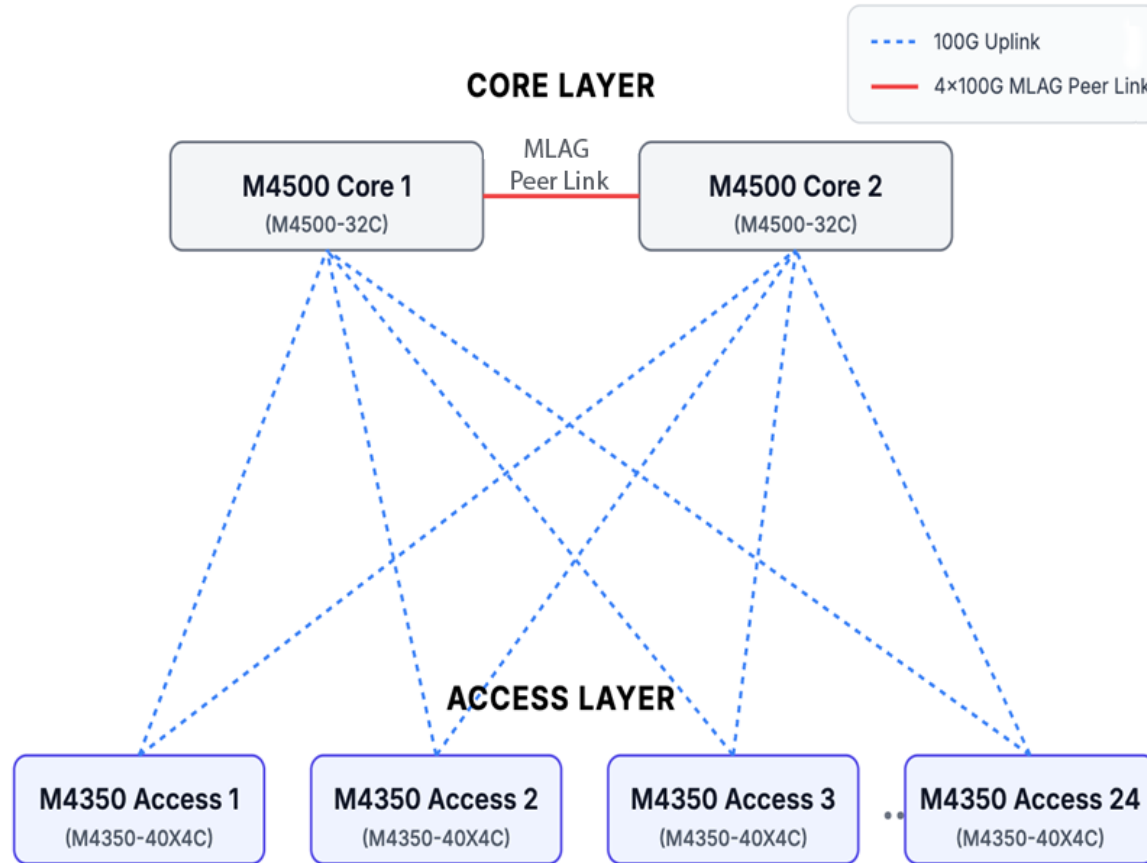


Target Application

Campus Core / Aggregation Topology

Redundant M4500 Core Switches aggregating M4350 Access Switches



For scalable Campus IT installations

Network administrators deploying the M4500-32C as their campus core will find a robust and scalable foundation for the most demanding environments. Connect M4350 access switches, each equipped with 40x 10G PoE+ ports to meet future Wi-Fi 7 demands, and leverage their redundant 2x 100G uplinks for a high-speed, non-blocking connection to the core. This architecture provides a simple yet powerful design that scales effortlessly. A pair of M4500 core switches can aggregate up to 24 M4350 switches, creating a massive fabric of 960 x 10G PoE+ ports for the entire campus. The remaining 8 x 100Gs used for inter switch link and uplink from Core to WAN edge.

