

Tellabs® 8600 Managed Edge System 8-port STM-1/OC-3 POS Interface Module

Overview

The Tellabs 8600® Managed Edge System consists of a range of modular IP/MPLS-based network elements and an integrated network and service management system.

The 8-Port STM-1/OC-3 Packet over SDH/SONET Interface Module (IFM) is used with Tellabs 8600 system elements, including the Tellabs® 8660 Edge Switch, Tellabs® 8630 Access Switch and Tellabs® 8620 Access Switch. The module is mounted on the Interface Module Concentrator (IFC) of the Tellabs 8660/8630 switches or in the Tellabs 8620 switch chassis.

The IFM enables the transport of IP/MPLS traffic over SDH and SONET infrastructures through a standard interface.



Applications

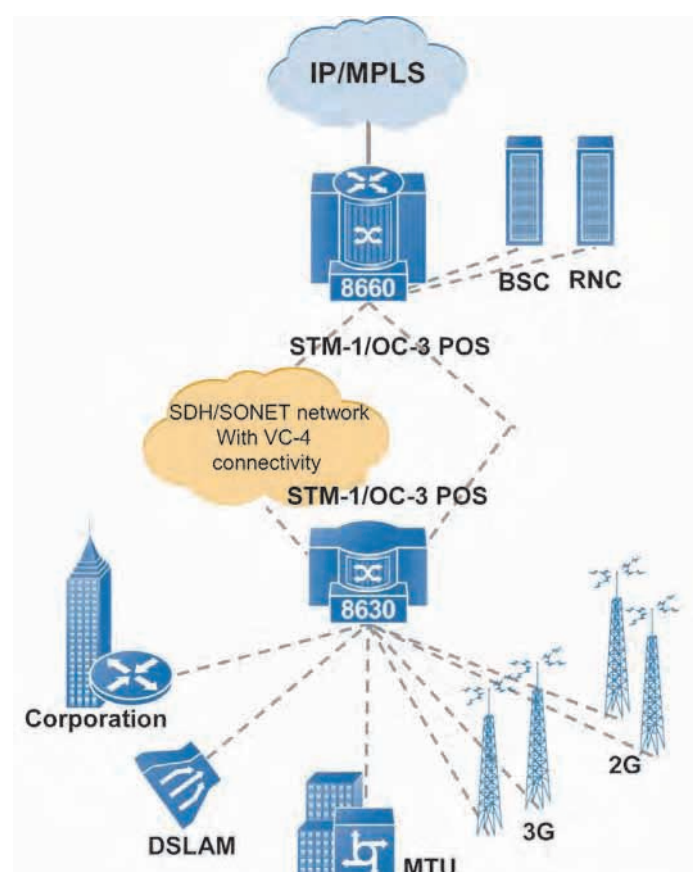
SDH and SONET transport networks have been widely deployed for cost-efficient transmission of circuit-switched data. Several E1 and T1 capacities, carrying payload data for various services (e.g., GSM, leased lines, Frame Relay, POTS) are multiplexed into SDH/SONET frames to form aggregate capacities of STM-1/OC-3, STM-4/OC-12, STM-16/OC-48 and STM-64/OC-192. These SDH/SONET capacities can be multiplexed to even higher aggregates over a single fiber pair with WDM systems. The existing large-scale investment in these SDH, SONET and WDM-based transport networks needs to be utilized fully.

Because more and more services are packet- and IP-based, operators need to find a more efficient way to transport the packet data. Cost-efficiency for packet transport is achieved by installing IP- and MPLS-capable routing devices in the network, such as the Tellabs 8600 system. These devices statistically multiplex different packet streams, utilizing their bursty nature and at the same time ensuring service quality and availability.

As traditional and new services are migrated to packet networks, initial service volumes may not immediately justify new deployments of high-capacity packet networks. Instead, the existing transport infrastructure can be used for interconnecting the cell/packet/IP routing devices. The STM-1/OC-3 POS IFM solution enables connectivity between Tellabs 8600 system network elements through an existing SDH/SONET infrastructure. This ensures flexible and cost-efficient migration of both traditional and new wireline and wireless services to a packet network and optimizes use of the existing transport bandwidth.

As shown in the figure that follows, these new wireless applications can be 2G and 3G transport using MPLS tunneling for TDM and ATM. Also, wireline business services such as Ethernet connectivity or IP VPNs, and residential best-effort-type Internet access services using various last mile technologies, can be provided. The MPLS transport enables the use of one common network for different types of services, with different quality requirements.

MPLS offers an alternative to SDH-based protection mechanisms. Protecting traffic through, for example, SDH SNC protection provides fast protection, but due to the VC-4 granularity it is not efficient, since all of the traffic is protected. An MPLS-based protection mechanism can be applied for only those streams that have high resiliency requirements, with weaker resiliency for other traffic types. In this way, the bandwidth use of the network can be optimized.



Product description

The STM-1/OC-3 POS Interface Module contains eight STM-1(VC-4)/OC-3(STS-3c) interfaces for a connection to standard SDH/SONET equipment.

