Enterprise Networking:

The Foundation for Digitisation

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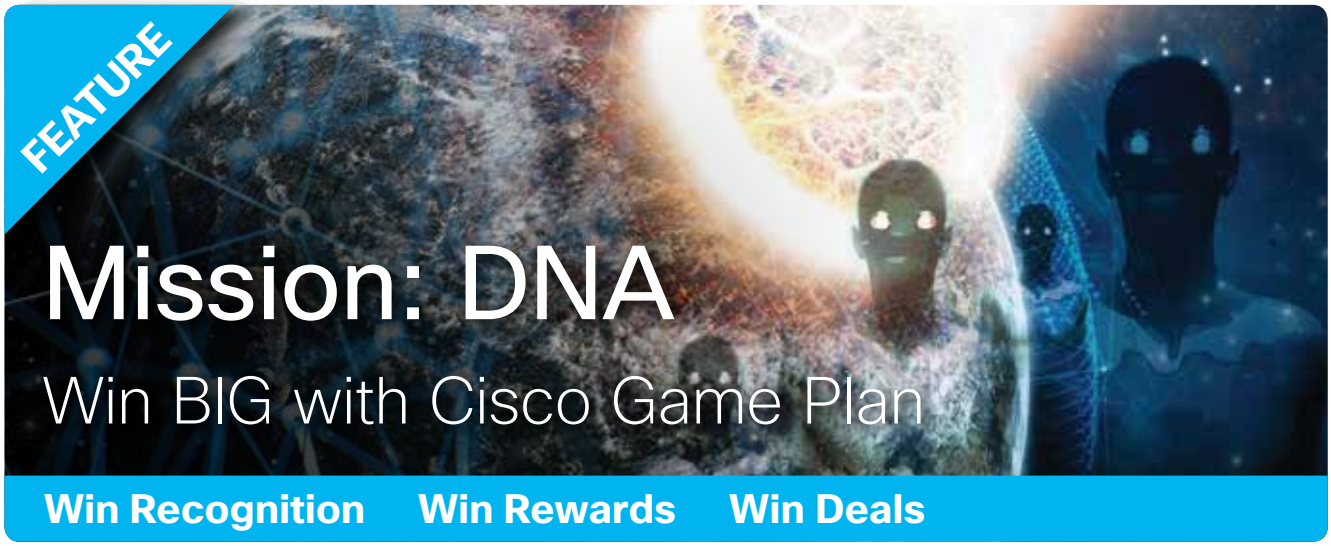
10110
11110

Cisco Catalog Volume 4:

Europe, Middle East, Africa and Russia



Accelerating Innovation and Digitisation with DNA

cisco

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Win Rewards
Win Deals

Win with **Cisco Game Plan**

A social and visually enhanced learning experience to accelerate your customer relevancy and success

- **Short insightful videos**
- **Quizzes to challenge your knowledge**
- **Points and badges to reward knowledge**
- **Instant recognition**
- **Compete and win**
- **Top the leaderboard, be the best**
- **Prizes as you play**

Coming soon – Mission: DNA

Journey into a new world of networking with Cisco Digital Network Architecture. Travel across the galaxy to track alien DNA and help build a digital ready network for your customers.

Want to be successful in today's competitive environment? Cisco Game Plan gives you the tools to win – all the time!

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Register today www.ciscogameplan.com

Cisco Catalog - EMEAR

Vol.4

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Going Digital Has Never Been Easier

New Cisco DNA Promotions

3 Ways to Save on Cisco Digital Network Architecture (DNA)

Up to 25% Savings[1]

Secure Access

Switching and Wireless

Up to 57% Savings

Secure WAN

Routing

Up to 25% Savings

Secure Perimeter

Next-Generation Firewall

On Premises

Cisco ONE™ Foundation for Access now includes:

- 1-year Cisco Stealthwatch license
- 1-year Cisco Connected Mobile Experiences (CMX) Beacon Center license

Cisco ONE for WAN now includes:

- 1-year Cisco Umbrella Branch license
- Cisco Akamai Connect
- Cisco WAAS Central Manager
- More DRAM and Flash

New security bundles include Cisco ASA Firewall, FirePOWER™ Services, Cloud Email Security, AMP for Endpoints, Cisco AnyConnect®, and Virtual FirePOWER Management Center. Cisco ASA Firewall with FirePOWER Services can also be purchased with Cisco ONE Advanced Security.

Cloud Managed

Buy 3+ year Cisco Meraki® software subscription, get 1-year at no additional cost.

Automate Your Network

Orders over $600,000 list price of eligible SKUs can receive a Cisco APIC-EM Appliance at no additional cost; $23,995 in value[2]. Available while supplies last.

Activate Cisco DNA Services

Orders over $300,000 list price of eligible SKUs may qualify for Cisco partner services vouchers to activate pre-defined DNA solutions.

0% Financing

Pay 90% of the purchase cost over 3 years. At term end, return gear or take ownership by paying the remaining 10%.

Contact your Cisco account manager or partner for more information and order eligibility.

Learn about Cisco DNA at cisco.com/go/dna. Promotions available for a limited time. Terms and conditions apply and vary by country.

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Going Digital Has Never Been Easier

New Secure Access Promotion for Cisco DNA

With the Cisco® Digital Network Architecture (DNA) and the Secure Access promotion, you can:

- Personalize and optimize your customer's mobile experience
- Enforce security and compliance across your entire network
- Simplify the network through automation

Secure Access

Switching and Wireless

Cisco DNA Secure Access Promotion

Up to 25% Savings[1]

On Premises

Cisco ONE® Foundation for Access now includes a 1-year Cisco StealthWatch® license and 1-year Connected Mobile Experiences (CMX) Beacon Center license at no additional cost.

Supported on Cisco Catalyst® 3850 and 3650 Series Switches; Cisco 5520 and 8540 WLAN Controllers; and Cisco Aironet™ 1800, 2800, and 3800 Access Points.

Cloud Managed

Buy 3+ year Cisco Meraki software subscription, get 1-year at no additional cost.

Available on all Cisco Meraki product licenses.

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Why Cisco DNA?

Your network is the foundation for your digital business. Organizations that align their network and business goals can generate more than 2X revenue growth[3]. Cisco DNA provides the blueprint for organizations to meet digital demands with an open, software-driven network that enables business and IT to innovate faster, reduce costs, and lower risk. Learn more at cisco.com/go/dna.

Contact your Cisco account manager or partner for more information.

Offers available for a limited time. Terms and conditions apply and vary by country.

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Going Digital Has Never Been Easier

New Secure WAN Promotion for Cisco DNA

With the Cisco® Digital Network Architecture (DNA) and the Secure WAN promotion, you can:

- Protect your branches from Internet and cloud application threats
- Lower WAN bandwidth costs and rollout IT service faster
- Optimize the user application experience

Routing

Cisco DNA Secure WAN Promotion

Up to 57% Savings

On Premises

Cisco ONE Foundation for WAN now includes Cisco Umbrella Branch license (1-year), Akamai Connect, WAAS Central Manager, and more DRAM and Flash at no additional cost.

Supported on Cisco Integrated Services Routers (ISR) 4400 and 4300.

Cloud Managed

Buy 3+ year Cisco Meraki software subscription, get 1-year at no additional cost.

Available on all Cisco Meraki product licenses.

Automate Your Network

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Going Digital Has Never Been Easier

New Secure Perimeter Promotion for Cisco DNA

With the Cisco® Digital Network Architecture (DNA) and the Secure Perimeter promotion, you can:

- Enable the industry's first threat-focused, next-generation firewall
- Implement threat protection with highest threat effectiveness
- Reduce complexity for operations

Secure Perimeter

Next Gen Firewall

Cisco DNA Secure Perimeter Promotion

Up to 25% Savings

On Premises

New security bundles include Cisco ASA Firewall, FirePOWER™ Services, Cloud Email Security, AMP for Endpoints, Cisco AnyConnect®, and Virtual FirePOWER Management Center. Cisco ASA Firewall with FirePOWER Services can also be purchased with Cisco ONE Advanced Security.

Supported on Cisco ASA 5500 and term subscriptions.

Cloud Managed

Buy 3+ year Cisco Meraki software subscription, get 1-year at no additional cost.

Available on all Cisco Meraki product licenses.

Automate Your Network

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Digital Ready Sales Campaign for Partners

The Digital Ready Sales Campaign is a set of offerings and tools focused on business outcomes to support our customers' digital transformation.

The Cisco DNA offers are designed to:

- Include security as an integral element
- Deliver more software value at no cost
- Enable Partners to seed DNA into accounts
- Assist in deploying solutions faster through partner services
- Help our partners build their software delivery practices
- Simplify purchasing with attractive financing

The campaign includes the following sales enablement elements:

- **Business relevant offers** focused on how the network can help businesses innovate faster, reduce cost and complexity and lower risk
- **Training and tools to** significantly shorten the sales cycle
- **Install base data** to help in identifying opportunities

For sales and customer-facing information, visit https://salesconnect.cisco.com/open.html?h=PAGE-5399

What's New

Enterprise networks today are required to be secure, reliable, and connectable seamlessly anywhere, anytime, for any user, and on any device. This catalog introduces the lineup of new products designed to deliver enterprise networks that help steer small- and medium-sized companies toward business success.

Please contact your authorized Cisco partner, authorized Cisco distributor or Cisco reseller for details on the release date.

Switches

Cisco Catalyst 3650 Series "Multigigabit" Switches

The **Cisco Catalyst 3650 Series** adds new Multigigabit models to the existing family of switches. These switches allow you to achieve bandwidth speeds from 1 Gbps through 10 Gbps over traditional Category 5e (Cat 5e) cabling or above, making it possible to construct wired LAN networks with sufficient performance to support the super high-speed wireless LAN using IEEE 802.11ac, without replacing the existing cabling infrastructure. In addition, the multigigabit ports on select switches support Cisco Universal Power over Ethernet (Cisco UPOE), which is increasingly important for next-generation workspaces and Internet of Things (IoT) ecosystems.

Cisco Catalyst 3650 Series Multigigabit Model P26

Wireless

Support 11ac Wave 2 in Small to Medium Outdoor Networks

Ideal for applications requiring rugged outdoor Wi-Fi coverage, the Cisco Aironet 1560 Series offer the latest IEEE 802.11ac Wave 2 radio standard in a compact, aesthetically pleasing, easy-to-deploy package. These outdoor access points offer flexible deployment options for service providers, enterprise networks, and public safety networks that need the fastest links possible for mobile, outdoor clients (smartphones, tablets, and laptops) and wireless backhaul. With options for internal or external antennas, Cisco Aironet 1560 Series give network operators the flexibility to balance their desired wireless coverage with their need for easy deployment.

Cisco Aironet 1560 Series P42

Cisco Virtual Beacon Solution

The Cisco® Virtual Beacon Solution provides the operational simplicity necessary to deliver a scalable BLE beacon solution across the enterprise. Virtual BLE beacons extend the capabilities of Cisco Connected Mobile Experiences (CMX) with proximity messaging, indoor wayfinding, and navigation for a richer location-aw are engagement for the mobile device user.

