



**NETGEAR®**

# ProSAFE M6100 Chassis Switch Series

## Chassis Standards Redefined

World's first distributed fabric, passive backplane solution in a 4U footprint with full management and power redundancy

**Laurent Masia**

**15Q1**

# Agenda

**Understanding the market opportunity**

**NETGEAR M6100 overview**

**How & where to position NETGEAR M6100**

**Selling against the competition**

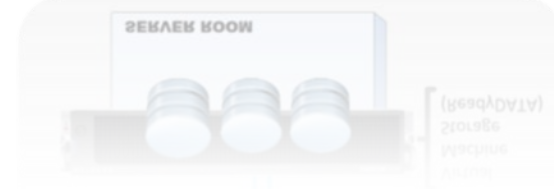
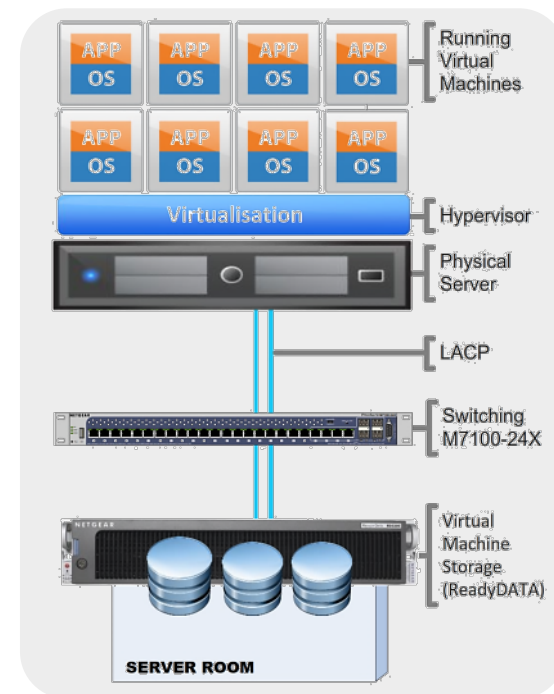
**Marketing and technical resources**

# Business and Technology Trends

## *Networking Infrastructure*

### 1. Virtualization

Flourishes on high availability networks  
Top-of-rack bottleneck, flattened architectures



# Business and Technology Trends

## *Networking Infrastructure*

### 1. Virtualization

Flourishes on high availability networks  
Top-of-rack bottleneck, flattened architectures

### 2. VoIP & Video

IP Convergence  
PoE, Multicast, QoS



# Business and Technology Trends

## Networking Infrastructure

### 1. Virtualization

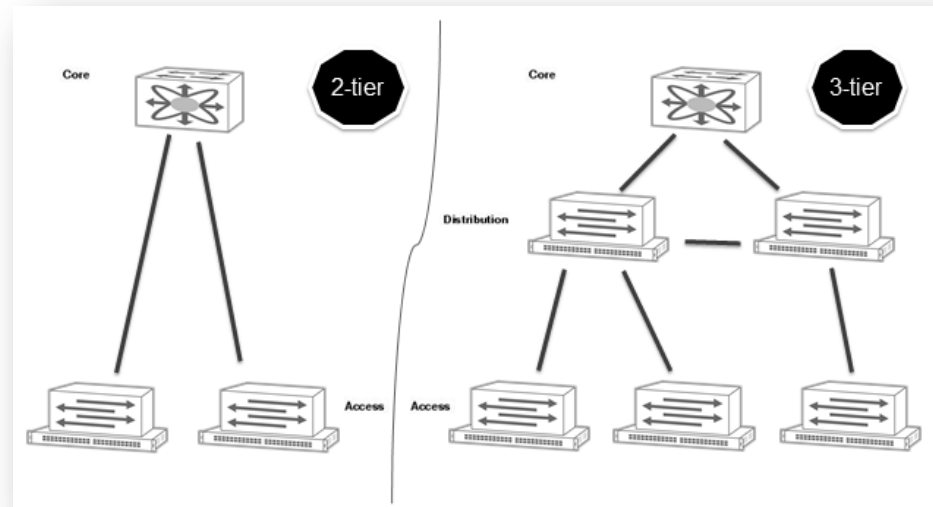
Flourishes on high availability networks  
Top-of-rack bottleneck, flattened architectures

### 2. VoIP & Video

IP Convergence  
PoE, Multicast, QoS

### 3. 10 Gigabit

Gigabit everywhere at the edge  
Distribution layer urgent upgrades



# IT should enhance, not disrupt organizations

**MORE**

**MORE**

**MORE**

**MORE**



## Mobility

Devices

24 x 7

Security

## Cloud

IoT

Private

Hybrid

Public

## Convergence

10/100

GbE

10GBE.....

Tier 3 to Tier 2 networks

## Headaches

Capex / Opex Costs

Management

Support

# Midsized networks are at an inflection point

## Network Performance

**Uneven** wired and wireless user experience

**Rising** traffic levels posing congestion challenges

## Network Availability

You **back up** your storage, but what about your switched infrastructure?

## Network Management

Disparate network management tools make for an **inefficient** network management experience

## Network Flexibility

3-tier networks are **complex, costly and hard to maintain**; even harder to upgrade

# Midsized networks are at an inflection point

## Network Performance

**Uneven** wired and wireless user experience  
**Rising** traffic levels posing congestion challenges

## Network Availability

You **back up** your storage, but what about your switched infrastructure?

## Network Management

Disparate network management tools make for an **inefficient** network management experience

## Network Flexibility

3-tier networks are **complex, costly and hard to maintain**; even harder to upgrade

Increasing %  
of

**IT resources  
distracted**

by legacy  
maintenance  
needs



# Midsized networks require consistency

## Consistent Performance

Investment protection through architectures that can both scale and support growing bandwidth demands

## Consistent Availability

Network reliance and importance requires downtime must be minimised, whether planned or unexpected.

## Consistent Management

Simplified management with policy enforcement spanning security and access privileges across multiple device types and use needs

## Consistent Flexibility

Simpler two-tier network architectures with more density, more intelligence at the edge and less burden for the core layer

Ensure **consistent** quality of service for evolving user and growing bandwidth intensive application needs

Stop spiralling IT footprint and costs

# Technology as an enabler

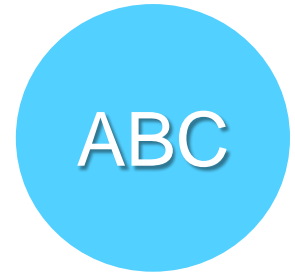
*Must be.....*



Reliable



Affordable



Easy to use

# Agenda

**Understanding the market opportunity**

**NETGEAR M6100 overview**

**How & where to position NETGEAR M6100**

**Selling against the competition**

**Marketing and technical resources**

# ProSAFE M6100 Chassis Switch Series



**High-quality, high-density  
Chassis switch solution**



**NETGEAR**

# ProSAFE M6100 Chassis Series

The ProSAFE M6100 switch series is a **high-quality, high-density** chassis alternative to stackable switches for **midsize enterprise edge and SMB core** deployments



M6100 Highlights

Product Detail including modular options / Starter Kit

Best in class credentials

Positioning / When a chassis makes sense

Making the right choices

Solution Scenarios

Competitive advantages



NETGEAR®

# NETGEAR Managed Switches



**Stackable**  
L2+ L3

**MLAG**  
L2+

**M7300 10G Aggregation series**  
**M7100 10G Aggregation series**

**Core / Distribution**



**MLAG**  
L3

**M6100 LAN Access and Aggregation Chassis series**

Multi-Role Platform



**Stackable**  
L2+ L3  
**Standalone**  
L2+

**M5300 Next-Gen Edge series**  
**M4100 Intelligent Edge series**

**Access Layer**



# High Quality, High Density M6100 Series



M7100 series

M6100 series

M4100 series

# M6100 Chassis Series Overview

## *Chassis Standards re-defined*

+ L2/L3/L4 and IPv4/IPv6 rich services

- As **all-in-one** switch platform for branch offices
- For midsize organizations and campus dense **edge**
- For SMB redundant, reliable, scalable **core**

+ Latest advances in hardware and software engineering

- Higher flexibility and lower complexity: unique in the market
- Stronger investment protection at a high-value price point

M6100-3S Switch





# M6100 Chassis Series Overview

*Flexible, scalable and dependable*

+ 3-slot switch chassis in compact 4U form-factor

- **Fabric and Management redundancy** and **passive backplane**
- **Non-stop switching**, non-stop routing with hitless failover
- **N+1 redundancy** for power supplies and full **PoE+** provisioning, and **UPOE**

+ Extra-high density 'Big Switch'

- 144 x RJ45 10/100/1000 ports
  - 120 x SFP 100/1000 ports
- 72 x RJ45 10GBASE-T ports
- 48 x SFP+ 1000/10GBASE-X ports
  - Or a combination

M6100-3S Switch



# M6100 Chassis Series Overview

## *Price Performance leadership*

### + High speed performance

- 1.4 Tbps routing / switching capacity
- Up to 1,071 Mpps throughput
- 480 Gbps distributed fabric inter-module
- Each slot provides 2 x 40G access to the passive backplane (80G half-duplex; 160G full-duplex)

### + Distributed fabric = higher flexibility

- No dedicated supervisory module
  - Any I/O blade complete with hardware and software distributed fabric on board
  - Facilitates easier campus management, maintenance and upgrades

### + Superior design and license-free software = lower complexity

- Incl. IPv6 L3 routing features (OSPF, PBR, BGP)
- Incl. data center features (DCBX, PFC, ETS, FIP Snooping)
- Innovative slot-1 supervisory and slot-2 backup supervisory design

M6100-3S Switch



# M6100 Chassis Switch series

*Addresses Midsize Organizations' Needs*



**Cost-Efficient**  
**1G density**  
**for the edge**  
**and 10G density**  
**for the core**



**Passive Backplane**  
**Fabric and**  
**Management**  
**redundancy**  
**Non-stop switching**  
**hitless failover**



**PoE+ and UPOE**  
**All Gigabit Blades**  
**can be upgraded**  
**'on demand'**  
**up to 60W per port**  
**for IP convergence**

High Performance   High Reliability   High Density

# M6100 Series Options



		FRONT		REAR	SIZE		
Model name	Form-Factor	I/O Slots	PSU Bay	Fan Tray	Height	Depth	Model number
M6100-3S	Chassis	3 open line-card slots	4 power supply slots (N+1) 8 with additional 1U shelf	Front to back EPS connectors	4U height 7 in (17.78 cm)	17.39 in (44.16 cm)	XCM8903

