MARCONI OMS 1600

Optical MultiService Metro MSPP

General

The Marconi OMS 1600 is a compact, multiservice transport and switching platform, capable of delivering a wide range of data and TDM services. Its high port density and comprehensive switching options, coupled with its modular configurability, enables operators to cost effectively and incrementally respond to the rapidly changing demands of their customers.

The OMS 1600 enables an easy migration from an SDH ADM to an Ethernet switch without platform change. The performance management features are included for both the SDH and data domains, with counters, alarms and historic data being available to confirm levels of QoS and SLAs. The support of Ethernet OAM will enable end-to-end QoS across mixed networks. This all makes the OMS 1600 MSPP the ideal platform for delivering mixed TDM and data services with consistent and predictable behaviour.

Key features and benefits for OMS 1600 include

- Dual SDH and Data architecture for future-proof flexibility
- 60Gbit/s non-blocking VC-12 switch
- 20Gbit/s non-blocking packet switch
- STM-16, STM-64 and 10GigE aggregate interfaces.
- STM-16 in-service upgradeable to STM-64.
- Embedded DWDM and OTN carrier grade optical transport
- Pre-amplification and booster options for extended reach applications
- Carrier class TDM and packet functionality.
- Ethernet switching and service support for Full Service Broadband, IPTV and Business Ethernet (E-Line, E-LAN)
- High density Ethernet interfaces, with Ethernet Port Extension for managed remote delivery

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TAKING YOU FORWARD

Applications

Multi-service Provisioning

Significant service revenue is still generated from TDM services, which now have to be supported alongside today's rapidly growing packet based services. During this change, equipment deployed in Access and Metro networks must have an architecture with the flexibility and cost effectiveness to satisfy all demands of new data and TDM services. This means that the required products need to change and scale without expensive upgrades and stranded costs. To that end, all of the OMS 1600 family feature universal traffic slots, supporting a wide and growing range of multi-rate, high-density TDM & Data cards. Together with hot-pluggable optics, these give operators the necessary flexibility at a low incremental cost.

Residential Multiservice

Full Service Broadband and IPTV are being rolled out worldwide, requiring flexible and scalable packet transport and switching. OMS 1600 features such as Ethernet switching with IGMP snooping enable packet based service delivery, with Ethernet and WDM interfaces for integration with optical packet networks. Ethernet over SDH features provide the flexibility to utilise existing OMS 1600 nodes and SDH networks for transport of the new services. Flexibility and scalability is provided by a range of data cards, including a 20Gbit/s packet switch which enables the OMS 1600 to support up to 80Gbit/s packet switching.

Business Data

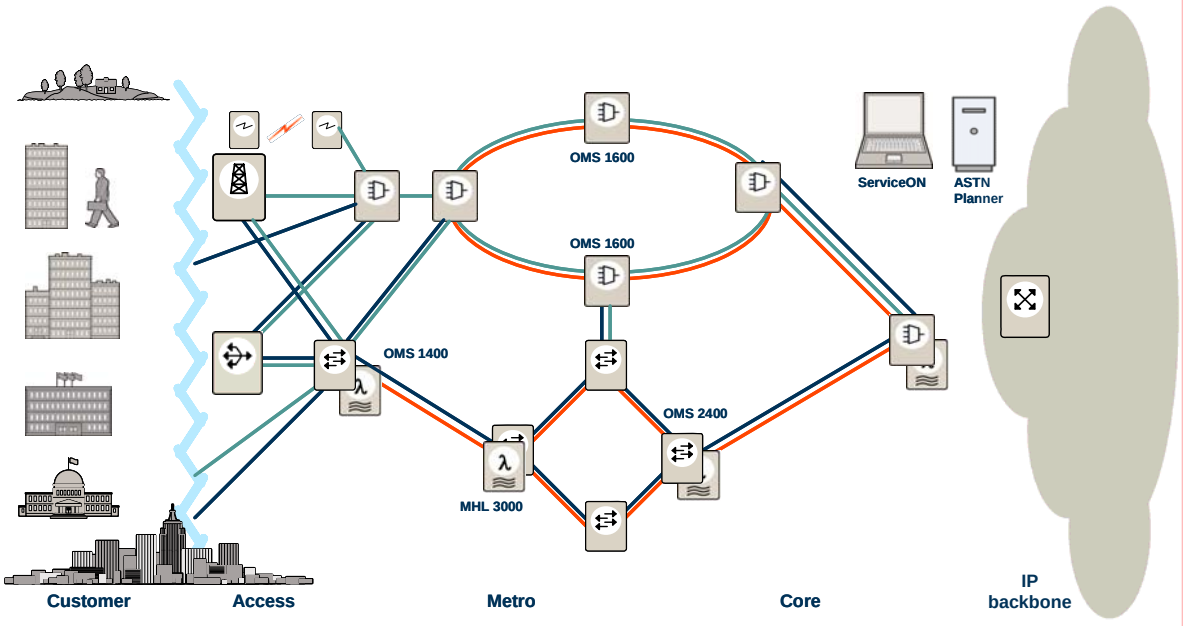
Services at rates from 10Mbit/s to 10Gbit/s can be delivered, with both E-Line (EPL, EVPL) and E-LAN (EVPLAN) service models. Electrical and optical Ethernet interfaces are configurable using SFPs and XFPs, with Ethernet Port Extension for remote sites.

