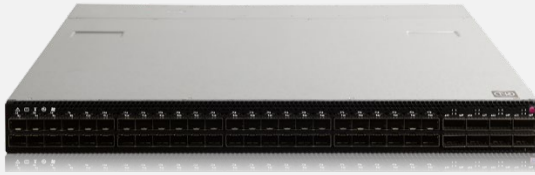# MAESTRO HYPERSCALE ORCHESTRATOR
140 | 175

The Maestro hyperscale network security solution orchestrates multiple Quantum firewalls as one unified system, with seamless and near limitless scaling. Bring scale, agility, and elasticity of the cloud on premises with efficient N+1 clustering based on Check Point HyperSync technology. Maestro Hyperscale Orchestrators distribute internal and external network traffic equally across multiple Quantum firewalls managed as a single group with a common security feature set and policy. With Maestro, businesses of all sizes can have cloud scale and agility with datacenter resiliency — all while maximizing cost efficiency.
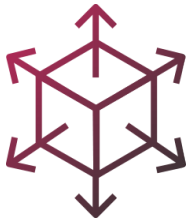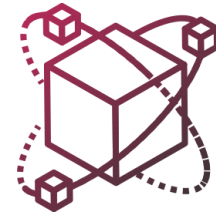
Security at Hyperscale
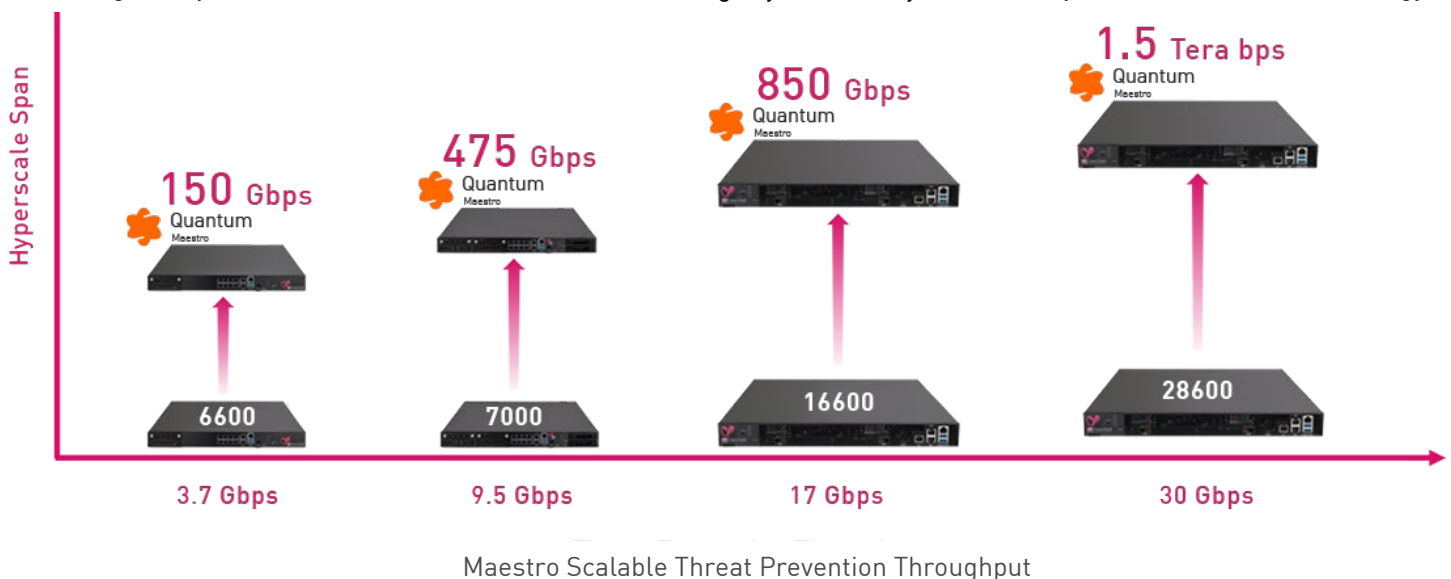On demand expansion available to gateways of all sizes

Operational Supremacy
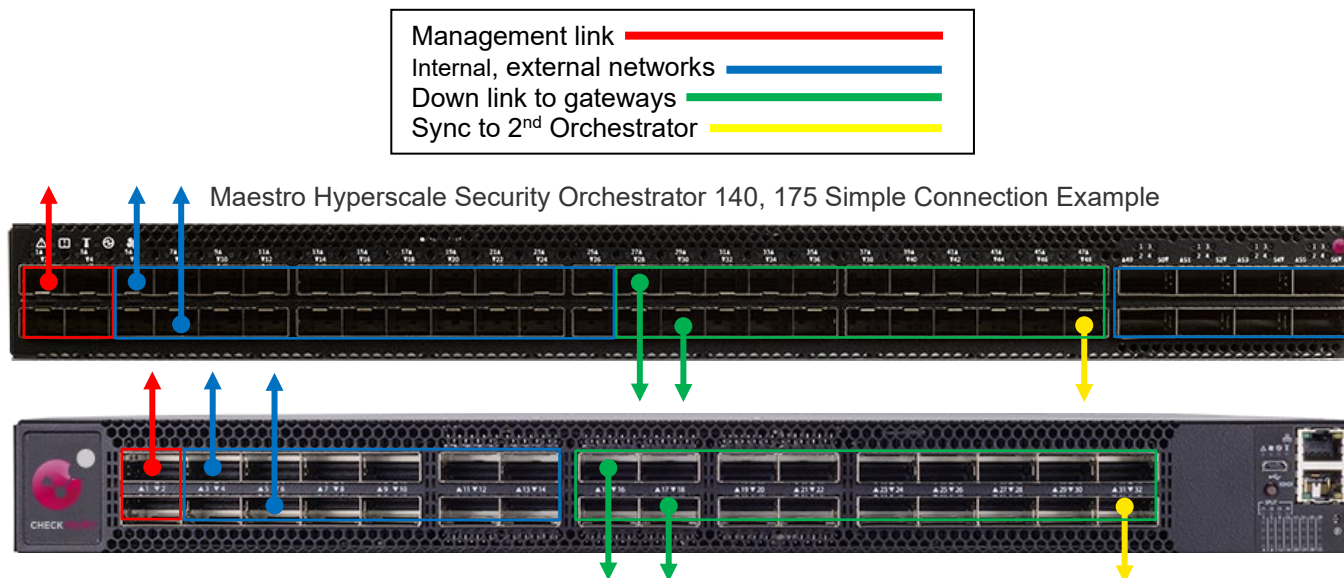Opening up new simple ways to architect and manage cyber security