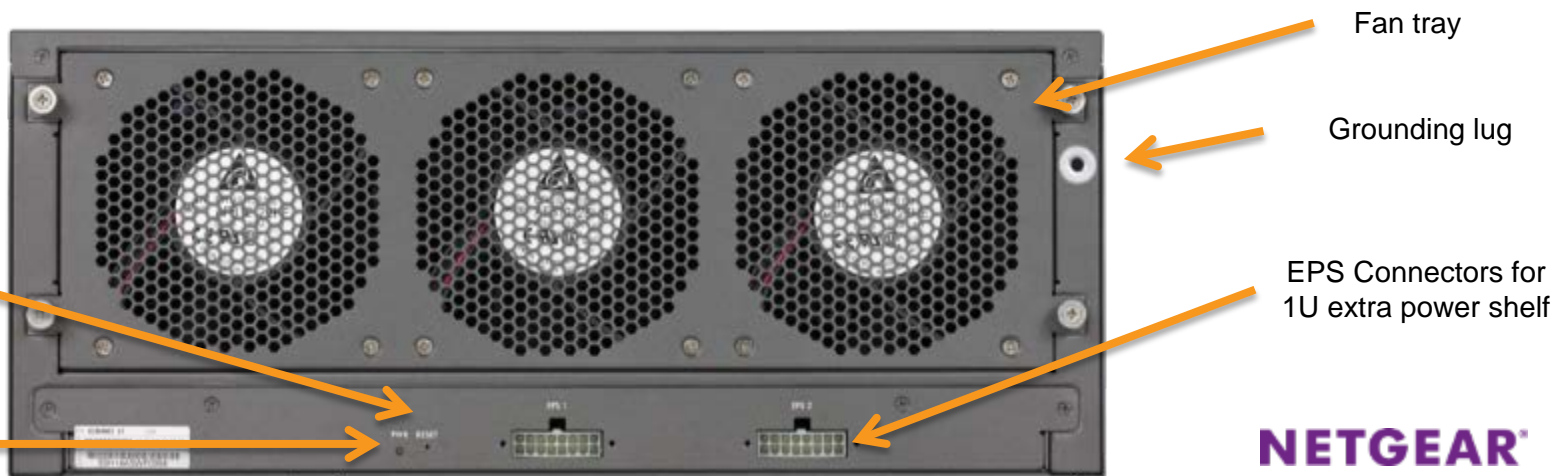
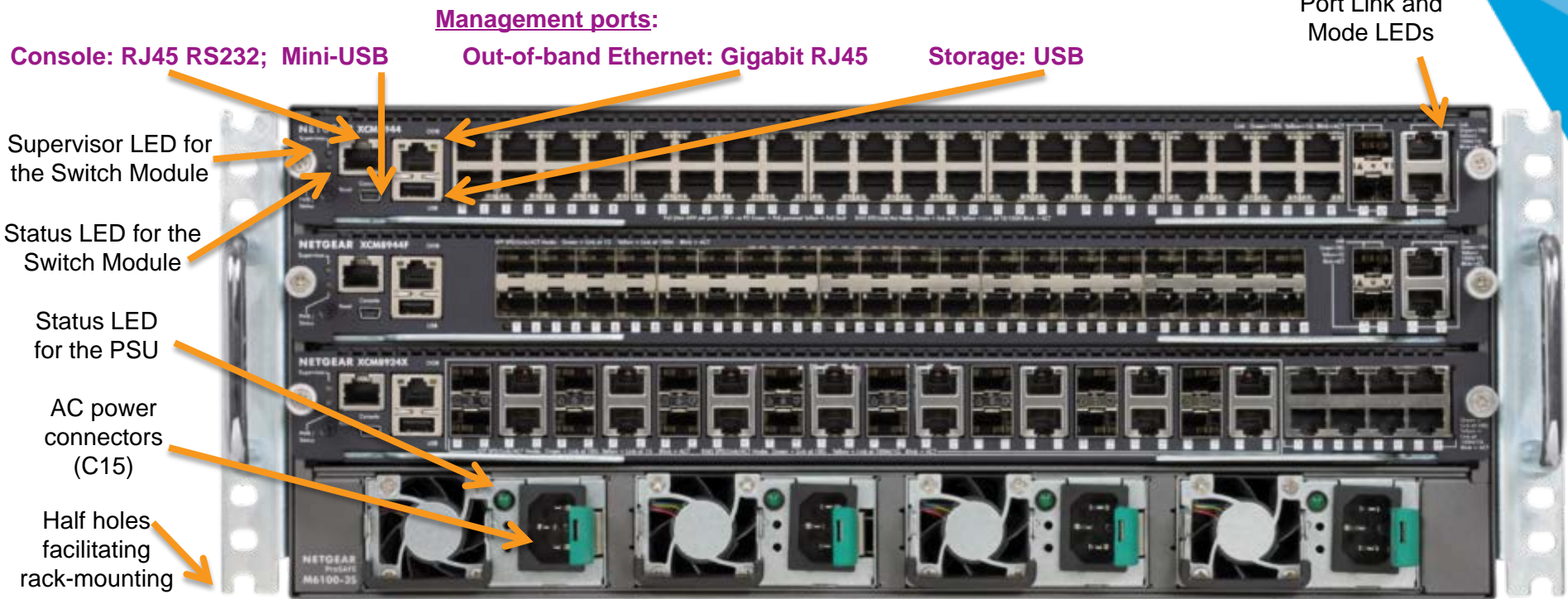
## LINE-CARDS

Model name	Form-Factor	10/ 100/ 1000BASE-T RJ45 ports	100/ 1000BASE-X Fiber SFP ports	100/ 1000/ 10GBASE-T RJ45 ports	1000BASE-X/ 10GBASE-X Fiber SFP+ ports	Model number
XCM8948	I/O Blade	48	-	-	-	XCM8948
XCM8944	I/O Blade	40	-	2	2 (independent)	XCM8944
XCM8944F	I/O Blade	-	40	2	2 (independent)	XCM8944F
XCM8924X	I/O Blade	-	-	24	16 (shared )	XCM8924X


## ACCESSORIES

Model name	Form-Factor	Notes	Model number
XCM89P	Daughter Card	Add PoE+ 802.3at functionality to XCM8948 and XCM8944 blades (1 card per blade)	XCM89P
XCM89UP	Daughter Card	Add UPOE functionality to XCM8948 and XCM8944 blades (1 card per blade)	XCM89UP
APS1000W	Power Supply	PSU 1,000W AC	APS1000W
AFT603	Fan Tray	Fan Tray for M6100-3S chassis (front-to-back cooling principle)	AFT603
RPS4000v2	External PSU Bay	Additional 1U power shelf (EPS unit with four open power supply slots)	RPS4000v2

# M6100-3S Switch



# M6100 Series I/O Blades



**+ XCM8944** 40-port 1G RJ45  
PoE+ and UPOE as an option

2-port 10GBASE-X SFP+ (independent) (Compatible with 1G)


2-port 10GBASE-T RJ45 (independent)

The image shows the NETGEAR XCM8944 I/O blade. It features a front panel with a power button on the left, a console port, and a USB port. The main section contains 40 RJ45 ports arranged in two rows of 20. On the right side, there are two SFP+ ports and two RJ45 ports. Orange arrows point from the text labels to the corresponding ports on the blade.



**+ XCM8948** 48-port 1G RJ45  
PoE+ and UPOE as an option

The image shows the NETGEAR XCM8948 I/O blade. It features a front panel with a power button on the left, a console port, and a USB port. The main section contains 48 RJ45 ports arranged in two rows of 24.



**+ XCM8944F** 40-port 1G SFP

2-port 10GBASE-X SFP+ (independent) (Compatible with 1G)

2-port 10GBASE-T RJ45 (independent)

The image shows the NETGEAR XCM8944F I/O blade. It features a front panel with a power button on the left, a console port, and a USB port. The main section contains 40 SFP ports arranged in two rows of 20. On the right side, there are two SFP+ ports and two RJ45 ports. Orange arrows point from the text labels to the corresponding ports on the blade.



**+ XCM8924X** 16-port Combo 10GBASE-T RJ45 and 10GBASE-X SFP+

8-port 10GBASE-T RJ45 (independent)

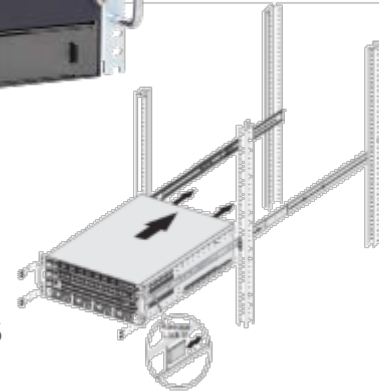
**NETGEAR**

The image shows the NETGEAR XCM8924X I/O blade. It features a front panel with a power button on the left, a console port, and a USB port. The main section contains 16 Combo ports (RJ45 and SFP+) arranged in two rows of 8. On the right side, there are 8 RJ45 ports. Orange arrows point from the text labels to the corresponding ports on the blade. The NETGEAR logo is visible in the bottom right corner.

# M6100-44G3-POE+ Starter Kit

## + M6100-3S Base chassis (XCM8903)

- 1 blade 40x1G + 4x10G (XCM8944)
- 1 PoE+ daughter card (XCM89P)
- 1 power supply unit (APS1000W)
- 1 fan tray front to back (AFT603)
- 2 blank panels for open blade slots
- 3 blank panels for empty PSU slots
- Handles for rack-mount kit
- Rack-mount kit for 2-post racks + Sliding rails kit for 4-post racks
- **Ordering SKU: XCM8903SK-1000S**



### + Note:

- + The M6100-3S base chassis is not orderable as a separate SKU. The starter kit is not pre-assembled:
- + Starter kit components ship in their individual packaging. Shipping master carton arrives on a pallet.

# ProSAFE M6100 Chassis Series

*Best in class capabilities*

The ProSAFE M6100 switch series is a **high-quality, high-density** chassis alternative to stackable switches for **midsize enterprise edge** and **SMB core** deployments



Distributed Fabric

UPOE / POE+ / POE

Software and Performance Highlights

Investment Protection



**NETGEAR**



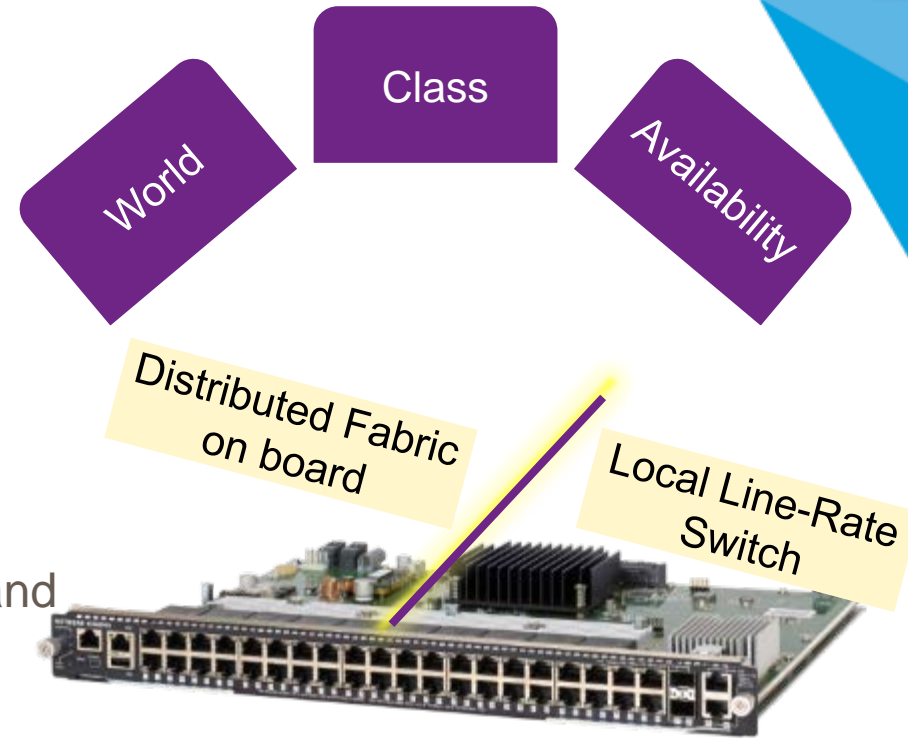
# Distributed Fabric

## + Innovative design

- Removes the need for a dedicated “supervisory” module and its backup
- Provides **passive backplane**, redundant fabric and redundant management
- Non-stop forwarding / routing resiliency and hitless failover

