

M3000



M3000 Ultra-low Latency Access/Aggregation Router

The DZS M3000 takes Carrier Ethernet ultra-low latency switching for mobile AnyHaul and IP/MPLS aggregation to new levels, with unprecedented performance, quality-of-service, capacity, and security in a small footprint.

Features & Benefits

- + 1 Tbps switching capacity
- + Fixed 24-port 1/10/25G and 4-port 40/100G optical interfaces
- + Supports multiple generations of mobile services (2G/3G/4G/LTE) and IP/MPLS
- + Advanced timing services for mobile clocking synchronization
- + Optimized for small aggregation and remote point-of-presence (POP) applications

Next generation mobile services will significantly raise the bar on performance requirements for AnyHaul by service providers and network operators. Rigid quality-of-service requirements in particular will make support for ultra-low latency, extraordinary capacity, and strong security paramount. Furthermore, service providers and operators will need to implement these new features in record time and extremely cost-effectively in order to compete in the market.

The DZS M3000 was architected to address these challenges head-on. Its low power consumption and high service scale gives service providers and operators the agility they need to rapidly get to market, while its advanced features provide the peace-of-mind that they can capture the next generation mobile opportunity while migrating to an IP/Ethernet mobile platform with traffic management and carrier class reliability.

Ultra-low Latency Access/Aggregation Router M3000



Extraordinary Capacity and Flexibility

With 1 Tbps switching capacity and fixed 24-port 1/10/25GbE and 4-port 40/100GbE optical interfaces, the M3000 provides the capacity and flexibility needed to support the transport requirements of next generation mobile networks, as well as a wide range of network architectures. Its 10GbE or 25GbE interfaces can be used as downlink towards the user network and 40GbE or 100GbE interfaces can be used either to cascade other switches or to connect to a core network devices.

Made for Rigid Performance and Reliability Requirements

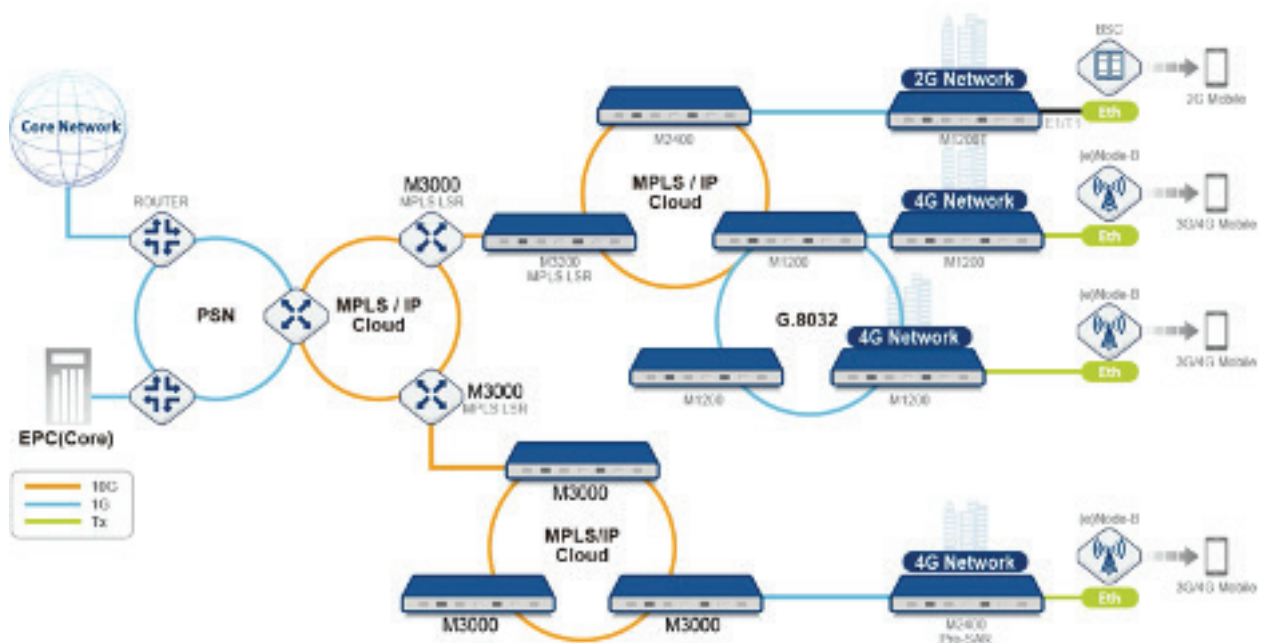
The M3000 offers timing services, allowing for mobile clocking synchronization from the core of the network. It also provides 2 mounting slots for the dual power modules and 2 mounting slots for the fan on the rear panel. PSU modules support 1:1 redundancy and load sharing, so it is possible to operate as non-stoppable. Fan operation is controlled by internal CPU block, so fan speed is controlled based on internal system temperature. Security features include storm control for broadcast, multicast and unknown unicast packets, outband management and Secure Shell (SSH) support.

