These technologies also reduce operational costs. NMS server redundancy and geographical diversity ensure faster disaster recovery.



Why Tejas Networks

After a thorough evaluation, the customer selected Tejas' high capacity packet optical product, the TJ1600, which provides a future-proof solution with low total cost of ownership. The deployed TJ1600 uses 100G DWDM technology which supports close channel spacing to deliver even more throughput per fiber. The key features of TJ1600 are:

- Multiple chassis options to optimize deployments for the required switching capacity, space, power, and cost
- Any line card can fit on any slot and on any chassis
- OTN switching and aggregation as well as DWDM in the same platform.
- Efficient utilization of fiber: DWDM by itself does not consolidate partially filled wavelengths leading to a lot of bandwidth waste. OTN solves this problem by providing sub-lambda grooming through an OTN cross-connect. OTN also provides for lower cost and latency than equivalent packet based solutions
- Support for DWDM wavelengths from 10Gbps to 600Gbps per channel
- Gridless, Directionless, Colorless, and Contentionless ROADMs
- Full set of Amplifiers with EDFAs and Raman
- Extremely low latency aggregation. OTN aggregation latency is negligible compared to aggregating at layer 2 or layer 3
- Easy to use manager with point and click provisioning. This makes provisioning services simple and consistent
- Allows for a highly redundant deployment with redundancy at the service level, card level, and system level.

Results

The access backhaul upgrade was deployed in two phases with additional phases to be deployed with increased bandwidth needs. The customer reports 99.999%+ uptime and is very happy with the reliability offered by the product, the reduced service cost, and the support offered by the local sales and support teams.

TEJAS NETWORKS
Software Enabled Transformation

Plot No 25, JP Software Park,
Electronics City Phase 1, Hosur Road, Bengaluru, Karnataka 560100, India.
www.tejasnetworks.com | +91 80417 94600

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