Mobile network

At the edge of the optical Radio Access Network, the need is for an optical platform that can cost effectively hub 2Mbit/s from base stations, whereas at the controller site a larger platform is typically required to enable multiple RNC and BSCs to be collocated. The functionality required in these applications is the ability to close multiple subtended rings, and groom/consolidate the traffic in a non-blocking VC-12 switch. The introduction of IP base stations will mean that operators who can migrate existing 2Mbit/s backhaul circuits to Ethernet technology can quickly take advantage of this more efficient packet transport. OMS 1600 family fulfils all of these requirements; it has comprehensive 2Mbit/s capability and, at the same time, is able to optimize Ethernet transport through packet aggregation and statistical gain.

Embedded WDM

CWDM or DWDM interfaces are provided through user selectable SFP modules. A fully tunable STM-64/OTM1r.2 (G.709) card is also available. WDM multiplexing is supported using integrated passive filters, or in conjunction with the Ericsson MHL 3000 Multihaul WDM system.



Functionality

Comprehensive Ethernet support

Standardized GFP, VCAT and LCAS functionality is used to map Ethernet traffic efficiently into VC- 12, VC-3 or VC-4 VCGs. The platform with its Ethernet mapper and Layer 2 cards is optimized for both point-to-point applications, and full packet switching. The dual bus architecture (TDM and Ethernet) enables the OMS 1600 to host traffic cards fully optimized for data applications.

For customer premise delivery, Ethernet Port Extension is available - an optical Ethernet delivery solution with a range of up to 70km, and terminals that have configuration and fault management integrated with that of the OMS 1600.

Flexible node application

The full VC-12 connectivity of the 384 x 384 STM-1 (60 Gbit/s) switch allows the OMS 1600 to be used as a compact Low Order full connectivity, non-blocking cross-connect. As an OCS, the OMS 1600 can cross-connect any combination of STM-64, STM-16, STM-4 or STM- 1 for hub, mesh and ring closure topologies. Whether used as an MSPP, terminal, ADM or cross-connect the OMS 1600 becomes a key enabler for simplifying and lowering the cost of network build.

Carrier-grade performance

The OMS 1600 family builds on Ericsson's pedigree of Marconi SDH and carrier networking products. Sub 50ms SDH protection mechanisms are provided, including SNCP, MSP and 4 fibers MS-SPRing. Card protection is provided for switch and/or traffic interface cards (1:1, 1: N).
Ethernet performance monitoring and fault management is enhanced with use of Ethernet OAM. Ethernet switching and protection is provided through RSTP, MSTP and Link Aggregation.

Choice of Shelf Types

The OMS 1600 is available in two shelf types: a standard sub-rack supporting 16 traffic interface cards, and a compact version. Various options of switch sizes (currently 10Gbit/s, 20Gbit/s or 60Gbit/s) can be fitted, as shown in the table below.

Shelf variant	Switch Size		
	10G	20G	60G
Full size OMS 1664	2Mbit/s Drop 504x2Mbit/s	STM-16 High port count	STM-64 & DXC
Compact OMS 1654	Light loaded Configuration	STM-16 compact	STM-64 Compact

When combined with the wide range of optical aggregate traffic cards and optional Ethernet Layer 2 cards, it is not surprising that the OMS 1600 has rapidly become established as the MSPP of choice for many of the world's leading network operators.