## + Any blade can be Supervisor

- I/O blades are equipped with dedicated hardware and software distributed fabric

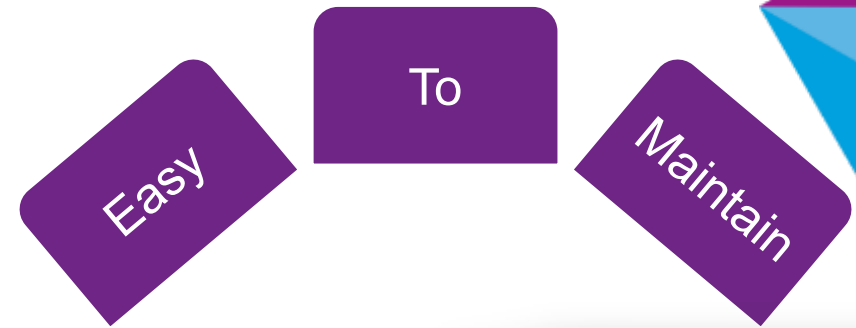


- ✓ **Simplicity for management and maintenance or upgrades**
- ✓ **More availability and resiliency than any competitive solution in adjacent price range**

**M6100-3S base chassis features a passive backplane for exceptional availability:**  
387 years MTBF when at 25°C / 77°F ambient (90 years at 55°C / 131°F ambient)

**NETGEAR**

# Distributed Fabric

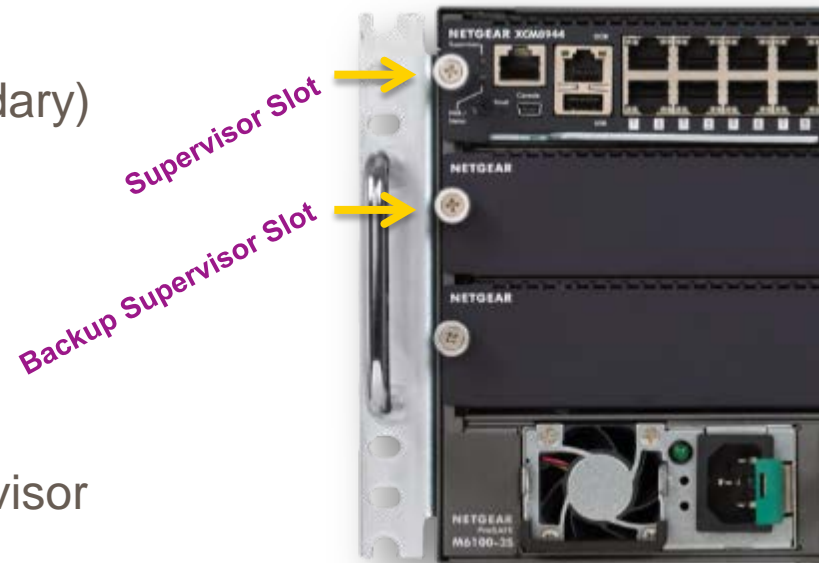


## + No fastidious configuration

- Slot-1 is the Supervisor slot
- Slot-2 is the Back-up Supervisor slot (secondary)
- Back-up Supervisor slot provides default **continuous stand-by** within the distributed fabric

## + Hitless failover

- Should Slot-1 fail, the Back-up Supervisor in Slot-2 instantly takes over as the new Supervisor



- ✓ NSF feature offers hitless failover for Slot-2 and Slot-3 switching and routing
- ✓ Fail back requires manual command for more control
- ✓ Ensures non-stop switching/routing and hitless fail back mechanism as well

# M6100 Series Power Over Ethernet

+ Turn PoE on, when needed; easy upgrade, easy downgrade

## PoE Daughter Cards

**XCM89P**

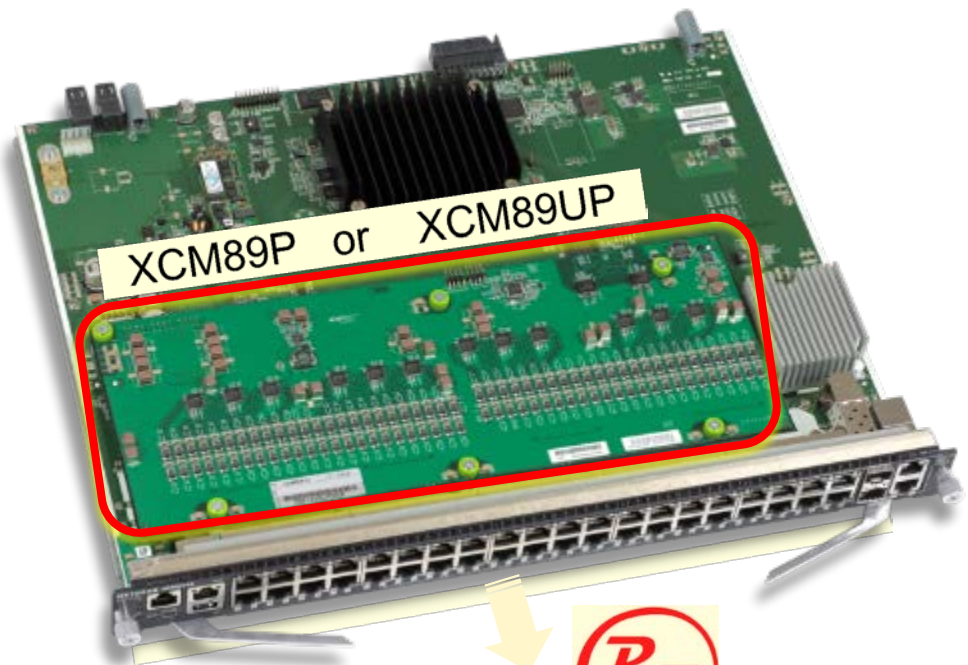
Supports PoE (802.3af) and PoE+ (802.3at)

**XCM89UP**

Supports PoE (802.3af), PoE+ (802.3at) and the non-standard UPOE (Universal Power over Ethernet)



XCM8944 and XCM8948  
Gigabit Copper Blades



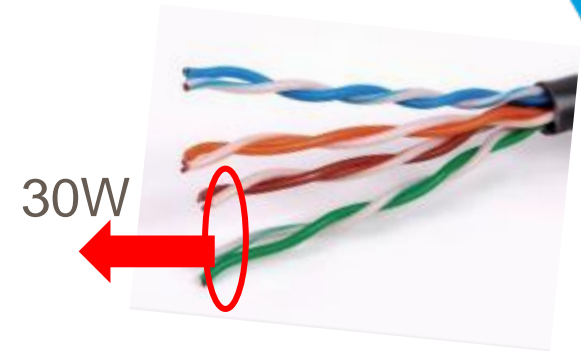
**NETGEAR**

# M6100 Series Power Over Ethernet

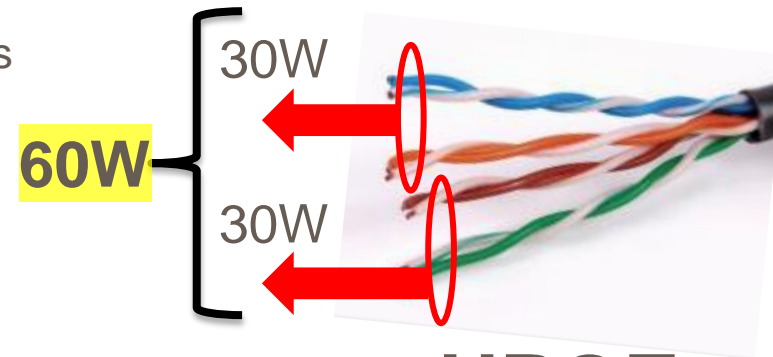
## *UPOE Capable*

### + What is UPOE?

- UPOE (Universal Power over Ethernet) – brought to market by Cisco®; not IEEE standard yet
- Provisions any PSE wattage up to 60W per port, when PoE+ is limited to 30W PSE
- Auto-backward compatible with standard 802.3af and 802.3at
- UPOE physical and LLDP specifications were opened to third-parties for interoperability via UPOE LLDP 802.3 organizationally specific TLV
- M6100 supports next-generation UPOE PD devices using UPOE LLDP TLV
- M6100 also supports static configuration for UPOE interoperability called forced 4-pair method
- M6100 doesn't support Cisco® CDP power negotiation mechanisms and algorithms for inline power negotiation with UPOE PD devices



**PoE+**



**UPOE**

# M6100 Series Power Over Ethernet

## PoE Budgets

PoE budget is remaining difference between Power Supplies delivered Wattage, and Blades consumption

Total Wattage	110V AC		220V AC		
	Number of PSUs	N	N+1	N	N+1
1		640 W	-	910 W	-
2		1,120 W	640 W	1,540 W	910 W
3		1,680 W	1,120 W	2,310 W	1,540 W
4		2,240 W	1,680 W	3,080 W	2,310 W
5		2,800 W	2,240 W	3,850 W	3,080 W
6		3,360 W	2,800 W	4,620 W	3,850 W
7		3,920 W	3,360 W	5,390 W	4,620 W
8		4,480 W	3,920 W	6,160 W	5,390 W

Blades consumption			Max. internal consumption
Blade			
<b>XCM8948</b>	48 x 1G		60 W
<b>XCM8944</b>	40 x 1G + 4 x 10G		70 W
<b>XCM8944F</b>	40 x SFP + 4 x 10G		150 W
<b>XCM8924X</b>	24 x 10G		200 W

**Tip: M6100 Expert Configurator tool provides granular PSE calcs and detailed PD requirements**

- ✓ At 110V AC, max PoE budget is 2,170W with internal PSUs (4,400W with additional 1U power shelf)
- ✓ At 220V AC, max PoE budget is 3,000W with internal PSUs (6,000W with additional 1U power shelf)
- ✓ At 220V AC, 144 ports can deliver each 30W full PoE+ power (100 ports can deliver 60W full UPOE power)