Cisco Virtual Beacon Solution is a unique and highly innovative solution that combines sophisticated cloud software, purpose-built hardware, and a mobile software development kit (SDK) to deliver wayfinding and proximity

Cisco Virtual Beacon P48

Routers

ISR4221 - An entry level ISR4000 IWAN router for small branch

The Cisco ISR4221 Router is the New Entry Level Modular platforms providing support for IWAN. Build on the same Cisco IOS XE it offers the rich feature set from the ISR4000 family.

Most small branch deployments require an entry level modular ISR for WAN diversity and intelligent use of resource at an affordable price. ISR4221 provide the best of both worlds. It provides 2 NIM slots for any WAN combo and the feature rich performance to support Intelligent WAN deployment for small branch. The ISR4221 provides for a performance of 35 (and 75Mbps with Performance License) for Data and Security services. Supporting the diverse set of ISR4000 NIM modules, the ISR4221 provides container support for Snort IPS. Please contact your Cisco Representative for more details on part numbers.

Cisco ISR4000 family PXX P53

Cisco Meraki

Cisco Meraki High Density AP

Sporting the market's most advanced 802.11ac Wave 2 chipset, the MR84 provides the highest client density support, a blazingly fast multigigabit uplink for heavy data loads, self-healing mesh, dynamic tuning to automatically optimize RF in congested environments, built-in security, a slew of features to help you selectively tune your RF environments, and integrated location based analytics to help you understand the foot traffic and behaviour of connected clients across your sites. In a nutshell: the MR84 loves a crowd.

Cisco Meraki MR84 P69

Cisco Meraki Cloud-Managed security Camera

Cisco Meraki's MV family of security cameras are exceptionally simple to deploy and configure. Their integration into the cisco Meraki dashboard, ease of deployment, and use of cloud-augmented edge storage, eliminate the cost and complexity required by traditional security camera solutions.

With an unobtrusive industrial design suitable for any setting–and available in indoor (MV21) and outdoor (MV71) models–the MV family simplifies and streamlines the unnecessarily complex world of security cameras. By eliminating servers and video recorders, MV frees administrators to spend less time on deployment and maintenance, and more time on meeting business needs.

Cisco Meraki MV P70

Small Business

New Models of Stackable 10 Gigabit Managed Switches

The Cisco Small Business 350X Series Stackable Managed Switches and the Cisco Small Business 550X Series Stackable Managed Switches are an ideal line of stackable managed switches for small business, that provides the rich capabilities you need to support a more demanding network environment, at a very affordable price. Now additional new models provide 24 or 48 ports of Gigabit Ethernet and Fast Ethernet connectivity with 10 Gigabit uplinks, and also support **60W PoE** on selected ports to power compact switches, high-power wireless access points, or connected lighting.

Cisco Small Business 350X Series Stackable Managed Switches P74

Cisco Small Business 550X Series Stackable Managed Switches P75

FEATURE

Cisco Firepower Next-Generation Firewall (NGFW)

The Cisco Firepower NGFW is the industry's first fully integrated, threat-focused next-gen firewall with unified management. It includes Application Visibility and Control (AVC), optional Firepower next-gen IPS (NGIPS), Cisco Advanced Malware Protection (AMP), and URL Filtering. Cisco Firepower NGFW provides advanced threat protection before, during, and after attacks.

Industry's First Fully Integrated, Threat-Focused NGFW

Most next-generation firewalls (NGFWs) focus heavily on enabling application control, but little on their threat defense capabilities. To compensate, some NGFW's will try to supplement their first-generation intrusion prevention with a series of non-integrated add-on products. However, this approach does little to protect your business against the risks posed by sophisticated attackers and advanced malware. Further, once you do get infected, they offer no assistance in scoping the infection, containing it, and remediating quickly.

What you need is an integrated, threat-centric next-generation firewall. One that not only delivers granular application control, but also provides effective security against the threats posed by sophisticated and evasive malware attacks.

The Cisco Firepower Next-Generation Firewall (NGFW) is the industry's first fully integrated, threat-focused NGFW. It delivers comprehensive, unified policy management of firewall functions, application control, threat prevention, and advanced malware protection from the network to the endpoint.

Protect Your Organization Before, During, and After an Attack

The Cisco Firepower NGFW includes the industry's most widely deployed stateful firewall and provides granular control over more than 4,000 commercial applications. Its single management interface delivers unified visibility from the network to the endpoint. Cisco Firepower NGFW enables comprehensive policy management that controls access, stops attacks, defends against malware and provides integrated tools to track, contain and recover from attacks that do get through.

The Cisco Firepower NGFW is unique in the industry because it is the only next-generation firewall that:

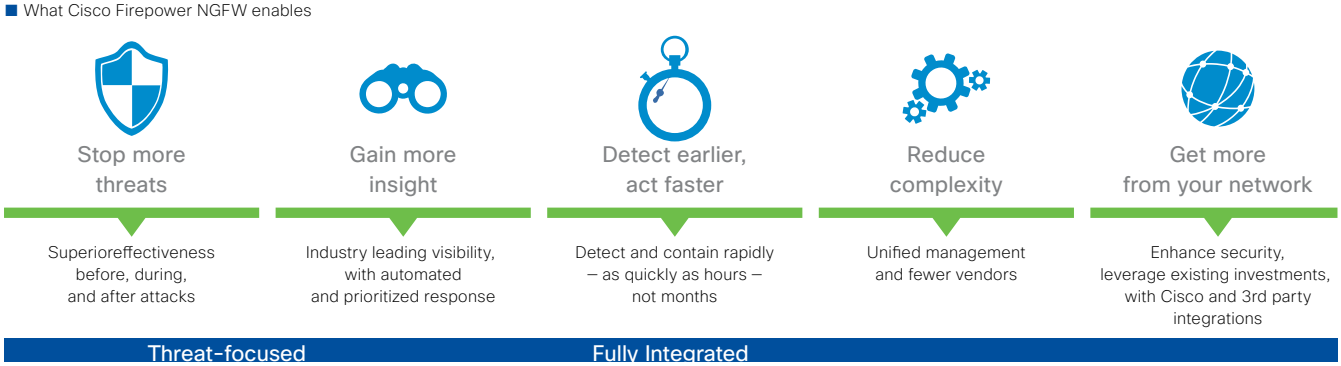
Stop more threats: Contain known and unknown malware with leading Cisco AMP and sandboxing. Get application firewalling (AVC) for 4,000 commercial applications, plus additional custom applications.

Gain more insight: Gain superior visibility into your environment with Cisco Firepower NGIPS. Automated risk rankings and impact flags identify priorities for your team.

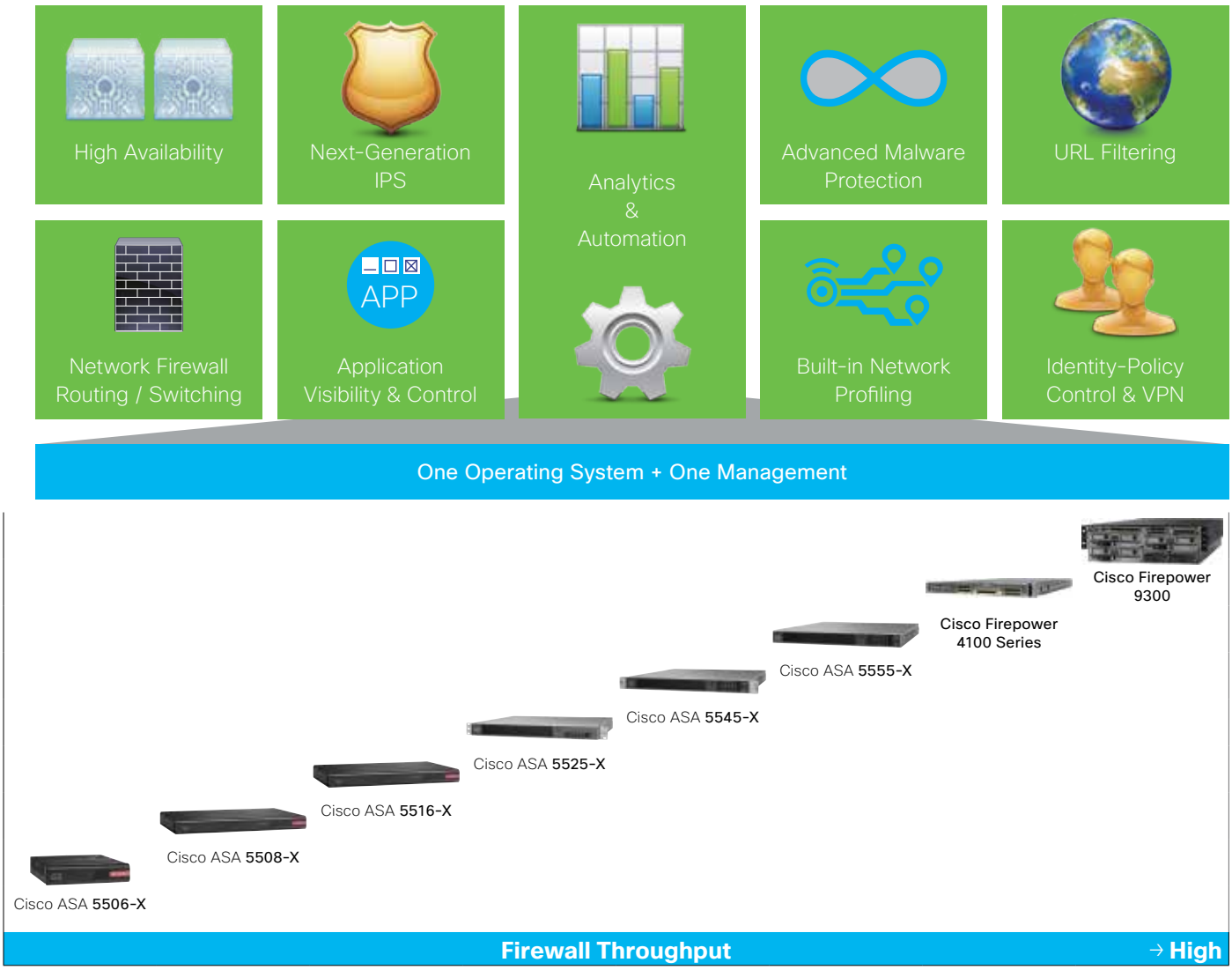
Detect earlier, act faster: The Cisco Annual Security Report identifies a 100-day median time from infection to detection, across enterprises. Cisco reduces this time to less than a day.

Reduce complexity: Get unified management and automated threat correlation across tightly integrated security functions, including application firewalling, NGIPS, and AMP.

Get more from your network: Enhance security, and take advantage of your existing investments, with optional integration of other Cisco and third-party networking and security solutions.



Feature Highlights & Platform Support



Cisco Firepower NGFW can be deployed on Cisco ASA 5500-X/5500-FTD-X Series and Cisco Firepower 4100/9300 Series appliances to provide a performance and density optimized NGFW security platform for small business, branch office, enterprise, Internet edge, data center, and other high-performance environments.

Cisco ASA 5500-FTD-X Series

The Cisco ASA 5500-FTD-X Series is a family of eight threat-focused NGFW security platforms. Their maximum throughput ranges from 750 Mbps to 4 Gbps, addressing use cases from the small or branch office to the Internet edge. They deliver superior threat defense in a cost-effective footprint.