Cloud-Level Resiliency
Delivering the highest standard of resiliency with Telco-Grade Technology

Maestro Scalable Threat Prevention Throughput

MAESTRO HYPERSCALE ORCHESTRATOR

Management link	———————
Internal, external networks	———————
Down link to gateways	———————
Sync to 2nd Orchestrator	———————

Maestro Hyperscale Security Orchestrator 140, 175 Simple Connection Example

The Hyperscale Orchestrator 140 is a mid-range model with 48x 10GbE and 8x 100 GbE ports with a total fabric capacity of 1.28 Tbps. The Hyperscale Orchestrator 175 is a high-end model with 32x 100 GbE ports and a total fabric capacity of 3.2 Tbps.

For redundancy, deploy two Orchestrators of the same model together. Security Group members connect to the Orchestrator via Direct Attached Copper (DAC) cables, either 10, 40 or 100 GbE depending upon the gateway and Orchestrator models deployed. The Orchestrator's 300-nanosecond port-to-port latency deliver predictable wire speed performance with no packet loss for any packet size.

Maestro Hyperscale Orchestrator

	MHO 140	MHO 175
Fabric Capacity	1.28 Tbps	3.2 Tbps
Latency	300 nsec port to port	400 nsec port to port
Ports	48x 10/25GbE and 8x 100GbE	32x 100GbE or 128x 10/25GbE
Enclosure	1RU	1RU
Standard Dimensions (W x D x H)	17.24' 'x 17' x 1.72'', 438 x 436 x 43.8mm	16.84' 'x 27' x 1.72'', 427.83 x 686 x 43.8mm
Weight	18.8lb (8.52kg)	24.5lb (11.1kg)
Power Input	100-127 VAC, 200-240VAC, 50-60Hz	100-127 VAC, 200-240VAC, 50-60Hz
Single Power Supply Rating	165W	150W
Dual Power Supplies	Included	Included
Airflow	Front to Back	Front to Back
Safety/Emissions/Environment	UL60950-1, CB IEC60950-1 , CE LVD EN60950-1 / FCC, IC, CE, VCCI, RCM/C-Tick / RoHS, WEEE, REACH , *ISO14001	

* Factory certificate

SPOTLIGHT ON MANAGEMENT

Security Groups

With Maestro, you can dynamically allocate or deallocate compute resources within and between Security Groups to meet your needs. Security Groups are logical groups of appliances providing active/active cluster functionally segregated from other Security Groups. Each Security Group has dedicated internal and external interfaces and may have a different configuration set and policy, e.g. Next Generation Firewall protecting a data center or Next Generation Threat Prevention providing perimeter protection.
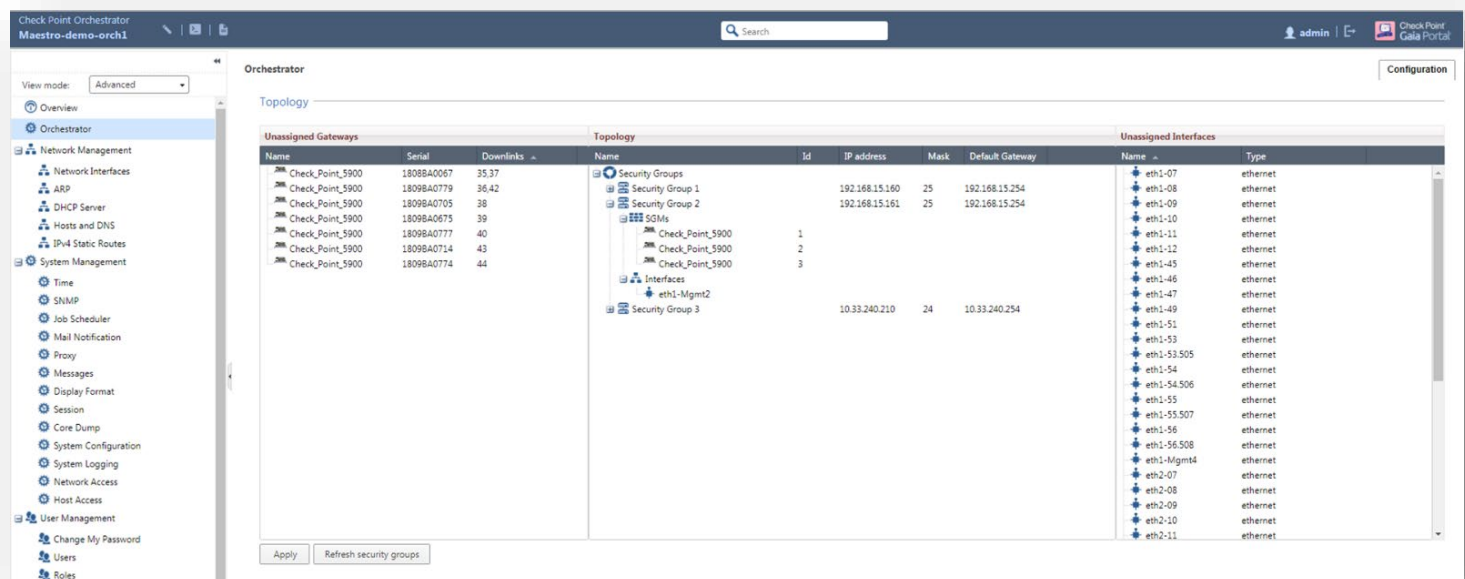
Single Management Object (SMO)

Externally a Security Group is seen as one security gateway or VSX gateway object in the Check Point security management GUI client, SmartConsole. A single IP address per Security Group for management communications and policy install simplifies Security Group management. All configurations, e.g. interfaces or IP addresses and routes are mirrored on gateways in the Security Group. Prior to becoming an online member and actively handling traffic each new member of the Security Group synchronizes its image, software configuration and security policy with the SMO of the Security Group.