# M6100 Software Highlights



## LAYER 3 PACKAGE

Model Name	Management	IPv4 / IPv6 ACL and QoS, DiffServ	IPv4 / IPv6 Multicast Filtering	IPv4 / IPv6 Policing and Convergence	Model number
<b>M6100-3S</b>	Out-of-band; In-band Web GUI; HTTPs CLI; Telnet; SSH  SNMP, MIBs RSPAN	Ingress/egress  1 Kbps shaping Time-based  Single Rate Policing	IGMPv3 MLDv2 Snooping and Querier  Control Packet Flooding	Auto-VoIP Auto-iSCSI  Policy-based routing (PBR)  LLDP-MED	<b>XCM8903</b>
	<b>Spanning Tree Green Ethernet</b>	<b>VLANs</b>	<b>Trunking Port Channel</b>	<b>IPv4 / IPv6 Authentication Security</b>	
	STP, MTP, RSTP  PV(R)STP* (eq. PVST+)	Static, Dynamic, Voice, MAC  GVRP/GMRP	Distributed LAG across all I/O slots  MLAG across two chassis switches (Supervisor blades only)	Successive Tiering (DOT1X → MAB → Captive Portal)  DHCP Snooping  IP Source Guard	
	BPDU/STRG Root Guard  EEE (802.3az)	QinQ,  Private VLANs			
	<b>IPv4 / IPv6 Static Routing</b>	<b>IPv4 / IPv6 Dynamic Routing</b>	<b>Datacenter Features*</b>		
	Port, Subnet, VLAN routing, DHCP Relay;  Multicast static routes;  Stateful DHCPv6 Server	IPv4: RIP, VRRP  IPv4/IPv6: Enhanced OSPF, BGP*, Proxy ARP, PIM-SM PIM-DM, 6-to-4 tunnels	DCBX (802.1Qaz) Priority Flow Control (PFC) Enhanced Transmission Selection (ETS) FCoE FIP Snooping		

\* CLI only

# M6100 Performance Highlights

TABLE SIZE					
Model Name	Passive Backplane	Fabric Speed	Routing / Switching Capacity	Throughput	Model number
<b>M6100-3S</b>	Each Slot provides 2 x 40G access to the backplane	480 Gbps Inter-Module	1.4 Tbps Intra-Module	357 Mpps Inter-Module	<b>XCM8903</b>
	80G half-duplex 160G full-duplex per slot	Distributed Fabric	Each Line-Card provides local line-rate capacity	1,071 Mpps Intra-Module	
	<b>High Availability</b>	<b>Packet Buffer CPU Latency</b>	<b>MAC; ARP/NDP VLANs ; DHCP</b>	<b>Application Route Scaling</b>	
	Dual Supervisory Modules	1G / 10G Blades: 32Mb / 72Mb Packet Buffer	32K MAC 8K ARP/NDP ARP: 1.2kpps	Static: 512 RIP: 512	
	Fabric and Management Nonstop Forwarding Failover (NSF)	CPU 800 Mhz 1GB RAM 64MB Flash	4K VLANs	OSPF and BGP: 12,000 routes	
		Latency 3.7µs 10G RJ45 1.5µs 10G SFP+	DHCP: 4K leases in 256 pools		
<b>Multicast IGMP Group membership</b>	<b>IP Multicast Forwarding Entries</b>	<b>sFlow</b>			
2K IPv4 2K IPv6	1.5K IPv4 512 IPv6	32 samplers ; 52 pollers 8 receivers			

*Each Line Card provides local line-rate switching and routing capacity.*

# M6100 Proof of Concept



The screenshot shows the Miercom website interface. At the top, there is a navigation bar with links for HOME, TESTING, CONSULTING, VENDOR REPORTS, and CONTACT US. A search bar is located on the right. The Miercom logo is prominently displayed in the center. Below the logo, there are links for Certifications, Featured, Latest Reports, News, Reviews, and Videos. The main content area features a large image of a Netgear M6100 Series Switch with a blue diagonal banner that reads "Latest Report". To the right of the image, there is a text box with the following content:

Certifications, Featured, Latest Reports, Performance Verified

**Netgear M6100 Series Switch**

The Netgear M6100 Series Switch superior performance is demonstrated by its high reliability during testing. The M6100 is vital in helping organizations to consolidate their switch infrastructure from the access layer to the core of

Below the main article, there is a "Next in Test" section with a small image of a switch. On the right side of the page, there is a sidebar with tabs for FEATURED, TAG CLOUD, and POPULAR. The FEATURED tab is active, showing a list of featured articles:

- Netgear M6100 Series Switch
- Catalyst 4500E Supervisor Engine 8-E
- Miercom Industry Assessments 2015
- Adtran NetVanta 5660
- Cisco Catalyst 4500E switch
- Cisco Aironet 1570 Series
- Cisco Aironet 2702i

M6100 Test Report available on <http://www.netgear.com/m6100> and <http://www.miercom.com/>



The ProSAFE M6100 switch series is a **high-quality, high-density** chassis alternative to stackable switches for **midsize enterprise edge** and **SMB core** deployments



<http://www.miercom.com/>

## i. Executive Summary

Miercom was engaged by NETGEAR to independently assess the performance and key features of its latest switching system, the M6100 chassis (XCM8903), containing three of the vendor's high-capacity switching blades. The system was shipped to and tested at Miercom's main New Jersey test lab in the fall of 2014.

The switching blades deliver a high density of 1- and 10-GE ports. The testing focused on the ability of the system to handle high data volumes with minimal loss and low latency. Key high availability features of the multi-slot system were also exercised and assessed.

Each blade was first tested on its own – that is, throughput and latency was measured between on-board ports. Then traffic was passed between switching blades, across the chassis backplane. The system features a passive backplane and distributed switching fabric.

### Key Findings and Observations

- **Wire-speed.** In all cases tested, L2 and L3 traffic between ports on the same switching blade is supported at wire-speed. Likewise, traffic between blades across the chassis switching fabric occurred at wire-speed for all the scenarios tested.
- **Low latency.** Traffic between ports on the same blade experiences impressively low latency. Traffic across the chassis backplane exhibits slightly higher latency, as expected. All tested scenarios tested yielded average latency within normal limits.
- **High availability.** Several scenarios were tested, all showing that the NETGEAR M6100 was designed well to provide high reliability and continued availability. A hot blade-swap showed no impact on active traffic when an adjoining blade was removed and replaced. A redundant-power-supply failure produced no impact on any active data flows. Also, failure of an active link in a Link Aggregation Group (LAG) yielded minimal loss of data as traffic is rerouted to the surviving link.

With results in all tested areas – throughput, latency, survivability – demonstrating superior performance, Miercom is proud to award its Performance Verified certification to NETGEAR for the M6100 Chassis with assorted high-density switching blades.

Robert Smithers  
CEO  
Miercom



# Investment Protection

## + No Fixed Platform

- Cost-effective 1G edge / access switch
- Flexible 1G / 10G distribution switch
- Scalable 10G core switch
- Engineered for evolution and growth

## Multi-Role Platform

## Distributed Fabric

## + No Fixed Supervisors

- Any blade can handle that role
- No spare inventory to maintain
- Blades can be always re-used
- Maintenance, upgrades and expansion are facilitated

## Versatile PoE

## + No Fixed PoE Blades

- Any blade can be upgraded and downgraded
- Easy upgrade path to future-proof UPOE
- Blades can always be re-used with or without PoE if the application has changed

# Agenda

**Understanding the market opportunity**

**NETGEAR M6100 overview**

**How & where to position NETGEAR M6100**

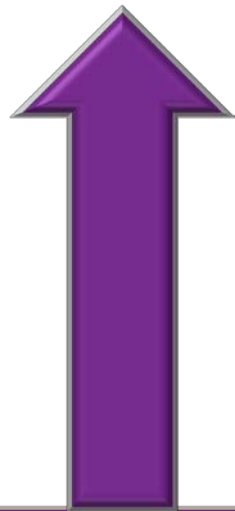
**Selling against the competition**

**Marketing and technical resources**

# NETGEAR Switch Positioning

## *Smart Switches*

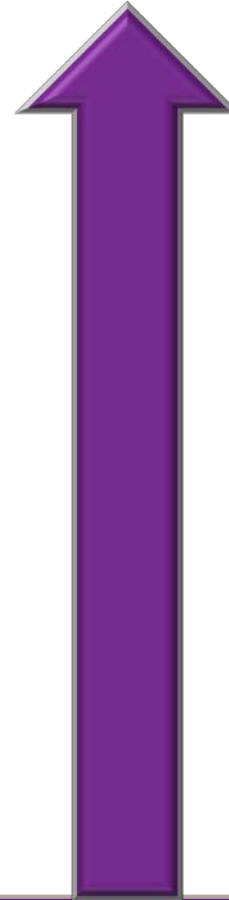
### Perfect fit for SMB networks



+ 250-user or less networks

- Rackmount and Desktop
- Web Management only
- PoE/ PoE+ options
- Basic QoS, VLAN, Multicast, Bandwidth management
- Basic L3 Static Routing (no resiliency, no load-balancing)
- LIFETIME Warranty
- LIFETIME NBD / Technical Chat

**Standalone Smart**



+ 250-user or less networks

- S3300 series
- True Stacking technology
- 4 x 10G Ports Uplinks / Stacking
- Distributed link aggregation across the stack
- Master redundancy (with couple downtime since the stack has to reboot )
- Rackmount
- Web Management only
- PoE+ options
- Basic QoS, VLAN, Multicast, Bandwidth management
- Basic L3 Static Routing (no resiliency, no load-balancing)
- LIFETIME Warranty
- LIFETIME NBD / Technical Chat

