

# MX

## Cloud-Managed Security and SD-WAN



### **Overview**

The Cisco Meraki MX are multifunctional security & SD-WAN enterprise appliances with a wide set of capabilities to address multiple use cases—from an all-in-one device. Organizations of all sizes and across all industries rely on the MX to deliver secure connectivity to hub locations or multi-cloud environments, as well as application quality of experience (QoE), through advanced analytics with machine learning.

The MX is 100% cloud-managed, so installation and remote management is truly zero touch, making it ideal for distributed branches, campuses, and data center locations. Natively integrated with a comprehensive suite of secure network and assurance capabilities, the MX eliminates the need for multiple appliances. These capabilities include application-based firewalling, content filtering, web search filtering, SNORT®-based intrusion detection and prevention, Cisco Advanced Malware Protection (AMP), site-to-site Auto VPN, client VPN, WAN and cellular failover, dynamic path selection, web application health, VoIP health, and more. SD-WAN can be easily be extended to deliver optimized access to resources in public cloud environments with virtual MX appliances (vMX). Public clouds supported with vMX include Amazon Web Services (AWS), Microsoft Azure, Google Cloud Platform, and Alibaba Cloud.

# Advanced quality of experience (QoE) analytics

- End-to-end health of web applications at-a-glance across the LAN, WAN, and application server
- Machine-learned smart application thresholds autonomously applied to identify true anomalies based on past behavioral patterns
- Monitor the health of all MX WAN links, including cellular, across your entire organization at-a-glance
- Detailed hop-by-hop VoIP performance analysis across all uplinks

# Feature-rich unified threat management (UTM) capabilities

- Application-aware traffic control: bandwidth policies for Layer 7 application types (e.g., block YouTube, prioritize Skype, throttle BitTorrent)
- Content filtering: CIPA-compliant content filter, safe-search enforcement (Google/Bing), and YouTube for Schools
- Intrusion prevention: PCI-compliant IPS sensor using industry-leading SNORT® signature database from Cisco
- Advanced Malware Protection: file reputation-based protection engine powered by Cisco AMP
- · Identity-based security policies and application management



#### **Branch gateway services**

- · Built-in DHCP, NAT, QoS, and VLAN management services
- · Web caching: accelerates frequently accessed content
- Load balancing: combines multiple WAN links into a single high-speed interface, with policies for QoS, traffic shaping, and failover
- Smart connection monitoring: automatic detection of layer 2 and layer 3 outages and fast failover, including option of integrated LTE Advanced or 3G/4G modems

#### Industry-leading cloud management

- Unified firewall, switching, wireless LAN, and mobile device management through an intuitive web-based dashboard
- Template-based settings scale easily from small deployments to tens of thousands of devices
- Role-based administration, configurable email alerts for a variety of important events, and easily auditable change logs
- Summary reports with user, device, and application usage details archived in the cloud

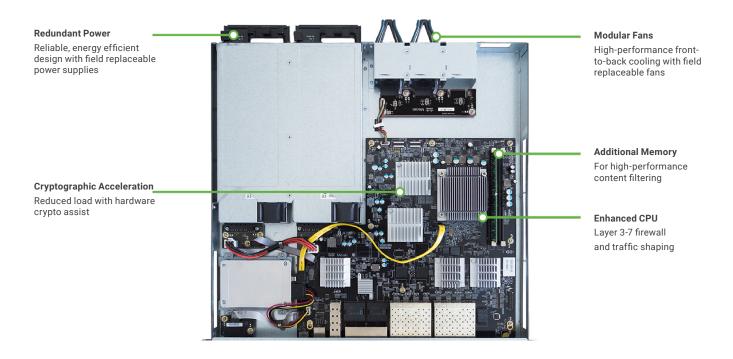
#### Intelligent site-to-site VPN with Meraki SD-WAN

- Auto VPN: automatic VPN route generation using IKE/IPsec setup. Runs on physical MX appliances and as a virtual instance within the Amazon AWS or Microsoft Azure cloud services
- SD-WAN with active / active VPN, policy-based-routing, dynamic VPN path selection, and support for application-layer performance profiles to ensure prioritization of the applications types that matter
- · Interoperates with all IPsec VPN devices and services
- Automated MPLS to VPN failover within seconds of a connection failure
- Client VPN: L2TP IPsec support for native Windows, Mac OS X, iPad and Android clients with no per-user licensing fees



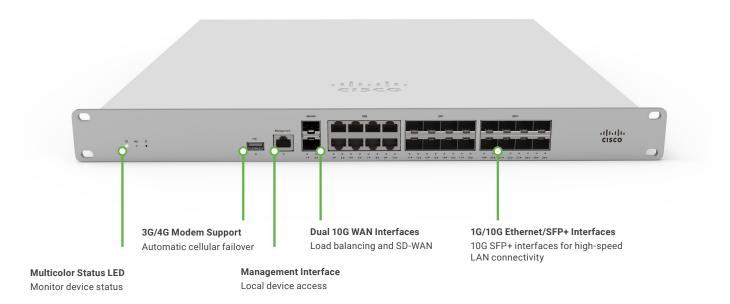
#### Inside the Meraki MX

MX450 shown, features vary by model



#### Front of the Cisco Meraki MX

MX450 shown, features vary by model





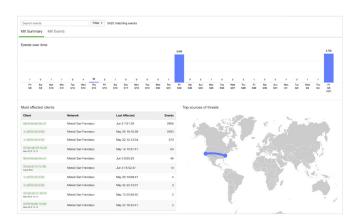
### Secure Cisco SD-WAN powered by Meraki

Secure Cisco SD-WAN powered by Meraki is delivered by the MX appliances. SD-WAN powered by Meraki has helped thousands of organizations rapidly save costs by reducing their dependence on MPLS without compromising on performance. As enterprises continue to shift from hub-centric architectures interconnected with VPN to ones that leverage public Internet connectivity, SD-WAN powered by Meraki delivers advanced analytics with ML to monitor and optimize quality of experience (QoE) for applications, regardless of where they might be hosted.



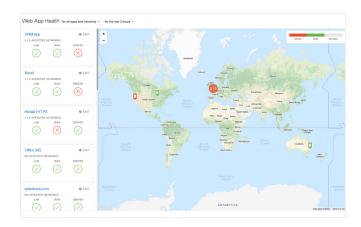
### Transport independence

Leverage more than one uplink of any type with automatic failover–MPLS, broadband, fiber, or cellular.



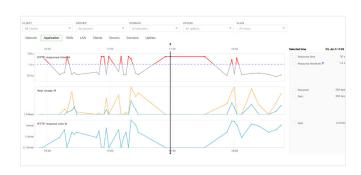
#### **Native security**

Integrated with next-gen firewall, content filtering, and Advanced Malware Protection (AMP) and IDS/IPS informed by Cisco Talos.