Security Software

Maestro members run R81 SP, the latest version of the field-tested and proven software that was first introduced in 2012 on our Check Point chassis security systems and now integrated into our R81 main train release. The security feature set includes Next Generation Threat Prevention (NGTP) to protect you from known threats and SandBlast Zero-day Threat Protection to protect you from the unknown and zero-day threats. All Check Point Quantum security appliances in the Maestro solution include zero-day threat prevention for one year.
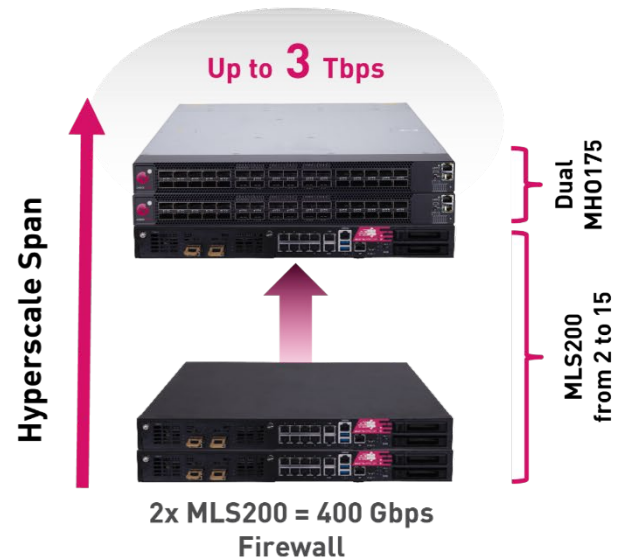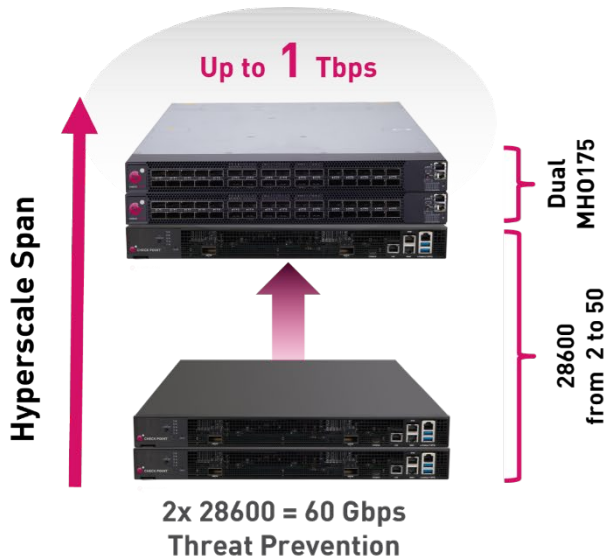
With R81 SP, you can monitor and manage the Maestro security fabric with a web browser connection to the management interface of the Maestro Orchestrator. Easily see the state of the gateways and the overall performance of your Security Group members. Do advanced configuration such as setting up network bonds, image management and system optimization.

Maestro web browser User Interface (UI)

SPOTLIGHT ON SCALABILITY

Up to 1 Tbps

Hyperscale Span

Dual MHO175

28600 from 2 to 50

2x 28600 = 60 Gbps
Threat Prevention

Up to 3 Tbps

Hyperscale Span

Dual MHO175

MLS200 from 2 to 15

2x MLS200 = 400 Gbps
Firewall

Hyperscale Security System

With Maestro, you can start with two gateways and then can grow to up to 52 gateways. For example, when you start with 35.2 Gbps using two 16600HS gateways you can finish with an 850 Gbps security solution that supports over 500 million concurrent connections. Simply by using Check Point Maestro.

Hyperscale Orchestrator Connections

When a Security Group is created, an IP address is created for a Single Management Object connection to the security management server. Easily create and assign IP addresses to the internal and external network interfaces. These uplinks are the visible components of the Maestro security solution.

SECURITY GROUP 1
SECURITY GROUP 1
SECURITY GROUP 2
SECURITY GROUP 2
SECURITY GROUP 1

Load
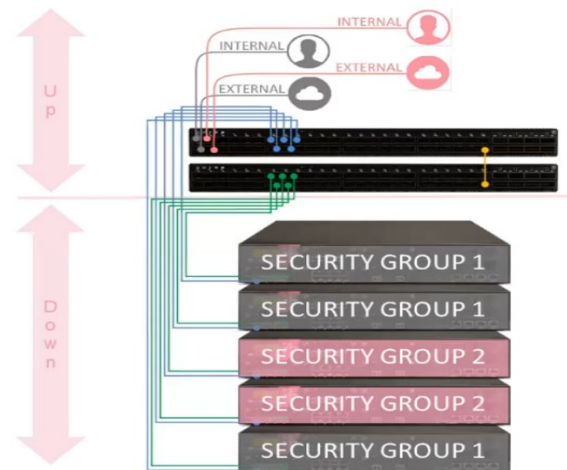
Fully Operational within Minutes

When we add a gateway to the system, it gets all the configurations, the policy, even the software version, updated and aligned with the existing deployment, ready to go within 6 minutes.

Maestro Traffic Distribution

HyperSync tracks the Active/Standby/Backup state of group members. Sync traffic is limited to only the Active and Standby members handling the connection.

Cost-Efficient N+1 Deployments

Now businesses of all sizes can enjoy cloud-level resiliency and telco-grade technology using the efficient Maestro N+1 clustering design.