M4500 Series Features

Introducing two new M4500 100GE switches for the campus core: M4500-32C and M4500-48XF8C. The trend of moving away from legacy chassis-based systems to fixed-form factor switches is accelerating as a new class of hardware has come to market. Combining the performance of a traditional chassis with the power and scalability of Ethernet, they support hundreds of access layer switches and endpoints at a price point dramatically lower than comparable modular systems. The Layer 3 feature set includes static and dynamic routing with VRRP, OSPF, BGP, VRF-Lite, and PIM. With a robust and standards-based approach, these new switches offer advanced routing and greatly simplify campus architectures with well-known L3 techniques across the entire network while still providing feature-rich Layer 2 capabilities. Administrators deploying the M4500-48XF8C switch will find a powerful platform for their network. It comes with 48 10G/25G fiber ports with 8 100G uplink ports for true core and distribution layer network designs. Connect your existing access layer switches, and power on the switch. It just works! Then use the M4500-32C switch for a high-density spine in a complete setup for large campus projects supporting hundreds of users in a single architecture.

Key features

- Cost-effective 100G distribution and 10G/25G access layer aggregation for campus-wide deployments and redundant spine-and-leaf topologies.
- Powerful out-of-the-box performance with a standards-based CLI for L3 deployments (aggregating user access switches and servers).
- Advanced Layer 3 feature set including IP Multinetting/CIDR, Static, PBR, VRRPv2, OSPFv3, PIM-SM, VxLAN, BGP4, VRF-Lite
- Optimized for "Spine and Leaf" redundant Campus IT installations, with or without MLAG between spine switches
- Up to 320 TX / 320 RX (10 Gigabit) Nodes all line rate with each other in a redundant spine and leaf architecture
- 2 power supply units (APS750W) and 6 redundant fan trays (AFT402) pre-installed for 1+1 power and 4+2 fan redundancy
- Ultra-low latency (spine 0.13µs @100G; leaf 0.119µs @10G) and scalable table size (32K MAC, 8K ARP, 4K VLANs, 32K routes)

Software features

- Advanced classifier-based, time-based hardware implementation for L2 (MAC), L3 (IP) and L4 (UDP/TCP) security and prioritization
- Selectable Port-Channel / LAG (802.3ad - 802.1AX) L2/L3/L4 hashing for fault tolerance and load sharing with any Ethernet channeling
- Up to 64 Link Aggregation Groups (LAG, Port-Channel, LACP) with 32 ports per LAG and Multi-chassis Link Aggregation (MLAG)
- Comprehensive IPv4/IPv6 static and dynamic routing including IP Multinetting/CIDR, PBR, VRRPv2, OSPFv3, PIM-SM6, BGP4, VRF-Lite
- Enhanced IPv4/IPv6 multicast forwarding with IGMPv3/MLDv2 and IGMP Plus enhancement at the VLAN level
- IGMP Plus enhanced implementation for automatic multicast across a L2 network (igmp-plus <vlan-id> easy macro-command)
- High performance IPv4/IPv6 multicast routing with PIM-SM and PIM-SM6 associated with unicast static routes, or other L3 protocol
- Advanced IPv4/IPv6 security including malicious code detection, DHCP Snooping, IP Source Guard, and Control Plane Policing (CoPP)
- Priority-Based Flow Control (PFC), DCBX Bridging, Enhanced Transmission Selection (ETS) and VXLAN Gateway for server installations

Availability

- Two (2) redundant, modular power supplies are pre-installed contributing to business continuity management
- Six (6) hot-swappable fan trays are pre-installed for 4+2 fan redundancy
- Spine and leaf architecture with every leaf switch (10G/25G access) connecting to every spine switch (distributed 100G core)
- Up to 48 paths ECMP routing for load balancing and redundancy
- Link Dependency feature enables or disables ports based on the link state of different ports

Management

- Industry standard SNMP, RMON, MIB, LLDP, AAA, sFlow and RSPAN remote mirroring implementation
- Service port for out-of-band 1 Gigabit Ethernet management (OOB)
- Standard RS232 straight-through RJ45 for local management console (USB 2.0 to RS232 converter with PL203 chipset is advised)
- Non-Disruptive Configuration for applying a new configuration file without disrupting the operation of unchanged features
- Industry standard command line interface (CLI) only

Industry leading warranty and support

- NETGEAR M4500 series is covered under NETGEAR Enterprise Lifetime Warranty*
- 3 years of Sprint support included with 24/5 Technical Support (phone, online) and Advance RMA Replacement
- Overdrive support contracts available for 24/7 Technical Support (phone, online, 2h SLA) and Next Business Day RMA Replacement