#### **Advanced analytics**

Coming soon: at-a-glance health of web applications with ML thresholds, VoIP, and WAN with predictive analytics.



#### SaaS quality of experience

Manual and performance-based path selection using advanced analytics.



## Ironclad security

The MX platform has an extensive suite of security features, including IDS/IPS, content filtering, web search filtering, anti-malware, geo-IP-based firewalling, IPsec VPN connectivity, and Cisco Advanced Malware Protection, while providing the performance required for modern, bandwidth-intensive networks.

Layer 7 fingerprinting technology lets administrators identify unwanted content and applications, and prevents recreational apps like BitTorrent from wasting precious bandwidth.

The integrated Cisco SNORT® engine delivers superior intrusion prevention coverage, a key requirement for PCI 3.2 compliance. The MX also uses the Webroot BrightCloud® URL categorization database for CIPA/IWF-compliant content filtering, Cisco Advanced Malware Protection (AMP) engine for anti-malware, AMP Threat Grid Cloud, and MaxMind for geo-IP-based security rules.

Best of all, these industry-leading Layer 7 security engines and signatures are always kept up-to-date via the cloud, simplifying network security management and providing peace of mind to IT administrators.



Organization-Level Threat Assessment with Meraki Security Center



**Identity-Based Policy Management** 



Cisco Threat Grid Cloud for Malicious File Sandboxing

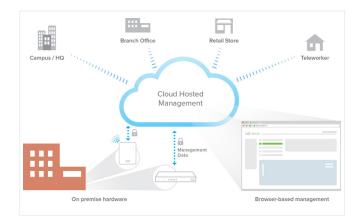


### **Cloud-managed architecture**

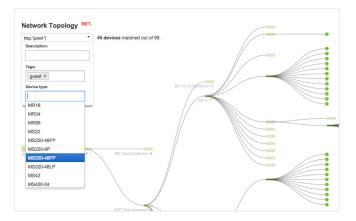
Built on Cisco Meraki's award-winning cloud architecture, the MX is the industry's only 100% cloud-managed solution for unified threat management (UTM) and SD-WAN in a single appliance. MX appliances self-provision, automatically pulling policies and configuration settings from the cloud. Powerful remote-management tools provide network-wide visibility and control, and enable administration without the need for on-site networking expertise.

Cloud services deliver seamless firmware and security signature updates, automatically establish site-to-site VPN tunnels, and provide 24x7 network monitoring. Moreover, the MX's intuitive browser-based management interface removes the need for expensive and time-consuming training.

For customers moving IT services to a public cloud service, Meraki offers a virtual MX for use in Amazon Web Services and Microsoft Azure, enabling Auto VPN peering and SD-WAN for dynamic path selection.



Cisco Meraki Cloud Management Architecture



**End-to-End Network Visibility and Troubleshooting** 

### **Integrated 802.11ac Wave 2 Wireless**

The MX67W, MX68W, and MX68CW integrate Cisco Meraki's award-winning wireless technology with the powerful MX network security features in a compact form factor ideal for branch offices or small enterprises.

- Dual-band 802.11n/ac Wave 2, 2x2 MU-MIMO with 2 spatial streams
- · Unified management of network security and wireless
- · Integrated enterprise security and guest access



MX68CW Security & SD-WAN Appliance



### LTE Advanced

While all MX models feature a USB port for 3G/4G failover, the MX67C and MX68CW include a SIM slot and internal LTE modem. This integrated functionality removes the need for external hardware and allows for cellular visibility and configuration within the Meraki dashboard.

- 1 x CAT 6, 300 Mbps LTE modem
- 1 x Nano SIM slot (4ff form factor)
- Global coverage with individual orderable SKUs for North America and worldwide



MX67C SIM Slot

### **Power over Ethernet**

The MX68, MX68W, and MX68CW include two ports with 802.3at (PoE+). This built-in power capability removes the need for additional hardware to power critical branch devices.

- 2 x 802.3at (PoE+) ports capable of providing a total of 60W
- APs, phones, cameras, and other PoE-enabled devices can be powered without the need for AC adapters, PoE converters, or unmanaged PoE switches



**MX68 Port Configuration** 



## Meraki Virtual MX Appliances for Public Clouds

Virtual MX (vMX) is a virtual instance of a Meraki security & SD-WAN appliance dedicated specifically to providing the simple configuration benefits of site-to-site Auto VPN for organizations running or migrating IT services to public cloud environments. An Auto VPN tunnel to a vMX is like having a direct Ethernet connection to a private data center.

Features and functionality of the vMX appliance:

- · Securely connect branch sites with a physical MX appliance to resources in public cloud environments in three clicks with Auto VPN
- · Extend SD-WAN to public cloud environments for optimized access to business-critical resources
- · No hardware, only a Meraki license is required
- · Available in three VPN throughput-based sizes to suit a wide range of use cases: small, medium, large
- · Supported public cloud platforms: Amazon Web Services (AWS), Microsoft Azure, Google Cloud Platform (GCP)1, Alibaba Cloud



Meraki Dashboard

vMX functions like a VPN concentrator and includes SD-WAN functionality like other MX devices. For public cloud environments, a vMX is added via the respective public cloud marketplace and then configured in the Meraki dashboard, just like any other MX.

<sup>&</sup>lt;sup>1</sup> Targeted Q2 2021



# **Desktop and All-in-One Models**

	MX64	MX64W	
	- Add the control of	****	
Recommended Use Cases	Small branch	Small branch	
Recommended Clients	50	50	
Stateful Firewall Throughput	250 Mbps	250 Mbps	
Advanced Security Throughput	200 Mbps	200 Mbps	
Maximum site-to-site VPN Throughput	100 Mbps	100 Mbps	
Maximum Concurrent site-to-site VPN Tunnels <sup>3</sup>	50	50	
WAN Interfaces Dedicated	1 x GbE RJ45 1 x USB (cellular failover¹)	1 x GbE RJ45 1 x USB (cellular failover¹)	
Dual-purpose <sup>2</sup>	1 x GbE RJ45	1 x GbE RJ45	
LAN Interfaces Fixed	4 x GbE RJ45	4 x GbE RJ45	
Web Caching	-	-	
Mounting	Desktop or Wall mount	Desktop or Wall mount	
Dimensions (w x d x h)	9.5" x 5.2" x 1" (239mm x 132mm x 25mm)	9.5" x 5.2" x 1" (239mm x 132mm x 25mm)	
Weight	1.61 lb (0.7 kg)	3.04 lb (1.4 kg	
Power Supply	30W DC (included)	30W DC (included)	
Power Load (idle/max)	4W / 10W	6W / 13W	
Operating Temperature	32°F to 104°F (0°C to 40°C)	32°F to 104°F (0°C to 40°C)	
Humidity	5% to 95%	5% to 95%	

<sup>&</sup>lt;sup>1</sup>Requires separate cellular modem

 $<sup>^2\</sup>mbox{Interface}$  configurable for WAN or LAN use

 $<sup>^3</sup>$ The maximum concurrent VPN tunnels are based on lab testing scenarios where no client traffic is transferring over the VPN tunnels.