**Stackable Smart**

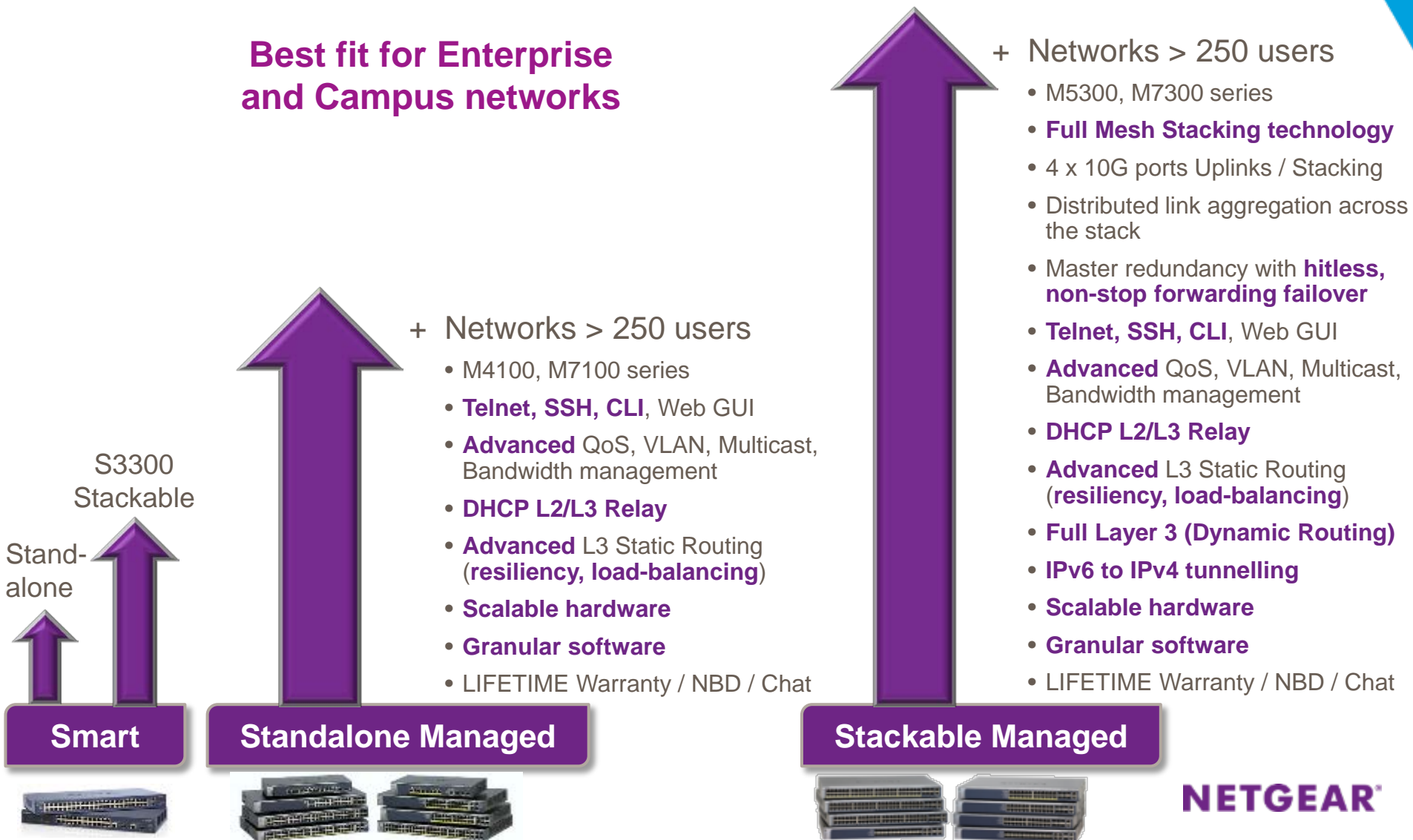


**NETGEAR**

# NETGEAR Switch Positioning

## *Managed Switches*

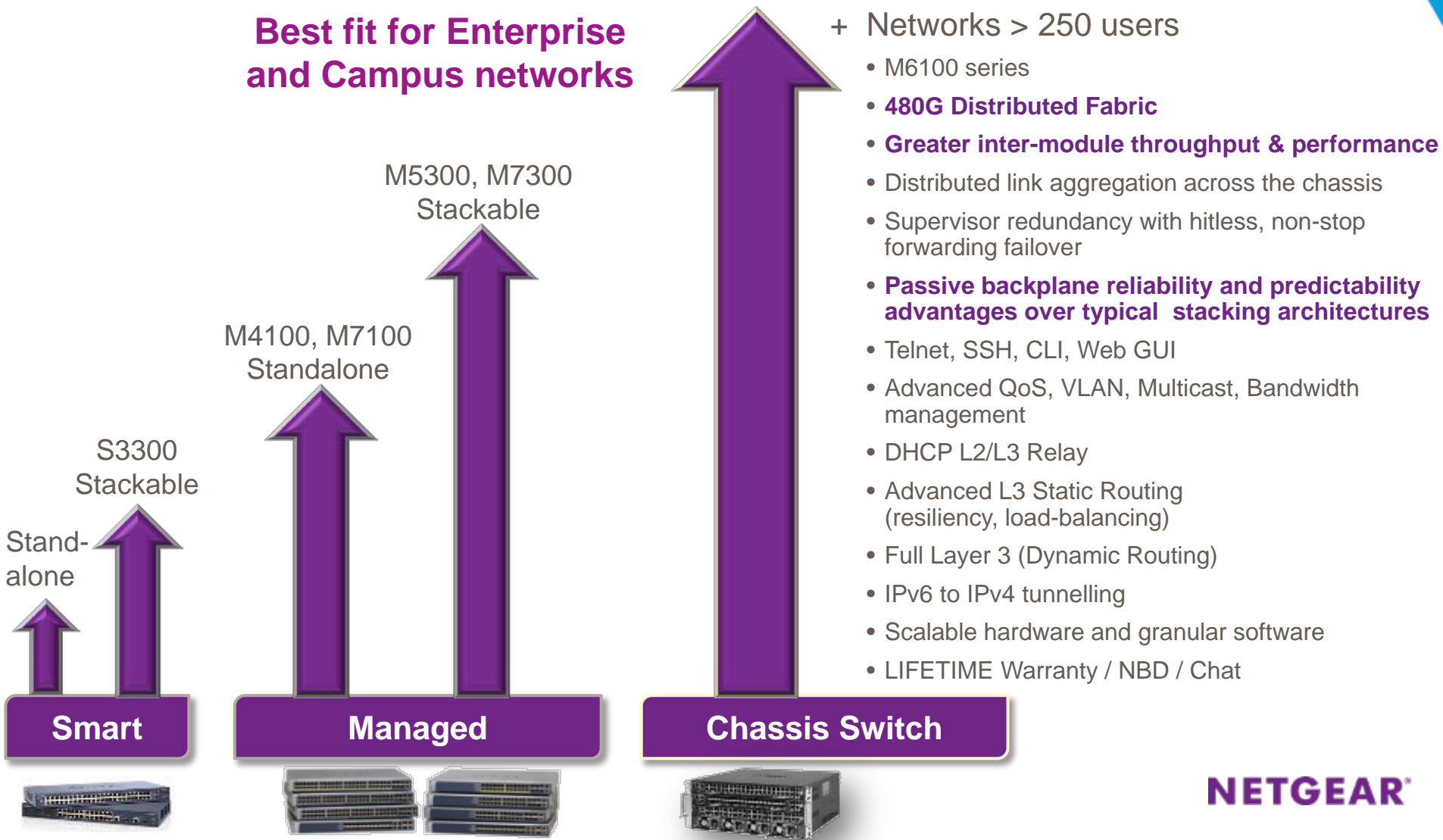
**Best fit for Enterprise and Campus networks**



# NETGEAR Switch Positioning

## Chassis Switching

**Best fit for Enterprise and Campus networks**



# Chassis Benefits Over Stacking

## Performance

### + High Speed Fabric

- 4 times interconnect speed
- 1G blades line-rate to the fabric
- 10G blades 3:1 oversubscription
- Equivalent stacking topology would involve 8 x 10G stacking ports for each switch

### + Modular and Redundant

- Everlasting passive backplane
- Highly reliable fabric-based design
- Control and management planes failover
- Centralized Power Management & N+1 PSUs

## Availability

## Predictability

### + Stable Behaviour, Including Failover

- Supervisor handles control and management
- Secondary supervisor stand-by mode
- Hitless failover can be anticipated
- Hitless failback on demand

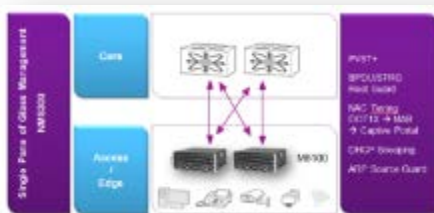
# M6100 Chassis Series Positioning

## + Multifunctional E-S-C platform

### Edge

Small & Medium Enterprise

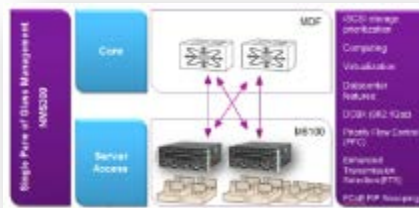
- Ideal as Edge device for GbE user connectivity with 10GbE uplinks to the core
- Compatible with PVST+
- Spanning Tree Root Guard
- NAC Tiering (DOT1X → MAB → Captive Portal)
- DHCP Snooping
- ARP Source Guard



### Servers

1G & 10G Aggregation

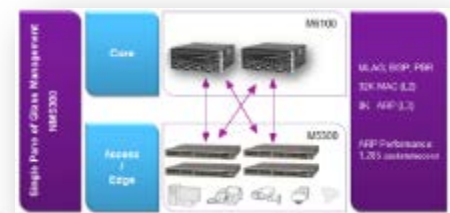
- iSCSI storage prioritization
- Computing
- Virtualization
- Datacenter feature set
- DCBX (802.1Qaz)
- Priority Flow Control (PFC)
- Enhanced Transmission Selection (ETS)
- FCoE FIP Snooping



### Core

Small & Medium Business

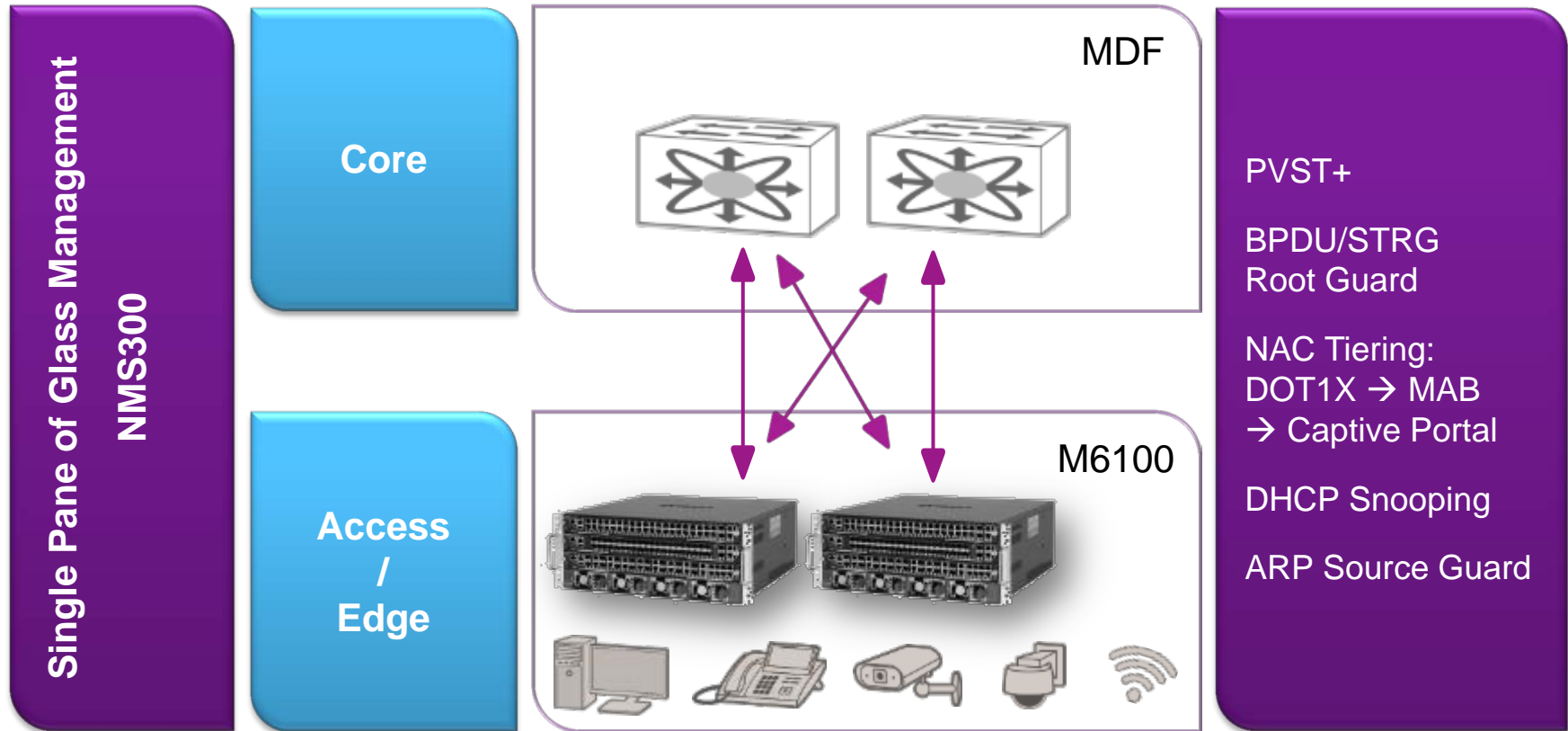
- Networks of up to 2K users
- Ideal for deploying with:
- M5300 Switch Series (10GbE uplinks)
- M4100 Switch Series (1GbE uplinks)
- for edge access





