TEJAS® NETWORKS

Customer

Bangladesh Telecommunications Company Limited (BTCL)

Challenge

Customer needs an efficient solution that can

- Handle bandwidth issues without over-engineering
- Ensure reliable and on-demand access to end customers
- Sub-50ms 1+1 protection switching with 100-300ms fast rerouting of traffic
- Guaranteed 99.999% uptime

Solution

- TJ1600-11 POTP is a comprehensive, high density metro aggregation and metro core solution that can work across technologies and architectures
- TJ1600-6 is the most compact and dense MPLS-TP platform that can support up to 240G packet switching capability
- Unified and multilayered management from TJ5500 NMS

Tejas Networks builds a Terabit-scale Optical Backbone Network in Bangladesh

Introduction

BTCL, Bangladesh's leading Government-owned telecommunications companyis constructing a high capacity optical fiber transmission network to distribute high-speed Internet bandwidth from SMW-5 undersea submarine cable system to key locations within Bangladesh. The scope of the work includes deployment of high capacity DWDM optical transmission equipment, Optical Line Amplifiers (OLA) and associated auxiliary equipment at different sites identified by the customer.

Customer Requirements

The first-ever terabit network in the region should handle the following complexities

1. **Network Flexibility and Management:** The network should ensure optimal bandwidth allocation during traffic fluctuations and heavy bandwidth requirements without any over-engineering requirements. It should also handle variability in terms of service granularities (64 kbps to nx10GE) and types of services required at different network locations.
2. **Network Resilience:** The network should be constantly alert to adverse changes in quality of experience and instantly "self-heal" through pro-active re-routing of traffic from congested or deteriorated links before an actual network failure.
3. **Non-disruptive Upgrades:** The network should support seamless expansion without affecting existing services by simply adding additional boards/ modules/cross connect/sub-racks/ racks.
4. **Scalability:** The network should support additional capacity without the need for large investments or massive rewiring.
5. **Network Reliability:** The network should be able to recover without delay in case of fiber cuts.

Tejas Networks Solution

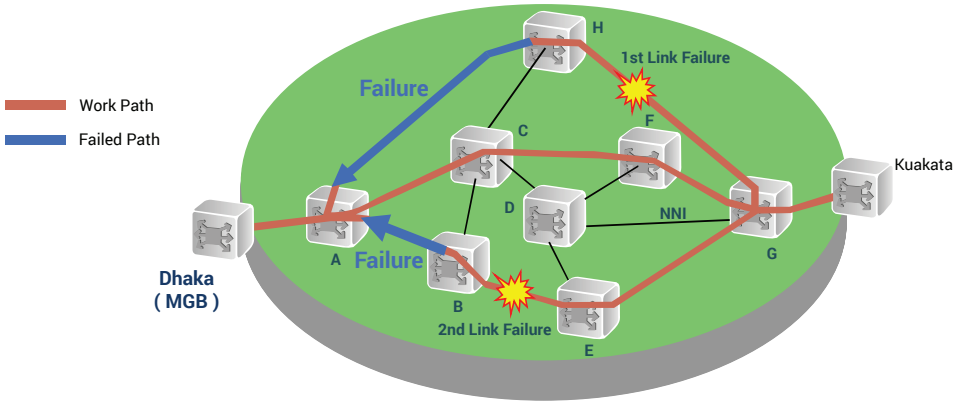
Tejas solution comprises an end-to-end packet transport network including i) TJ1600-11 ii) TJ1600-6 and iii) TJ5500 – the unified Network Management System.

- TJ1600-11 POTP is a comprehensive, high density metro aggregation and metro core solution, which supports DWDM, SDH/OTN DXC and PTN through common reconfigurable hardware. TJ1600-11 has a digital cross-connect of up to 640G capacity which can be scaled further to up to 2.8 Terabits of OTN switching capacity. The product can be configured independently in Mesh, Ring, Linear, Bus and Hybrid architecture. These features make the product ideal for building optical backbone networks.
- TJ1600-6 is a high density 4U form factor packet aggregation node encompassing Packet, OTN and DWDM technologies together in the same platform. It is one of the \most compact MPLS-TP products in the industry that can support up to 240G packet switching capability.
- Tejas TJ5500 Network Management System is a unified, multilayered management platform with full FCAPS functionality for the complete range of Tejas products and technologies.100G links connect individual districts (TJ1600-6) to Internet Data Center in Dhaka (TJ1600-11) which is connected

Results

- Successfully implemented terabit capacity DWDM network in record time
- ~30% of country's Internet traffic is currently being carried on the network

> We are pleased to be the user of the high capacity DWDM Equipment of Tejas Networks, a pioneering high-technology company from India, which has successfully helped us rollout this next-generation network for Bangladesh in the shortest possible time. Tejas Networks fully met our expectations of timely deliveries, high quality and prompt customer support to successfully get this network up and running as per committed deadlines.
>
> **-Mr. Mashiur Rahman,**
> Managing Director,
> Bangladesh Submarine Cable Company Limited (BSCCL)



to Submarine Cable Landing Station in Kuakata (TJ1600-11) through 2*100G channels.

100G links connect individual districts (TJ1600-6) to Internet Data Center in Dhaka (TJ1600-11) which is connected to Submarine Cable Landing Station in Kuakata(TJ1600-11) through 2*100G channels.

Why Tejas Networks

After evaluation of multiple alternatives, the customer selects Tejas Converged Packet Optical (CPO) product family as the best fit. The key benefits offered by the Tejas solution are:

Flexibility and Modularity: TJ1600 is ideal for high-capacity backbone networks that aggregates large amounts of data and voice traffic from different locations, and efficiently groom and switch traffic at wire speed..

Advanced Protection Mechanisms: TJ1600] combines sub-50ms 1+1 protection switching with 100-300ms fast rerouting of traffic using ASON/GMPLS control plane thereby delivering both bandwidth efficiency and superior network resilience.

Scalable and Future-ready: TJ1600 supports high speed DWDM channels at 10G, 100G and 200G rates. Up to 40 DWDM channels can be multiplexed using a single MDU (Muxing Demuxing Unit) module and the platform can scale to 80 DWDM channels with multi-terabit OTN switching.

Multi-Technology support: Tejas CPO is a versatile multi-technology platform that can support MSPP, DWDM, PTN, POTP and OTN configurations depending on the carrier's need.

Multilayer Transport: MPLS-TP and OTN provides low-latency, low-cost bypass at Layer 2 compared to expensive IP routing at higher layers. Similarly multi-degree ROADM support enables cost-effective optical layer bypass (Layer 0) and for building cost-effective IDC networks.

Sophisticated Quality of Service: TJ1600 supports multi-level Hierarchical QoS (HQoS) with advanced traffic management features such as congestion-based service prioritization and granular hardware-based performance counters for real-time billing and monitoring of service parameters like latency, jitter etc. This feature is especially useful for delivering premium SLA-driven services.

Results

Tejas successfully completed the roll out of this network in record time. Currently, this network is carrying around 30% of Bangladesh's internet traffic. Tejas 1600 converged packet optical (CPO) products, deployed in this project are locally manufactured by TSS, a state-owned company in Bangladesh.

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