## **Desktop and All-in-One Models**

	MX67	MX67W	MX67C	MX68	MX68W	MX68CW
Recommended Use Cases	Small branch	Small branch	Small branch	Small branch	Small branch	Small branch
Recommended Clients	50	50	50	50	50	50
Stateful Firewall Throughput	450 Mbps	450 Mbps	450 Mbps	450 Mbps	450 Mbps	450 Mbps
Advanced Security Throughput	300 Mbps	300 Mbps	300 Mbps	300 Mbps	300 Mbps	300 Mbps
Maximum site-to-site VPN Throughput	200 Mbps	200 Mbps	200 Mbps	200 Mbps	200 Mbps	200 Mbps
Maximum Concurrent site-to-site VPN Tunnels <sup>3</sup>	50	50	50	50	50	50
WAN Interfaces Dedicated	1 x GbE RJ45 1 x USB (cellular failover¹)	1 x GbE RJ45 1 x USB (cellular failover¹)	1 x GbE RJ45 1 x USB (cellular failover¹) 1 x Integrated CAT 6 LTE Cellular Modem (cellular failover)	2 x GbE RJ45 1 x USB (cellular failover¹)	2 x GbE RJ45 1 x USB (cellular failover <sup>1</sup> )	2 x GbE RJ45 1 x USB (cellular failover¹) 1 x Integrated CAT 6 LTE Cellular Modem (cellular failover)
Dual-purpose <sup>2</sup>	1 x GbE RJ45	1 x GbE RJ45	1 x GbE RJ45	-	-	-
LAN Interfaces Fixed	4 x GbE RJ45	4 x GbE RJ45	4 x GbE RJ45	10 x GbE RJ45 ( 2 x PoE+)	10 x GbE RJ45 ( 2 x PoE+)	10 x GbE RJ45 ( 2 x PoE+)
Web Caching	-	-	-	-	-	-
Mounting	Desktop or wall mount	Desktop or wall mount	Desktop or wall mount	Desktop or wall mount	Desktop or wall mount	Desktop or wall mount
Dimensions (w x d x h)	9.4"x 5.1" x 1.1" (239mm x 130mm x 27mm)	9.4" x 6.5" x 1.1" (239mm x 164mm x 27mm)	9.4" x 6.9" x 1.1" (239mm x 176mm x 27mm)	11.2" x 5.8" x 1.1" (284mm x 148mm x 27mm)	11.2" x 6.8" x 1.1" (284mm x 172mm x 27mm)	11.2" x 7" x 1.1" (284mm x 178mm x 27mm)
Weight	1.74 lb (0.7kg)	1.84 lb (0.83 kg)	1.87 lb (0.85 kg)	2.46 lb (1.12 kg)	2.55 lb (1.16 kg)	2.61 lb (1.18 kg)
Power Supply	30W DC	30W DC	30W DC	100W DC	100W DC	100W DC
Power Load (idle/max)	5W / 14W	15W / 23W	6W / 17W	11W / 79W	19W / 87W	19W / 89W
Operating Temperature	32°F to 113°F (0°C to 45°C)	32°F to 113°F (0°C to 45°C)	32°F to 113°F (0°C to 45°C)	32°F to 113°F (0°C to 45°C)	32°F to 113°F (0°C to 45°C)	32°F to 113°F (0°C to 45°C)
Humidity	5% to 95%	5% to 95%	5% to 95%	5% to 95%	5% to 95%	5% to 95%

<sup>&</sup>lt;sup>1</sup> Requires separate cellular modem

 $<sup>^{2}\,\,</sup>$  Interface configurable for WAN or LAN use

<sup>3</sup> The maximum concurrent VPN tunnels are based on lab testing scenarios where no client traffic is transferring over the VPN tunnels. For information on recommended maximum concurrent site-to-site and client VPN tunnels, visit MX Sizing Guide.



## **Rack Mount Models**

	MX84	MX100	MX250	MX450
			1000 === 0	
Recommended Use Cases	Medium branch	Large branch	Campus or VPN concentrator	Campus or VPN concentrator
Recommended Clients	200	500	2,000	10,000
Stateful Firewall Throughput	500 Mbps	750 Mbps	4 Gbps	6 Gbps
Advanced Security Throughput	320 Mbps	650 Mbps	2 Gbps	4 Gbps
Maximum site-to-site VPN Throughput	250 Mbps	500 Mbps	1 Gbps	2 Gbps
Maximum Concurrent site-to-site VPN Tunnels <sup>3</sup>	100	250	3,000	5,000
WAN Interfaces Dedicated	2 x GbE RJ45 1 x USB (cellular failover¹)	1 x GbE RJ45 1 x USB (cellular failover')	2 x 10GbE SFP+ 1 x USB (cellular failover <sup>1</sup> )	2 x 10GbE SFP+ 1 x USB (cellular failover')
Dual-purpose <sup>2</sup>	-	1 x GbE RJ45	-	-
LAN Interfaces Fixed	8 x GbE2 x GbE (SFP)	8 x GbE 2 x GbE (SFP)	8 x GbE (RJ45) 8 x GbE (SFP) 8 x 10GbE (SFP+)	8 x GbE (RJ45) 8 x GbE (SFP) 8 x 10GbE (SFP+)
Web Caching	1TB	1TB	128GB (SSD)	128GB (SSD)
Mounting	1U rack	1U rack	1U rack	1U rack
Dimensions (w x d x h)	19" x 10 " x 1.75" (483 mm x 254 mm x 44 mm)	19" x 10 " x 1.75" (483 mm x 254 mm x 44 mm)	19" x 17.3 " x 1.75" (483 mm x 440 mm x 44 mm)	19" x 17.3 " x 1.75" (483 mm x 440 mm x 44 mm)
Weight	9 lb (4.1kg)	9 lb (4.1kg)	16 lb (7.3kg)	16 lb (7.3kg)
Power Supply	Internal 100-220V 50/60Hz AC	Internal 100-220V 50/60Hz AC	Modular 100-220V 50/60Hz AC 2 x 250WAC PSU	Modular 100-220V 50/60Hz AC 2 x 250WAC PSU
Power Load (idle/max)	26W / 32W	30W / 55W	105W / 190W	105W / 190W
Operating Temperature	32°F to 104°F (0°C to 40°C)	32°F to 104°F (0°C to 40°C)	32°F to 104°F (0°C to 40°C)	32°F to 104°F (0°C to 40°C)
Humidity	5% to 95%	5% to 95%	5% to 95%	5% to 95%

<sup>&</sup>lt;sup>1</sup> Requires separate cellular modem

 $<sup>^{\</sup>scriptscriptstyle 2}\,$  Interface configurable for WAN or LAN use

The maximum concurrent VPN tunnels are based on lab testing scenarios where no client traffic is transferring over the VPN tunnels. For information on recommended maximum concurrent site-to-site and client VPN tunnels, visit MX Sizing Guide.