Unmatched Deployment Flexibility and Support

The M3000 can be used for a variety of new, revenue-generating applications, such as a L2/L3 Ethernet LAN switch in high rise buildings or as a datacenter application and aggregation switch. Additionally, it helps to enhance network efficiency through offering dedicated L3 functionality. It can be used for various application scenarios as a mobile AnyHaul switch for the mobile, business, and residential markets (2G, 3G, 4G, LTE and/or IP/MPLS). With low power consumption and high service scale, the M3000 is optimized for small aggregation and remote point-of-presence (POP) applications providing amazing deployment flexibility and efficiency. It also supports dual power supply units (AC and DC) for power redundancy and flexibility and offers the ability to migrate to an IP/Ethernet mobile platform with traffic management and carrier class reliability.

An Asset to Wireless Operators

The M3000's ability to interface with a variety of generations of mobile backhaul technologies and support various network architectures make it a valuable tool for wireless operators. Its ability to adapt to the evolving network and bandwidth needs of users make it both cost effective and ready for the future.



Typical Use Case: M3000 provides mobile backhaul aggregation for multiple generations of wireless

M3000

Features, Protocols, Interfaces

Capacity

- + Max. 1000Gbps switching capacity base on I/O full duplex
- + Main switching block in Base board with fixed I/O Interface

Interfaces

- + Fixed 24-port 1G or 10G or 25G optical interface
- + Fixed 4-port 40G or 100G optical interface
- + 1-port of RS-232 Interface for Console Debug mode
- + 1-port of 10/100/1000Base-T electrical Interface for Management

Resiliency

- + Redundant dual power supply unit (PSU)
- + Hot Swappable for all plug-in units (PSU and FAN)
- + LED indicator

IP/MPLS

- + LDP
- + MPLS Traffic Engineering: RSVP-TE, OSPF-TE
- + LSP Ping, Trace-route
- + SR-TI-LFA
- + Signaling: MP-BGP
- + L3VPN
- + 6VPE

Layer 2 Capabilities

- + Standard Ethernet Bridging SVL and IVL
- + Per port/VLAN MAC limit
- + Station movement control
- + Per port L2 protocol packet processing up to 288K MAC entries using UFT (Unified Forwarding Table)
- + 4K active VLANs for 802.1q tagged frame
- + Port/Subnet/Protocol/MAC-based VLAN
- + VLAN translation on ingress and egress.
- + 802.1D (STP), 802.1W (RSTP), 802.1s (MSTP),
- + Link aggregation according to 802.3ad based on MAC or IP address
- + Jumbo frame 12KB
- + 802.1q/Q-in-Q tunneling
- + Link Aggregation (Static and LACP)
- + MAC filter, Max-host, Loop detection
- + Store and Forward
- + L2 Multicast
- + Storm control

Management

- + Serial/Telnet (CLI)

Layer 3 Capabilities

- + 16K IPv4 Hosts
- + 380K IPv4 LPM
- + 64K L3 Next Hop Table
- + 4Ks IP multicast group
- + 512 VRF
- + Static routing
- + OSPFv2/v3
- + BGPv4
- + TWAMP
- + Virtual Router Redundancy Protocol (VRRP)
- + Per L3 interface L3 protocol packet processing

Traffic Management

- + 32MB Buffer size
- + 10 unicast/multicast queues per egress port
- + 24K Packet descriptors per packet buffer
- + 8K/8 + 1.5k/12 per pipe Ingress Flex Counter/Updates (SLA)
- + 8K/4 per pipe Egress Flex Counters/Updates(SLA)
- + Clock Synchronization
- + IEEE1588v2 (TC/BC)
- + Synchronous Ethernet