Cisco Firepower 4100 Series

The Cisco Firepower 4100 Series is a family of four threat-focused NGFW security platforms. Their maximum throughput ranges from 20 to more than 60 Gbps, addressing use cases from the Internet edge to the data center. They deliver superior threat defense, at faster speeds, with a smaller footprint.

Cisco Firepower 9300 Series

The Cisco Firepower 9300 Series is a scalable (beyond 1 Tbps), carrier-grade, modular platform designed for service providers, high-performance computing centers, data centers, campuses, high-frequency trading environments, and more that require low (less than 5-microsecond offload) latency and exceptional throughput. They support flow-offloading, programmatic orchestration, and management of security services with RESTful APIs. It is also available in NEBS-compliant configurations.

Cisco Firepower NGFW appliances use the Cisco Firepower Threat Defense (FTD) software image. Alternatively, these appliances can support the Cisco Adaptive Security Appliance (ASA) and Cisco ASA with FirePOWER Services (Cisco ASA 5500-X) software images. The Cisco Firepower Management Center (formerly FireSIGHT) provides unified management of the Cisco Firepower NGFW, as well as Cisco Firepower NGIPS and Cisco AMP.

For details on Cisco Firepower Next-Generation Firewall (NGFW), visit the following Web site:

http://www.cisco.com/go/ngfw

FEATURE **Cisco Aironet 2800/3800 Series**

The World's Highest-Performance Access Points

Not all 11ac-compatible access points are created equal. The new Cisco Aironet 2800/3800 Series access points are highly versatile and deliver the most functionality of any access points in the industry.

11ac Wave 2 and Beyond

■ The Cisco Aironet 2800/3800 Series access points (APs) supports IEEE 802.11ac (11ac), providing a theoretical connection rate of up to **5.2 Gbps**—that's roughly 4x the rates offered by today's high-end 11ac access points. These APs offer not only all the benets of 11ac Wave 2 but also Cisco innovations for high density environments.

■ **Flexible Radio Assignment & Dual 5-GHz**

Allows the APs to intelligently determine the operating mode of serving radios based on the RF environment. The APs can operate in the following modes:

- **2.4-GHz and 5-GHz mode**: One radio serves clients in 2.4-GHz mode, while the other serves clients in 5-GHz mode.
- **Dual 5-GHz mode**: Both radios inside the AP operate on the 5-GHz band, allowing an industry-leading 5.2 Gbps (2 x 2.6 Gbps) over-the-air speed while increasing client capacity.
- **Wireless Security Monitoring and 5-GHz mode**: One radio serves 5-GHz clients while the other is scanning the full spectrum for attackers, RF interference, and rogue devices.
- **Wireless Service Assurance mode**: One radio serves 5-GHz clients, while the other proactively monitors the wireless network to help ensure the highest overall performance.
- **Enhanced Location mode**: One radio serves 5-GHz clients, while the other improves the client location accuracy.

■ **Multigigabit (mGig) Ethernet support (Aironet 3800)**

Providing multiple gigabit uplink speeds of 2.5 Gbps and 5 Gbps in addition to 100-Mbps and 1-Gbps speeds. All speeds are supported on Category 5e cabling for an industry first, as well as 10GBASE-T cabling.

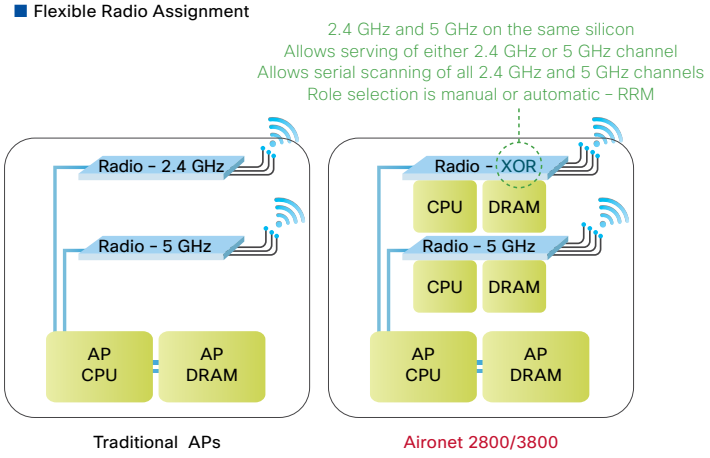
■ **Zero Impact Application Visibility and Control (AVC)**

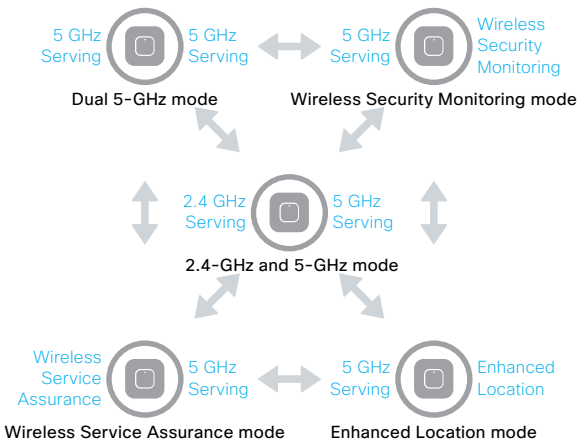
Uses dedicated hardware acceleration to improve the performance of line-speed applications such as Cisco AVC.

■ **Smart Antenna Connector**

An intelligent second physical antenna connector is included on models with an external antenna. This connector provides advanced network design flexibility for high-density and large open-area environments such as auditoriums, convention centers, libraries, cafeteria, and arenas/stadiums, allowing two sets of antennas to be connected and active on a single AP.

■ **Flexible Radio Assignment**





The World's Highest-Performance Access Points

NEW
Cisco Aironet 2800 Series

NEW
Cisco Aironet 3800 Series

Offers All the Benefits of 11ac Wave 2

Highest Wi-Fi Performance Ever

- Higher Data Rate
- Wider Channels

Better End Device Efficiency

- Simultaneous Data Delivery
- Better Battery Life

Plus Cisco Innovations for High Density Environments

- NEW Flexible Radio Assignment
- NEW mGig*1
- UPDATE Modularity*1
- UPDATE ClientLink
- Turbo Performance

Self-Optimizing Network

- UPDATE CleanAir
- NEW Zero Impact AVC
- Flexible DFS

Optimized Mobile User Experience

- NEW Smart Antenna Connector*2
- UPDATE Enhanced Location*3
- Optimized Roaming

*1 Cisco Aironet 3800 Series only. *2 External antenna model only. *3 On roadmap.

Comparing the Cisco 11ac Wave 2 Access Points

	Cisco Aironet 1810 Series	Cisco Aironet 1810W Series	Cisco Aironet 1830 Series	Cisco Aironet 1850 Series	Cisco Aironet 2800 Series	Cisco Aironet 3800 Series
Targeted Deployment Size	Teleworkers or micro-branches	Multi-dwelling units	Small or midsize enterprises	Small or midsize enterprises	Midsize to large enterprises that require advanced features	Midsize to large enterprises that require mission-critical traffic
Number of Radios	Dual (2.4 GHz and 5 GHz)	Dual (2.4 GHz and 5 GHz)	Dual (2.4 GHz and 5 GHz)	Dual (2.4 GHz and 5 GHz)	Dual (XOR and 5 GHz)	Dual (XOR and 5 GHz)
Combined Data Rate	1 Gbps	1 Gbps	1 Gbps	2 Gbps	5 Gbps	5 Gbps
MIMO Radio Design: Number of Spatial Streams	2 x 2 : 2 SU/MU-MIMO	2 x 2 : 2 SU/MU-MIMO	3 x 3 : 2 SU/MU-MIMO	4 x 4 : 4 SU-MIMO 4 x 4 : 3 MU-MIMO	4 x 4 : 3 SU/MU-MIMO	4 x 4 : 3 SU/MU-MIMO
Channel Width	2.4 GHz:20 MHz 5 GHz: 20/40/80 MHz	2.4 GHz: 20 MHz 5 GHz: 20/40/80 MHz	2.4 GHz: 20 MHz 5 GHz: 20/40/80 MHz	2.4 GHz: 20 MHz 5 GHz: 20/40/80 MHz	2.4 GHz: 20 MHz 5 GHz: 20/40/80/160 MHz	2.4 GHz: 20 MHz 5 GHz: 20/40/80/160 MHz
Ethernet Support	1 x GE uplink 3 x GE downlink with 1 PoE out	1 x GE uplink 3 x GE downlink with 1 PoE out	1 x GE	2 x GE	2 x GE	1 x GE 1 x Multigigabit
Flexible Radio Assignment & Dual 5-GHz	-	-	-	-	●	●
Turbo Performance	-	-	-	-	●	●
ClientLink	-	-	-	-	●	●
CleanAir	-	-	-	-	●	●
Zero Impact AVC	-	-	-	-	●	●
Smart Antenna Connector	-	-	-	-	●	●
Side Mount Modularity	-	-	-	-	-	●

FEATURE **Cisco On-premises & Cloud-managed Solutions**

The Best of Both Worlds

Whether you go with on-premises, cloud-managed, or hybrid, with Cisco you can build a network solution that is ideal for your application strategy, your IT staff's capabilities, and your business requirements.

How to Choose between On-premises and Cloud-managed Solutions

■ Now Cisco offers both on-premises and cloud-managed solutions for network infrastructure;

- On-premises: Catalyst, Aironet, ISR/ASA
- Cloud-managed: Cisco Meraki

Which solution should we use? Here are questions to help you choose between on-premises and cloud-managed solutions.

■ **Where will your applications live?**

If you're not comfortable with moving applications to the cloud for the next 3 to 5 years or are restricted due to security and privacy guidelines, an on-premises solution may be the way to go.
On the other hand, if you want to simplify and centralize overall network management, if you're ready to move applications to the cloud, or if you have already set up some cloud services, Cisco Meraki cloud-managed solution might be best.

■ **Do you have local IT support in most locations or are you struggling to scale your staff?**

On-premises - If your IT staff consists of technical experts who want a highly customizable network, consider an onpremises solution.
Cloud-managed - If your IT staff is small or stretched thin and is looking for ways to simplify deployments, consider a cloud-managed approach.

■ **How do you buy IT solutions?**

If you prefer to budget each project independently in a CapEx model, go with an on-premises deployment. If you'd rather pay for licenses and services over time in a renewable model through a subscription or OpEx-based approach, cloud management is best.

■ **How are you supporting mobile devices?**

On-premises networks can be great when you need advanced features, whereas cloud-managed networks offer quick setup and visibility.