Hardware at a Glance

Model name	Form-Factor	Switching Fabric	FRONT		REAR		MANAGEMENT	Model number
			25GBASE-X SFP28 ports	100GBASE-X QSFP28 ports	PSU	Fans	Out-of-band Console	
M4500-32C	Full width 1-unit 1U rack mount	6.4 Tbps		32 ports 1x100G; 1x50G; 1x40G; 4x25G; 4x10G 1x100G default mode	Modular 2 bays 2 PSU included (1+1 redundancy): 2 x APS750W	Modular 6 slots 6 Fans included (4+2 redundancy): 6 x ATF402 Front-to-back 64.0dB	Ethernet: Out-of-band 1G port (Front) Console: RJ45 RS232 (Front) Storage: USB (Front)	CSM4532
M4500-48XF8C	Full width 1-unit 1U rack mount	4 Tbps	48 ports 1x25G; 1x10G; 1x1G* 1x10G default mode	8 ports 1x100G; 1x100G; 1x50G; 1x40G; 4x25G; 4x10G 1x100G default mode	Modular 2 bays 2 PSU included (1+1 redundancy): 2 x APS750W	Modular 6 slots 6 Fans included (4+2 redundancy): 6 x ATF402 Front-to-back 68.0dB	Ethernet: Out-of-band 1G port (Front) Console: RJ45 RS232 (Front) Storage: USB (Front)	XSM4556

* SFP28 port speed is configurable by multiples of 4 ports (Port-1 for 1-2-3-4; Port-5 for 5-6-7-8; etc.)

Front View

M4500-32C



M4500-48XF8C



Rear View

M4500-32C



M4500-48XF8C



Software at a Glance

LAYER 3 PACKAGE												
Model name	Management*	Usability Enhancements	IPv4/IPv6 ACL and QoS, DiffServ	IPv4/IPv6 Multicast Filtering	Spanning Tree	VLANs	Trunking Port Channel	IPv4/IPv6 Authentication Security	IPv4/IPv6 Static Routing	IPv4/IPv6 Dynamic Routing	Datacenter Features	Model number
M4500 series	NETGEAR Engage Controller Out-of-band; CLI; Telnet; SSH SNMP, MIBs RSPAN Radius Users, TACACS+	Link Dependency (Enable or Disable one or more ports based on the link state of one or more different ports) CLI scheduler (Schedule fully-qualified EXEC mode CLI commands to run once, at specified intervals, at specified calendar dates and times, or upon system startup)	Ingress/egress 1 Kbps shaping rate limit	IGMP Plus for automatic IGMP IGMPv3 MLDv2 Snooping, Proxy SSM IGMPv1,v2 Querier (compatible v3) Control Packet Flooding	STP, MTP, RSTP IEEE 802.1Q-2005 BPDU Guard	Static, Dynamic Double VLAN mod (QinQ)	Static or Dynamic LACP (LACP automatically reverts to and from Static LAG) Seven (7) L2/L3/L4 hashing algorithms Multi Chassis Link Aggregation Group (MLAG)	Successive Tiering (DOT1X; MAB) DHCP Snooping Dynamic ARP Inspection IP Source Guard	Port, Subnet, VLAN routing DHCP Relay Multicast static routes	IP Multinetting/ CIDR PBR VRRPv2, OSPFv3 PIM-SM/ SSM BGP4, VRF-Lite	PFC DCBX CoS Queuing and ETS VXLAN Gateway	All models

