



Reshaping metro networks

Marconi's OMS1664 multiservice platform reduces network complexity and enables profitable delivery of multiple services.



Marconi's OMS1664 family of multiservice metro platforms enables operators to respond profitably to the demand for emerging optical broadband services. The OMS1664 enables significant network simplification, and rapid and efficient delivery of multiple services.

Designed specifically for an environment of growing demand for new data services, our new, compact, multiservice transport and switching platforms deliver traditional and new services cost-effectively, and incrementally, in line with emerging demand.

The OMS1664 combines Marconi's next-generation SDH technology with integrated data and WDM technology, providing data aggregation and switching, as well as high-capacity solutions. This compact, integrated network node provides network simplification and the cost savings that this brings. A unique, dual SDH/data bus architecture ensures future-proofing: essentially, the OMS1664 can evolve, in-service, from a predominantly SDH platform to a pure data switch as and when demand emerges.

The platform offers an in-service upgrade to 10 Gbit/s and has a full non-blocking, 20–60 Gbit/s, VC-12 cross-connect capability, delivering both flexibility and capacity.

Key benefits

- Multi-functional platform reduces network layers and hence costs
- Dual SDH/data bus architecture simplifies operation and reduces investment
- TDM and data aggregation and switching for flexible networking
- Embedded WDM for true multiservice networking
- Simplified network planning and rapid service provisioning from fully non-blocking, VC-12, 20–60 Gbit/s cross-connectivity
- SFP/XFP-based optical interface for diversity, versatility and flexibility
- Investment protected with non-traffic-affecting, in-service upgrade of line rate from STM-16 to STM-64
- Space and power savings due to high-density traffic cards
- Cost-optimized application via a range of shelf sizes
- Minimized spares cost thanks to card commonality.

Multiservice Provisioning Platform for TDM, data and wavelength services

Applications

Multiservice Provisioning Platform

The OMS1664 is optimized for multiservice provisioning, supporting TDM, data and wavelength services from 2 Mbit/s through to STM64. The OMS1664 delivers existing TDM services, such as leased line, alongside new data services, such as Ethernet, Storage and Internet access, on a single platform, efficiently and flexibly. It can be deployed on large customer premises or as a metro core aggregator, offering:

- Reduced cost per port
- Flexibility – service type and volume
- Switched data support.

Access delivery

The OMS1664 can be used as an add-drop multiplexer at STM-64, STM-16, STM-4 or STM-1, with a switching granularity of VC-12. High-density tributaries increase traffic capacity and, with the non-blocking VC-12 switch, provide valuable network hubbing.

Cross-connect

The OMS1664 can be used as a cross-connect at STM-64, STM-16, STM-4 or STM-1 with a switching granularity of VC-12. It can interconnect up to eight STM-16 rings, providing savings of around 50% when modelled against existing solutions in a typical network configuration