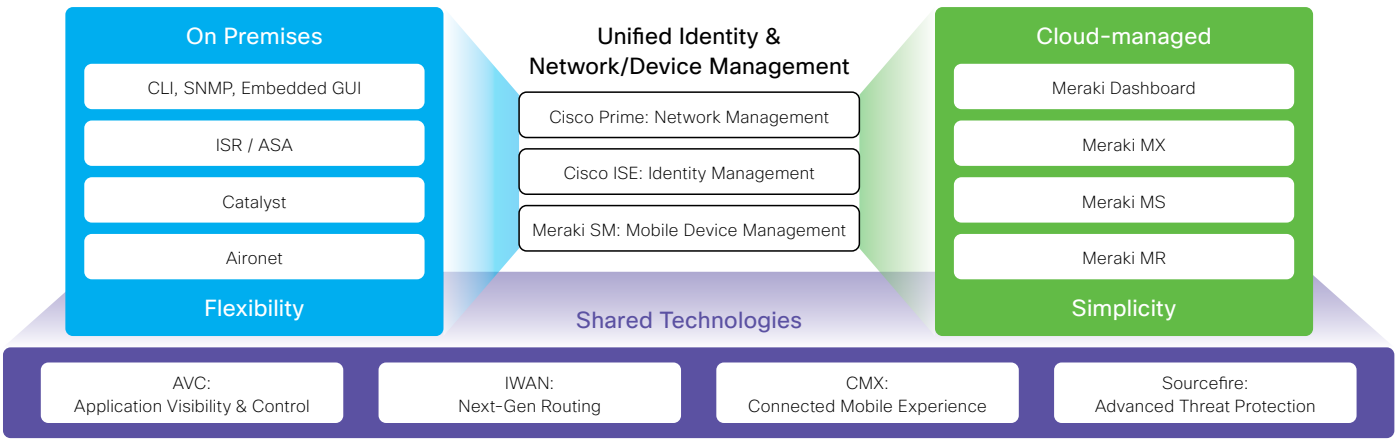
On-premises;
- Intelligent caching
- Optimization techniques
- Customized deployments

Cloud-managed;
- Turnkey installation
- Networkwide visibility
- Management simplicity

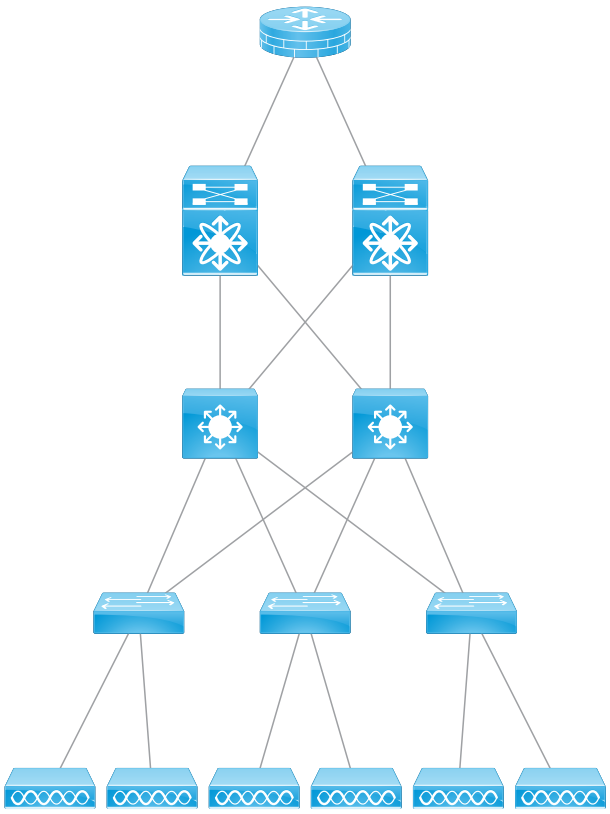
■ **What matters to you most?**

On-premises;
- Advanced features
- Dynamic service rollouts
- Deep visibility

Cloud-managed;
- Ease of use
- Security and reliability
- Out-of-the-box



Typical Deployment of On-premises: Network as a Platform



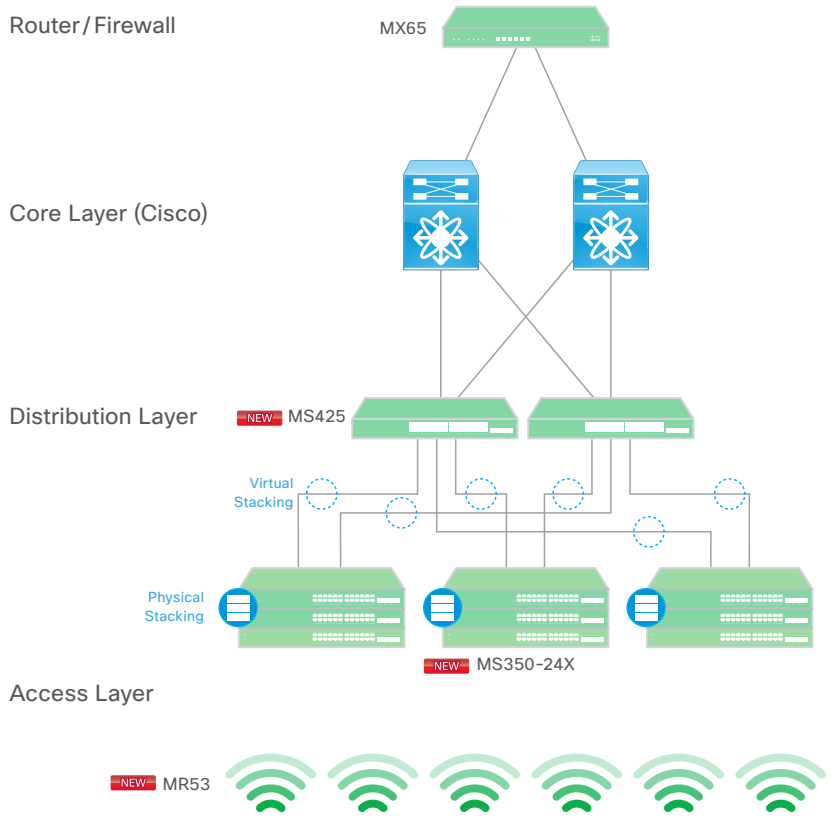
- Flexible Deployment and configuration options
- Highly customizable and advanced feature set
- Advanced services, extended support
- Extensive security integration capabilities with ISE

Prime Infrastructure

ISE

Mobility Express App

Typical Deployment of Cloud-managed: Network as a Service



- Easy to deploy and manage over the web
- Out-of-the-box optimized feature set
- Ongoing managed upgrades and enhancements
- Optimized for lean IT, with limited requirement for 3rd party integration

Meraki dashboard

Zero-touch deployment

Extend cloud management to devices

Switches

L2 / L3 Switches

Line-up of Cisco Catalyst Switches

	L2	L3
Core		Cisco Catalyst 4500-X Series; Cisco Catalyst 6500 Series; Cisco Catalyst 6800 Series
Core / Access		Cisco Catalyst 3650 Series (mGig); Cisco Catalyst 3850 Series (mGig); Cisco Catalyst 4500E Series (mGig)
Access	Cisco Catalyst 2960-X/XR Series; Cisco Catalyst 2960-L Series Switches; Cisco Catalyst 2960-Plus Series	
Compact	Cisco Catalyst 2960-CX Series	Cisco Catalyst 3560-CX Series (mGig)

Cisco Catalyst 2960-CX Series	L2 compact switches suitable for deployment in the access layer. These switches deliver basic network services even outside the wiring closet.	See page 23.
Cisco Catalyst 3560-CX Series	L3 compact switches suitable for deployment in the access layer. These switches deliver advanced network services even outside the wiring closet.	See page 23.
Cisco Catalyst 2960-Plus Series	L2 fixed-configuration switches suitable for deployment in the access layer. FE is supported on all downlink ports.	See page 24.
Cisco Catalyst 2960-L Series	L2 Fix Gigabit Ethernet switches that provide entry-level enterprise-class Layer 2 access for branch offices, conventional workspaces, and out-of-wiring closet applications	See page 25.
Cisco Catalyst 2960-X/XR Series	L2/L3 fixed-configuration switches suitable for deployment in the access layer. GE and stacking are supported on all downlink ports.	See page 25.
Cisco Catalyst 3650 Series	L2/L3 fixed-configuration switches suitable for deployment in the access layer or core layer. Provide a wireless controller function to server as an integrated platform for wired/wireless LAN networks.	See page 26.
Cisco Catalyst 3850 Series	Next-generation L2/L3 fixed-configuration switches suitable for deployment in the access layer or core layer. Provide a wireless controller function to server as an integrated platform for wired/wireless LAN networks.	See page 28.
Cisco Catalyst 4500E Series	L2/L3 modular switches suitable for deployment in the access layer or core layer. The superior cost performance of these switches ensure the protection of investment over long periods.	See page 30.
Cisco Catalyst 4500-X Series	L3 fixed-configuration switches suitable for deployment in the core layer. Deliver excellent expandability and performance in environments with space constraints.	See page 31.
Cisco Catalyst 6500 Series	L3 modular switches suitable for deployment in the core layer. Provide a wide range of network services thanks to their top-of-the-industry performance.	See page 32.
Cisco Catalyst 6800 Series	L3 fixed-configuration/modular switches suitable for deployment in the core layer. Provide network services optimized for 10/40/100 Gigabit Ethernet.	See page 33.

How to Distinguish Specifications from SKU of Cisco Catalyst Switches

The SKU of each Cisco Catalyst Switch contains a broad description of the product's specification.

Cisco Catalyst 2960-CX/2960-Plus/2960-X Series

WS-C 2960 X-24 T S-L

Series Number

Model Type
- CX : Compact model
- \+ : FE model
- X : GE model with stacking support *1 *2
- XR : GE model with power supply redundancy and stacking support

Number of Ports
8, 24, or 48

Downlink Ports
- T : Data-only port
- L : Port with PoE power supply support (Full 15.4 W power on 8 ports)
- P : Port with PoE power supply support (Full 15.4 W power on 24 ports) *3
- LP : Port with PoE power supply support (Full 15.4 W power on 24 ports)
- FP : Port with PoE power supply support (Full 15.4 W power on 48 ports)

Uplink Ports
- Q : GE port
- T : GE port
- C : GE/SFP port
- S : SFP module slot
- D : SFP/SFP+ module slot

Cisco IOS
- S or LL : LAN Lite
- L : LAN Base
- I : IP Lite

Cisco Catalyst 3560-CX/3650/3850 Series

WS-C 3850 -24 XU-S

Series Number

Number of Ports
8, 12, 24, or 48

Downlink Ports
- T : Data-only port
- P : Port with PoE power supply support (Full 15.4 W power on 24 ports) *4
- PF/F/PW : Port with PoE power supply support (Full 15.4 W power on 48 ports)
- U : Port with UPOE power supply support
- S : SFP module slot
- X : mGig port or SFP/SFP+ module slot

Cisco IOS
- L : LAN Base
- S : IP Base
- E : IP Services

Cisco Catalyst 4500E Series (Chassis)

WS-C 4507 R+E

Number of Slots
3, 6, 7, or 10

Supervisor Engine Redundancy
- None : Not supported
- R : Supported

Cisco Catalyst 4500E Series (Line Card)

WS-X 4748 -RJ45 - E

Bandwidth per Slot
- 46 : 24 Gbps
- 47 : 48 Gbps

Port Interface
- RJ45 : GE port
- RJ45V+ : GE port with PoE+ power supply support
- U, UPOE : GE port with UPOE power supply support
- X : mGig port
- SFP : SFP module slot
- X2 : X2 module slot
- SFP+ : SFP/SFP+ module slot

Cisco Catalyst 4500-X Series (no Network Module)

WS-C 4500 X-F -16 SFP+

Cooling Fan
- None : Front air intake/Rear exhaust
- F : Rear air intake/Front exhaust