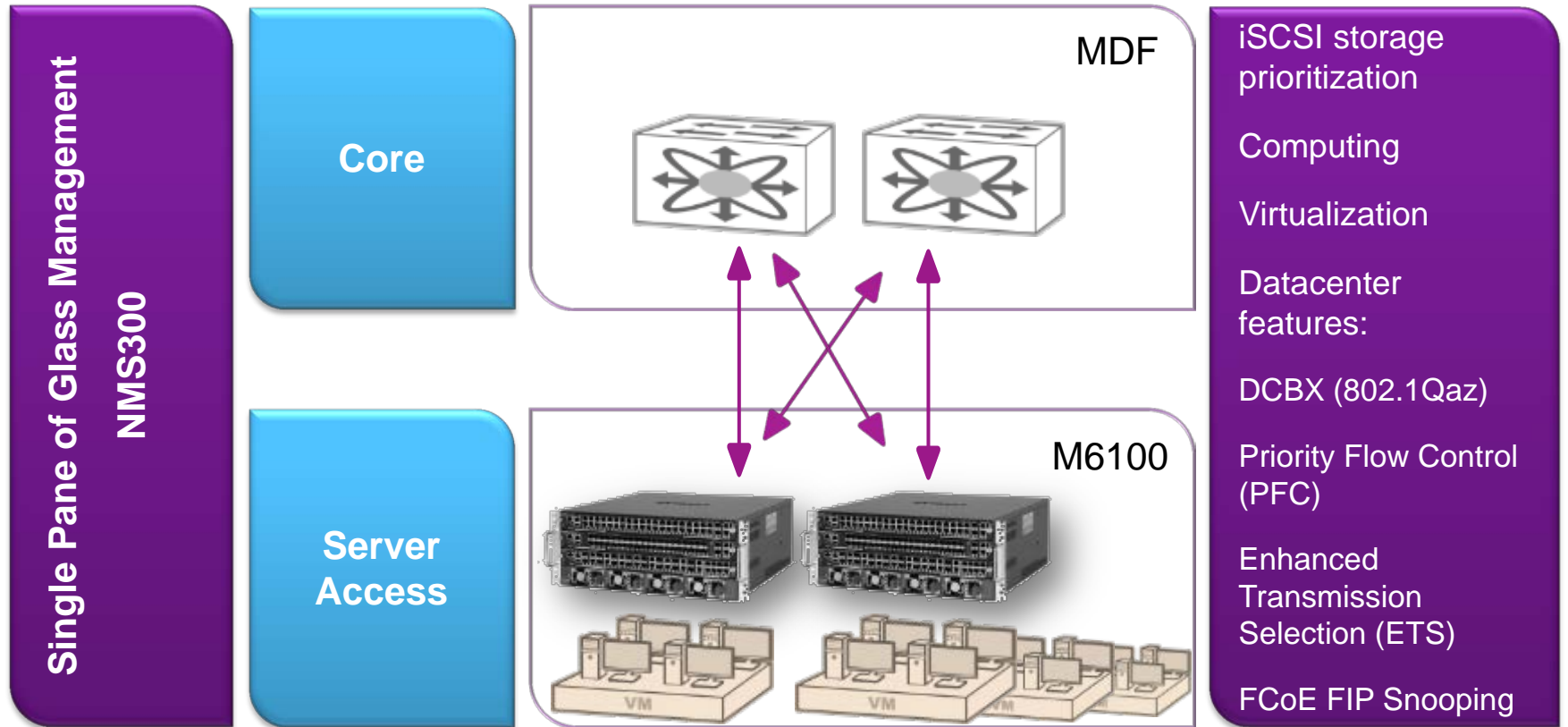
# M6100 Switch – Enterprise Access Switch

Ideal for Medium and Large Enterprise LANs



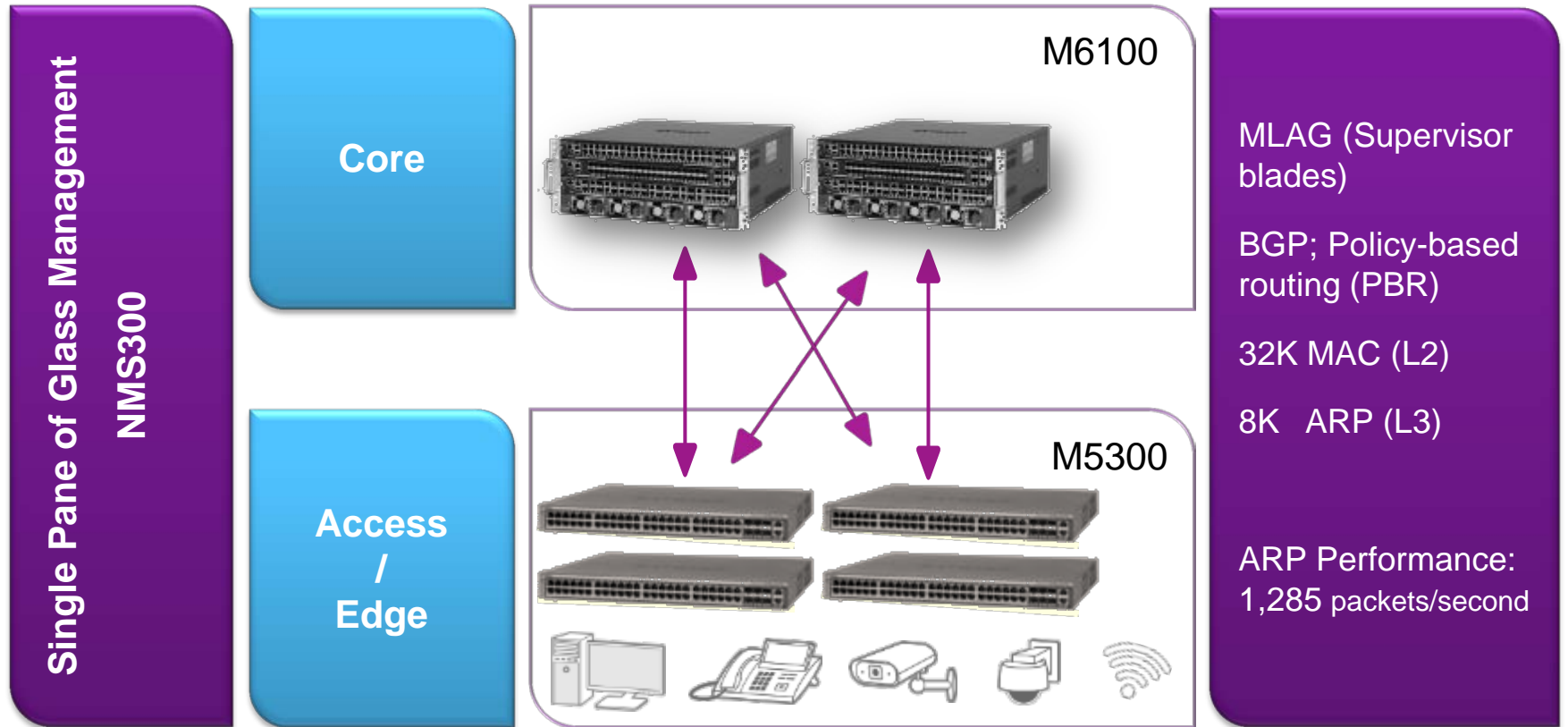
# M6100 Switch – Server Farm Switch

## Ideal for Servers and Storage Computing






# M6100 Switch – SMB Core Switch

## Ideal for Small Medium Business LANs



# M6100 Sizing / Placement scenarios

Organization / Application	250 – 499 Users	500 – 1,999 Users	2,000 – 3,999 Users	4,000 + Users	M6100 When
<b>Core Layer</b> (Central part of the network)	★★★★	★★★★	★★	★	≥ 2K users
<b>Distribution Layer</b> (Aggregation of edge traffic)	★★★★	★★★★	★★★	★★	≥ 4K users
<b>Access Layer</b> (Edge of the network)	★★★★	★★★★	★★★★	★★★★	Anytime
<b>Server Room, Data Center</b> (Server access layer)	★★★★	★★★★	★★★	★★	≥ 4K users
<b>M6100 Proficient For</b>	All-in-One Platform	Core; Distribution; Server Room; Edge	Distribution; Server Room; Edge	Edge	  

# Making the right choices

+ Systematically use M6100 “Basic” or “Expert” Configurator



+ Recommend Remote or Onsite Installation Pack

PSB0304-10000S	Remote – Installation Setup and Configuration
----------------	---

PSP1104-10000S	Onsite – Installation Setup and Configuration
----------------	---

+ If Customer requires Advanced Phone Support instead of chat

PMB0334-10000S	ProSupport Service – OnCall 24x7 Cat4 3 Years
----------------	---

PMB0354-10000S	ProSupport Service – OnCall 24x7 Cat4 5 Years
----------------	---

# Making the right choices



+ M6100 only supports NETGEAR SFP and SFP+ transceivers

Model	Type	Description	SFP ports	SFP+ ports
AFM735	100BASE-FX	NETGEAR SFP Multimode LC Transceiver	Yes	No
AGM731F	1000BASE-SX	NETGEAR SFP Multimode LC Transceiver	Yes	Yes
AGM732F	1000BASE-LX	NETGEAR SFP Single-mode LC Transceiver	Yes	Yes
AXM761	10GBASE-SR	NETGEAR SFP+ Multimode LC Transceiver (10-pack available)	No	Yes
AXM762	10GBASE-LR	NETGEAR SFP+ Single-mode LC Transceiver (10-pack available)	No	Yes
AXM763	10GBASE-LRM	NETGEAR SFP+ Multimode LC Transceiver	No	Yes
AXC761	Direct-Attach	NETGEAR 1M SFP+ to SFP+ DAC Cable	No	Yes
AXC763	Direct-Attach	NETGEAR 3M SFP+ to SFP+ DAC Cable	No	Yes

```
(M6100) #show port 0/24|
```