## Virtual appliance models

	vMX - Small	vMX - Medium	vMX - Large
	vMX	VMX	VMX
Recommended use cases	Extend secure SD-WAN connectivity from branch sites to resources in public cloud environments		
Interfaces	Virtual	Virtual	Virtual
Supported Cloud Platforms	AWS	AWS	AWS
	Azure	Azure	Azure
	Google Cloud Platform <sup>1</sup>	Google Cloud Platform <sup>1</sup>	Alibaba Cloud
	Alibaba Cloud	Alibaba Cloud	
Maximum site-to-site VPN Throughput	200 Mbps	500 Mbps	1 Gbps
Maximum Concurrent site-to-site VPN Tunnels	50	250	1,000
Client VPN Support	Yes	Yes	Yes

<sup>&</sup>lt;sup>1</sup> Targeted Q2 2021

## Included in the box

Package Contents	Platform(s)
Mounting kit	All
Cat 5 Ethernet cable (2)	All
AC power adapter	MX64, MX64W, MX67, MX67W, MX67C, MX68, MX68W, MX68CW
Wireless external omni antenna (2)	MX64W, MX67W, MX68W
250W power supply (2)	MX250, MX450
System fan (2)	MX250, MX450
SIM card ejector tool	MX67C, MX68CW
Fixed external wireless and LTE paddle antennas	MX68CW
Removable external LTE paddle antennas	MX67C



## Lifetime Warranty with Next-Day Advanced Replacement

Cisco Meraki MX appliances include a limited lifetime hardware warranty that provides next-day advance hardware replacement. Cisco Meraki's simplified software and support licensing model also combines all software upgrades, centralized systems management, and phone support under a single, easy-to-understand model.

For complete details, please visit meraki.cisco.com/support.

## Licensing

Given the range of use cases that can be solved, there are three license options for the MX appliance that give customers the flexibility to select the license most appropriate for their intended use.

The licensing structure for MX appliances is the same as that of any other Meraki device–1:1 ratio of devices to licenses. Pair your chosen MX appliance(s) with the relevant license for your use case.



#### **Enterprise**

#### **Essential SD-WAN features:**

Secure connectivity & basic security

Ideal for when only seamless siteto-site VPN connectivity with a firewall is needed.



#### **Advanced Security**

#### All enterprise features plus:

Fully featured unified threat management

Ideal for organizations with sites also connecting to the Internet so unified threat management security is required.



#### **Secure SD-WAN Plus**

#### All advanced security features plus:

Advanced analytics with ML Smart SaaS quality of experience Tag-based segmentation

Ideal for organizations reliant on apps served by SaaS, IaaS, or data center locations.



### **Accessories**

The Cisco Meraki MX84, MX100, MX250, and MX450 models support pluggable optics for high-speed backbone connections between wiring closets or to aggregation switches. Cisco Meraki offers several standards-based Gigabit and 10 Gigabit pluggable modules. Each appliance has also been tested for compatibility with several third-party modules.





**MX68 Port Configuration** 

#### **Accessories / SFP transceivers**

Supported Cisco Meraki accessory modules

Model	Description
MA-SFP-1GB-SX	Cisco Meraki 1 GbE SFP SX Fiber Module (1000BASE-SX, range: 550m) for MX84, MX100, MX250, MX450
MA-SFP-1GB-TX	Cisco Meraki 1 GbE RJ45 Copper Module (1000BASE-T for twisted pair) for MX84, MX100, MX250, MX450
MA-SFP-10GB-SR	Cisco Meraki 10 GbE Short Range SFP+ Module (10GBASE-SR, range: 400m) for MX250, MX450
MA-CBL-TA-1M	Cisco Meraki 10 GbE Twinax Cable with SFP+ Connectors (10GSFP+Cu, range: 1m) for MX250, MX450
MA-CBL-TA-3M	Cisco Meraki 10 GbE Twinax Cable with SFP+ Connectors (10GSFP+Cu, range: 3m) for MX250, MX450
MA-PWR-30WAC	Replacement Power Adapter (30W) for MX64, MX64W, MX67, MX67W, MX67C
MA-PWR-100WAC	Replacement Power Adapter (100W) for MX68, MX68W, MX68CW
MA-PWR-250WAC	Meraki MX250/MX450 Power Supply Unit (PSU)
MA-FAN-18K	Meraki 18K RPM System Fan for MX250 and MX450
MA-ANT-MX	One pair of external dual-band dipole antennas (connector type: RP-SMA) for MX64W, MX67W, or MX68W

#### **Power cables**

1x power cable required for each MX, 2x power cables required for MX250 and MX450. For U.S. customers, all required power cables will be automatically included. Customers outside the U.S. are required to order power cords separately.

#### SKU

MA-PWR-CORD-EU MA-PWR-CORD-UK MA-PWR-CORD-UK MA-PWR-CORD-AU





## **MX specifications**

#### Management

Managed via the web using the Cisco Meraki dashboard

Single pane-of-glass into managing wired and wireless networks

Zero-touch remote deployment (no staging needed)

Automatic firmware upgrades and security patches

Template-based multi-network management

Org-level two-factor authentication and single sign-on

Role-based administration with change logging and alerts

#### **Monitoring and Reporting**

Throughput, connectivity monitoring, and email alerts

Detailed historical per-port and per-client usage statistics

Application usage statistics

Org-level change logs for compliance and change management

VPN tunnel and latency monitoring

Network asset discovery and user identification

Periodic emails with key utilization metrics

Device performance and utilization reporting

Netflow support

Syslog integration

#### **Remote Diagnostics**

Live remote packet capture

Real-time diagnostic and troubleshooting tools

Aggregated event logs with instant search

#### **Network and Firewall Services**

Stateful firewall, 1:1 NAT, DMZ

Identity-based policies

Auto VPN: automated site-to-site (IPsec) VPN for hub-and-spoke or mesh topologies