* CLI only

Performance at a Glance

TABLE SIZE													
Model name	MAC ARP/ NDP	Routing / Switching Capacity	Throughput	Application Route Scaling	Packet Buffer	Latency	IP Multicast Forwarding Entries	CPU	Multicast IGMP Group membership	VLANs	Link Aggregation Port Channel	sFlow	Model number
M4500-32C	32K MAC 8K ARP 2.5K NDP	6.4 Tbps Line-rate	2 Bpps	Static routes: 128 IPv4 routes: 32K IPv6 routes: 24K IP IGMP/MLD: 2,048 PIM-SM: 1536 PIM-SMv6: 512	256 Mb	64-byte frames <0.13µs 100G QSFP28 <0.417µs 50G QSFP28 <0.15µs 40G QSFP+ <0.125µs 4x25G breakout <0.766µs 4x10G breakout	2,048 IPv4 2,048 IPv6	x86 Intel Atom® Processor C3558 8GB DDR3/ECC RAM 128GB SSD storage	4K IPv4 / IPv6	4K VLANs	64 groups (LAG) 802.3ad with LACP 32 members/LAG 63 groups (MLAG) Multichassis LAG 32 members/MLAG	sFlow v5 8 sessions 416 samplers 416 pollers 8 receivers	CSM4532
M4500-48XF8C	32K MAC 8K ARP 2.5K NDP	4 Tbps Line-rate	2 Bpps	Static routes: 128 IPv4 routes: 32K IPv6 routes: 24K IP IGMP/MLD: 2,048 PIM-SM: 1536 PIM-SMv6: 512	256 Mb	64-byte frames <0.117µs 25G SFP28 <0.119µs 10G SFP+ <0.129µs 100G QSFP28 <0.129µs 50G QSFP28 <0.144µs 40G QSFP+							XSM4556

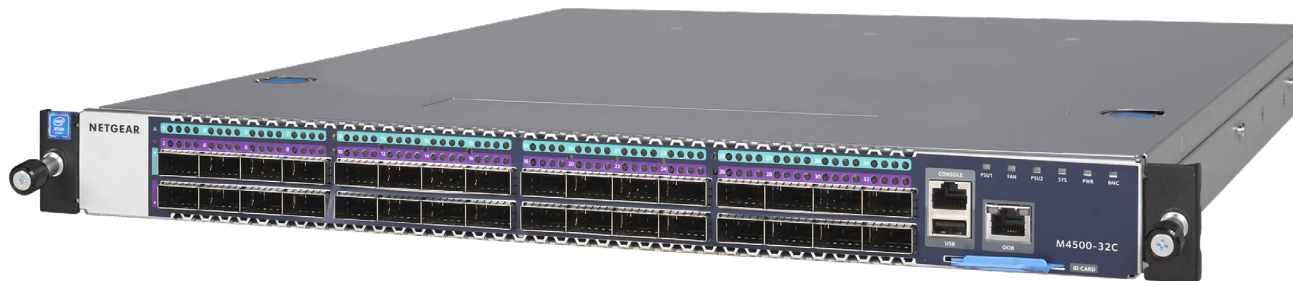
Components and Modules

M4500-32C
100GE Managed Switch

Ordering information

- Americas, Europe: CSM4532-100NAS
- Europe: CSM4532-100EUS
- Asia Pacific: CSM4532-100AJS
- China: CSM4532-100PRS
- Warranty: Lifetime ProSAFE Hardware Warranty

- The M4500-32C provides 32-port QSFP28 (100G, 50G and 40G)
- QSFP28 ports are preconfigured for 100G
- 6.4Tbps non-blocking fabric for 32 x 100G bi-directional
- Two modular power supplies APS750W are pre-installed for 1+1 redundancy
- Six modular fan trays AFT402 are pre-installed for 4+2 redundancy
- Two mounting ears and screws for rack mounting (front)
- One set of rail kits for rack mounting (back)
- Out-of-band 1G Ethernet Management port
- RJ45 RS232 console port and USB storage port
- Full L2/L3/L4 feature set to secure and prioritize converged campus applications
- Enhanced IGMP Plus for plug & play L2 Multicast between M4300/M4500 switches
- Line-rate spine and leaf with M4500-48XF8C (48-port SFP28 and 8-port QSFP28)
- Static and dynamic routing with VRRP, OSPF, BGP, VRF-Lite and PIM-SM/SSM
- 64dB @25°C / 77°F



Components and Modules

M4500-48XF8C
25/100GE Managed Switch

Ordering information

- Americas, Europe: XSM4556-100NAS
- Europe: XSM4556-100EUS
- Asia Pacific: XSM4556-100AJS
- China: XSM4556-100PRS
- Warranty: Lifetime ProSAFE Hardware Warranty