SPECIFICATIONS

Maestro Scalability

	6200	6600	6700	7000	16600	28600
Threat Prevention (Gbps)	up to 90	up to 185	up to 290	up to 475	up to 880	up to 1,500
Security Groups			up to 8 Security Groups			
Gateways in a Security Group			up to 31			
Dual Site Deployment Security Groups			up to 28 gateways, 14 from each site			

Appliance Comparison

Enterprise Testing Conditions	6200	6600	6700	7000	16600	28600
Threat Prevention (Gbps) [1]	1.8	3.7	5.8	9.5	17.6	30
NGFW Throughput (Gbps) [2]	3.72	6.2	13.4	22	30	51.5
IPS Throughput (Gbps)	4.65	10.14	19	25	42	52.2
Firewall (Gbps)	9	18	26	39	87	145
Ideal Testing Conditions						
Firewall Throughput (Gbps)	17.55	32	38	76.8	117	193
VPN Throughput (Gbps)	2.57	4.9	4.61	11.9	17	44
Connections Per Second (K)	67	116	164	330	375	590
Concurrent Sessions (M) [3]	8	8	8	16	32	49
Additional Features						
CPUs/physical cores/virtual cores	1/2/4	1/6/6	1/6/12	1/16/32	2/24/48	2/36/72
SSD Size	240 GB	240 GB	480 GB	480 GB	480 GB	480 GB
Physical						
Enclosure	1U	1U	1U	1U	1U	1U

Note: additional Maestro solution configurations are available in the product catalog.

Content Security

First Time Prevention Capabilities

- CPU-level, OS-level and static file analysis
- File disarm and reconstruction via Threat Extraction
- Average emulation time for unknown files that require full sandbox evaluation is under 100 seconds
- Maximal file size for Emulation is 100 MB
- Emulation OS Support: Windows XP, 7, 8.1, 10

Applications

- Use 10,000+ pre-defined or customize your own applications
- Accept, prevent, schedule, and apply traffic-shaping

Data Loss Prevention

- Classify 700+ pre-defined data types
- End user and data owner incident handling

Dynamic User-based Policy

- Integrates with Microsoft AD, LDAP, RADIUS, Cisco pxGrid, Terminal Servers and with 3rd parties via a Web API
- Enforce consistent policy for local and remote users on Windows, macOS, Linux, Android and Apple iOS platforms

Network

Network Connectivity

- Total physical and virtual (VLAN) interfaces per appliance: 1024/4096 (single gateway/with virtual systems)
- 802.3ad passive and active link aggregation
- Layer 2 (transparent) and Layer 3 (routing) mode

High Availability

- Session failover for routing change, device and link failure

IPv6

- NAT66
- CoreXL, SecureXL

Unicast and Multicast Routing (see SK98226)

- OSPFv2, BGP, RIP
- Static routes, Multicast routes
- Policy-based routing
- PIM-SM, PIM-DM, IGMP v2, and v3