Client (IPsec L2TP) VPN

Multiple WAN IP, PPPoE, NAT

VLAN support and DHCP services

Static routing

User and device quarantine

#### **WAN Performance Management**

Web caching (available on the MX84, MX100, MX250, MX450)

WAN link aggregation

Automatic Layer 3 failover (including VPN connections)

3G/4G USB modem failover or single uplink

Application-level (Layer 7) traffic analysis and shaping

Ability to choose WAN uplink based on traffic type

SD-WAN: dual-active VPN with policy-based routing and dynamic path selection

CAT 6 LTE modem for failover or single uplink1

<sup>&</sup>lt;sup>1</sup> MX67C and MX68CW only



## **MX specifications**

#### Advanced Security Services<sup>1</sup>

Content filtering (Webroot BrightCloud CIPA-compliant URL database)

Web-search filtering (including Google/Bing SafeSearch)

YouTube for Schools

Intrusion-prevention sensor (Cisco SNORT® based)

Advanced Malware Protection (AMP)

AMP Threat Grid<sup>2</sup>

<sup>1</sup>Advanced security services require Advanced Security license <sup>2</sup>Threat Grid services require additional sample pack licensing

# Integrated Wireless (MX64W, MX67W, MX68W, MX68CW)

1 x 802.11a/n/ac (5 GHz) radio

1 x 802.11b/g/n (2.4 GHz) radio

Max data rate 1.2 Gbps aggregate (MX64W), 1.3 Gbps aggregate (MX67W, MX68W, MX68CW)

 $2 \times 2 \text{ MU-MIMO}$  with two spatial streams (MX67W, MX68W, MX68CW)

2 external dual-band dipole antennas (connector type: RP-SMA)

Antenna gain: 3.0 dBi @ 2.4 GHz, 3.5 dBi @ 5 GHz

WEP, WPA, WPA2-PSK, WPA2-Enterprise with 802.1X authentication

FCC (U.S.): 2.412-2.462 GHz, 5.150-5.250 GHz (UNII-1), 5.250-5.350 GHZ (UNII-2), 5.470-5.725 GHz (UNII-2e), 5.725-5.825 GHz (UNII-3)

CE (Europe): 2.412-2.484 GHz, 5.150-5.250 GHz (UNII-1), 5.250-5.350 GHZ (UNII-2) 5.470-5.600 GHz, 5.660-5.725 GHz (UNII-2e)

Additional regulatory information: IC (Canada), C-Tick (Australia/New Zealand), RoHS

#### Integrated Cellular (MX67C and MX68CW only)

LTE bands: 2, 4, 5, 12, 13, 17, and 19 (North America). 1, 3, 5, 7, 8, 20, 26, 28A, 28B, 34, 38, 39, 40, and 41 (worldwide)

300 Mbps CAT 6 LTE

Additional regulatory information: PTCRB (North America), RCM (ANZ, APAC), GCF (EU)

# Power over Ethernet (MX68, MX68W, MX68CW)

2 x PoE+ (802.3at) LAN ports

30W maximum per port

#### Regulatory

FCC (U.S.)

CB (IEC)

CISPR (Australia/New Zealand)

PTCRB (North America)

RCM (Australia/New Zealand, Asia Pacific)

GCF (EU)

#### Warranty

Full lifetime hardware warranty with next-day advanced replacement included.



Model	License	Description
MX64-HW	LIC-MX64-ENT-1YR LIC-MX64-ENT-3YR LIC-MX64-ENT-5YR	Cisco Meraki MX64, 1-year Enterprise License and Support Cisco Meraki MX64, 3-year Enterprise License and Support Cisco Meraki MX64, 5-year Enterprise License and Support
	LIC-MX64-SEC-1YR LIC-MX64-SEC-3YR LIC-MX64-SEC-5YR	Cisco Meraki MX64, 1-year Advanced Security License and Support Cisco Meraki MX64, 3-year Advanced Security License and Support Cisco Meraki MX64, 5-year Advanced Security License and Support
	LIC-MX64-SDW-1YR LIC-MX64-SDW-3YR LIC-MX64-SDW-5YR	Cisco Meraki MX64, 1-year Secure SD-WAN Plus License and Support Cisco Meraki MX64, 3-year Secure SD-WAN Plus License and Support Cisco Meraki MX64, 5-year Secure SD-WAN Plus License and Support
MX64W-HW	LIC-MX64W-ENT-1YR LIC-MX64W-ENT-3YR LIC-MX64W-ENT-5YR	Cisco Meraki MX64W, 1-year Enterprise License and Support Cisco Meraki MX64W, 3-year Enterprise License and Support Cisco Meraki MX64W, 5-year Enterprise License and Support
	LIC-MX64W-SEC-1YR LIC-MX64W-SEC-3YR LIC-MX64W-SEC-5YR	Cisco Meraki MX64W, 1-year Advanced Security License and Support Cisco Meraki MX64W, 3-year Advanced Security License and Support Cisco Meraki MX64W, 5-year Advanced Security License and Support
	LIC-MX64W-SDW-1YR LIC-MX64W-SDW-3YR LIC-MX64W-SDW-5YR	Cisco Meraki MX64W, 1-year Secure SD-WAN Plus License and Support Cisco Meraki MX64W, 3-year Secure SD-WAN Plus License and Support Cisco Meraki MX64W, 5-year Secure SD-WAN Plus License and Support
MX84-HW	LIC-MX84-ENT-1YR LIC-MX84-ENT-3YR LIC-MX84-ENT-5YR	Cisco Meraki MX84, 1-year Enterprise License and Support Cisco Meraki MX84, 3-year Enterprise License and Support Cisco Meraki MX84, 5-year Enterprise License and Support
	LIC-MX84-SEC-1YR LIC-MX84-SEC-3YR LIC-MX84-SEC-5YR	Cisco Meraki MX84, 1-year Advanced Security License and Support Cisco Meraki MX84, 3-year Advanced Security License and Support Cisco Meraki MX84, 5-year Advanced Security License and Support
	LIC-MX84-SDW-1YR LIC-MX84-SDW-3YR LIC-MX84-SDW-5YR	Cisco Meraki MX84, 1-year Secure SD-WAN Plus License and Support Cisco Meraki MX84, 3-year Secure SD-WAN Plus License and Support Cisco Meraki MX84, 5-year Secure SD-WAN Plus License and Support
MX100-HW	LIC-MX100-ENT-1YR LIC-MX100-ENT-3YR LIC-MX100-ENT-5YR	Cisco Meraki MX100, 1-year Enterprise License and Support Cisco Meraki MX100, 3-year Enterprise License and Support Cisco Meraki MX100, 5-year Enterprise License and Support
	LIC-MX100-SEC-1YR LIC-MX100-SEC-3YR LIC-MX100-SEC-5YR	Cisco Meraki MX100, 1-year Advanced Security License and Support Cisco Meraki MX100, 3-year Advanced Security License and Support Cisco Meraki MX100, 5-year Advanced Security License and Support
	LIC-MX100-SDW-1YR LIC-MX100-SDW-3YR LIC-MX100-SDW-5YR	Cisco Meraki MX100, 1-year Secure SD-WAN Plus License and Support Cisco Meraki MX100, 3-year Secure SD-WAN Plus License and Support Cisco Meraki MX100, 5-year Secure SD-WAN Plus License and Support