Future Enhancements

- + Netconf/YANG
- + MPLS Enhancements
- + Future Enhancements Subject to Change

Physical & Environmental Specifications

Dimensions (W x H x D)	440 mm x 44 mm x 418 mm	
Weight	6.4 kg (with wing bracket)	
	5.9 kg (without wing bracket)	
Heat transfer	Air inlet	- on the right side of the switch
	Air outlet	- on the left side of the switch
Operating temperature	-4~140°F (-20~60°C)	
Storage temperature	-40~158°F (-40~70°C)	
Operating humidity	10 to 80 % (non-condensing)	
Uplink i/f	4 x 40GBase-R (QSFP+, MPO/LC)	

AC power	100-240VAC, 50/60Hz
DC power	24/48VDC
Maximum power consumption	270W
Ethernet i/f for local management	10/100/1000Base-T (RJ45)
Serial i/f, CLI	RS232 (RJ45)
Service i/f	24 x 1GBase-R (SFP LC)
	or 10GBase-R (SFP+, LC)
	or x 25GBase-R (SFP28, LC)
Certifications	CE, UL, FCC, ANATEL, BICSI, VCCI

Ordering Information

Bases	
M3000 Access Backhaul Switch	Fixed 24-port 1G(SFP) or 10G(SFP+) or 25G (SFP28)
	Fixed 4-port 40G(QSFP+) or 100G (QSFP28)
	1U PIZZA BOX
	2 slot: Blank Power Supply
PSU/Fan Options	Dual FAN (Hot swappable)
	PSU_AC for M3000
	PSU_DC for M3000
	Fan for M3000

Interface Unit and Connector Specifications

The following different optical modules are available and can be inserted into the dedicated modules.

Module	Description
1GE Optical Module	
SFP-GE-SX	SFP GE SX - Wavelength: 850 nm / Distance: 550 m / Mode: multi-mode
SFP-GE-LX10	SFP GE LX10 - Wavelength: 1310 nm / Distance: 10 km / Mode: single-mode
SFP-GE-LX20	SFP GE LX20 - Wavelength: 1310 nm / Distance: 20 km / Mode: single-mode
SFP-GE-LX40	SFP GE LX40 - Wavelength: 1550 nm / Distance: 40 km / Mode: single-mode
10GE Optical Module	
SFPP-1GE10GE-SR	SFP+ 1GE/10GE SR - Wavelength: 850nm / Distance: 300m / Mode: Multimode - 1000BASE-SX (1G), 10GBASE-SR (10G)
SFPP-10GE-SR	SFP+ 10GE SR - Wavelength: 850nm / Distance: 300m / Mode: Multimode - 10GBASE-SR (10G)
SFPP-10GE-LR	SFP+ 10GE LR - Wavelength: 1310nm / Distance: 10Km / Mode: Singlemode - 10GBASE-LR (10G)
25GE Optical Module	
SFP28-25G-SR	SFP28 25GBASE-SR - Wavelength : 850nm / Distance : OM3 70m / OM4 100m / Mode : Multi Mode
SFP28-25G-LR	SFP28 25GBASE-LR - Wavelength : 1310nm / Distance : 10Km / Mode : Single Mode - Manufacturer : InnoLight (TR-PY13L-N00)
40GE Optical Module	
40GE	QSFP+, SR4, MTP/MPO Connector,
	QSFP+, LR4, LC Connector,
	QSFP+, ER4, LC Connector
100GE Optical Module	
QSFP28-100GE-LR4	QSFP28 100GBASE-LR4 - Wavelength : 1295.56, 1300.05, 1304.58, 1309.14nm / - Distance : 10km / Mode : single-mode / Connector : LC - Data rate : 103.12 Gbit/s / Core type : Dual-Core
QSFP28-100GE-SR4	QSFP28 100GBASE-SR4 - Wavelength : 850nm / Distance : OM3 70m, OM4 100m / Mode : Multi Mode
QSFP28-100GE-ER4-Lite	QSFP28 100GBASE-ER4-Lite - Wavelength :1294.56, 1300.05, 1304.58, 1309.14nm / - Distance : 30Km (Without FEC), 40Km (with FEC) - Mode : Single Mode / Connector : LC - Data rate : 103.12 Gbit/s