- The M4500-48XF8C switch provides 48-port SFP28 (25G, 10G and 1G fiber)
- And it also provides 8-port QSFP28 (100G, 50G and 40G fiber)
- SFP28 ports are preconfigured for 10G, QSFP28 ports for 100G
- 4Tbps non-blocking fabric for 48 x 25G and 8 x 100G bi-directional
- Two modular power supplies APS750W are pre-installed for 1+1 redundancy
- Six modular fan trays AFT402 are pre-installed for 4+2 redundancy
- Two mounting ears and screws for rack mounting (front)
- One set of rail kits for rack mounting (back)
- Out-of-band 1G Ethernet Management port
- RJ45 RS232 console port and USB storage port
- Full L2/L3/L4 feature set to secure and prioritize converged campus applications
- Enhanced IGMP Plus for plug & play L2 Multicast between M4300/M4500 switches
- Line-rate spine and leaf with M4500-32C (32-port QSFP28)
- Static and dynamic routing with VRRP, OSPF, BGP, VRF-Lite and PIM-SM/SSM
- 68dB @25°C / 77°F



Accessories

APS750W Power Supply Unit

Ordering information

- Worldwide: APS750W-10000S
- Without power cord
- Warranty: 5 years



- Modular PSU for M4500-32C and M4500-48XF8C
- C14 connector
- Spare unit (M4500 switches ship with two PSUs already)
- Capacity:
 - Up to 750W output power at 110V-240V AC

AFT402 Fan Tray

Ordering information

- Worldwide: AFT402-10000S
- Warranty: 5 years



- Modular fan tray for M4500-32C and M4500-48XF8C
- Front-to-back
- Spare unit (M4500 switches ship with six fans already)

GBIC QSFP28, QSFP+, SFP+ and SFP Optics for M4500 series

AGM734 1000BASE-T RJ45 SFP (Gigabit)

Ordering information

- Worldwide: AGM734-10000S
- Warranty: 5 years



- Fits into M4500 models SFP28 interfaces
- 1 port Gigabit RJ45
- Supports only 1000Mbps full-duplex mode
- Up to 100m (328 ft) with Cat5 RJ45 or better
- Conveniently adds 1G copper connectivity to M4500 fiber interfaces

AXM765 10GBASE-T RJ45 SFP+ (10 Gigabit)

Ordering information





- Worldwide: AXM765-10000S
- Warranty: 5 years



- Fits into M4500 models SFP28 interfaces
- 1 port 10GBASE-T RJ45
- Copper connectivity up to 30 m (98 feet) distance
- CAT6a or better wiring required for 10GBASE-T up to 30 meters
- Conveniently adds 10G copper connectivity to M4500 fiber interfaces

Accessories

GBIC QSFP28, QSFP+, SFP+ and SFP Optics for M4500 series

Ordering information <ul style="list-style-type: none"> Worldwide: see table below Warranty: 5 years 	Multimode Fiber (MMF)		Single mode Fiber (SMF)
	OM1 or OM2 62.5/125µm	OM3 or OM4 50/125µm	9/125µm
100 Gigabit QSFP28  <ul style="list-style-type: none"> Fits into M4500 models QSFP28 interfaces 		ACM761 100GBASE-SR4 Duplex 4 MMF links - MTP/MPO connector up to 100m (328 ft) ACM761-10000S (1 unit)	ACM762 100GBASE-LR4 long reach single mode LC duplex connector up to 10km (6.2 miles) ACM762-10000S (1 unit)
40 Gigabit QSFP+  <ul style="list-style-type: none"> Fits into M4500 models QSFP28 interfaces 		AXLM761 40GBASE-MR4 Duplex 1 MMF link - LC duplex connector up to 150m (492 ft) AXLM761-10000S (1 unit)	AXLM762 40GBASE-LR4 long reach single mode LC duplex connector up to 10km (6.2 miles) AXLM762-10000S (1 unit)
10 Gigabit SFP+  <ul style="list-style-type: none"> Fits into M4500 models QSFP28 interfaces 	AXM763 10GBase-LRM long reach multimode 802.3aq - LC duplex connector up to 220m (722 ft) AXM763-10000S (1 unit)	AXM763 10GBase-LRM long reach multimode 802.3aq - LC duplex connector up to 260m (853 ft) AXM763-10000S (1 unit)	AXM762 10GBase-LR long reach single mode LC duplex connector up to 10km (6.2 miles) AXM762-10000S (1 unit) AXM762P10-10000S (pack of 10 units)
			AXM761 10GBase-SR short reach multimode LC duplex connector OM3: up to 300m (984 ft) OM4: up to 550m (1,804 ft) AXM761-10000S (1 unit) AXM761P10-10000S (pack of 10 units)
Gigabit SFP  <ul style="list-style-type: none"> Fits into M4500 models QSFP28 interfaces 	AGM731F 1000Base-SX short range multimode LC duplex connector up to 275m (902 ft) AGM731F (1 unit)	AGM731F 1000Base-SX short range multimode LC duplex connector OM3: up to 550m (1,804 ft) OM4: up to 1,000m (3,280 ft) AGM731F (1 unit)	AGM732F 1000Base-LX long range single mode LC duplex connector up to 10km (6.2 miles) AGM732F (1 unit)