Model	License	Description
vMX	LIC-VMX-S-ENT-1YR LIC-VMX-S-ENT-3YR LIC-VMX-S-ENT-5YR	Cisco Meraki Small vMX, 1-year License and Support Cisco Meraki Small vMX, 3-year License and Support Cisco Meraki Small vMX, 5-year License and Support
	LIC-VMX-M-ENT-1YR LIC-VMX-M-ENT-3YR LIC-VMX-M-ENT-5YR	Cisco Meraki Medium vMX, 1-year License and Support Cisco Meraki Medium vMX, 3-year License and Support Cisco Meraki Medium vMX, 5-year License and Support
	LIC-VMX-L-ENT-1YR LIC-VMX-L-ENT-3YR LIC-VMX-L-ENT-5YR	Cisco Meraki Large vMX, 1-year License and Support Cisco Meraki Large vMX, 3-year License and Support Cisco Meraki Large vMX, 5-year License and Support
MX67-HW	LIC-MX67-ENT-1YR LIC-MX67-ENT-3YR LIC-MX67-ENT-5YR LIC-MX67-ENT-7YR LIC-MX67-ENT-10YR	Cisco Meraki MX67, 1-year Enterprise License and Support Cisco Meraki MX67, 3-year Enterprise License and Support Cisco Meraki MX67, 5-year Enterprise License and Support Cisco Meraki MX67, 7-year Enterprise License and Support Cisco Meraki MX67, 10-year Enterprise License and Support
	LIC-MX67-SEC-1YR LIC-MX67-SEC-3YR LIC-MX67-SEC-5YR LIC-MX67-SEC-7YR LIC-MX67-SEC-10YR	Cisco Meraki MX67, 1-year Advanced Security License and Support Cisco Meraki MX67, 3-year Advanced Security License and Support Cisco Meraki MX67, 5-year Advanced Security License and Support Cisco Meraki MX67, 7-year Advanced Security License and Support Cisco Meraki MX67, 10-year Advanced Security License and Support
	LIC-MX67-SDW-1YR LIC-MX67-SDW-3YR LIC-MX67-SDW-5YR LIC-MX67-SDW-7YR LIC-MX67-SDW-10YR	Cisco Meraki MX67, 1-year Secure SD-WAN Plus License and Support Cisco Meraki MX67, 3-year Secure SD-WAN Plus License and Support Cisco Meraki MX67, 5-year Secure SD-WAN Plus License and Support Cisco Meraki MX67, 7-year Secure SD-WAN Plus License and Support Cisco Meraki MX67, 10-year Secure SD-WAN Plus License and Support
MX67W-HW	LIC-MX67W-ENT-1YR LIC-MX67W-ENT-3YR LIC-MX67W-ENT-5YR LIC-MX67W-ENT-7YR LIC-MX67W-ENT-10YR	Cisco Meraki MX67W, 1-year Enterprise License and Support Cisco Meraki MX67W, 3-year Enterprise License and Support Cisco Meraki MX67W, 5-year Enterprise License and Support Cisco Meraki MX67W, 7-year Enterprise License and Support Cisco Meraki MX67W, 10-year Enterprise License and Support
	LIC-MX67W-SEC-1YR LIC-MX67W-SEC-3YR LIC-MX67W-SEC-5YR LIC-MX67W-SEC-7YR LIC-MX67W-SEC-10YR	Cisco Meraki MX67W, 1-year Advanced Security License and Support Cisco Meraki MX67W, 3-year Advanced Security License and Support Cisco Meraki MX67W, 5-year Advanced Security License and Support Cisco Meraki MX67W, 7-year Advanced Security License and Support Cisco Meraki MX67W, 10-year Advanced Security License and Support
	LIC-MX67W-SDW-1YR LIC-MX67W-SDW-3YR LIC-MX67W-SDW-5YR LIC-MX67W-SDW-7YR LIC-MX67W-SDW-10YR	Cisco Meraki MX67W, 1-year Secure SD-WAN Plus License and Support Cisco Meraki MX67W, 3-year Secure SD-WAN Plus License and Support Cisco Meraki MX67W, 5-year Secure SD-WAN Plus License and Support Cisco Meraki MX67W, 7-year Secure SD-WAN Plus License and Support Cisco Meraki MX67W, 10-year Secure SD-WAN Plus License and Support