Number of Ports
16 or 32

Cisco Catalyst 4500-X Series (with Network Module)

WS-C 4500 X-24 X-ES

Number of Ports
16 or 32

Cisco IOS
- IPB : IP Base
- ES : Enterprise Services

Cisco Catalyst 6500 Series (Chassis)

WS-C 6509 -V-E

Number of Slots
3, 4, 6, 9, or 13

Chassis Type
- None : Horizontal slot
- V : Vertical slot

Cisco Catalyst 6500/6800 Series (Line Card)

WS-X 6904 -40G - 2T

Number of Ports
4, 8, 16, 24, 32, or 48

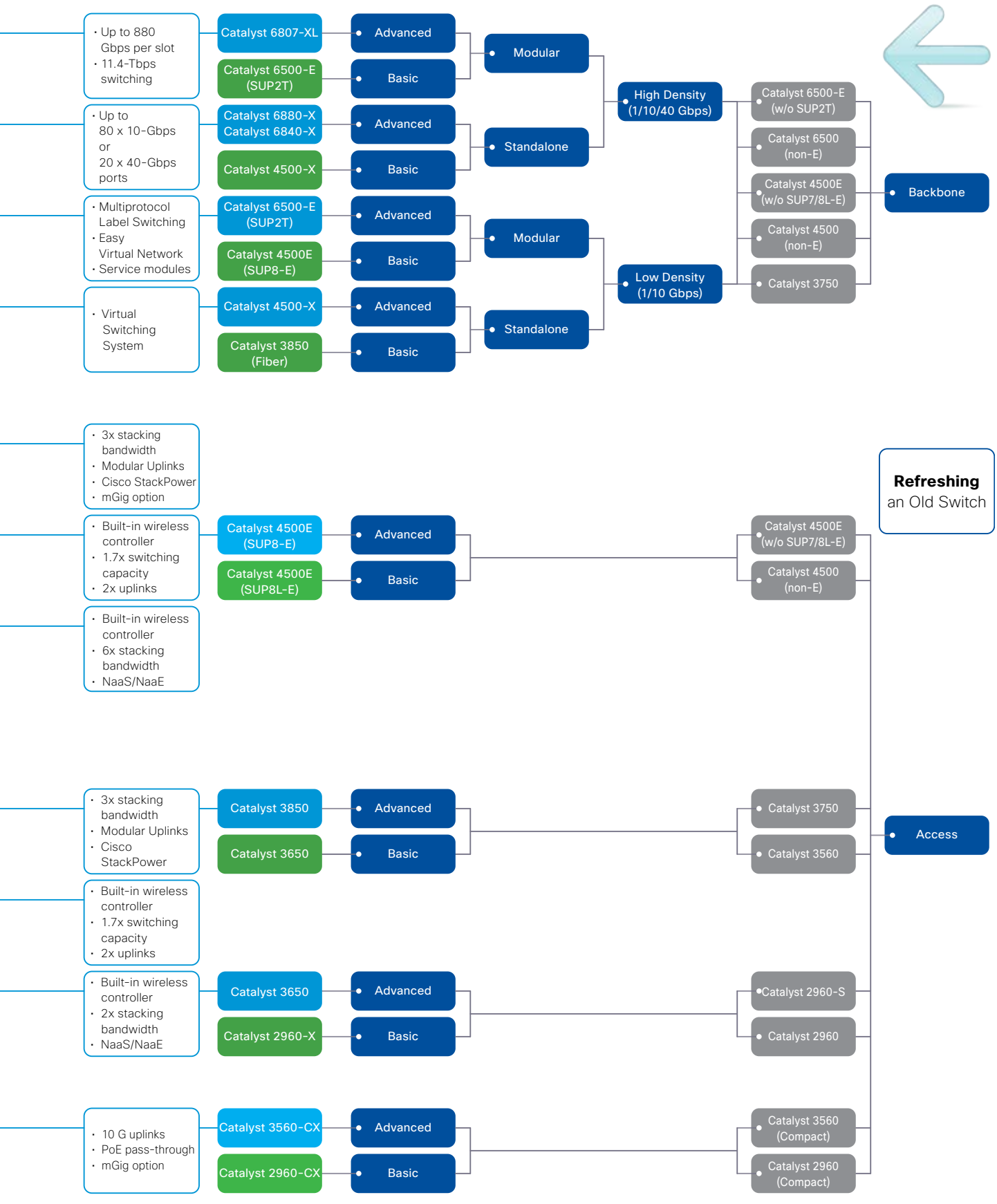
Port Interface
- TX : GE port
- SFP : SFP module slot
- 10T : 10GBASE-T port
- 10G : X2 module slot or SFP/SFP+ module slot
- 40G : CFP module slot

*1 LAN Lite model does not support stacking. *2 WS-C2960X-24PSQ-L is not supported. *3 Compact switches support full 15.4 W power on 8 ports.
*4 Compact switches support full 15.4 W power on 8 or 12 ports.

New Switch Selection Decision Tree

1. What's the **purpose** of the switch?
2. **Where** will you deploy the switch?
3. Do you need **converged wired and wireless** support?
4. What are your **connectivity** needs?
5. What **type** of switch do you prefer?
6. What **features** do you need?

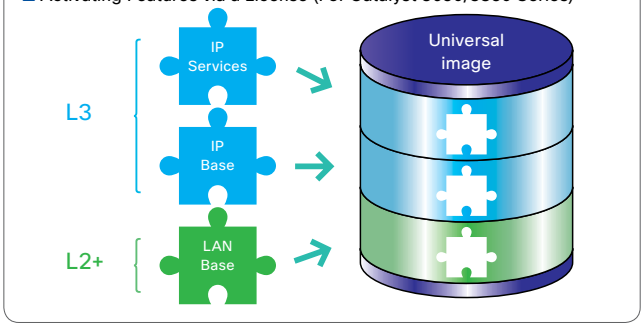
Switch Refresh Decision Tree



Cisco IOS on Cisco Catalyst Switches

Cisco Catalyst Switches incorporate the Cisco IOS (Internetwork Operating System), which is a high-performance network infrastructure software. LAN Lite and LAN Base feature sets provide the L2 level features, and IP Lite, IP Base, IP Services, Advanced IP Services, Enterprise Services, and Advanced Enterprise Services feature sets provide the L3 level features, respectively.
Cisco IOS provided with the Cisco Catalyst 3560-CX/3650/3850/4500-X/4500E Series is delivered in a single universal image. The universal image contains the entire Cisco IOS feature set that can be activated via a software license. A software image needed to be installed in order to use the new functions on previous Cisco Catalyst Switches. However, on the Cisco Catalyst 3560-CX/3650/3850/4500-X/4500E Series Switches, advanced functions can be activated immediately using the Cisco IOS Upgrade License.

■ Activating Features via a License (For Catalyst 3650/3850 Series)



■ Series Compatibility Comparison (Cisco Catalyst 2960-CX/3560-CX/2960-Plus/2960-L/2960-X/3650/3850/4500-X/4500E Series)

Supported Series	LAN Lite (LL)	LAN Base (LB)	IP Lite (IPL)	IP Base (IPB)	IP Servises (IPS)	Enterprise Servises (ES)
Catalyst 2960-CX	–	●	–	–	–	–
Catalyst 3560-CX	–	–	–	●	●	–
Catalyst 2960-Plus	●	●	–	–	–	–
Catalyst 2960-L	●	–	–	–	–	–
Catalyst 2960-X	●	●	●*1	–	–	–
Catalyst 3650	–	●	–	●	●	–
Catalyst 3850	–	●	–	●	●	–
Catalyst 4500-X	–	–	–	●	–	●
Catalyst 4500E	–	●	–	●	–	●

■ Cisco IOS Specification Comparison (L2 Features)

Feature	LL	LB	IPL	IPB	IPS	ES
IEEE 802.1Q Trunking	●	●	●	●	●	●
DTP	●	●	●	●	●	●
UDLD	●	●	●	●	●	●
VTP	●	●	●	●	●	●
CDP	●	●	●	●	●	●
LLDP	●	●	●	●	●	●
LLDP-MED	–	●	●	●	●	●
STP (Spanning Tree Protocol)	●	●	●	●	●	●
Flex Link	–	●	●	●	●	●
EtherChannel	●	●	●	●	●	●
LACP	●	●	●	●	●	●
Link State Tracking	–	●	●	●	●	●
Resilient Ethernet Protocol (REP)	–	–	–	●*2	●	●
Per-Port Storm Control	●	●	●	●	●	●

■ Cisco IOS Specification Comparison (L3 Features)

Feature	LL	LB	IPL	IPB	IPS	ES
Static Routing	–	●	●	●	●	●
RIP	–	–	●	●	●	●
EIGRP Stub	–	–	●	●	●	●
EIGRP	–	–	–	–	●	●
OSPF for Routed Access	–	–	●	●	●	●
OSPF v2/v3	–	–	–	–	●	●
BGP	–	–	–	–	●	●
IS-IS	–	–	–	–	●	●
Policy Based Routing (PBR)	–	–	●	●	●	●
VRF-Lite	–	–	–	–	●	●
PIM Stun	–	–	●	●	●	●
PIM	–	–	–	–	●	●
WCCP	–	–	●	●	●	●
SSO	–	●*3	–	●*4	●	●
NSF	–	–	–	●	●	●

■ Cisco IOS Specification Comparison (Managability)

Feature	LL	LB	IPL	IPB	IPS	ES
SNMP	●	●	●	●	●	●
RMON	●	●	●	●	●	●
SPAN	●	●	●	●	●	●
RSPAN	–	●	●	●	●	●
TDR	●	●	●	●	●	●
Smart Ports	●	●	●	●	●	●
Smart Install (client)	●	●	●	●	●	●
Smart Install (director)	–	●*3	–	●	●	●
Cisco IOS IP SLA (responder)	–	●	●	●	●	●
Cisco IOS IP SLA (initiator)	–	–	–	●	●	●
Cisco IOS EEM	–	–	–	●	●	●
Wireshark	–	–	–	●*4	●*4	●
Netflow-Lite	–	●	●	●	●	–
Flexible Netflow	–	–	–	●	●	●
EnergyWise	●	●	●	●	●	●
GOLD (GOLD-Lite)	●	●	●	●	●	●
OBFL	●	●	●	●	●	●

■ Cisco IOS Specification Comparison (Security)

Feature	LL	LB	IPL	IPB	IPS	ES
SSH	●	●	●	●	●	●
SSL	●	●	●	●	●	●
SCP	●	●	●	●	●	●
HTTPS	●	●	●	●	●	●
TACACS+	●	●	●	●	●	●
RADIUS	●	●	●	●	●	●
Port Security	●	●	●	●	●	●
DHCP Snooping	–	●	●	●	●	●
Dynamic ARP Inspection (DAI)	–	●	●	●	●	●
IP Source Guard	–	●	●	●	●	●
MAC Authentication Bypass for Voice	●	●	●	●	●	●
Private VLAN Edge	●	●	●	●	●	●
Private VLAN	–	–	●	●	●	●
Layer 2 - 4 ACL	–	●	●	●	●	●
Router ACL	–	●*5	●	●	●	●
VLAN ACL	–	–	●	●	●	●
Time Range ACL	–	●	●	●	●	●
Web Authentification	–	●	●	●	●	●
TrustSec SXP	–	●	●	●	●	●
TrustSec SGT/SGACL	–	●*5	●	●	●	●
MACsec	–	–	–	●	●	●
NEAT	–	●	●	●	●	●

■ Cisco IOS Specification Comparison (QoS)

Feature	LL	LB	IPL	IPB	IPS	ES
SRR	●	●	●	●	●	●
Priority Queue	●	●	●	●	●	●
Auto QoS	–	●	●	●	●	●
DSCP	–	●	●	●	●	●
Weighted Tail Drop (WTD)	–	●*6	–	●*6	●	–
Dynamic Buffer Limiting (DBL)	–	●*7	–	●*7	–	●*7
Control Plane Policing (CoPP)	–	●*3	–	●*4	●*4	●
Per VLAN Policy	–	–	●	●	●	●

*1 Cisco Catalyst 2960-XR Series only.*2 Cisco Catalyst 3650/3850 Series are to be supported in future software release.*3 Cisco Catalyst 2960-CX/2960-X Series are not supported.
*4 Cisco Catalyst 3560-CX Series are not supported. *5 Cisco Catalyst 3650/3850 Series are not supported.*6 Cisco Catalyst 3560/3850 Series only.*7 Cisco Catalyst 4500E Series only.