Bulk 2 Mbit/s delivery

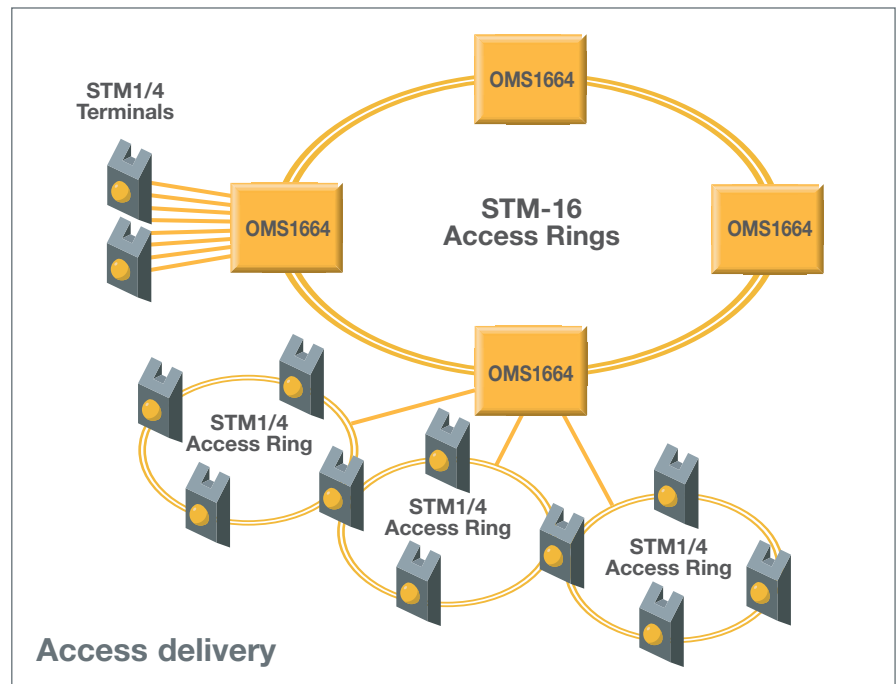
The OMS1664 can be used to deliver up to 504 x 2 Mbit/s. Remaining traffic slots can be used for SDH and data delivery.

Key features

Network simplification, reduced costs

Marconi's OMS1664 provides network simplicity with added functionality. It is a high-density multiservice platform, with flexibility in service type, mix and volume. It can handle SDH, PDH, Ethernet, WDM and Storage services for efficient presentation, switching, aggregation and transport.

This flexible integration of functionality delivers capex and opex reductions through delayering networks and simplifying operational and provisioning processes.



High-capacity, full-connectivity VC-12 switch

The full-connectivity, non-blocking 128 x STM-1 or 384 x STM-1 VC-12 switch allows grooming, consolidation and tributary-to-tributary switching, reducing the need for bandwidth-hungry backhaul. And, with simplified traffic management and network planning, it's a system that has no network constraints: it does not require careful network planning, tracking and routing of VC-4s that contain VC-12 traffic; it does not require careful management/switching of VC-4s within the high-order equipment.

Data support

A future-proof, dual SDH/data bus architecture allows easy migration from predominantly TDM-based traffic to higher-density, multiple data services on a single platform, as demand emerges. The OMS1664 can migrate from SDH ADM to Ethernet switch configurations with no platform changes.

Point-to-point transport of data traffic over SDH, managed under a converged management platform, is realized by FastEthernet card and GigEthernet card, enabling emerging procedures – LCAS and GFP.

A 16-port, 10/100Base-T Ethernet tributary card guarantees efficient throughput by means of flexible mapping into n x VC-12/3/4, according to the ITU-T standards G.7041 and G.7042 (GFP and LCAS). This scheme allocates flexible bandwidth to the links as demand exists.

A two-port 1000Base-X Ethernet card supports standard optical modules as SX, LH and ZX. Gigabit Ethernet frames can be mapped (using GFP and LCAS) into a VC-4-nv (where n is 2 to 8) concatenated payload, giving efficient, transparent transport of IP services over SDH.

Both Ethernet cards provide data rates up to wirespeed.

The introduction of an Ethernet Layer 2 aggregation card provides point-to-multipoint Ethernet services, such as Internet/IP core access, Ethernet Virtual Private Line and Ethernet Virtual Private LANs.

Ethernet Port Extension (EPE) provides the additional ability to extend the ports of all OMS1664 data cards from SDH PoP over long distance (via optical interfaces) to the customer location. The Ethernet transmission line is terminated with a cost-effective, managed NTE for presentation of 10/100Base-T or 1000Base-X.