Model	License	Description
MX67C-HW-NA (North America) MX67C-HW-WW (worldwide)	LIC-MX67C-ENT-1YR LIC-MX67C-ENT-3YR LIC-MX67C-ENT-5YR LIC-MX67C-ENT-7YR LIC-MX67C-ENT-10YR	Cisco Meraki MX67C, 1-year Enterprise License and Support Cisco Meraki MX67C, 3-year Enterprise License and Support Cisco Meraki MX67C, 5-year Enterprise License and Support Cisco Meraki MX67C, 7-year Enterprise License and Support Cisco Meraki MX67C, 10-year Enterprise License and Support
	LIC-MX67C-SEC-1YR LIC-MX67C-SEC-3YR LIC-MX67C-SEC-5YR LIC-MX67C-SEC-7YR LIC-MX67C-SEC-10YR	Cisco Meraki MX67C, 1-year Advanced Security License and Support Cisco Meraki MX67C, 3-year Advanced Security License and Support Cisco Meraki MX67C, 5-year Advanced Security License and Support Cisco Meraki MX67C, 7-year Advanced Security License and Support Cisco Meraki MX67C, 10-year Advanced Security License and Support
	LIC-MX67C-SDW-1YR LIC-MX67C-SDW-3YR LIC-MX67C-SDW-5YR LIC-MX67C-SDW-7YR LIC-MX67C-SDW-10YR	Cisco Meraki MX67C, 1-year Secure SD-WAN Plus License and Support Cisco Meraki MX67C, 3-year Secure SD-WAN Plus License and Support Cisco Meraki MX67C, 5-year Secure SD-WAN Plus License and Support Cisco Meraki MX67C, 7-year Secure SD-WAN Plus License and Support Cisco Meraki MX67C, 10-year Secure SD-WAN Plus License and Support
MX68-HW	LIC-MX68-ENT-1YR LIC-MX68-ENT-3YR LIC-MX68-ENT-5YR LIC-MX68-ENT-7YR LIC-MX68-ENT-10YR	Cisco Meraki MX68, 1-year Enterprise License and Support Cisco Meraki MX68, 3-year Enterprise License and Support Cisco Meraki MX68, 5-year Enterprise License and Support Cisco Meraki MX68, 7-year Enterprise License and Support Cisco Meraki MX68, 10-year Enterprise License and Support
	LIC-MX68-SEC-1YR LIC-MX68-SEC-3YR LIC-MX68-SEC-5YR LIC-MX68-SEC-7YR LIC-MX68-SEC-10YR	Cisco Meraki MX68, 1-year Advanced Security License and Support Cisco Meraki MX68, 3-year Advanced Security License and Support Cisco Meraki MX68, 5-year Advanced Security License and Support Cisco Meraki MX68, 7-year Advanced Security License and Support Cisco Meraki MX68, 10-year Advanced Security License and Support
	LIC-MX68-SDW-1YR LIC-MX68-SDW-3YR LIC-MX68-SDW-5YR LIC-MX68-SDW-7YR LIC-MX68-SDW-10YR	Cisco Meraki MX68, 1-year Secure SD-WAN Plus License and Support Cisco Meraki MX68, 3-year Secure SD-WAN Plus License and Support Cisco Meraki MX68, 5-year Secure SD-WAN Plus License and Support Cisco Meraki MX68, 7-year Secure SD-WAN Plus License and Support Cisco Meraki MX68, 10-year Secure SD-WAN Plus License and Support
MX68W-HW	LIC-MX68W-ENT-1YR LIC-MX68W-ENT-3YR LIC-MX68W-ENT-5YR LIC-MX68W-ENT-7YR LIC-MX68W-ENT-10YR	Cisco Meraki MX68W, 1-year Enterprise License and Support Cisco Meraki MX68W, 3-year Enterprise License and Support Cisco Meraki MX68W, 5-year Enterprise License and Support Cisco Meraki MX68W, 7-year Enterprise License and Support Cisco Meraki MX68W, 10-year Enterprise License and Support
	LIC-MX68W-SEC-1YR LIC-MX68W-SEC-3YR LIC-MX68W-SEC-5YR LIC-MX68W-SEC-7YR LIC-MX68W-SEC-10YR	Cisco Meraki MX68W, 1-year Advanced Security License and Support Cisco Meraki MX68W, 3-year Advanced Security License and Support Cisco Meraki MX68W, 5-year Advanced Security License and Support Cisco Meraki MX68W, 7-year Advanced Security License and Support Cisco Meraki MX68W, 10-year Advanced Security License and Support
	LIC-MX68W-SDW-1YR LIC-MX68W-SDW-3YR LIC-MX68W-SDW-5YR LIC-MX68W-SDW-7YR LIC-MX68W-SDW-10YR	Cisco Meraki MX68W, 1-year Secure SD-WAN Plus License and Support Cisco Meraki MX68W, 3-year Secure SD-WAN Plus License and Support Cisco Meraki MX68W, 5-year Secure SD-WAN Plus License and Support Cisco Meraki MX68W, 7-year Secure SD-WAN Plus License and Support Cisco Meraki MX68W, 10-year Secure SD-WAN Plus License and Support



Model	License	Description
MX67-HW	LIC-MX67-ENT-1YR LIC-MX67-ENT-3YR LIC-MX67-ENT-5YR LIC-MX67-ENT-7YR LIC-MX67-ENT-10YR	LIC-MX67-ENT-1YR LIC-MX67-ENT-3YR LIC-MX67-ENT-5YR LIC-MX67-ENT-7YR LIC-MX67-ENT-10YR
	LIC-MX67-SEC-1YR LIC-MX67-SEC-3YR LIC-MX67-SEC-5YR LIC-MX67-SEC-7YR LIC-MX67-SEC-10YR	LIC-MX67-SEC-1YR LIC-MX67-SEC-3YR LIC-MX67-SEC-5YR LIC-MX67-SEC-7YR LIC-MX67-SEC-10YR
	LIC-MX67-SDW-1YR LIC-MX67-SDW-3YR LIC-MX67-SDW-5YR LIC-MX67-SDW-7YR LIC-MX67-SDW-10YR	LIC-MX67-SDW-1YR LIC-MX67-SDW-3YR LIC-MX67-SDW-5YR LIC-MX67-SDW-7YR LIC-MX67-SDW-10YR
MX68CW-HW-NA (North America) MX68CW-HW-WW (worldwide)	LIC-MX68CW-ENT-1YR LIC-MX68CW-ENT-3YR LIC-MX68CW-ENT-5YR LIC-MX68CW-ENT-7YR LIC-MX68CW-ENT-10YR	Cisco Meraki MX68CW, 1-year Enterprise License and Support Cisco Meraki MX68CW, 3-year Enterprise License and Support Cisco Meraki MX68CW, 5-year Enterprise License and Support Cisco Meraki MX68CW, 7-year Enterprise License and Support Cisco Meraki MX68CW, 10-year Enterprise License and Support
	LIC-MX68CW-SEC-1YR LIC-MX68CW-SEC-3YR LIC-MX68CW-SEC-5YR LIC-MX68CW-SEC-7YR LIC-MX68CW-SEC-10YR	Cisco Meraki MX68CW, 1-year Advanced Security License and Support Cisco Meraki MX68CW, 3-year Advanced Security License and Support Cisco Meraki MX68CW, 5-year Advanced Security License and Support Cisco Meraki MX68CW, 7-year Advanced Security License and Support Cisco Meraki MX68CW, 10-year Advanced Security License and Support
	LIC-MX68CW-SDW-1YR LIC-MX68CW-SDW-3YR LIC-MX68CW-SDW-5YR LIC-MX68CW-SDW-7YR LIC-MX68CW-SDW-10YR	Cisco Meraki MX68CW, 1-year Secure SD-WAN Plus License and Support Cisco Meraki MX68CW, 3-year Secure SD-WAN Plus License and Support Cisco Meraki MX68CW, 5-year Secure SD-WAN Plus License and Support Cisco Meraki MX68CW, 7-year Secure SD-WAN Plus License and Support Cisco Meraki MX68CW, 10-year Secure SD-WAN Plus License and Support
MX250-HW	LIC-MX250-ENT-1YR LIC-MX250-ENT-3YR LIC-MX250-ENT-5YR LIC-MX250-ENT-7YR LIC-MX250-ENT-10YR	Cisco Meraki MX250, 1-year Enterprise License and Support Cisco Meraki MX250, 3-year Enterprise License and Support Cisco Meraki MX250, 5-year Enterprise License and Support Cisco Meraki MX250, 7-year Enterprise License and Support Cisco Meraki MX250, 10-year Enterprise License and Support
	LIC-MX250-SEC-1YR LIC-MX250-SEC-3YR LIC-MX250-SEC-5YR LIC-MX250-SEC-7YR LIC-MX250-SEC-10YR	Cisco Meraki MX250, 1-year Advanced Security License and Support Cisco Meraki MX250, 3-year Advanced Security License and Support Cisco Meraki MX250, 5-year Advanced Security License and Support Cisco Meraki MX250, 7-year Advanced Security License and Support Cisco Meraki MX250, 10-year Advanced Security License and Support
	LIC-MX250-SDW-1YR LIC-MX250-SDW-3YR LIC-MX250-SDW-5YR LIC-MX250-SDW-7YR LIC-MX250-SDW-10YR	Cisco Meraki MX250, 1-year Secure SD-WAN Plus License and Support Cisco Meraki MX250, 3-year Secure SD-WAN Plus License and Support Cisco Meraki MX250, 5-year Secure SD-WAN Plus License and Support Cisco Meraki MX250, 7-year Secure SD-WAN Plus License and Support Cisco Meraki MX250, 10-year Secure SD-WAN Plus License and Support