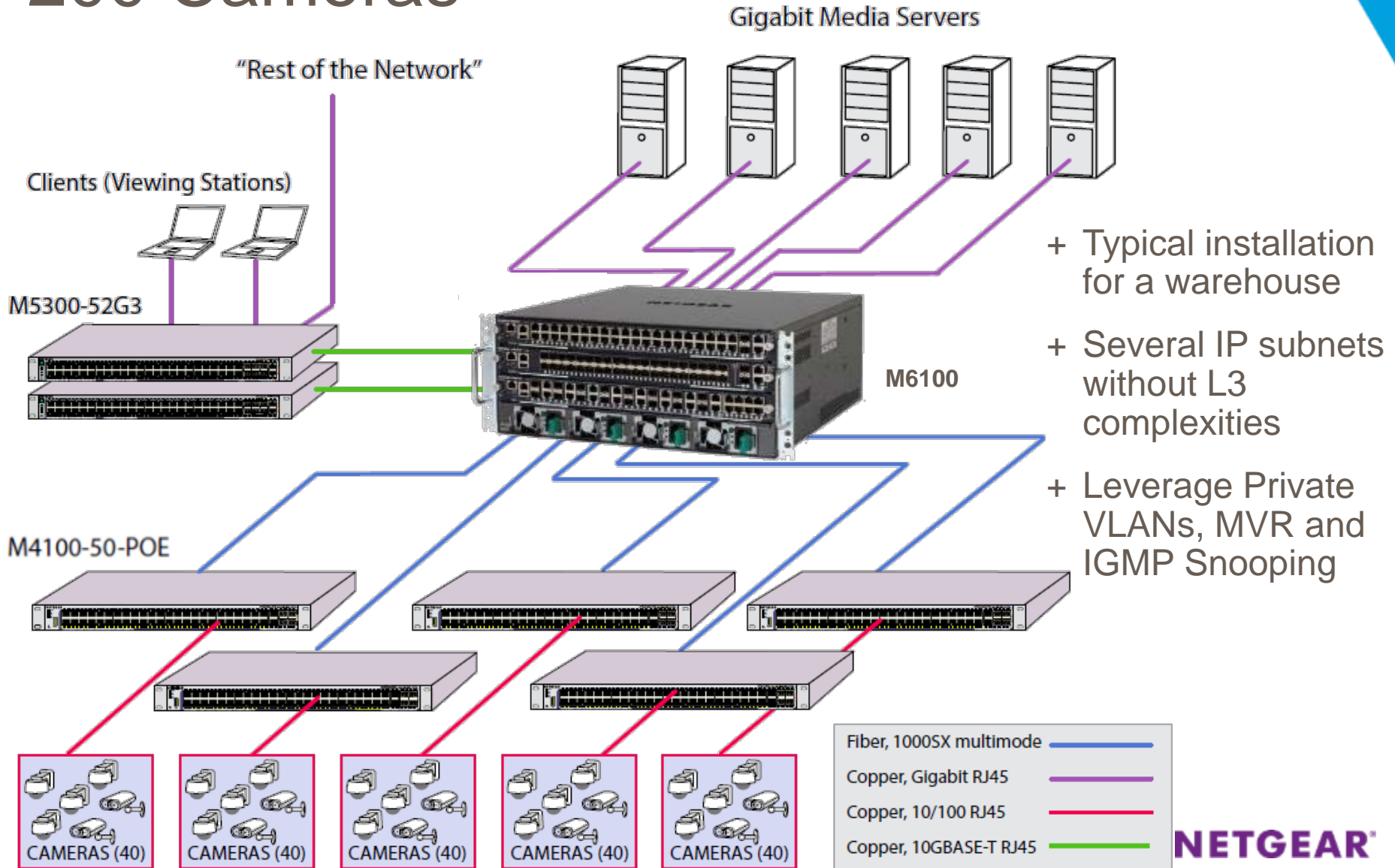
Intf	Type	Admin Mode	Admin Status	Physical Mode	Physical Status	Link Status	Link Trap	LACP Mode	Flow Mode
1/0/1		Enable	Normal	Auto		Down	Enable	Enable	Disable
1/0/2		Disable		Auto		Down	Enable	Enable	Disable
1/0/3		D-Disable	XCEIVER	Auto		Down	Enable	Enable	Disable

See exceptions on M6100 F.A.Q:

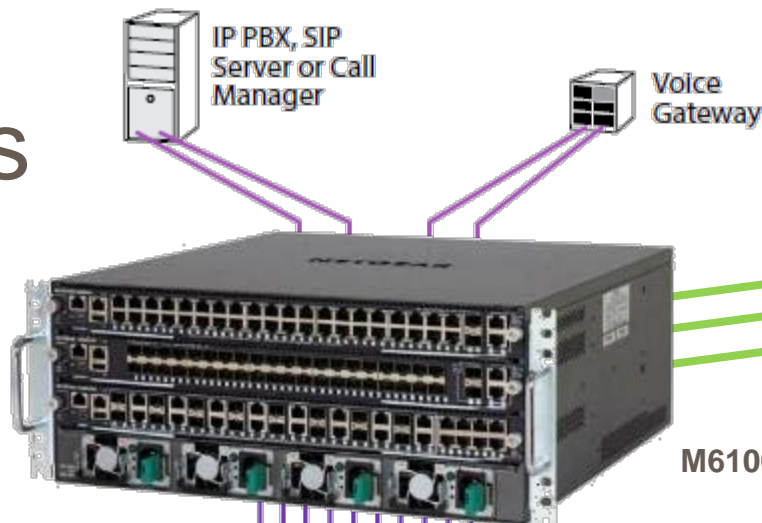
- Third-party DACs
- Third-party Transceivers

+ Made in Taiwan, M6100 is compliant with Trade Agreements Act (TAA)

# IP Surveillance Solution Example: 200 Cameras

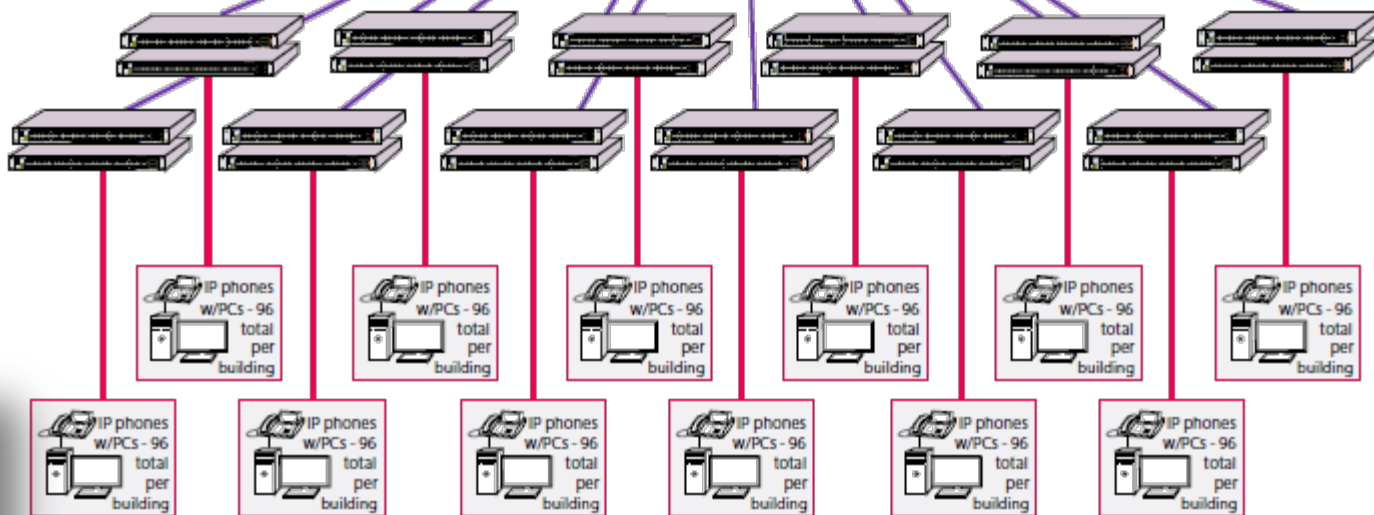


# VoIP Solution: 1,000+ IP Phones



- + Telephone service for 12 separate buildings
- + Each IP phone equipped with a bridge to the user's PC
- + The phones receive their IP, VLAN and QoS configuration from the infrastructure components

M5300-52G-POE+



Fiber, 1000SX multimode	Blue line
Copper, Gigabit RJ45	Purple line
Copper, 10/100/1000 RJ45 PoE	Red line
Copper, 10GBASE-T RJ45	Green line
Fiber, 10GBASE-LR single mode	Dark purple line
Fiber, 10GSFP +CU DAC	Black line



# Agenda

**Understanding the market opportunity**

**NETGEAR M6100 overview**

**How & where to position NETGEAR M6100**

**Selling against the competition**

**Marketing and technical resources**

# A Better Platform Than HP 5400R & 8200zl



	NETGEAR M6100 Switch Series	HP 5400 zl Series	HP 5400R z12 Series	HP 8200 zl Series
--	-----------------------------	-------------------	---------------------	-------------------

<b>Feature Set</b>	IPv4/IPv6 Layer 3	IPv4/IPv6 Layer 3	IPv4/IPv6 Layer 3	IPv4/IPv6 Layer 3
<b>Max 1G Density</b>	144-port (4U)	144-port (4U)	144-port (4U)	144-port (4U)
<b>Max 10G Density</b>	72-port (4U)	48-port (4U)	48-port (4U)	48-port (4U)
<b>Table Size</b>	<b>32K</b> MAC <b>12K</b> IP Routes	<b>64K</b> MAC <b>10K</b> IP Routes	<b>64K</b> MAC <b>10K</b> IP Routes	<b>64K</b> MAC <b>10K</b> IP Routes
<b>Management / Fabric Redundancy</b>	<b>YES / YES</b> (passive backplane)	<b>NO / NO</b>	<b>YES / NO</b> (Active backplane)	<b>YES / YES</b>
<b>Failover Time</b>	<b>Non-Stop Failover</b>	-	Non-Stop (Management only)	<b>Non-Stop Failover</b>
<b>PoE Max Budget</b>	<b>6,000 Watts at 220V</b>	4,500 Watts at 220V	4,500 Watts at 220V	4,500 Watts at 220V
<b>PoE+ / UPOE 60 Watts</b>	<b>YES / YES</b>	<b>YES / NO</b>	<b>YES / NO</b>	<b>YES / NO</b>
<b>Backplane Performance</b>	80Gbps half-duplex (per 48-port slot) 160Gbps full-duplex (per 48-port slot)	64Gbps half-duplex 48p 128Gbps full-duplex 48p	80Gbps half-duplex 48p 160Gbps full-duplex 48p	80Gbps half-duplex 48p 160Gbps full-duplex 48p
<b>MLAG (vPC)</b>	YES (Supervisor blades only)	YES	YES	YES
<b>Layer 2</b>	DCBX 802.1Qaz, PFC, ETS, FIP Snoop	<b>NO</b>	<b>NO</b>	<b>NO</b>
<b>Layer 3</b>	RIP, OSPF, VRRP, BGP, PBR, PIM <b>IPv6 support for OSPF, BGP and PIM</b>	RIP, OSPF, VRRP, BGP, PBR, PIM <b>No IPv6 support for BGP, PIM</b>		