Accessories

GBIC QSFP28, QSFP+, SFP+ and SFP Optics for M4500 series

AGM734 1000BASE-T RJ45 SFP (Gigabit)



Ordering information

- Worldwide: AGM734-10000S
- Warranty: 5 years

- Fits into M4350 SFP+ and SFP28* interfaces
- 1 port Gigabit RJ45
- Supports only 1000Mbps full-duplex mode
- Up to 100m (328 ft) with Cat5 RJ45 or better
- Conveniently adds 1G copper connectivity to M4350 fiber interfaces

AXM765 10GBASE-T RJ45 SFP+ (10 Gigabit)






Ordering information

- Worldwide: AXM765-20000S
- Warranty: 5 years

- Fits into M4350 SFP+ and SFP28* interfaces
- 1 port 10GBASE-T RJ45
- Copper connectivity up to 80m (262 ft) distance
- CAT6a or better wiring required for 10GBASE-T up to 80 meters
- Conveniently adds 10G copper connectivity to M4350 fiber interfaces

Accessories

Direct Attach Cables for M4500 series

Ordering information WORLDWIDE: SEE TABLE BELOW WARRANTY: 5 YEARS	QSFP28 to QSFP28		
	1 meter (3.3 ft)	3 meters (9.8 ft)	
100 Gigabit DAC • Fits into M4500 models QSFP28 interfaces	ACC761 100G QSFP28 Cu (passive) QSFP28 connectors ACC761-10000S (1 unit)	ACC763 100G QSFP28 Cu (passive) QSFP28 connectors ACC763-10000S (1 unit)	
	QSFP+ to QSFP+		
40 Gigabit DAC • Fits into M4500 models QSFP28 interfaces	AXLC761 40G QSFP+ Cu (passive) QSFP+ connectors AXLC761-10000S (1 unit)	AXLC763 40G QSFP+ Cu (passive) QSFP+ connectors AXLC763-10000S (1 unit)	
	SFP+ to SFP+		
10 Gigabit DAC  • Fits into M4500 models QSFP28 interfaces	1 meter (3.3 ft)	3 meters (9.8 ft)	5 meters (16.4 ft)
	AXC761 10GSFP+ Cu (passive) SFP+ connectors AXC761-10000S (1 unit)	AXC763 10GSFP+ Cu (passive) SFP+ connectors AXC763-10000S (1 unit)	AXC765 10GSFP+ Cu (active) SFP+ connectors AXC765-10000S (1 unit)
	7 meters (23.0 ft)	10 meters (32.8 ft)	15 meters (49.2 ft)
	AXC767 10GSFP+ Cu (active) SFP+ connectors AXC767-10000S (1 unit)	AXC7610 10GSFP+ Cu (active) SFP+ connectors AXC7610-10000S (1 unit)	AXC7615 10GSFP+ (duplex fiber optic) SFP+ connectors AXC7615-10000S (1 unit)
	20 meters (65.6 ft)		
	AXC7620 10GSFP+ (duplex fiber optic) SFP+ connectors AXC7620-10000S (1 unit)		

** This product comes with a limited warranty that is valid only if purchased from a NETGEAR authorized reseller and modifications to product may void the warranty; covers hardware, fans and internal power supplies - not software or external power supplies See <http://www.netgear.com/about/warranty/> for details. Lifetime technical support includes basic phone support for 90 days from purchase date and lifetime online chat support when purchased from a NETGEAR authorized reseller.

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