

Alcatel-Lucent 1850 TSS-100

TRANSPORT SERVICE SWITCH | RELEASE 3.0

The Alcatel-Lucent 1850 Transport Service Switch (TSS)-100 is a packet optical transport platform that supports any mix of traffic, from all-circuit to all-packet. Its unique, technology-independent universal matrix switches packets or circuits in their native format and transports them as they are, optimizing overall network efficiency and applicability. This capability allows service providers to address the transition from TDM/circuit-based transport to packet transport with the flexible provisioning of carrier Ethernet/transport, SDH, wavelength division multiplexing (WDM), and optical transport networks (OTNs). The Alcatel-Lucent 1850 TSS-100 supports current and future traffic requirements by eliminating the scalability issues encountered by traditional multiservice provisioning platform (MSPP) solutions. The Alcatel-Lucent 1850 TSS-100 is the ideal building block for evolving transport networks, allowing service providers to flexibly split increasing traffic demands among any combination of carrier transport technologies.



Features

- Provides Fast Ethernet (FE) and Gigabit Ethernet (GE) interfaces for interconnection to a customer's equipment or a service provider's access equipment
- Supports Subnetwork Connection Protection (SNCP) and Multiplex Section-Shared Protection Ring (MS-SPRING), with non-blocking aggregation and switching of TDM traffic or Layer 2 switched Ethernet
- Supports multiplex section protection (MSP), linear trail MSP (1 + 1 single ended, dual ended) and automatic protection switching (APS)
- Supports point-to-point Ethernet over SDH, switched Ethernet over SDH and switched Ethernet-to-Ethernet
- Provides Ethernet standards-based Q-in-Q and provider-bridged services
- Supports all Small Form Factor Pluggable (SFP) and 10 Gb/s Form Factor Pluggable (XFP) optics

- Integrates WDM using the Alcatel-Lucent 1692 Metrospan Edge (MSE) passive device
- Offers zero-install craft: connect a laptop to a network element (NE) and the NE enables a browser-based craft interface
- Allows support for up to 120 x GE or 12 x 10 GE interfaces in a single shelf
- Alcatel-Lucent 1850 TSS-100 R3.0 serves the ETSI SDH market and R2.0 serves the ANSI SONET market

Benefits

- Provides cost-effective solutions for implementing resilient metro and aggregation networks
- Delivers carrier-class circuit and packet services
- Maximizes return on investment by combining circuit and packet interfaces and by using Ethernet-based traffic management

- Supports multiple Quality of Service (QoS) levels to provide a migration path toward the delivery of advanced packet-based services
- Ensures smooth network evolution by enabling hybrid networks with totally flexible resource allocation between circuit and packet data services
- Fulfills the roles of traditional MSPP/MSTP

Technical specifications

1850 TSS-100 system

- 12 interface card slots
- Data cards, two slots
 - 10 GB full-rate data processor, Layer 2 switch
 - 4 x GE interface, SFP
 - Connection to two access cards
- SDH cards, single slot
 - 1 x STM-64, SFP
 - 4 x STM-16, SFP
 - 8 x STM-1 or STM-4, SFP
- PDH cards, single slot
 - 56 x E1 electrical interfaces: one 7 + 1 EPS protection group
 - 24 x E3/DS3 electrical interfaces: two 3 + 1 EPS protection groups
 - Transmux, included in E3
- Flexible high-density TDM cards:
 - Up to eight STM-64 interfaces
 - Up to 40 STM-16 interfaces
 - Up to 96 STM-1 or STM-4 interfaces in a single shelf
 - Up to 392 E1 electrical interfaces, protected
 - Up to 144 E3/DS3 electrical interfaces, protected

1850 TSS-100 subrack

- Standard front-access versions
 - 100% front access
- Designed to be installed in standard 482.6-mm rack and seismic 482.6-mm rack
- Front-access subrack dimensions
 - Height 14 RU: 620 mm
 - Depth: 287 mm
- 12 main slots
 - 8 x 10 Gb/s slots
 - 4 x 5 Gb/s slots
- 16 access slots

- 100 Gb/s protected switching fabric
- Up to three shelves in a standard 300-mm deep rack, front-access
- Up to six shelves in standard 300-mm deep rack in back-to-back configuration, front-access

Service level agreement (SLA) management

- Traffic profiles
 - Best-effort
 - Bandwidth-guaranteed
 - Regulated: minimum bandwidth guarantee plus burst
- Hitless traffic-profile modification
- Metering:
 - Single-rate token bucket: RFC 2697
 - Dual-rate token bucket: RFC 2698
 - Color-blind or color-aware, based on Ethernet priority bits

Ethernet functionalities

- Ethernet protocol: IEEE 802.3
- Ethernet Media Access Control (MAC) auto-learning and aging
- Ethernet MAC static configuration
- Virtual local area network (VLAN) push, swap, pop
- Ethernet bridging: IEEE 802.1D
- Ethernet virtual bridging: IEEE 802.1Q
- Ethernet provider bridging: IEEE 802.1ad
- Spanning tree
- Link aggregation
- Jumbo frame

Ethernet traffic classification

- Port
- Ethernet VLAN
- Ethernet priority bits

Ethernet forwarding criteria

- Port
- Port plus MAC
- Port plus VLAN
- Port plus VLAN plus MAC
- Unicast traffic
- Multicast traffic

Ethernet support

- 1000BASE-xx ports: four per concentrator card
- Two access expansion cards per concentrator
- 8 x GE, 100/1000BASE-T expansion card
- 1 x 10 GE expansion card
 - Interface: includes SX/LX, SFP
 - Indicators: link, activity
 - Capabilities: auto-sensing, full- and half-duplex
- Standards compliance: IEEE 802.3, 802.1Q, 802.1D, 802.1ad Provider Bridge Link Aggregation Group (PB LAG), GE/10 GE with Link Aggregation Control Protocol (LACP)
- Up to six concentrator cards per chassis
- Up to 120 interfaces

SDH functionalities

- Cross-connection:
 - Up to 100 GB VC4
 - Up to 10 GB VC3/VC12
- Termination
- Ethernet mapping over SDH
- Virtual concatenation
- Link capacity adjustment scheme (LCAS)
- Performance monitoring

Protection

- Ethernet network protection
 - Spanning Tree Protocol (STP): IEEE 802.1D
 - Rapid Spanning Tree Protocol (RSTP): IEEE 802.1w
 - Multiple Spanning Tree Protocol (MSTP): IEEE 802.1s
- SDH network protection
 - Linear 1 + 1
 - Single and dual-ended MSP
 - SNCP
 - MS-SPRING

- PDH interface protection
 - E1, 7 + 1 EPS protection groups
 - E3/DS3, 3 + 1 EPS protection groups
- Equipment protection
 - Power
 - Controller
 - Switch
 - Electrical interface

Management

- Alcatel-Lucent 1350 Optical Management System (OMS)
- Command line interface (CLI)/ Simple Network Management Protocol (SNMP): Metro Ethernet configuration
- CLI/SNMP: MSPP/MSTP configuration
- TL1/CLI/SNMP: MSPP/MSTP configuration

Environment

Power and cooling

- Power supply: DC feed (48 V DC nominal)
- Power consumption: 800 W (typical)
- Cooling: forced air

Environment

- Operating temperature: -40°C to +65°C (-40°F to +149°F)
- Humidity: 0% to 90%, non-condensing

Regulatory compliance

- CE, UL, FCC, CSA
- Operation: ETS 300 019, Class 3.2
- Storage: ETS 300 019, Class 1.2
- Transportation: ETS 300 019, Class 2.2
- NEBS Level 3