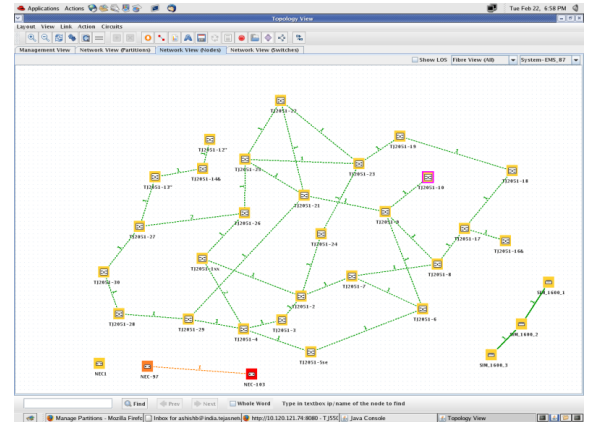


Highlights

- **Integrated Network Management:**
 - For POTP, PTN, DWDM & SDH
- **Point & Click Provisioning,**
 - Automatic Path Computation
- **Multiple Graphical Views**
 - Fiber view, logical links
 - Carrier Ethernet Circuits, Services
- **MPLS-TP**
 - Planning & Provisioning
 - Pseudowire service, VPLS, H-VPLS
- **Ethernet Fault Management:**
 - Y.1731, Link Trace & Loopbacks
 - NMS initiated fault localization
- **QoS**
 - On MPLS-TP & VLAN based services
 - CIR/PIR configuration
 - QoS domains
- **ERPS**
 - Planning & Provisioning
 - Ringlets
 - Open ERPS



With support for sophisticated packet transport features like MPLS-TP, Ethernet OAM, 50ms protection on ring and linear paths, it helps leverage the most out of the packet capabilities of the network elements.

The TJ5500 is scalable tens of thousands of NEs and with an advanced, intuitive user interface enables the NOC teams to optimize operational costs through faster and more efficient operations. It abstracts the feature sets of network elements into intuitive management and service objects, thus making understanding of the network and services running on it much easier. It offers restoration in case of multiple network failures, to provide continuity of service even in extreme conditions. Multiple Network Views help the operator understand various aspects of the network and take important decisions which are critical to the performance and efficiency of a network.

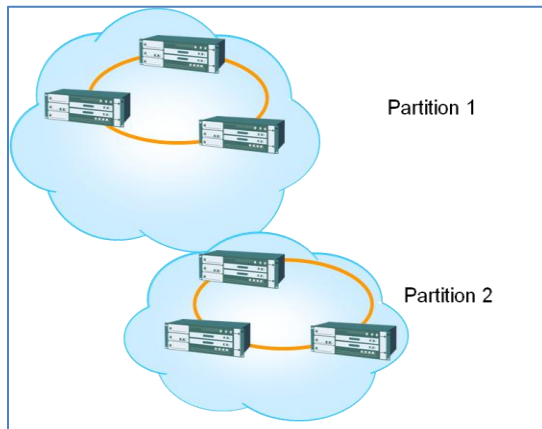
Overview

TJ5500 Network Management System is an integrated management application offering single window operation for end-to-end network management. It supports provisioning, operations & management of Packet Transport Networks, DWDM, SDH and OTN based services. This provides a unified management solution to manage multi-technology networks.

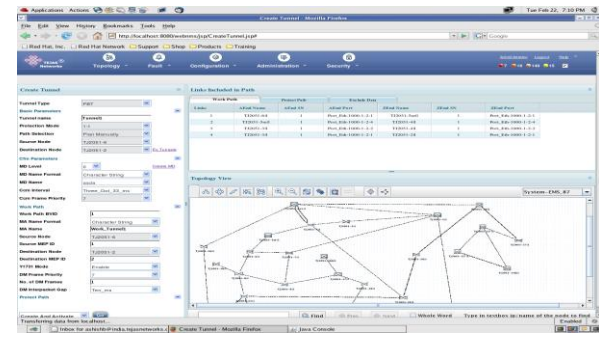
Key Benefits

Integrated Management: TJ5500 integrates the Tejas PTN, DWDM, OTN and SDH portfolios into one management system. TJ5500 understands parallel TDM & PTN deployment models or PTN overlays over TDM. Thus, the end user sees an end-to-end PTN network where some of the links can be Ethernet over TDM and appear as logical links in the Packet Network view.

