

MASTERseries

Wireless Backhaul Bandwidth Optimization Platform - R7.0

Key Features

- Supports advanced Ethernet and pseudowire features including CESoPSN, SAToP and traffic classification and prioritization
- Integrates Abis transport optimization and ATM inter-working
- Provides an adaptable T1/E1 backhaul networking solution to for networks in transition
- Improves backhaul network efficiency and lowers ongoing CAPEX and OPEX
- Minimizes new service introduction costs and reduces investment risk
- Supports optional DSU/CSU and 1/0 DCS functionality for maximum flexibility
- Available in 2-slot (1RU high) and 8-slot (3RU high) form factors
- Supported by OMC Companion Element Management, Performance Monitoring, Configuration, Upgrade and Alarm gathering, SSH support

Flexible Shelf Design

The MASTERseries platform is available in two different form factors, a 2-slot, 1RU-high shelf, and an 8-slot, 3RU-high shelf. The differently sized platforms share a common set of interface modules to simplify ordering and sparing while providing suitability for a range of applications in cell sites and small hub sites.

MASTERseries Module

The Pseudowire software load for the MASTERseries FM16 Module is designed for extending up to 16 T1 circuits over Ethernet service networks. The solution fully supports TDM-based T1, ATM and IP traffic by maintaining synchronization over any packet-switched network.



MASTERseries aggregates and optimizes backhaul over TDM, ATM, Ethernet, and pseudowire transport. The platform is highly flexible, cost-effective and designed specifically for cell sites and small hub sites.

A Platform Design for Aggregating and Optimizing Wireless Backhaul Bandwidth

The MASTERseries platform is designed for aggregating and optimizing backhaul of cell site traffic over any TDM, ATM, Ethernet, and pseudowire transport network. Purpose-built for cell site and small hub site deployments, the highly flexible platform supports integrated pseudowire and layer 2 Ethernet switching capabilities, ATM inter-working, and advanced Abis transport optimization, as well as DS0 grooming/DCS, from a single compact shelf.

The MASTERseries platform enables cost-effective multi-generation service integration and evolution (2G/2.5G, 3G, LTE and 4G). The cost-effective product offers a multi-function, multi-service feature set to meet the challenging needs of networks in transition. Unlike single function network equipment, the MASTERseries enables wireless carriers to control transport costs, quickly provision new services, and use bandwidth more efficiently. It is the ideal solution for implementing next-generation wireless services over Ethernet networks.

Pseudowire Solutions for TDM Access and Transport

When deployed with the FM 16 (FM16) Module, the MASTERseries provides a compact, simple, and scalable solution for transporting TDM services over IP and Ethernet-based networks. Leveraging powerful PWE3 (Pseudowire end-to-end) software features, up to 16 T1 streams are converted into packets for transmission over the radio access network through the Fast Ethernet interface. In addition, the FM16 Module with Pseudowire enables sophisticated aggregation and service inter-working of disparate networks (TDM, ATM and IP) for cost-effective integration with edge routers and switches.

As a full-service alternative to standard T1 access, the FM16 Module maintains synchronization over any layer 2/3 packet switched network (Ethernet, IP and MPLS in the future), with or without a T1 circuit or external timing source. The FM16 module acts as a standard IP router device, supporting Static, RIPv1, RIPv2, OSPF v2 Routing, ICMP (ping), ARP, next hop, and default gateway capabilities. It complies with the CESoPSN, SAToP and ATM Pseudowire IETF RFCs.

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Routing Features

- PPP, Frame Relay (RFC 1490) Nx56/K64K WAN data rates
- Static, RIPv1, RIPv2, OSPF v2 Routing
- Un-numbered ports interface support
- DHCP - Client, Relay and Server
- Ping, Trace Route, DNS relay/resolver, SNTP, firewall

Ethernet Transport Features

Complies with the following IETF-PWE3 documents:

- Structure-aware TDM Circuit Emulation Service over Packet Switched Network (CESoPSN) draft-ietf-pwe3-cesopsn-08.txt.
- ATM Pseudo-wires.
- Encapsulation Methods for Transport of ATM Over MPLS RFC 4717
- SAToP - Structure-Agnostic TDM over Packet (SAToP) RFC 4553
- TDM Circuit Emulation Service over Packet Switched Network (CESoPSN) RFC5086
- Up to 32 pseudowires.

Performance

- Low end-to-end processing delay using high-performance buffering and forwarding techniques with configurable IP packet size
- Enhanced buffering mechanism compensates for packet delay variation (jitter)

QoS Support

- Static pseudowire label assignments
- 2 Priority Queues (high = Pseudo-Wire, lower = Ethernet)
- 2 service categories based on network support
 - (1) Expedited Forwarding-1
 - (2) Best Effort
- VLAN tagging support IEEE802.1q
- Packet Classification, marking, and metering
- Connection admission control

OSPF

- Loopback interfaces in OSPF
- Automatic BFD session establishment in OSPF neighbors
- Support dropping OSPF adjacencies if BFD session indicates path failure

BFD

- Asynch. BFD
- BFD peer running in demand mode
- BFD peer running in echo mode
- BFD over single hop IPV4

Timing Source

- **Internal Timing:** The internal oscillator provides the master clock
- **Loop Timing:** The transmit clock is derived from a T1/E1 port's receive clock
- Adaptive Absolute Timing

SNMP Management

- draft-ietf-pwe3-tdm-mib draft-ietf-pwe3-atm-mib
- draft-ietf-pwe3-pw-mib draft-ietf-pwe3-mpls-mib
- draft-ietf-pwe3-tc-mib
- Performance Monitoring
- Connection availability, delay, bandwidth
- Packet/cell loss
- Packed/cell errors

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