Cisco Catalyst 2960-CX Series

The compact switches are Layer 2 switches that are purpose built to enhance scalability and reduce costs through cable consolidation. Extend enterprise-class services to wherever you want, far from the wiring closet. They provide advanced networking features for security and management, equivalent to Cisco Catalyst 2960-X Series.

Highlights

- Stylish, compact, fan-less design and silent in operation.
- Deep-sleep mode: average 60 %, max 80 % on power saving.
- Operating temperature advantage: -5 °C to 45°C.
- Various mounting options: under a desk, on a shelf, on a wall, on a DIN rail or even in a rack using mounting brackets.
- IT simplicity: zero-touch deployments & maintenance, Plug-n-Play (PnP).
- Traffic visibility: support Cisco NetFlow-Lite up to Layer 4, supported both on all downlink and uplink ports.

Cisco Catalyst 2960-CX Series

SKU	Downlinks		Uplinks			Cisco IOS	Web Auth	MAC sec	Max VLANs	PoE Output Ports			AC Power	Magnet	Rack Mount
	GE	mGig	GE	SFP	SFP/ SFP+					PoE 7.7 W	PoE 15.4 W	PoE+ 30 W			
WS-C2960CX-8TC-L	8	-	2	2	-	LAN Base	●	-	255	-	-	-	Internal	-*1	-*2
WS-C2960CX-8PC-L	8	-	2	2	-	LAN Base	●	-	255	8	8	4	Internal	-*1	-*2

*1 Magnet and Mounting Tray (CMPCT-MGNT-TRAY=) is required. Optional new Power Adapter Bracket (PWR-ADPT-BRKT=) is available.
*2 Rack Mounting Brackets (RCKMNT-19-CMPCT=/RCKMNT-23-CMPCT=) is required. Optional new Power Adapter Bracket (PWR-ADPT-BRKT=) is available.

Cisco Catalyst 3560-CX Series

The compact switches are Layer 3 switches that are purpose built to enhance scalability and reduce costs through cable consolidation. Extend enterprise-class services to wherever you want, far from the wiring closet. They provide advanced networking features for security and management, equivalent to Cisco Catalyst 3650/3850 Series.

Highlights

- Stylish, compact, fan-less design and silent in operation.
- Deep-sleep mode: average 60 %, max 80 % on power saving, 3.8 Watt only for a 8 port switch in deep-sleep mode.
- Operating temperature advantage: -5 °C to 45°C.
- Various mounting options: under a desk, on a shelf, on a wall, on a DIN rail or even in a rack using mounting brackets.
- IT simplicity: zero-touch deployments & maintenance, Plug-n-Play (PnP).
- Traffic visibility: support Cisco NetFlow-Lite up to Layer 4, supported both on all downlink and uplink ports.
- PoE pass-through: industry's first UPOE powered switch that can pass through up to 146 W to power up the devices connected to the switch (WS-C3560CX-8PT-S)
- new DC-DC powering option for usage in trains, buses, etc.
- Horizontal Stacking: stacking using the 10G SFP+ or mGig Front Panel Ports for up to 8 switches

Cisco Catalyst 3560-CX Series

SKU	Downlinks		Uplinks			Cisco IOS	Web Auth	MAC sec	Max VLANs	PoE Output Ports			AC Power	Magnet	Rack Mount
	GE	mGig	GE	SFP	SFP/ SFP+					PoE 7.7 W	PoE 15.4 W	PoE+ 30 W			
WS-C3560CX-8TC-S	8	-	2	2	-	IP Base	●	●	1023	-	-	-	Internal	-*2	-*3
WS-C3560CX-8PT-S	8	-	2	-	-	IP Base	●	●	1023	8	8	8	External*1	-*2	-*3
WS-C3560CX-8PC-S	8	-	2	2	-	IP Base	●	●	1023	8	8	8	Internal	-*2	-*3
WS-C3560CX-8XPD-S	6	2	-	-	2	IP Base	●	●	1023	8	8	8	Internal	-*2	-*3
WS-C3560CX-12TC-S	12	-	2	2	-	IP Base	●	●	1023	-	-	-	Internal	-*2	-*3
WS-C3560CX-12PC-S	12	-	2	2	-	IP Base	●	●	1023	12	12	8	Internal	-*2	-*3
WS-C3560CX-12PD-S	12	-	2	-	2	IP Base	●	●	1023	12	12	8	Internal	-*2	-*3

Cisco IOS Upgrade License for Cisco Catalyst 3560-CX Series

SKU	Description
L-C3560CX-RTU=	Cisco IOS IP Services licensefor Cisco Catalyst 3560-CX Series

*1 Power Adapter and Power Cord is Required when not using PoE receiving. *2 Magnet and Mounting Tray (CMPCT-MGNT-TRAY=) is required. Optional new Power Adapter Bracket (PWR-ADPT-BRKT=) is available.
*3 Rack Mounting Brackets (RCKMNT-19-CMPCT=/RCKMNT-23-CMPCT=) is required. Optional new Power Adapter Bracket (PWR-ADPT-BRKT=) is available.

Comparison of Cisco Catalyst Compact Switches

Comparison of Cisco Catalyst 2960-CG & 2960-CX Compact Switches

Parameter	Feature	2960-CG	2960-CX
Ports	Uplinks	2 x GE/SFP	2 x GE and 2 x SFP
	Downlinks	8 x GE	8 x GE
PoE	PoE	-	124 W PoE+
	Perpetual PoE	-	●*1
Hardware	DRAM, Flash	128 MB, 64 MB	512 MB, 128 MB
Other	Security	802.1x	802.1x, SXP*2
	AVC	-	NetFlow Lite

Comparison of Cisco Catalyst 3560-CG & 3560-CX Compact Switches

Parameter	Feature	3560-CG	3560-CX
Ports	Uplinks	2 x GE or 2 x SFP	2 x GE and SFP/SFP+*3
	Downlinks	8 x GE	8 x GE or 12 x GE
	mGig	-	●*4
PoE	PoE	124 W PoE+	240 W PoE+
	PoE pass-through	1 x UPOE, 23.8 W	2 x UPOE, 144.8 W*1
	DC Power	-	●*1
	Power Stacking	-	Horizontal*1
	Perpetual PoE	-	●
Software	Cisco IOS	IP Base Only	IP Base, IP Services
Hardware	DRAM, Flash	128 MB, 64 MB	512 MB, 128 MB
Other	Security	802.1x, MACsec	802.1x, MACsec, SXP*1, SGACL*1
	AVC	NO	NetFlow Lite
	IPv6	Basic	Enhanced

*1 On roadmap. *2 SGACL is not supported. *3 WS-C3560CX-8XPD-S & WS-C3560CX-12PD-S only. *4 WS-C3560CX-8XPD-S only.

Cisco Catalyst 2960-Plus Series

L2 fixed-configuration switches equipped Fast Ethernet downlink ports. Based on the Fast Ethernet models of the Cisco Catalyst 2960 Series, these switches have twice the memory capacity and support the new Cisco IOS 15.0(2)SE and higher.

Highlights

- Equipped with Cisco IOS LAN Base Image (Excludes LAN Lite models)
- Equipped with PoE power supplying downlink ports (PSE models)

Cisco Catalyst 2960-Plus Series

SKU	Downlinks	Uplinks			Cisco IOS	Web Auth	Max VLANs	PoE Output Ports		AC Power	Rack Mount
	FE	GE	SFP	GE/SFP				PoE 7.7 W	PoE 15.4 W		
WS-C2960+24TC-S	24	-	-	2	LAN Lite	-	64	-	-	Internal	1 RU
WS-C2960+24LC-S	24	-	-	2	LAN Lite	-	64	8	8	Internal	1 RU
WS-C2960+24PC-S	24	-	-	2	LAN Lite	-	64	24	24	Internal	1 RU
WS-C2960+48TC-S	48	-	-	2	LAN Lite	-	64	-	-	Internal	1 RU
WS-C2960+48PST-S	48	2	2	-	LAN Lite	-	64	48	24	Internal	1 RU
WS-C2960+24TC-L	24	-	-	2	LAN Base	●	255	-	-	Internal	1 RU
WS-C2960+24LC-L	24	-	-	2	LAN Base	●	255	8	8	Internal	1 RU
WS-C2960+24PC-L	24	-	-	2	LAN Base	●	255	24	24	Internal	1 RU
WS-C2960+48TC-L	48	-	-	2	LAN Base	●	255	-	-	Internal	1 RU
WS-C2960+48PST-L	48	2	2	-	LAN Base	●	255	48	24	Internal	1 RU

Cisco Catalyst 2960 Series Transition Guide

Cisco Catalyst 2960-SF/2960-Plus Series[*1]

Stacking Supported	Stacking Not Supported
Legacy Models	Current Models
WS-C2960S-F24TS-S[*2]	WS-C2960+24TC-S WS-C2960+24LC-S WS-C2960+24PC-S
WS-C2960S-F48TS-S[*2]	WS-C2960+48TC-S WS-C2960+48PST-S
WS-C2960S-F24TS-L	WS-C2960+24TC-L
WS-C2960S-F24PS-L	WS-C2960+24LC-L WS-C2960+24PC-L
WS-C2960S-F48TS-L	WS-C2960+48TC-L
WS-C2960S-F48LPS-L	WS-C2960+48PST-L
WS-C2960S-F48FPS-L	WS-C2960+48PST-L

Comparison of Main Features

	2960-Plus	2960-SF 2960-S	2960-X
Cisco IOS 15.0(2)SE and higher	●	●	●
Cisco IOS IP Lite	-	-	●[*3]
IPv6	●	●	●
Full PoE	●	●	●
PoE +	-	●	●
Duplexed power supply	-	-	●
FlexStack	-	●	●
FlexStack Plus	-	-	●

Cisco Catalyst 2960-S/2960-X Series[*1]

Stacking Supported	
Legacy Models	Current Models
WS-C2960S-24TS-S[*2]	WS-C2960X-24TS-LL[*2]
WS-C2960S-48TS-S[*2]	WS-C2960X-48TS-LL[*2]
WS-C2960S-24TS-L	WS-C2960X-24TS-L WS-C2960XR-24TS-I
WS-C2960S-24TD-L	WS-C2960X-24TD-L WS-C2960XR-24TD-I
WS-C2960S-24PS-L	WS-C2960X-24PSQ-L[*2] WS-C2960X-24PS-L WS-C2960XR-24PS-I
WS-C2960S-24PD-L	WS-C2960X-24PD-L WS-C2960XR-24PD-I
WS-C2960S-48TS-L	WS-C2960X-48TS-L WS-C2960XR-48TS-I
WS-C2960S-48TD-L	WS-C2960X-48TD-L WS-C2960XR-48TD-I
WS-C2960S-48LPS-L	WS-C2960X-48LPS-L WS-C2960XR-48LPS-I
WS-C2960S-48FPS-L	WS-C2960X-48FPS-L WS-C2960XR-48FPS-I
WS-C2960S-48LPD-L	WS-C2960X-48LPD-L WS-C2960XR-48LPD-I
WS-C2960S-48FPD-L	WS-C2960X-48FPD-L WS-C2960XR-48FPD-I

Cisco FlexStack Plus module

When equipped with the optional Cisco FlexStack Plus Module (C2960X-STACK), the LAN Base/IP Lite models of the Cisco Catalyst 2960-X Series support connection of up to eight switches in a stack at 80 Gbps.