In-service traffic upgrade

If configured initially with STM-16 aggregates, the OMS 1600 can easily be upgraded, in service, to STM-64, as traffic volumes increase.

Extended fibre spans

Booster and amplifier options are available to provide longer reach of up to 200km (STM-64) and 240km (STM-16).

Management

Ericsson's ServiceOn OSS solution manages the full Ericsson Broadband Network (Optical, Wireless and Broadband Access) product range, delivering end-to-end, best-in-class, service oriented management with seamless OSS integration.

Technical Data

ITU-T RECOMMENDATIONS:

- G.703, G.704, G.707, G.783, G.957, G.7041
- (GFP), G.7042 (LCAS), G.841, G.842

SWITCH CAPACITY OPTIONS

- SDH 64 x STM-1, 128 x STM-1, 384 x STM-1 all VC4/3/12, fully non blocking
- Packet 5Gbit/s, 7G, 20Gbit/s (multiple instances)

DATA FUNCTIONALITY

MEF9/14 certification

Generic functionality:

- Frame size: 1600, Jumbo,
- MAC Pause,
- MAC address learning & forwarding,
- IVL (Independent VLAN Learning),
- 802.1Q VLAN aware bridging,
- RSTP, MSTP,
- Q-in-Q, 802.1ad,
- CoS handling,
- Policing, Shaping
- Queuing, scheduling, 802.1p priority,
- Link aggregation,
- IGMP Snooping
- Ethernet counters, records and alarms (RMON based),
- Ethernet OAM (Y.1731, 802.1ag),
- Link Loss Forwarding,
- Ethernet Port Extension.

TRAFFIC INTERFACE CARDS OPTIONS

- Ethernet Mapping :
  8 Ports configurable FastE/GigE
  22 ports FastE + 2 Ports GigE
- Ethernet L2 card :
  22 ports FastE + 2 Ports GigE
- Data Switch-20G :
  16 ports Tri-rate or 1 port 10GigE
- 2 Mbit/s electrical :
  32 ports, 126 ports
- 34/45 Mbit/s electrical :
  6 ports
- 140Mbit/s :
  4 port 140Mbit/s or
  1 port Transmux + 2 Ports 140Mbit/s
- STM-1/STM-4 configurable multi-rate :
  16 ports STM-1, SFP
  4 ports STM-4, SFP
- STM-16/STM-4/STM-1 multi-rate :
  2 ports, STM-16, SFP - Grey, CWDM, DWDM
  8 ports STM-4, SFP
  6 ports STM-1, SFP
- STM-64
  1 port, XFP
- STM-64/OTM1r.2 (G.709)
  DWDM, fully tunable in C-band
- STM-64/OTM0.2 (amplifiable)
  Boosters/Pre-Amp
- STM-16 up to 240 km
- STM-64 up to 200km
- CWDM mux/demux
  4, 8 channels
- DWDM mux/demux
  40, 80 channels

NETWORK MANAGEMENT

- Q interface
- Dual protocol stacks
- OSI IS-IS and TCP-IP OSPF
- Qecc protocol, G.784
- Local Craft Terminal
- IP tunneling for management of third party equipment
- EOW

SYNCHRONIZATION

- Internal +-4.6ppm lifetime, G.813
- Timing from SDH, PDH ports & external 2M Holdover
- Inputs: 2048 kHz G.703 Section 13,
  2 Mbit/s HDB3 G.703/G.704
- Outputs: 2048 kHz to G.703 Section 13 ,
  2 Mbit/s HDB3 G.703/G.704
- SSMB timing marker
- SASE mode for SSU support
- Timing modes for system timing of 2M traffic ports (GSM support etc)
- Supply voltage : -48 V to -60 V DC nominal

MECHANICAL ARRANGEMENT

- Subrack housed in ETSI 300 119 rack
- Dimensions of Full subrack: D: 280mm, W: 450mm, H: 966mm
- Compact subrack: D: 280mm, W: 450mm, H: 473mm

ENVIRONMENT

- ETS 300 019 Class 3.2
- Radiated susceptibility to EN 50082-2 (10 V/m) Conducted, radiated and electrostatic discharge, susceptibility and conducted and radiated emissions to the worst case limits of EN 300 386-2 for high-priority traffic
- Optical safety to EN 60825- 1& 2, ITU-T .664/G.958
- Electrical safety to EN 60950

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