ORDERING MAESTRO HYPERSCALE ORCHESTRATOR

MAESTRO HYPERSCALE SOLUTION PACKAGES	SKU
Maestro Solution with 2x 28600HS firewalls and 1x Orchestrator (MHO-175), includes SandBlast (SNBT) Security Subscription Package for 1 Year. Each appliance includes 2x 1GbE copper on-board, 2x 100GbE QSFP28 ports, 2x AC PSUs, 1x 480GB SSD, 192 GB RAM, plus 2x 100 G DAC cables (3m, 3m). MHO-175 includes 1x 100 G DAC (3m).	CPAP-SG28602-HS-MHS-MHO175-SNBT
Maestro Solution with 3x 28600HS firewalls and 1x Orchestrator (MHO-175), includes SandBlast (SNBT) Security Subscription Package for 1 Year. Each appliance includes 2x 1GbE copper on-board, 2x 100GbE QSFP28 ports, 2x AC PSUs, 1x 480GB SSD, 192 GB RAM, plus 2x 100 G DAC cables (3m, 3m). MHO-175 includes 1x 100 G DAC (3m).	CPAP-SG28603-HS-MHS-MHO175-SNBT
Maestro Solution with 2x 16600HS firewalls and 1x Orchestrator (MHO-175), includes SandBlast (SNBT) Security Subscription Package for 1 Year. Each appliance includes 2x 1GbE copper on-board, 2x 100GbE QSFP28 ports, 2x AC PSUs, 1x 480GB SSD, 128 GB RAM, plus 2x 100 G DAC cables (3m, 3m). MHO-175 includes 1x 100 G DAC (3m).	CPAP-SG16602-HS-MHS-MHO175-SNBT
Maestro Solution with 3x 16600HS firewalls and 1x Orchestrator (MHO-175), includes SandBlast (SNBT) Security Subscription Package for 1 Year. Each appliance includes 2x 1GbE copper on-board, 2x 100GbE QSFP28 ports, 2x AC PSUs, 1x 480GB SSD, 128 GB RAM, plus 2x 100 G DAC cables (3m, 3m). MHO-175 includes 1x 100 G DAC (3m).	CPAP-SG16603-HS-MHS-MHO175-SNBT
Maestro Solution with 2x 7000 Plus firewalls with SandBlast subscription package for 1 year and one Orchestrator (MHO-140). Each appliance includes 32 GB RAM, 10x 1GbE copper on-board, 4x 10GbE fiber, 2x AC PSU, 2x 480GB SSD, LOM, plus 2x 10G DAC cables (3m, 3m). MHO-140 includes 1x 10G DAC (3m).	CPAP-MHS-7002-PLUS-SNBT
Maestro Solution with 3x 7000 Plus firewalls with SandBlast subscription package for 1 year and 1x Orchestrator (MHO-140). Each appliance includes 32 GB RAM, 10x 1GbE copper on-board, 4x 10GbE fiber, 2x AC PSU, 2x 480GB SSD, LOM, plus 2x 10G DAC cables (3m, 3m). MHO-140 includes 1x 10G DAC (3m).	CPAP-MHS-7003-PLUS-SNBT
Maestro Solution with 2x 6700 Plus firewalls with SandBlast subscription package for 1 year and one Orchestrator (MHO-140). Each appliance includes 16 GB RAM, 10x 1GbE copper on-board, 4x 10GbE fiber, 2x AC PSU, 2x 480GB SSD, LOM, plus 2x 10G DAC cables (3m, 3m). MHO-140 includes 1x 10G DAC (3m).	CPAP-MHS-6702-PLUS-SNBT
Maestro Solution with 3x 6700 Plus firewalls with SandBlast subscription package for 1 year and 1x Orchestrator (MHO-140). Each appliance includes 16 GB RAM, 10x 1GbE copper on-board, 4x 10GbE fiber, 2x AC PSU, 2x 480GB SSD, LOM, plus 2x 10G DAC cables (3m, 3m). MHO-140 includes 1x 10G DAC (3m).	CPAP-MHS-6703-PLUS-SNBT
Maestro Solution with 2x 6600 Plus firewalls with SandBlast subscription package for 1 year and 1x Orchestrator (MHO-140). Each appliance includes 16 GB RAM, 10x 1GbE fiber, 2x AC PSUs, 1x 240 GB SSD, LOM, plus 2x 10G DAC cables (3m, 3m). MHO-140 includes 1x 10G DAC (3m).	CPAP-MHS-6602-PLUS-SNBT
Maestro Solution with 3x 6600 Plus firewalls with SandBlast subscription package for 1 year and 1x Orchestrator (MHO-140). Each appliance includes 16 GB RAM, 10x 1GbE fiber, 2x AC PSUs, 1x 240 GB SSD, LOM, plus 2x 10G DAC cables (3m, 3m). MHO-140 includes 1x 10G DAC (3m).	CPAP-MHS-6603-PLUS-SNBT
Maestro Solution with 2x 6200 Plus firewalls with SandBlast subscription package for 1 year and 1x Orchestrator (MHO-140). Each appliance includes 16 GB RAM, 10x 1GbE copper on-board, 4x 10GbE fiber, 2x AC PSUs, 1x 240 GB SSD, LOM, plus 2x 10G DAC cables (3m, 3m). MHO-140 includes 1x 10G DAC (3m).	CPAP-MHS-6202-PLUS-SNBT
Maestro Solution with 3x 6200 Plus firewalls with SandBlast subscription package for 1 year and 1x Orchestrator (MHO-140). Each appliance includes 16 GB RAM, 10x 1GbE copper on-board, 4x 10GbE fiber, 2x AC PSUs, 1x 240 GB SSD, LOM, plus 2x 10G DAC cables (3m, 3m). MHO-140 includes 1x 10G DAC (3m).	CPAP-MHS-6203-PLUS-SNBT
Maestro Solution with 2x MLS400 firewalls with one MHO-175 Orchestrator. Each firewall includes 4x 100G QSFP28 ConnectX ports, 2x 1GbE copper ports on-board, 192 GB RAM, 2x AC PSU, 2x 960GB SSD, LOM, telescopic rails, plus 4x 100G DAC cables (3m, 3m). MHO-175 includes 1x 100 G DAC (3m).	CPAP-SG-MLS402-MHS
Maestro Solution with 3x MLS400 firewalls with one MHO-175 Orchestrator. Each firewall includes 4x 100G QSFP28 ConnectX ports, 2x 1GbE copper ports on-board, 192 GB RAM, 2x AC PSU, 2x 960GB SSD, LOM, telescopic rails, plus 4x 100G DAC cables (3m, 3m). MHO-175 includes 1x 100 G DAC (3m).	CPAP-SG-MLS403-MHS
Maestro Solution with 2x MLS200 firewalls with one MHO-140 Orchestrator. Each firewall includes 2x 100G QSFP28 ConnectX ports, 10x 1GbE copper ports on-board, 64 GB RAM, 2x AC PSU, 2x 480GB SSD, LOM, telescopic rails, plus 2x 100G DAC cables (3m, 3m). MHO-140 includes 1x 10G DAC (3m).	CPAP-SG-MLS202-MHS
Maestro Solution with 3x MLS200 firewalls with one MHO-140 Orchestrator. Each firewall includes 2x 100G QSFP28 ConnectX ports, 10x 1GbE copper ports on-board, 64 GB RAM, 2x AC PSU, 2x 480GB SSD, LOM, telescopic rails, plus 2x 100G DAC cables (3m, 3m). MHO-140 includes 1x 10G DAC (3m).	CPAP-SG-MLS203-MHS

ORDERING MAESTRO (continued)

SECURITY GATEWAY APPLIANCES FOR SCALE-UP	SKU
28600HS firewall, SandBlast subscription for one year. Each appliance includes 2x 1GbE copper on-board, 2x 100GbE QSFP28 ports, 2x AC PSUs, 1x 480GB SSD, 192 GB RAM, plus 2x 100 G DAC cables (3m, 3m).	CPAP-SG28600-HS-MHS-SNBT
16600HS firewall, SandBlast subscription for one year. Each appliance includes 2x 1GbE copper on-board, 2x 100GbE QSFP28 ports, 2x AC PSUs, 1x 480GB SSD, 128 GB RAM, plus 2x 100 G DAC cables (3m, 3m).	CPAP-SG16600-HS-MHS-SNBT
7000 firewall with SandBlast subscription package for 1 year. Each appliance includes 32 GB RAM, 10x 1GbE copper on-board, 4x 10GbE fiber, 2x AC PSU, 2x 480GB SSD, LOM, plus 2x 10G DAC cables (3m, 3m).	CPAP-SG7000-PLUS-MHS-SNBT
6700 firewall with SandBlast subscription package for 1 year. Each appliance includes 16 GB RAM, 10x 1GbE copper on-board, 4x 10GbE fiber, 2x AC PSU, 2x 480GB SSD, LOM, plus 2x 10G DAC cables (3m, 3m).	CPAP-SG6700-PLUS-MHS-SNBT