Cisco FlexStack Plus is backward-compatible with Cisco FlexStack. Up to four switches can be connected in a stack at 40 Gbps when (and only when) the LAN Base model of the Cisco Catalyst 2960-X Series is combined with the LAN Base model of the Cisco Catalyst 2960-SF/S Series.

Combined Stacks (Cisco FlexStack & Cisco FlexStack-Plus) Compatibility List

	2960-SF/S LAN Base	2960-X LAN Base	2960-XR IP Lite
2960-SF/S LAN Base	●	●	-
2960-X LAN Base	●	●	-
2960-XR IP Lite	-	-	●

Cisco FlexStack Plus Module

SKU	C2960X-STACK
Compatible IOS	LAN Base/IP Lite
Maximum Number of Devices	8
Stack Bandwidth	80 Gbps
Architecture	Hardware drop table
Dynamic Ring Load-balancing	-
Stack Convergence	100 milliseconds

*1 Search for EOL10043 at cisco.com. *2 Stacking is not supported. *3 LAN Lite/LAN Base models are not supported.

Cisco Catalyst 2960-L Series Switches

Cisco Catalyst® 2960-L Series Switches are entry-level, fixed-configuration, Gigabit Ethernet switches that provide enterprise-class Layer 2 access for branch offices, conventional workspaces, and out-of-wiring closet applications.

Highlights

- 6, 24, or 48 Gigabit Ethernet ports with line-rate forwarding.
- 2- or 4 Gigabit Small Form-Factor Pluggable (SFP) uplinks.
- power over Ethernet Plus (PoE+) support with up to 370W of power budget.
- Fanless operation and operational temperature up to 55°C for deployment outside the wiring closet.
- Higher mean time between failure (MTBF), because they have no moving mechanical parts.
- Less than 11.5-inch depth fit in use cases with space limitation.
- Reduced power consumption and advanced energy management features.
- RJ45 and USB console access for simplified operations.
- Intuitive web user interface for easy deployment and management.
- Cisco IOS® Software features.
- Enhanced limited lifetime warranty offering next-business-day hardware replacement.

Product ID	10/100/1000 Ethernet Ports	Uplink Interfaces	Available PoE Power	Fanless	Dimensions (H x D x W)	Weight
WS-C2960L-8TS-LL	8	2 SFP	-	Y	1.73 x 8.45 x 10.56 in (4.4 x 21.5 x 26.8 cm)	4.45lb (2.02 kg)
WS-C2960L-8PS-LL	8	2 SFP	67W	Y	1.73 x 9.45 x 10.56 in (4.4 x 24 x 26.8 cm)	5.64lb (2.56 kg)
WS-C2960L-16TS-LL	16	2 SFP	-	Y	1.73 x 8.45 x 10.56 in (4.4 x 21.5 x 26.8 cm)	4.53lb (2.06 kg)
WS-C2960L-16PS-LL	16	2 SFP	120W	Y	1.73 x 9.45 x 10.56 in (4.4 x 24 x 26.8 cm)	5.73lb (2.6 kg)
WS-C2960L-24TS-LL	24	4 SFP	-	Y	1.73 x 9.45 x 17.5 in (4.4 x 24 x 44.5 cm)	6.61lb (3.0 kg)
WS-C2960L-24PS-LL	24	4 SFP	195W	Y	1.73 x 10.45 x 17.5 in (4.4 x 26.5 x 44.5 cm)	7.63lb (3.46 kg)
WS-C2960L-48TS-LL	48	4 SFP	-	Y	1.73 x 9.45 x 17.5 in (4.4 x 24 x 44.5 cm)	7.21lb (3.27 kg)
WS-C2960L-48PS-LL	48	4 SFP	370W	N	1.73 x 11.5 x 17.5 in (4.4 x 26.5 x 44.5 cm)	10.25lb (4.65 kg)

Cisco Catalyst 2960-X Series

Stackable L2/L3 fixed-configuration switches equipped Gigabit Ethernet downlink ports. A flexible and redundant power supply configuration is achieved via a stack function and mounting of multiple power supply modules or a redundant power supply system.

Highlights

- Equipped with Cisco IOS Universal Image (Supports LAN Lite/LAN Base/IP Lite)*1
- Supports Layer 3 functions including HSRP and VRRP (IP Lite model)
- Equipped with PoE+ power supplying downlink ports (PSE model)
- Equipped with full PoE powering power supply (WS-C2960X-48FPS-L/WS-C2960X-48FPD-L/WS-C2960XR-48FPS-I/WS-C2960XR-48FPD-I)
- Supports multiple Power Supply Modules (IP Lite model)
- Supports Cisco FlexStack Plus (LAN Base/IP Lite models)

Cisco Catalyst 2960-X Series

SKU	Downlinks	Uplinks			Cisco IOS	Web Auth	Max VLANs	PoE Output Ports			Fanless	Power Supply	Power Redundancy	RPS	Flex Stack Plus	Rack Mount
	GE	GE	SFP	SFP/ SFP+				PoE 7.7 W	PoE 15.4 W	PoE+ 30 W						
WS-C2960X-24TS-LL	24	-	2	-	LAN Lite	-	64	-	-	-	-	Fixed AC	-	-	-	1 RU
WS-C2960X-48TS-LL	48	-	2	-	LAN Lite	-	64	-	-	-	-	Fixed AC	-	-	-	1 RU
WS-C2960X-24TS-L	24	-	4	-	LAN Base	●	1024	-	-	-	-	Fixed AC	-	●	●*2	1 RU
WS-C2960X-24TD-L	24	-	-	2	LAN Base	●	1024	-	-	-	-	Fixed AC	-	●	●*2	1 RU
WS-C2960X-24PSQ-L	24	2	2	-	LAN Base	●	1024	8	6	3	●	Fixed AC	-	-	-	1 RU
WS-C2960X-24PS-L	24	-	4	-	LAN Base	●	1024	24	24	12	-	Fixed AC	-	●	●*2	1 RU
WS-C2960X-24PD-L	24	-	-	2	LAN Base	●	1024	24	24	12	-	Fixed AC	-	●	●*2	1 RU
WS-C2960X-48TS-L	48	-	4	-	LAN Base	●	1024	-	-	-	-	Fixed AC	-	●	●*2	1 RU
WS-C2960X-48TD-L	48	-	-	2	LAN Base	●	1024	-	-	-	-	Fixed AC	-	●	●*2	1 RU
WS-C2960X-48LPS-L	48	-	4	-	LAN Base	●	1024	48	24	12	-	Fixed AC	-	●	●*2	1 RU
WS-C2960X-48FPS-L	48	-	4	-	LAN Base	●	1024	48	48	24	-	Fixed AC	-	●	●*2	1 RU
WS-C2960X-48LPD-L	48	-	-	2	LAN Base	●	1024	48	24	12	-	Fixed AC	-	●	●*2	1 RU
WS-C2960X-48FPD-L	48	-	-	2	LAN Base	●	1024	48	48	24	-	Fixed AC	-	●	●*2	1 RU
WS-C2960XR-24TS-I	24	-	4	-	IP Lite	●	1024	-	-	-	-	250 W AC	●	-	●*2	1 RU
WS-C2960XR-24TD-I	24	-	-	2	IP Lite	●	1024	-	-	-	-	250 W AC	●	-	●*2	1 RU
WS-C2960XR-24PS-I	24	-	4	-	IP Lite	●	1024	24	24	12	-	640 W AC	●	-	●*2	1 RU
WS-C2960XR-24PD-I	24	-	-	2	IP Lite	●	1024	24	24	12	-	640 W AC	●	-	●*2	1 RU
WS-C2960XR-48TS-I	48	-	4	-	IP Lite	●	1024	-	-	-	-	250 W AC	●	-	●*2	1 RU
WS-C2960XR-48TD-I	48	-	-	2	IP Lite	●	1024	-	-	-	-	250 W AC	●	-	●*2	1 RU
WS-C2960XR-48LPS-I	48	-	4	-	IP Lite	●	1024	48	24	12	-	640 W AC	●	-	●*2	1 RU
WS-C2960XR-48FPS-I	48	-	4	-	IP Lite	●	1024	48	48	24	-	640 W AC	●	-	●*2	1 RU
WS-C2960XR-48LPD-I	48	-	-	2	IP Lite	●	1024	48	24	12	-	1025 W AC	●	-	●*2	1 RU
WS-C2960XR-48FPD-I	48	-	-	2	IP Lite	●	1024	48	48	24	-	1025 W AC	●	-	●*2	1 RU

Power Supply Module for the Cisco Catalyst 2960-XR Series

SKU	Description	Compatible SKU
PWR-C2-250WAC	250 W AC power supply module	WS-C2960XR-24TS-I/WS-C2960XR-24TD-I/WS-C2960XR-48TS-I/WS-C2960XR-48TD-I
PWR-C2-640WAC	640 W AC power supply module	WS-C2960XR-24PS-I/WS-C2960XR-24PD-I/WS-C2960XR-48LPS-I/WS-C2960XR-48LPD-I
PWR-C2-1025WAC	1025 W AC power supply module	WS-C2960XR-48FPS-I/WS-C2960XR-48FPD-I

*1 Upgrade is not supported. *2 Cisco FlexStack Plus module (C2960X-STACK) is required.

Cisco Catalyst 3650 Series

Stackable L2/L3 fixed-configuration switches that offer the wireless controller function. These switches incorporate a 160 Gbps stack function and support multiple Power Supply Modules to achieve a flexible redundant configuration. They also provide common intelligent services for both wired/wireless LAN networks, such as QoS and security.