Partitioning: The network can be split into multiple partitions for better management of large networks. User Defined Partitions can be created and a subset of the network can be assigned to the partition. Bulk node additions, deletions and circuit provisioning is supported per partition. Alarms and historical performance data can also be viewed and analyzed per partition.



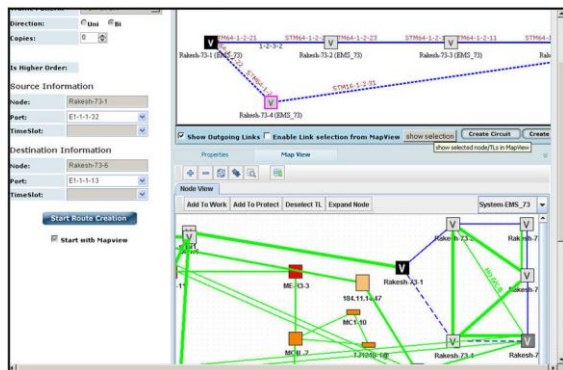
Point & Click Provisioning: TJ5500 supports drag and drop provisioning between two end points. TJ5500 will automatically compute the least cost path based on a few parameters like number of hops or links. It displays the status of circuits as Planned, Provisioned or Pending, thus giving the network operator a workflow while provisioning & commissioning a circuit.



MPLS-TP Services: TJ5500 can be used to manage MPLS-TP tunnels and pseudowires. MPLS-TP based VPLS services can also be provisioned. TJ5500 enables a lot of flexibility in the deployment models for these services by allowing a large array of options for these services. VPLS services can be either a full mesh of pseudowires or a hub & spoke model (H-VPLS). The pseudowires can be either unprotected or protected, can span multiple tunnels, can be multi-segment or stitched in addition to manual & autopath selection. MPLS-TP linear protection ensures a sub-50ms switchover for any network failures and dual homing protects against gateway failures. Seamless provisioning across native-ethernet links and Ethernet-over-TDM is supported. Single click activation and deactivation of services is supported. The status of each tunnel is monitored through CFM – LBM/LTM & Y.1731. NMS automatically correlates the alarms with Links and Services.

QoS Management: NMS can manage the QoS for both MPLS-TP and VLAN based services. The entire network can be partitioned into QoS and non-QoS domains. 8 classes of service are supported and bandwidth profiles for CIR (Committed Information Rate) and PIR (Peak Information Rate) can be assigned to individual services. Connection admission control ensures that the packets not meeting the bandwidth profiles are either dropped immediately or colored, in order to be dropped late in case of congestion in the network.

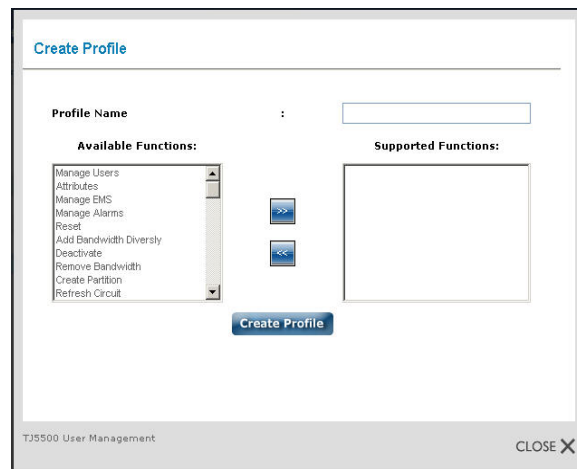
Views : TJ5500 supports multiple views for viewing and managing different aspects of the network. Management View displays all the EMSes present in the network. Network View (Partitions) displays the set of partitions in the network. Network View (Nodes) displays the nodes present in a particular partition. Resource Management View helps to create create partitions, add nodes through auto-discovery and VNE provisioning. Graphical view of Carrier Ethernet network displays physical topology, Ethernet services, MPLS-TP tunnels, pseudowires and their work and protection paths. All these help the operator get a quick bird's eye view of the network.