OMS1664 family

The OMS1664 family is based around a series of six variants to achieve the optimum cost, size and tributary combinations for different applications:

OMS1664/OMS1684

Standard solution

- Standard subrack
- 16 universal traffic slots
- 16 traffic LTUs
- 128 x STM-1 switch for STM-16 ADM
- 384 x STM-1 switch for STM-16 DXC and STM-64 ADM
- up to 4 STM-64 interfaces
- up to 16 STM-16 interfaces
- up to 32/64 STM-4 interfaces
- up to 128/256 STM-1 interfaces
- up to 504 2 Mbit/s interfaces
- up to 96 34/45 Mbit/s interfaces
- up to 256 10/100 M Ethernet
- up to 32 Gigabit Ethernet

OMS1654/OMS1674

Compact solution

- Compact subrack
- 8 universal traffic slots
- 4 traffic LTUs
- 128 x STM-1 switch for STM-16 ADM
- 384 x STM-1 switch for STM-64 ADM
- up to 2 STM-64 interfaces
- up to 8 STM-16 interfaces
- up to 16/32 STM-4 interfaces
- up to 48/96 STM-1 interfaces
- up to 126 2 Mbit/s interfaces
- up to 24 34/45 Mbit/s interfaces
- up to 64 10/100 M Ethernet
- up to 16 Gigabit Ethernet

OMS1644

Integrated switch/line compact solution

- Compact subrack
- 6 universal traffic slots
- 4 traffic LTUs
- combined STM-16 line/switch card with 64 x STM-1 switch capacity
- up to 2 STM-16 interfaces
- up to 8 STM-4 interfaces
- up to 32 STM-1 interfaces
- up to 126 2 Mbit/s interfaces
- up to 24 34/45 Mbit/s interfaces
- up to 64 10/100 M Ethernet
- up to 6 Gigabit Ethernet

OMS1634

Integrated switch/line standard solution

- Standard subrack
- 8 universal traffic slots
- 16 traffic LTUs
- combined STM-16 line/switch card with 64 x STM-1 switch capacity
- up to 2 STM-16 interfaces
- up to 8 STM-4 interfaces
- up to 32 STM-1 interfaces
- up to 504 2 Mbit/s interfaces
- up to 48 34/45 Mbit/s interfaces
- up to 128 10/100 M Ethernet
- up to 8 Gigabit Ethernet

Hot-pluggable optics

Carrier-class, small-form pluggable (SFP/XFP) modules can be incrementally added to cards in response to increasing demand:

- Hot-pluggable – convenient, easy-fit
- Defers capex until services are sold
- Increased flexibility, same SFPs used in other Marconi products – reduced inventory
- Fast, simple and secure solution for reliable and fast installation
- Increased flexibility – plug any interface into line aggregate socket on card
- Latest optical technology includes coloured optics within SFP/XFP-based traffic cards.

Carrier-class performance

The OMS1664 builds on Marconi's market-leading position in SDH and is supported by a wealth of networking experience and understanding. A range of protection mechanisms ensures carrier-class performance is maintained for all service types.

In-service upgrade

The OMS1664 can be configured initially with STM-16 aggregates and, later, upgraded in service to STM-64 operation. This unique upgrade provides full non-blocking connectivity and VC-12 granularity. This allows single-layer access for metro networks, eliminating the need for a separate VC-4 layer, giving savings in planning and hardware. This flexible, low-first-in-cost approach provides you with a solution for today's need and flexibility for tomorrow.

Protection

The OMS1664 provides both equipment and network protection options, including MSP (1+1 and 1:N), SNCP, dual-ring interconnection and multiple 2-fibre and 4-fibre MS-SPRING at STM-16 and STM-64.

Additional duplication of the switch and power supply feeds assures the highest availability.

Tandem Connection Monitoring

TCM provides valuable performance visibility for the monitoring of connections between operator boundaries. This also offers faster location of faults through isolation of problems to particular network segments.

High-density tributaries

High-density tributaries deliver maximum revenue generation from minimum space occupancy.

I.421

2 Mbit/s interfaces are available with I.421 to support Primary Rate ISDN.

Management

The OMS1664 is managed by the widely deployed Marconi ServiceOn solution that provides end-to-end integrated network management, network-wide performance monitoring and rapid fault identification.