The STM-1/OC-3 POS interface supports all SDH/SONET layers, from the optical section layer up to the higher-order path layer (VC-4/STS-3c). The Tellabs 8600 system implements a wide set of standard functions for fault management, signal maintenance and performance management. Among these functions are Trail Trace Identifiers, path signal labels, bit error monitoring and loopback capabilities.

The PPP-encapsulated IP/MPLS data is directly mapped into the VC-4/STS-3c of the STM-1/OC-3 frame payload. Optionally, the payload may be scrambled.

STM-1/OC-3 POS interface modules are equipped with Small Form-Factor Pluggable (SFP) transceiver modules. The SFP modules are hot-swappable devices that can be replaced without switching the power off or disabling the interface in any other way. The system monitors the existence, type and availability of the installed SFP modules.

The STM-1/OC-3 POS interfaces can be protected using unidirectional and bidirectional Multiplex Section Protection 1+1 (MSP 1+1). In Tellabs 8660 and 8630 switch elements, the working and protecting links are located in different IFCs, providing protection also against line card failures. In Tellabs 8620 switch elements, any two STM-1/OC-3 POS ports can be the protected and protecting interfaces.

Network management

As part of the Tellabs 8600 system, the eight-port STM-1 POS IFM is fully managed with the Tellabs® 8000 Network Manager. All interface, service and connection level parameters are configured remotely via the Tellabs 8000 manager's GUI-based tools. This is the primary and easiest way to configure the unit and the network.

The Tellabs 8000 manager also provides centralized fault and performance monitoring as well as in-built testing capabilities.

Alternatively, CLI can be used for setting up the parameters for the module. SNMP is supported for monitoring purposes – e.g., for fault and performance management for other systems.

The Tellabs 8000 manager takes care of maintaining full consistency between the network elements and the database.

Physical Interface

ETSI

- Eight STM-1 G.957 physical interfaces
- Replaceable SFP modules with multiple reaches and types including electrical interface
- Unidirectional and bidirectional MSP 1+1 protection

ANSI *

- Eight OC-3 T1.105 physical interfaces
- Replaceable SFP modules with multiple reaches and types including electrical interface
- Unidirectional and bidirectional APS 1+1 protection

Encapsulations

- [RFC 1662] PPP in HDLC-like Framing
- [RFC 2615] PPP over SONET/SDH
- MPLS/PPP
- IP/PPP

Functionality

- IP VPN (RFC 2547bis)
- IP routing (IP/MPLS over PPP)

QoS

- Strict Priority and Weighted Fair Queuing (WFQ) scheduling
- DiffServ traffic policing with two-rate three-colour marker (RFC 2698)
- RED and WRED queue management
- Traffic shaping per VLAN
- DiffServ Aware MPLS traffic engineering (E-LSP and L-LSP)
- Traffic classification based on ingress port, 802.1Q (VLAN), 802.1P (PRI) MPLS EXP, L-LSP, DSCP or L3/L4 header fields
- RSVP-TE CAC with overbooking option

Power Consumption

- Typical 8 W
- Maximum 12 W

Environment

- Storage: ETS 300 019-1-1:2003-04 Class 1.1, Temperature: -5° C to 45° C
- Transportation: ETS 300 019-1-2:2003-04 Class 2.3, Temperature: -40° C to 70° C
- Normal operating conditions: ETS 300 019-1-3:2003-04 Class 3.2 (non-condensing), temperature: -5° C to 45° C, Relative humidity: 5% to 95%

Regulatory

- Safety: EN 60950-1:2001
- EMC: EN 300 386:2000 and EN 300 386:2001
- Telecoms: RTTE Directive 1999/5/EC
- NEBS Level 3

Availability

For more information, please contact your local Tellabs sales representative, local Tellabs sales office, or see www.tellabs.com

*) For future release

North America

Tellabs
One Tellabs Center
1415 West Diehl Road
Naperville, IL 60563
U.S.A.
+1 630 798 8800
Fax: +1 630 798 2000

Asia Pacific

Tellabs
3 Anson Road
#14-01 Springleaf Tower
Singapore 079909
Republic of Singapore
+65 6215 6411
Fax: +65 6215 6422

Europe, Middle East & Africa

Tellabs
Abbey Place
24-28 Easton Street
High Wycombe, Bucks
United Kingdom
HP11 1NT
+44 870 238 4700
Fax: +44 870 238 4851

Latin America & Caribbean

Tellabs
1401 N.W. 136th Avenue
Suite 202
Sunrise, FL 33323
U.S.A.
+1 954 839 2800
Fax: +1 954 839 2828

The following trademarks and service marks are owned by Tellabs Operations, Inc., or its affiliates in the United States and/or in other countries: TELLABS®, TELLABS and T symbol®, and T symbol®. Any other company or product names may be trademarks of their respective companies.

© 2006 Tellabs. All rights reserved.
74.1733E Rev. A 11/06