SECURITY GATEWAY APPLIANCES FOR SCALE-UP (continued)	SKU
6600 firewall with SandBlast subscription for 1 year. Each appliance includes 16 GB RAM, 10x 1GbE fiber, 2x AC PSUs, 1x 240 GB SSD, LOM, plus 2x 10G DAC cables (3m, 3m).	CPAP-SG6600-PLUS-MHS-SNBT
6200 firewall with SandBlast subscription for 1 year. Each appliance includes 16 GB RAM, 10x 1GbE copper on-board, 4x 10GbE fiber, 2x AC PSUs, 1x 240 GB SSD, LOM, plus 2x 10G DAC cables (3m, 3m).	CPAP-SG6200-PLUS-MHS-SNBT
MLS400 Lightspeed firewall includes 4x 100G QSFP28 ConnectX ports, 2x 1GbE copper ports on-board, 192 GB RAM, 2x 960GB SSD, 2x AC PSU, Lights-out Management, telescopic rails, plus 4x 100G DAC cables (3m, 3m).	CPAP-SG-MLS400-MHS
MLS200 Lightspeed firewall includes 2x 100G QSFP28 ConnectX ports, 10x 1GbE copper ports on-board, 64 GB RAM, 2x 480GB SSD, 2x AC PSU, Lights-out Management, telescopic rails, plus 2x 100G DAC cables (3m, 3m).	CPAP-SG-MLS200-MHS

MAESTRO HYPERSCALE ORCHESTRATORS	SKU
Maestro Hyperscale Orchestrator 175 with 32x 100 GbE ports, plus 1x 100 G DAC (3m).	CPAP-MHO-175
Maestro Hyperscale Orchestrator 140 with 8x 100 GbE and 48x 10 GbE ports, plus 1x 10G DAC (3m).	CPAP-MHO-140

MAESTRO HYPERSCALE ORCHESTRATORS ACCESSORIES	SKU
Fan replacement for Maestro Hyperscale Orchestrator 175	CPAC-FAN-MHO175
Fan replacement for Maestro Hyperscale Orchestrator 140	CPAC-FAN-MHO140
AC power supply unit replacement for MHO 140 and 175, with front to back airflow	CPAC-PSU-AC-MHO140/175
Rail kit for Maestro Hyperscale Orchestrator 140 and 170	CPAC-RAIL-MHO140/170
Rail kit for Maestro Hyperscale Orchestrator 175	CPAC-RAIL-MHO175

MHO-175 TRANSCEIVERS	SKU
SFP+ transceiver module for 10GbE fiber ports - long range (10GBASE-LR), SM Fiber, LC with QSFP28 Adapter	CPAC-TR-10LR-ADP
SFP+ transceiver module for 10GbE fiber ports - long range (10GBASE-LR), SM Fiber, LC with QSFP28 Adapter	CPAC-TR-10LR-D-ADP
SFP+ transceiver module for 10GbE fiber ports - long range (10GBASE-SR), SM Fiber, LC with QSFP28 Adapter	CPAC-TR-10SR-ADP
SFP+ transceiver module for 10GbE fiber ports - long range (10GBASE-SR), SM Fiber, LC with QSFP28 Adapter	CPAC-TR-10SR-D-ADP
SFP+ transceiver 10GBASE-T RJ45 (Copper) - for links up to 30m over CAT6a/CAT7, CU, RJ45 with QSFP28 Adapter	CPAC-TR-10T-ADP
SFP+ transceiver 10GBASE-T RJ45 (Copper) - for links up to 30m over CAT6a/CAT7, CU, RJ45 with QSFP28 Adapter	CPAC-TR-10T-D-ADP
SFP28 transceiver module for 25GbE fiber ports - long range (25GBASE-LR), SM Fiber, LC with QSFP28 Adapter	CPAC-TR-25LR-ADP
SFP28 transceiver module for 25GbE fiber ports - long range (25GBASE-LR), SM Fiber, LC with QSFP28 Adapter	CPAC-TR-25LR-D-ADP
SFP28 transceiver module for 25GbE fiber ports - short range (25GBASE-SR) MM Fiber, LC with QSFP28 Adapter	CPAC-TR-25SR-ADP
SFP28 transceiver module for 25GbE fiber ports - short range (25GBASE-SR) MM Fiber, LC with QSFP28 Adapter	CPAC-TR-25SR-D-ADP
QSFP+ transceiver module for 40GbE fiber Ports - short range (40GBASE-SR4) MM fiber, MPO-12	CPAC-TR-40SR-QSFP-100m
QSFP+ transceiver module for 40GbE fiber Ports - short range (40GBASE-SR4) MM fiber, MPO-12	CPAC-TR-40SR-QSFP-100m-D
QSFP+ transceiver module for 40GbE fiber ports - short range (40GBASE-eSR4), MM Fiber, MPO-12	CPAC-TR-40SR-QSFP-300m
QSFP+ transceiver module for 40GbE fiber Ports - short range (40GBASE-eSR4), MM Fiber, MPO-12	CPAC-TR-40SR-QSFP-300m-D
QSFP+ Bi-directional transceiver module for 40GbE fiber Ports - short range (40GBASE-SR-BD), MM Fiber, LC	CPAC-TR-40SR-QSFP-BIDI
QSFP+ Bi-directional transceiver module for 40GbE fiber Ports - short range (40GBASE-SR-BD), MM Fiber, LC	CPAC-TR-40SR-QSFP-BiDi-D