System architecture

OMS1664 universal traffic slots, in conjunction with three, fully non-blocking, VC-12 switch options, enable maximum flexibility and modularity in terms of product and network applications. The unique dual SDH/Data bus architecture allows the VC-12 switch to be bypassed when delivering pure Ethernet services, reducing the cost per port.

Configuration for routing and protection of the traffic paths, together with performance, error and alarm monitoring for the OMS1664, is available centrally via the network management system, or locally via the craft terminal.

Access and security management can be programmed to provide various levels of operator access, to prevent unauthorized use.

Embedded software can be downloaded for feature enhancement in service. In addition, the OMS1664 can report details of their inventory status from non-volatile memory, either locally or remotely.

Data summary

General

The equipment is designed to meet the appropriate sections of ITU-T Recommendations: G.703, G.704, G.707, G.783, G.957, G.7041 (GFP), G.7042 (LCAS), G.841, G.842 and G.707
Switches with 20 Gbit/s, 128 x STM-1 equivalent ports and 60 Gbits/s, 384 x STM-1 equivalent ports
Full non-blocking VC-12 cross-connections

Interfaces

2 Mbit/s electrical:	126 ports, 32 ports LTU
34/45 Mbit/s electrical:	6 ports, LTU supports both 34 Mbit/s and 45 Mbit/s
STM-1:	8 ports, with hot plug-in units, providing 2 ports each – STM-1 electrical 2 port module – STM-1 optical 2 port module, S1.1, L1.1, L1.2/L1.3
STM-4:	Optical 2 ports, with SFP, S4.1, L4.1, L4.2/L4.3
STM-1/STM-4 multirate card:	– 16 ports, with electrical and optical SFP S1.1, L1.1, L1.2/L1.3 – 4 ports, with optical SFP S4.1, L4.1, L4.2/L4.3
STM-16:	Optical 1 port, S16.1, L16.1, L16.2/L16.3, CWDM-SFP, DWDM-SFP
STM-64:	Optical S64.1, 1 port, S64.2b, L64.2, DWDM-XFP
Fast Ethernet:	16 ports, 10/100Base-T (IEEE 802.3) or 100Base-FX
Gigabit Ethernet:	2 ports, 1000Base-SX, 1000Base-LH or 1000Base-ZX (IEEE 802.3)
Ethernet Layer 2 card:	2 ports, 1000Base-X, optional via LTU 16-port 10/100Base-T or 100Base-FX, 48 VC-Groups are supported
Multiprotocol card:	10 ports with SFP – 8 ports supporting (VC-4, VC-3) FE, GbE and 2 ports supporting Fiber Channel, FICON, ESCON and DVB.
Optical connectors:	LC
Element manager interface:	Proprietary Q interface between a gateway network element and the element manager, improving bandwidth utilization
Support of dual protocol stacks:	OSI IS-IS and TCP-IP OSPF
Qecc protocol:	To ITU-T Recommendation G.784 for use of DCCs.
Local terminal interface:	ITU-F interface V24 to IBM-compatible PC

Synchronization

Inputs:	2048 kHz timing signal to G.703 Section 13, 2 Mbit/s HDB3 to G.703/G.704.
Outputs:	2048 kHz to G.703 Section 13, 2 Mbit/s to G.703/G.704

Supply voltage	-48 V to -60 V DC nominal
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Mechanical arrangement	Subrack housed in ETSI 300 119 rack
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Dimensions	Full subrack – 280 mm (deep), 450 mm (wide) and 966 mm (high) Compact subrack – 280 mm (deep), 450 mm (wide) and 473 mm (high) Cable management unit - 191 mm (deep), 450 mm (wide) and 111 mm (high)
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Environment	– The equipment will operate to 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 G.664/G.958 – Electrical safety to EN 60950.
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