Fault Management: TJ5500 supports real time display of faults and alarms in the network. The alarms can be configured as Minor, Major or Critical and color coded. Different rules can be applied to display and sort alarms by severity, date, node etc. Alarms can be grouped by EMS, Node, Partition, Severity, Acknowledgement status and many other parameters. Based on the alarms, the user can navigate to affected circuits. User can also export a list or sub-list of alarms to a PDF, CSV, XML or HTML file for offline analysis. Based on alarms the colors of links and nodes get changed to display alarms in the graphical topology views. Alarm correlation helps reduce the information overload on the operator by displaying only the primary alarms and suppressing the related secondary alarms

Performance Management: TJ5500 pulls real time performance data from Network Elements and displays it in various forms. Performance data is collected at Port and Circuit level. The 15 min/24hour collection/monitoring of performance data can be enabled or disabled. NMS stores history of performance data for upto 30 days, and can display it at 15min intervals, 24 hours, weekly or monthly statistics.

Security: TJ500 puts lots of focus on network security. The security features ensure that an unauthorized operator cannot gain access to forbidden parts of the network or provision or modify services or parameters he/she is not authorized to edit. For doing this TJ5500 provides role based authorization control, where certain privileges are granted or revoked based on the role of the network operator. All operations of all users are logged and available in an audit log for later analysis.



High Availability: TJ5500 supports 1+1 hot standby configuration for redundancy and disaster recovery. All the information is synced between the active and standby NMS in real time. Switchover from active to standby NMS can be automatic or forced. This helps in continuity of operations in the event of failures or unavailability of the NMS at active server location.

General

- Multi-layered Integrated Management
- Easy & Intuitive GUI to configure all Tejas Products
- Organize the network into Partitions

Configuration Management

- Auto-Discovery of NEs
- Management VLAN for in-band communication
- Static Routes and IS-IS configuration for reach ability to remote network elements
- Display Physical Link and Logical connectivity map

Provisioning

- Support for SDH, MPLS-TP, DWDM and OTN Services
- Shortest Path Computation for provisioning optimal paths
- DNI Configuration as per G.842
- Edit Path, Endpoints, Protection Paths & Bandwidth
- Bridge & Roll for hitless editing of paths

Service Management

- Point & Click Provisioning for P2P Ethernet Service Provisioning
- Traffic Filtering based on CVLAN, SVLAN, Priority, Ports/Interface
- Port Mirroring Configuration

Fault Management

- Real Time Alarm View
- Custom Alarm Filtering Rules
- Alarm Correlation: Only primary alarm is displayed and secondary alarms are filtered

Performance Monitoring

- Real Time Performance Data Collection
- Performance Reports at 15 minute, daily, weekly or monthly intervals

Packet Features

- MPLS-TP Tunnels & Pseudowires
- ERPS Ring Configuration
- End-to-End Ethernet OAM provisioning, SLA Monitoring, based on Y.1731
- NMS initiated link-trace and loopback checks for fault isolation and verification
- Ethernet Performance Data
- Historical Performance Data Reports
- Per Port Rate Limiting & Metering
- Packet Classification & Coloring
- Policing & Discarding packets at Egress
- Per Service Shaping at Egress
- Provisioning of MEF Services like ELine & ELAN
- Classification and Filtering rules on a per ELAN service basis

Views

- Topology View displaying fiber connectivity and virtual topology links
- Real time update for faults and alarms showing link availability
- Partition View : Split the network into user defined partitions
- View Logical links within a partition and between partitions
- Carrier Ethernet Network Graphical View - Display physical topology, Rings, Services, Tunnels, Work and Protect Paths

Protection

- Pre-planned backup restoration path for protection against multiple network failures
- 1+1 Hot Standby configuration of NMS

Security

- NMS Level Users with Role based Authorization Control
- Force logout all users by Administrator
- Audit log for all logins, logouts, operational commands
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- Audit log for all logins, logouts, operational commands

*Specifications are subject to change without notice

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