MHO-175 TRANSCEIVERS (continued)	SKU
QSFP+ transceiver module for 40GbE fiber ports, for links up to 75m (40GBASE-SWDM4) MM Fiber, LC	CPAC-TR-40SWDM4
QSFP+ transceiver module for 40GbE fiber ports - long range (40GBASE-LR4), SM Fiber, LC	CPAC-TR-40LR-QSFP-10Km
QSFP+ transceiver module for 40GbE fiber ports - long range (40GBASE-LR4), SM Fiber, LC	CAPC-TR-40LR-QSFP-10Km-D
QSFP+ transceiver module for 40GbE fiber ports- for links up to 40km (40GBASE-ER4), SM Fiber, LC	CPAC-TR-40ER4
QSFP+ transceiver module for 40GbE fiber ports- for links up to 40km (40GBASE-ER4), SM Fiber, LC	CPAC-TR-40ER4-D
QSFP28 transceiver module for 100GbE fiber ports - long range (100GBASE-LR4), SM Fiber, LC	CPAC-TR-100LR
QSFP28 transceiver module for 100GbE fiber ports - long range (100GBASE-LR4), SM Fiber, LC	CPAC-TR-100LR-D
QSFP28 transceiver module for 100GbE fiber ports - short range (100GBASE-SR4), MM Fiber, MPO-12	CPAC-TR-100SR
QSFP28 transceiver module for 100GbE fiber ports - short range (100GBASE-SR4), MM Fiber, MPO-12	CPAC-TR-100SR-D
QSFP28 Bi-directional transceiver for 100GbE fiber Ports - short range (100GBASE-SR1.2), MM Fiber, LC	CPAC-TR-100SR-BiDi
QSFP28 transceiver module for 100GbE fiber ports - for links up to 75m (100GBASE-SWDM4), MM Fiber, LC	CPAC-TR-100SWDM4
QSFP28 transceiver module for 100GbE fiber ports - for links up to 75m (100GBASE-SWDM4), MM Fiber, LC	CPAC-TR-100SWDM4-D
QSFP28 transceiver module for 100GbE fiber ports - for links up to 2km (100GBASE- CWDM4), SM Fiber, LC	CPAC-TR-100CWDM4
QSFP28 transceiver module for 100GbE fiber ports - for links up to 2km (100GBASE- CWDM4), SM Fiber, LC	CPAC-TR-100CWDM4-D
QSFP28 transceiver module for 100GbE fiber ports for links up to 40km (100GBASE-ERL4), SM Fiber, LC	CPAC-TR-100ERL4
QSFP+ Fiber splitter for 40GbE, MM, MTP to 4x LC, 3 meters	CPAC-TR-40SPLIT-QSFP-3M *
QSFP+ Fiber splitter for 40GbE, MM, MTP to 4x LC, 6 meters	CPAC-TR-40SPLIT-QSFP-6M *

* It is recommended to use the CPAC-TR-40SR-QSFP-100m when using the splitters CPAC-TR-40SPLIT-QSFP-3M or CPAC-TR-40SPLIT-QSFP-6M

MHO-140 TRANSCEIVERS	SKU
SFP transceiver module for 1GbE fiber ports - short range (1000BASE-SX), MM Fiber, LC	CPAC-TR-1SX-C
SFP transceiver module for 1GbE fiber ports - short range (1000BASE-SX), MM Fiber, LC	CPAC-TR-1SX-D
SFP transceiver module for 1GbE fiber ports - long range (1000BASE-LX), SM Fiber, LC	CPAC-TR-1LX-C
SFP transceiver module for 1GbE fiber ports - long range (1000BASE-LX), SM Fiber, LC	CPAC-TR-1LX-D
SFP transceiver to 1000 Base-T RJ45 (Copper), CU, RJ45	CPAC-TR-1T-C
SFP transceiver to 1000 BASE-T RJ45 (Copper), CU, RJ45	CPAC-TR-1T-D
SFP+ transceiver module for 10GbE fiber ports - short range (10GBASE-SR), SM Fiber, LC	CPAC-TR-10SR-C
SFP+ transceiver module for 10GbE fiber ports - short range (10GBASE-SR), SM Fiber, LC	CPAC-TR-10SR-D
SFP+ transceiver module for 10GbE fiber ports - long range (10GBASE-LR), SM Fiber, LC	CPAC-TR-10LR-CM
SFP+ transceiver module for 10GbE fiber ports - long range (10GBASE-LR), SM Fiber, LC	CPAC-TR-10LR-D
SFP+ transceiver 10GBASE-T RJ45 (Copper) - for links up to 30m over CAT6a/CAT7, CU, RJ45	CPAC-TR-10T-C
SFP+ transceiver 10GBASE-T RJ45 (Copper) - for links up to 30m over CAT6a/CAT7, CU, RJ45	CPAC-TR-10T-D
SFP+ transceiver module for 10GbE fiber ports - for links up to 40km (10GBASE-ER)	CPAC-TR-10ER-C
SFP+ transceiver module for 10GbE fiber ports - for links up to 40km (10GBASE-ER) SM Fiber, LC with QSFP28 Adapter	CPAC-TR-10ER-D
SFP28 transceiver module for 25GbE fiber ports - short range (25GBase-SR), MM Fiber, LC	CPAC-TR-25SR**
SFP28 transceiver module for 25GbE fiber ports - short range (25GBASE-SR), MM Fiber, LC	CPAC-TR-25SR-D**
SFP28 transceiver module for 25GbE fiber ports - long range (25GBase-LR), SM Fiber, LC	CPAC-TR-25LR**
SFP28 transceiver module for 25GbE fiber ports - long range (25GBASE-LR), SM Fiber, LC	CPAC-TR-25LR-D**
QSFP+ transceiver module for 40GbE fiber ports - short range (40GBASE-SR4), MM Fiber, MPO-12	CPAC-TR-40SR-QSFP-100m
QSFP+ transceiver module for 40GbE fiber ports - short range (40GBASE-SR4), MM Fiber, MPO-12	CPAC-TR-40SR-QSFP-100M-D
QSFP+ transceiver module for 40GbE fiber Ports - short range (40GBASE-eSR4), MM Fiber, MPO-12	CPAC-TR-40SR-QSFP-300m
QSFP+ transceiver module for 40GbE fiber Ports - short range (40GBASE-eSR4), MM Fiber, MPO-12	CPAC-TR-40SR-QSFP-300M-D
QSFP+ Bi-directional transceiver module for 40GbE fiber Ports - short range (40GBASE-SR-BD), MM Fiber, LC	CPAC-TR-40SR-QSFP-BIDI
QSFP+ Bi-directional transceiver module for 40GbE fiber Ports - short range (40GBASE-SR-BD), MM Fiber, LC	CPAC-TR-40SR-QSFP-BiDi-D