### **California Multiple Award Schedules (CMAS)**

#### What is CMAS?

California Multiple Award Schedules (CMAS) offers a wide variety of commodity and information technology products and services at prices which have been assessed to be fair, reasonable and competitive. The CMAS Program creates a pool of suppliers that an agency can solicit offers from. When utilized correctly, CMAS streamlines the procurement process

#### **Overview for CMAS**

The California Multiple Award Schedules (CMAS) program was established in 1994. The CMAS contracts are awarded and administered by the state of California, Department of General Services, Procurement Division, in accordance with Public Contract Code (PCC) Sections 10290 et seq. and Section 12101.5.

CMAS contracts are established using products, services, and prices from already existing, competitively assessed and cost compared multiple award contracts. The products, services, and prices are primarily from the federal General Services Administration (GSA) multiple award schedule program, but not exclusively. Added to these products, services, and prices, are California contract terms and conditions, procurement codes and policies, and a totally independent California contract.

The contracts are utilized statewide by both California state and local government agencies under delegated authority from the Department of General Services. Agencies make best-value purchasing decisions accordingly.

### ThunderIT offers a variety of Solutions & Services to meet your every need

#### **Digital Workplace**

Transform your digital workplace and empower employees to drive your business forward. We deliver flexible, tailored, end-to-end solutions to keep your workforce engaged and productive. With an innovative approach centered around exceptional user experiences.

#### **Smart Spaces**

We provide smart workspace solutions to help you deliver consistent network performance and give guests, employees and students an uninterrupted experience.

#### **Secure Network Solutions**

Our security solutions help protect your network and critical data from cybersecurity threats

#### **Safe Environments**

We believe that employee, student, and customer safety is paramount in any environment. That's why our solutions provide a cloud based platform to help you intuitively manage and monitor physical locations to ensure a safe experience for everyone.

#### **Next Generation WiFi**

Power new and improved user experiences with our managed wifi solutions, offering faster speeds for enhanced application experience and more capacity for high density indoor and outdoor environments.

#### **Remote Work Solutions**

With our remote work solutions, working away from the office is no big deal. Give employees a secure, optimized connection to your entire network from anywhere.

#### **Hybrid Workforce**

We provide a seamless hybrid workforce solution that embraces change and operational scale. Give your employees and customers unrivaled experiences with a cloud platform that unifies best-in-class technologies.

#### Free Network Evaluation & Demo

ThunderIT offers a FREE Network Evaluation and/or product Demo to help ensure you are well informed and confident when choosing the right Cisco Meraki solution for your needs. During our call we'll architect a custom built Cisco Meraki solution for your business or environment.

#### **Migration & Deployment**

ThunderIT offers Migration and Deployment Services for your Cisco Meraki solution. Our experienced team of IT Professionals can configure, deploy and support your products to meet your needs. Our custom solutions ensure maximum efficiency and provide a clear path for your business going forward.

#### **Managed Security**

ThunderIT offers the best and most cost-effective solution to lower your risk in a heightened threat environment. Our team of certified Cisco engineers are ready to ensure that your network is secure, and your firewall is optimally configured to defend your business.

#### Mobile device management (MDM) Services

Our Mobile Device Management (MDM) solution unifies management of thousands of endpoint devices in a secure cloud platform, driving your organization's mobility initiatives, while maintaining an environment of agility and security.

#### **Scope of CMAS**

CMAS agreements are established for information technology and non- information technology products and services that have been competitively assessed, negotiated, or bid primarily by the federal GSA, but not exclusively.

The awarded CMAS is structured to comply with California procurement codes, guidelines, and policies, and provide for the highest level of contractual protection.

When using CMAS as a procurement method, State agencies are required to seek offers from a minimum of 3 CMAS contractors, including one California Certified SB and/or DVBE (if available). Local government agencies are not bound by this requirement, and can set their own policy of how many contractors to solicit.

#### Legislation

Public Contract Code (PCC) § 10290 et seq. and 12101.5 include approval for local government agencies to use CMAS for acquisition of information technology and non-information technology products and services.

Public Contract Code (PCC) § 10298 and 10299 authorizes local government agencies and school districts to use CMAS and other Department of General Services (DGS) agreements without competitive bidding. However, each local government agency should make its own determination whether the CMAS program is consistent with their procurement policies and regulations.

#### **Definition of a Local Government Agency**

A local government agency is any city, county, city and county, district, or other local governmental body or corporation, including the California State Universities (CSU) and University of California (UC) systems, K-12 schools and community colleges empowered to expend public funds.

#### What is Included?

CMAS agreements are established for information technology and non- information technology products and services that have been competitively assessed, negotiated, or bid primarily by the federal GSA, but not exclusively. The awarded CMAS is structured to comply with California procurement codes, guidelines, and policies, and provide for the highest level of contractual protection.

#### **Contractor's Option to Allow Use of Their CMAS**

As specified in the CMAS, it is at the option of the CMAS contractor whether or not to allow local government agencies to use their CMAS. CMAS contractors must report all local government agency transactions in their quarterly reports.