**NETGEAR Differentiation**

*Scalable, future-proof access and distribution layer for converged networks:*

- **Fabric / Management redundancy** below HP non-redundant 5400 zl and management-only 5400R z12 price points
- **50% more 10G ports** for servers aggregation and network distribution
- **50% more PoE power** including flexible UPOE daughter cards

# HP SKU Mapping

## *Chassis & Starter Kits*

SKU	Description	SKU	Description
<b>J9642A</b>	HP 5406 z1 Switch (empty chassis)	<b>XCM8903SK</b>	M6100-44G3-POE+ Starter Kit 40x1G 2xSFP+ 2x10GBT
<b>J9821A</b>	HP 5406R z12 Switch (empty chassis)	<b>XCM8903SK</b>	M6100-44G3-POE+ Starter Kit 40x1G 2xSFP+ 2x10GBT
<b>J9640A</b>	HP 8206 z1 Switch (empty chassis)	<b>XCM8903SK</b>	M6100-44G3-POE+ Starter Kit 40x1G 2xSFP+ 2x10GBT
<b>J9533A</b>	HP 5406-44G-PoE+-2XG v2 z1 Starter Kit	<b>XCM8903SK</b>	M6100-44G3-POE+ Starter Kit 40x1G 2xSFP+ 2x10GBT
<b>J9539A</b>	HP 5406-44G-PoE+-4G-SFP v2 z1 Starter Kit	<b>XCM8903SK</b>	M6100-44G3-POE+ Starter Kit 40x1G 2xSFP+ 2x10GBT
<b>J9866A</b>	HP 5406-8p 10GBT 8p 10GbE SFP+ v2 z1 Starter Kit	<b>XCM8903SK + XCM8924X</b>	M6100-44G3-POE+ Starter Kit 40x1G 2xSFP+ 2x10GBT and one blade 24x10GBT with 16 shared SFP+
<b>J9823A</b>	HP 5406R-44G-PoE+/2SFP+ (No PSU) v2 z12 Starter Kit	<b>XCM8903SK</b>	M6100-44G3-POE+ Starter Kit 40x1G 2xSFP+ 2x10GBT
<b>J9824A</b>	HP 5406R-44G-PoE+/4SFP (No PSU) v2 z12 Starter Kit	<b>XCM8903SK</b>	M6100-44G3-POE+ Starter Kit 40x1G 2xSFP+ 2x10GBT
<b>J9868A</b>	HP 5406R-8XGT/8SFP+ (No PSU) v2 z12 Starter Kit	<b>XCM8903SK+ XCM8924X</b>	M6100-44G3-POE+ Starter Kit 40x1G 2xSFP+ 2x10GBT and one blade 24x10GBT with 16 shared SFP+
<b>J9638A</b>	HP 8206-44G-PoE+-2XG v2 z1 Starter Kit	<b>XCM8903SK</b>	M6100-44G3-POE+ Starter Kit 40x1G 2xSFP+ 2x10GBT

# HP SKU Mapping (Blades)



SKU	Description	SKU	Description
2 x J9534A	HP 24-port Gig-T PoE+ v2 zl Module	<b>XCM8948 + XCM89P</b>	48x1G with PoE+ daughter card
2 x J9535A	HP 20-port Gig-T PoE+ / 4-port SFP v2 zl Module	<b>XCM8944 + XCM89P</b>	40x1G 2xSFP+ 2x10GBT with PoE+ daughter card
2 x J9536A	HP 20-port Gig-T PoE+ / 2-port 10GbE SFP+ v2 zl Module	<b>XCM8944 + XCM89P</b>	40x1G 2xSFP+ 2x10GBT with PoE+ daughter card
2 x J9537A	HP 24-port SFP v2 zl Module	<b>XCM8944F</b>	40xSFP 2xSFP+ 2x10GBT
2 x J9538A	HP 8-port 10GbE SFP+ v2 zl Module	<b>XCM8924X</b>	16xCombo SFP+/10GBT and 8 independent 10GBT
3 x J9546A	HP 8-port 10GBASE-T v2 zl Module	<b>XCM8924X</b>	16xCombo SFP+/10GBT and 8 independent 10GBT
2 x J9547A	HP 24-port 10/100 PoE+ v2 zl Module	<b>XCM8948 + XCM89P</b>	48x1G with PoE+ daughter card
2 x J9548A	HP 20-port Gig-T / 2-port 10GbE SFP+ v2 zl Module	<b>XCM8944</b>	40x1G 2xSFP+ 2x10GBT
2 x J9549A	HP 20-port Gig-T / 4-port SFP v2 zl Module	<b>XCM8944</b>	40x1G 2xSFP+ 2x10GBT
2 x J9550A	HP 24-port Gig-T v2 zl Module	<b>XCM8948</b>	48x1G
4 x J9637A	HP 12-port Gig-T PoE+ / 12-port SFP v2 zl Module	<b>XCM8944F + XCM8948 + XCM89P</b>	40xSFP 2xSFP+ 2x10GBT 48x1G with PoE daughter card
<b>J9306A</b>	HP 5400/8200zl 1500W PoE+ zl Power Supply (900W PoE)	<b>APS1000W</b>	1,000 Watts Power Supply Unit
<b>J8714A</b>	HP 5400/8200zl Power Supply Shelf	<b>RPS4000v2</b>	1U Extra Power Shelf with 4 x PSU slots
<b>J9827A</b>	HP 5400R zl2 Management Module (adding Management only redundancy) (fabric is fixed within active backplane)	<b>No need</b>	Management and Fabric redundancy built-in
<b>J9828A</b>	HP 5400R 700W PoE+ zl2 Power Supply	<b>APS1000W</b>	1,000 Watts Power Supply Unit
<b>J9829A</b>	HP 5400R 1100W PoE+ zl2 Power Supply	<b>APS1000W</b>	1,000 Watts Power Supply Unit
<b>J9830A</b>	HP 5400R 2750W PoE+ zl2 Power Supply	<b>3 x APS1000W</b>	1,000 Watts Power Supply Unit
<b>J9852A</b>	HP X450 4U/7U Univ 4-Post Rack Mnt Kit	<b>No need</b>	4-post sliding rails already in M6100 starter kit

# Comparing with Cisco Catalyst 4500 Series



	NETGEAR M6100 Switch Series	C4503-E with Supervisor 6-LE	C4506-E with Supervisor 7-E	C4507R+E with Supervisor 8-E
<b>Feature Set</b>	IPv4/IPv6 Layer 3	IPv4/IPv6 Layer 3	IPv4/IPv6 Layer 3	IPv4/IPv6 Layer 3
<b>Max 1G Density</b>	144-port (4U)	96-port (7U)	240-port (10U)	240-port (11U)
<b>Max 10G Density</b>	72-port (4U)	32-port (7U)	68-port (10U)	68-port (11U)
<b>Table Size</b>	32K MAC 12K IP Routes	55K MAC 64K IP Routes	55K MAC 256K IP Routes	55K MAC 256K IP Routes
<b>Management / Fabric Redundancy</b>	YES / YES	NO / NO (only 1 supervisor)	NO / NO (only 1 supervisor)	YES / YES
<b>Failover Time</b>	Non-Stop Failover	-	-	Non-Stop Failover
<b>PoE Max Budget</b>	6,000 Watts at 220V	4,500 Watts at 220V	7,500 Watts at 220V	7,500 Watts at 220V
<b>PoE+ / UPOE 60 Watts</b>	YES / YES	YES / YES	YES / YES	YES / YES
<b>Backplane Performance</b>	80Gbps half-duplex 48p 160Gbps full-duplex 48p	24Gbps half-duplex 48p 48Gbps full-duplex 48p	48Gbps half-duplex 48p 96Gbps full-duplex 48p	48Gbps half-duplex 48p 96Gbps full-duplex 48p
<b>MLAG (vPC)</b>	YES (Supervisor blades only)	YES	YES	YES
<b>NETGEAR Differentiation</b>	<p><i>Scalable, future-proof access and distribution layer for converged networks:</i></p> <ul style="list-style-type: none"> <li>• <b>50% more 1G density</b> in a much smaller footprint (only 4U)</li> <li>• <b>More 10G ports</b> for servers aggregation and network distribution</li> <li>• <b>No complex licenses</b> all features are available without any licensing scheme</li> </ul>			

# M6100 Decisive Competitive Advantages

The ProSAFE M6100 switch series is a high-quality, high-density chassis alternative to stackable switches for midsize enterprise edge and SMB core deployments



- **More 10G density**
  - ✓ For server aggregation
  - ✓ For network distribution
- **World-class redundancy**
  - ✓ Passive backplane for everlasting availability
  - ✓ Innovative distributed fabric with NSF failover
- **No hidden costs**
  - ✓ No license for advanced IPv6 routing
  - ✓ No license for datacenter features



# Agenda

**Understanding the market opportunity**

**NETGEAR M6100 overview**

**How & where to position NETGEAR M6100**

**Selling against the competition**

**Marketing and technical resources**

# M6100 Useful Links



- + Technical Documentation: [here](#)
- + M6100 Product Brief: [here](#)
- + M6100 Expert Configurator: [here](#)
- + M6100 Basic Configurator: [here](#)
- + M6100 Excel Datasheet: [here](#)
- + M6100 PDF Datasheet: [here](#)
- + M6100 Brochure: [here](#)
- + HP 5400/8200 Battle Card: [here](#)
- + M6100 Ad/DMR Copy: [here](#)
- + M6100 Positioning Doc: [here](#)
- + M6100 Sell Sheet: [here](#)
- + M6100 Flash Video: [here](#)
- + M6100 Product Page: [here](#)
- + M6100 PSS sheets: [here](#)
- + M6100 Visio shapes: [here](#)
- + M6100 F.A.Q: [here](#)
- + [here](#)
- + [here](#)
- + [here](#)
- + [here](#)
- + [here](#)
- + [here](#)
- + [here](#)
- + [here](#)
- + [here](#)
- + [here](#)





SWITCHES



WIRELESS



STORAGE



SECURITY

## Smarter products for today's business.

Today's business climate consists of real-time communications, cloud-based applications, and a dynamic mobile workforce. Organisations must stay connected to remain one step ahead.

From reliable switches, to secure WiFi, to application aware firewalls, to network storage that continuously protects data, NETGEAR business products are purposely designed to meet the needs of this ever changing environment and keep organisations connected and moving at full speed.

Reliable, affordable and easy to use.