MHO-140 TRANSCEIVERS (continued)	SKU
QSFP+ transceiver module for 40GbE fiber ports, for links up to 75m (40GBASE-SWDM4) MM Fiber, LC	CPAC-TR-40SWDM4
QSFP+ transceiver module for 40GbE fiber ports - long range (40GBASE-LR4), SM Fiber, LC	CPAC-TR-40LR-QSFP-10Km
QSFP+ transceiver module for 40GbE fiber ports - long range (40GBASE-LR4), SM Fiber, LC	CAPC-TR-40LR-QSFP-10KM-D
QSFP+ transceiver module for 40GbE fiber ports- for links up to 40km (40GBASE-ER4), SM Fiber, LC	CPAC-TR-40ER4
QSFP+ transceiver module for 40GbE fiber ports- for links up to 40km (40GBASE-ER4), SM Fiber, LC	CPAC-TR-40ER4-D
QSFP28 transceiver module for 100GbE fiber ports - long range (100GBASE-LR4), SM Fiber, LC	CPAC-TR-100LR
QSFP28 transceiver module for 100GbE fiber ports - long range (100GBASE-LR4), SM Fiber, LC	CPAC-TR-100LR-D
QSFP28 transceiver module for 100GbE fiber ports - short range (100GBASE-SR4), MM Fiber, MPO-12	CPAC-TR-100SR-MHO140/170
QSFP28 transceiver module for 100GbE fiber ports - short range (100GBASE-SR4), MM Fiber, MPO-12	CPAC-TR-100SR-D
QSFP28 transceiver module for 100GbE fiber ports - for links up to 75m (100GBASE-SWDM4), MM Fiber, LC	CPAC-TR-100SWDM4
QSFP28 transceiver module for 100GbE fiber ports - for links up to 75m (100GBASE-SWDM4), MM Fiber, LC	CPAC-TR-100SWDM4-D
QSFP28 transceiver module for 100GbE fiber ports - for links up to 2km (100GBASE- CWDM4), SM Fiber, LC	CPAC-TR-100CWDM4
QSFP28 transceiver module for 100GbE fiber ports - for links up to 2km (100GBASE- CWDM4), SM Fiber, LC	CPAC-TR-100CWDM4-D
QSFP28 transceiver module for 100GbE fiber ports for links up to 40km (100GBASE-ERL4), SM Fiber, LC	CPAC-TR-100ERL4
QSFP+ Fiber splitter for 40GbE, MM, MTP to 4x LC, 3 meters	CPAC-TR-40SPLIT-QSFP-3M *
QSFP+ Fiber splitter for 40GbE, MM, MTP to 4x LC, 6 meters	CPAC-TR-40SPLIT-QSFP-6M *

* It is recommended to use the CPAC-TR-40SR-QSFP-100m when using the splitters CPAC-TR-40SPLIT-QSFP-3M or CPAC-TR-40SPLIT-QSFP-6M

** In the R81.20 software and later releases

DIRECT ATTACH COPPER (DAC) CABLES (MHO140/ MHO175)	SKU
SFP+, 10GBASE CU, Direct Attach Copper (DAC) cable, 1 meter (MHO140 only)	CPAC-DAC-10G-1M
SFP+, 10GBASE CU, Direct Attach Copper (DAC) cable, 3 meter (MHO140 only)	CPAC-DAC-10G-3M
SFP+, 10GBASE CU, Direct Attach Copper (DAC) cable, 3 meter (MHO140 only)	CPAC-DAC-10G-3M-D
SFP28, 25GBASE CR, Direct Attach Copper (DAC) cable, 3 meters	CPAC-DAC-25G-3M
SFP28, 25GBASE CR, Direct Attach Copper (DAC) cable, 3 meters	CPAC-DAC-25G-3M-D
QSFP+ 40GBASE CR4, Direct Attach Copper (DAC) cable, 1 meter	CPAC-DAC-40G-1M
QSFP+ 40GBASE CR4, Direct Attach Copper (DAC) cable, 3 meters	CPAC-DAC-40G-3M
QSFP+ 40GBASE CR4, Direct Attach Copper (DAC) cable, 3 meters	CPAC-DAC-40G-3M-D
QSFP+ Copper Splitter; 40GbE to 4x10GbE Direct Attach Copper (DAC) cable, 3 meters	CPAC-DAC-40/10G-3M
QSFP28 100GBASE CR4, Direct Attach Copper (DAC) cable, 3 meters	CPAC-DAC-100G-3M
QSFP28 100GBASE CR4, Direct Attach Copper (DAC) cable, 3 meters	CPAC-DAC-100G-3M-D

All-inclusive Security

	NGFW	NGTP	SandBlast
	Access control	Prevent known threats	Prevent zero-day attacks
Firewall	✔	✔	✔
VPN (IPsec)	✔	✔	✔
Mobile Access	✔	✔	✔
Identity Awareness	✔	✔	✔
Application Control	✔	✔	✔
Content Awareness	✔	✔	✔
IPS	✔	✔	✔
URL Filtering		✔	✔
Anti-Bot		✔	✔
Anti-Virus		✔	✔
Anti-Spam		✔	✔
DNS Security		✔	✔
SandBlast Threat Emulation			✔
SandBlast Threat Extraction			✔
Zero Phishing			✔

Each gateway requires a license for the enabled security feature. The first-year purchase includes the SNBT package. Security subscription renewals, NGFW, NGTP and SNBT are available for subsequent years.

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