

MetroStar 3000

Gigabit-To-The-Home Layer 2 switch

GTTH Layer 2+ switch purpose-built for FTTH access

Key benefits:

- Supports 100Mbit/s and 1 Gbit/s for both copper and fiber
- Customer and Service VLAN topologies
- Enhanced multicast functionality
- Industry standard command-line interface and Layer 2+ feature set
- Designed for automated deployment



MS3000 GTTH switch

Demand for higher bandwidth services is increasing. The introduction of HDTV in combination with high-speed Internet access means that 100Mbit/s is no longer enough. Network operators need to decide if continued deployment of Fast Ethernet infrastructure still makes sense or if the time has come for a change to gigabit capable equipment.

With PacketFront's MetroStar 3000 (MS3000) series of Gigabit Ethernet L2+ switches the decision is easy. Both the fiber and copper version of MS3000 support 100Mbit/s as well as 1Gbit/s link speed – both speeds can be supported at the same time in the switch on different interfaces. This allows the network operator to continue the roll-out of 100Mbit/s while upgrading the link to the customer to 1Gbit/s with a simple reconfiguration of the MS3000. There are no extra truck-rolls required to migrate to a higher bandwidth.

Use of SFP interfaces also simplifies migration from dual-fiber to single-fiber deployment as both fiber solutions can be supported in the same unit. Another benefit is the reduced cost of the equipment if not all interfaces are used for end-user connection.

Customer and Service VLAN topologies

The MS3000 can be used in a wide variety of network topologies and supports:

- Ethernet wholesale with C-VLAN and S-VLAN
- Service VLAN topologies using DHCP

snooping for end-user and network security

- IP source-guard
- ARP inspection
- MAC Forced Forwarding

The MS3000 has full VLAN range, up to 4,096 vlans and 16,000 MAC addresses. This allows the MS3000 to replace existing FTTH topologies using FastEthernet. The network architecture can remain unchanged.

Enhanced multicast functionality

MS3000 offers multicast VLAN for efficient multicast distribution. In addition conditional access of multicast groups means that the client request for a TV channel is first verified against a list of approved channels before the channel is enabled for the client. This effectively prevents card sharing as each downlink port can have its own unique channel package. MS3000 supports simultaneous forwarding of up to 1024 multicast groups.

Layer 2+ features

The MS3000 has a Layer 2+ feature set. In addition to standard Layer 2 features and protocols such as multiple spanning-tree, the MS3000 also supports ingress classification with rate-limiting and prioritization. Egress shaping of traffic over 8 queues is also provided. This enables support for a wide variety of triple-play services.

Automated deployment

The MS3000 can be deployed into the network directly out of the box. There is

no need for pre-configuration of the switch before installation. When connected to the network, the switch will DHCP for its management IP which allows a central auto-configuration server to connect to the switch and configure it.

Connectors in the front

All connectors for network, administration and power are located in the front of the unit. In addition the MS3000 has a small form factor, only 26cm deep. This simplifies installation and makes the MS3000 fit into narrow spaces in multi-dwelling unit environments as well as dense deployment in central office or wiring-closet sites.

Industry standard CLI via telnet or SSH

The MS3000 is configured using an industry-standard text-based command line interface (CLI) that can be accessed over the serial console port, by telnet or using encrypted secure shell (SSH). RADIUS and TACACS+ authentication is supported.

802.1x authentication

Both MAC and port based IEEE 802.1x authentication with RADIUS is supported. This allows automated VLAN assignment based on client identification, for example in enterprise environments, enabling clients to move around in the network but still always connect to the correct VLAN.

MS3000

Models

MS3028-AC	24 100/1000Mbit/s Ethernet SFP interfaces, 4 1000Mbit/s Ethernet SFP interfaces, 90-260V AC power
MS3028-DC	24 100/1000Mbit/s Ethernet SFP interfaces, 4 1000Mbit/s Ethernet SFP interfaces, dual -48V DC power
MS3128-AC	24 10/100/1000Mbit/s Ethernet RJ-45 interfaces, 4 1000Mbit/s Ethernet SFP interfaces, 90-260V AC power
MS3128-DC	24 10/100/1000Mbit/s Ethernet RJ-45 interfaces, 4 1000Mbit/s Ethernet SFP interfaces, dual -48V DC power

Performance

56Gbit/s internal switching capacity
Wirespeed switching for all packet sizes
16384 MAC addresses, 4096 VLANs
1000 L2 multicast, 1024 IP multicast groups
Jumbo-frames (up to 12Kbyte)
Reliability MTBF >150,000 hours

Quality of Service

1 Mbyte packet buffer
Packet queueing algorithms:

- Weighted round robin (WRR)
- Deficit round robin (DRR)
- Strict priority queuing

Queuing: 8 queues per port
L2-L4 packet classification
Egress shaping

Management

64MB RAM, 8MB Flash
One VLAN management interface
RS232 serial console port
Telnet, SSH
SNMPv1 and v2c, SNMP v3
RMON groups 1, 2, 3 and 9
Industry standard CLI, up to four sessions
RADIUS and TACACS+ authentication of CLI user
Syslog (RFC 3164)
Remote software upgrade (TFTP)
Ping
SNTP

Ethernet and Bridging

IEEE 802.3z – Gigabit Ethernet
IEEE 802.1p and 802.1Q including GVRP
IEEE 802.1ad Provider Bridging (Q-in-Q) with configurable ethertype
IEEE 802.1D Spanning-tree
IEEE 802.1w Rapid spanning-tree
IEEE 802.1s Multiple spanning-tree
IEEE 802.3ad link aggregation (4 trunk groups)
IEEE 802.1x port and MAC authentication, with RADIUS for VLAN assignment

Network Security

Security Denial of service protection of control plane
Port security
Port storm control
Multicast storm control per interface
Max MAC address per port control
ARP inspection
DHCP snooping with IP source-guard
RFC4562 MAC Forced Forwarding
DHCP option-82 insertion

Multicast

Multicast IGMP v2/v3 snooping per interface
IGMP filter-list access control
IGMP immediate-leave
Multicast VLAN

Physical

RJ-45 serial console interface (9600-115200bps)
MS3128: 24 10/100/1000baseT with MDI/MDCX and polarity autosense
MS3028: 24 100/1000baseX (SFP) with diagnostics (DDM)
All models: 4 1000baseX (SFP) with diagnostics (DDM)
Dimensions 430 mm (W) x 44 mm(H) x 330 (D) mm (16.93" x 1.73" x 12.99")
Weight 5.1kgs (16 lbs)
Indicators 1 link indicator and 1 speed indicator per port
Power LED
Acoustic Max 50dBA noise level
Cooling Redundant fans

Environmental

Operating temperature 0 to 45°C, 32 to 113°F
Operating humidity 10% to 90%, non condensing
Storage temperature -40 to 70°C, -40 to 158°F
Storage humidity 5% to 95%, non condensing
Rack mounting Standard 19" rack mountable
Heat dissipation See power consumption

Power and safety

AC model Power input 100-240V, 50-60 Hz compliant with ETSI EN 300132 V2.1.1 Part1
DC model Redundant power input -48V, compliant with ETSI EN300132 V2.1.1 Part2
Power consumption MS3028-AC 32W, MS3028-DC 39W, MS3128-AC 45W, MS3128-DC 38W

Regulatory Compliance

Standard CE
IEC/EN/UL 60950
IEC/EN/UL 60825
CB-certificate
RoHS directive 2002/95/EC
Emission ETSI EN 300386
FCC Part 15 Subpart A