Highlights

- Equipped with Cisco IOS XE Universal Image (Supports LAN Base/IP Base/IP Services)
- Equipped with the Unified Access Data Plane (UADP) ASIC
- Built-in controller function capable of managing up to 50 wireless access points (Supports IP Base/IP Services)
- Equipped with Cisco Catalyst Multigigabit Technology (mGig)-enabled downlink ports (some models)
- Equipped with PoE+/UPOE power supplying downlink ports (UPOE ports are only incorporated on some PSE models)
- Equipped with MACsec-enabled downlink./uplink ports (IP Base/IP Services models)
- Supports Cisco StackWise-160
- Mini model less than 12 inches deep (WS-C3650-24PDM/WS-C3650-48FQM)

Cisco Catalyst 3650 Series (1 of 2)

SKU	Wireless Throughput	Downlinks		Uplinks			Cisco IOS	MAC sec	Max VLANs	PoE Output Ports			Power Supply	Power Redundancy	RPS	Rack Mount
		GE	mGig	SFP	SFP/SFP+	QSFP+				PoE 15.4 W	PoE+ 30 W	UPOE 60 W				
WS-C3650-24TS-L	20 Gpbs	24	-	4	-	-	LAN Base	-*1	255	-	-	-	250 W AC	●	-	1 RU
WS-C3650-24TS-S	20 Gpbs	24	-	4	-	-	IP Base	●	4094	-	-	-	250 W AC	●	-	1 RU
WS-C3650-24TS-E	20 Gpbs	24	-	4	-	-	IP Services	●	4094	-	-	-	250 W AC	●	-	1 RU
WS-C3650-24TD-L	20 Gpbs	24	-	2	2	-	LAN Base	-*1	255	-	-	-	250 W AC	●	-	1 RU
WS-C3650-24TD-S	20 Gpbs	24	-	2	2	-	IP Base	●	4094	-	-	-	250 W AC	●	-	1 RU
WS-C3650-24TD-E	20 Gpbs	24	-	2	2	-	IP Services	●	4094	-	-	-	250 W AC	●	-	1 RU
WS-C3650-24PS-L	20 Gpbs	24	-	4	-	-	LAN Base	-*1	255	24	13	-	640 W AC	●	-	1 RU
WS-C3650-24PS-S	20 Gpbs	24	-	4	-	-	IP Base	●	4094	24	13	-	640 W AC	●	-	1 RU
WS-C3650-24PS-E	20 Gpbs	24	-	4	-	-	IP Services	●	4094	24	13	-	640 W AC	●	-	1 RU
WS-C3650-24PDM-L	20 Gpbs	24	-	2	2	-	LAN Base	-*1	255	24	13	-	640 W AC	-	●	1 RU
WS-C3650-24PDM-S	20 Gpbs	24	-	2	2	-	IP Base	●	4094	24	13	-	640 W AC	-	●	1 RU
WS-C3650-24PDM-E	20 Gpbs	24	-	2	2	-	IP Services	●	4094	24	13	-	640 W AC	-	●	1 RU
WS-C3650-24PD-L	20 Gpbs	24	-	2	2	-	LAN Base	-*1	255	24	13	-	640 W AC	●	-	1 RU
WS-C3650-24PD-S	20 Gpbs	24	-	2	2	-	IP Base	●	4094	24	13	-	640 W AC	●	-	1 RU
WS-C3650-24PD-E	20 Gpbs	24	-	2	2	-	IP Services	●	4094	24	13	-	640 W AC	●	-	1 RU
WS-C3650-8X24PD-L NEW	20 Gpbs	24	8	-	2	-	LAN Base	-*1	255	24	14	-	750 W AC	●	-	1 RU
WS-C3650-8X24PD-S NEW	20 Gpbs	24	8	-	2	-	IP Base	●	4094	24	14	-	750 W AC	●	-	1 RU
WS-C3650-8X24PD-E NEW	20 Gpbs	24	8	-	2	-	IP Services	●	4094	24	14	-	750 W AC	●	-	1 RU
WS-C3650-8X24UQ-L NEW	20 Gpbs	24	8	-	4	-	LAN Base	-*1	255	24	24	13	1100 W AC	●	-	1 RU
WS-C3650-8X24UQ-S NEW	20 Gpbs	24	8	-	4	-	IP Base	●	4094	24	24	13	1100 W AC	●	-	1 RU
WS-C3650-8X24UQ-E NEW	20 Gpbs	24	8	-	4	-	IP Services	●	4094	24	24	13	1100 W AC	●	-	1 RU

*1 Cisco IOS IP Base/IP Services License is required.

Cisco Catalyst 3000 Series Transition Guide

Cisco Catalyst 3560-X/3650 Series*1

Legacy Models	Current Models
WS-C3560X-24T-L/S/E	WS-C3650-24TS-L/S/E WS-C3650-24TD-L/S/E
WS-C3560X-24P-L/S/E	WS-C3650-24PS-L/S/E WS-C3650-24PD-L/S/E WS-C3650-8X24PD-L/S/E
WS-C3560X-24U-L/S/E	WS-C3650-24PS-L/S/E WS-C3650-24PD-L/S/E WS-C3650-8X24PD-L/S/E WS-C3650-8X24UQ-L/S/E
WS-C3560X-48T-L/S/E	WS-C3650-48TS-L/S/E WS-C3650-48TD-L/S/E WS-C3650-48TQ-L/S/E

Legacy Models	Current Models
WS-C3560X-48P-L/S/E	WS-C3650-48PS-L/S/E WS-C3650-48PD-L/S/E WS-C3650-48PQ-L/S/E WS-C3650-12X48FD-L/S/E
WS-C3560X-48PF-L/S/E	WS-C3650-48FS-L/S/E WS-C3650-48FD-L/S/E WS-C3650-48FQ-L/S/E WS-C3650-12X48FD-L/S/E WS-C3650-12X48UQ-L/S/E WS-C3650-12X48UR-L/S/E WS-C3650-12X48UZ-L/S/E
WS-C3560X-48U-L/S/E	WS-C3650-48FS-L/S/E WS-C3650-48FD-L/S/E WS-C3650-48FQ-L/S/E WS-C3650-12X48FD-L/S/E WS-C3650-12X48UQ-L/S/E WS-C3650-12X48UR-L/S/E WS-C3650-12X48UZ-L/S/E

Cisco Catalyst 3750-X/3850 Series*1

Legacy Models	Current Models
WS-C3750X-24T-L/S/E	WS-C3850-24T-L/S/E
WS-C3750X-24P-L/S/E	WS-C3850-24P-L/S/E
WS-C3750X-24U-L/S/E	WS-C3850-24U-L/S/E WS-C3850-24XU-L/S/E
WS-C3750X-48T-L/S/E	WS-C3850-48T-L/S/E

Legacy Models	Current Models
WS-C3750X-48P-L/S/E	WS-C3850-48P-L/S/E
WS-C3750X-48PF-L/S/E	WS-C3850-48F-L/S/E
WS-C3750X-48U-L/S/E	WS-C3850-48U-L/S/E WS-C3850-12X48U-L/S/E
WS-C3750X-12S-S/E	WS-C3850-12S-S/E
WS-C3750X-24S-S/E	WS-C3850-24S-S/E

*1 Search for EOL10623 at cisco.com.

■ Cisco Catalyst 3650 Series (2 of 2)

SKU	Wireless Throughput	Downlinks		Uplinks			Cisco IOS	MAC sec	Max VLANs	PoE Output Ports			Power Supply	Power Redundancy	RPS	Rack Mount
		GE	mGig	SFP	SFP/ SFP+	QSFP+				PoE 15.4 W	PoE+ 30 W	UPOE 60 W				
WS-C3650-48TS-L	40 Gbps	48	-	4	-	-	LAN Base	-*1	255	-	-	-	250 W AC	●	-	1 RU
WS-C3650-48TS-S	40 Gbps	48	-	4	-	-	IP Base	●	4094	-	-	-	250 W AC	●	-	1 RU
WS-C3650-48TS-E	40 Gbps	48	-	4	-	-	IP Services	●	4094	-	-	-	250 W AC	●	-	1 RU
WS-C3650-48TD-L	40 Gbps	48	-	2	2	-	LAN Base	-*1	255	-	-	-	250 W AC	●	-	1 RU
WS-C3650-48TD-S	40 Gbps	48	-	2	2	-	IP Base	●	4094	-	-	-	250 W AC	●	-	1 RU
WS-C3650-48TD-E	40 Gbps	48	-	2	2	-	IP Services	●	4094	-	-	-	250 W AC	●	-	1 RU
WS-C3650-48TQ-L	40 Gbps	48	-	-	4	-	LAN Base	-*1	255	-	-	-	250 W AC	●	-	1 RU
WS-C3650-48TQ-S	40 Gbps	48	-	-	4	-	IP Base	●	4094	-	-	-	250 W AC	●	-	1 RU
WS-C3650-48TQ-E	40 Gbps	48	-	-	4	-	IP Services	●	4094	-	-	-	250 W AC	●	-	1 RU
WS-C3650-48PS-L	40 Gbps	48	-	4	-	-	LAN Base	-*1	255	25	13	-	640 W AC	●	-	1 RU
WS-C3650-48PS-S	40 Gbps	48	-	4	-	-	IP Base	●	4094	25	13	-	640 W AC	●	-	1 RU
WS-C3650-48PS-E	40 Gbps	48	-	4	-	-	IP Services	●	4094	25	13	-	640 W AC	●	-	1 RU
WS-C3650-48PD-L	40 Gbps	48	-	2	2	-	LAN Base	-*1	255	25	13	-	640 W AC	●	-	1 RU
WS-C3650-48PD-S	40 Gbps	48	-	2	2	-	IP Base	●	4094	25	13	-	640 W AC	●	-	1 RU
WS-C3650-48PD-E	40 Gbps	48	-	2	2	-	IP Services	●	4094	25	13	-	640 W AC	●	-	1 RU
WS-C3650-48PQ-L	40 Gbps	48	-	-	4	-	LAN Base	-*1	255	25	13	-	640 W AC	●	-	1 RU
WS-C3650-48PQ-S	40 Gbps	48	-	-	4	-	IP Base	●	4094	25	13	-	640 W AC	●	-	1 RU
WS-C3650-48PQ-E	40 Gbps	48	-	-	4	-	IP Services	●	4094	25	13	-	640 W AC	●	-	1 RU
WS-C3650-48FS-L	40 Gbps	48	-	4	-	-	LAN Base	-*1	255	48	25	-	1025 W AC	●	-	1 RU
WS-C3650-48FS-S	40 Gbps	48	-	4	-	-	IP Base	●	4094	48	25	-	1025 W AC	●	-	1 RU
WS-C3650-48FS-E	40 Gbps	48	-	4	-	-	IP Services	●	4094	48	25	-	1025 W AC	●	-	1 RU
WS-C3650-48FD-L	40 Gbps	48	-	2	2	-	LAN Base	-*1	255	48	25	-	1025 W AC	●	-	1 RU
WS-C3650-48FD-S	40 Gbps	48	-	2	2	-	IP Base	●	4094	48	25	-	1025 W AC	●	-	1 RU
WS-C3650-48FD-E	40 Gbps	48	-	2	2	-	IP Services	●	4094	48	25	-	1025 W AC	●	-	1 RU
WS-C3650-48FQM-L	40 Gbps	48	-	-	4	-	LAN Base	-*1	255	48	25	-	975 W AC	-	●	1 RU
WS-C3650-48FQM-S	40 Gbps	48	-	-	4	-	IP Base	●	4094	48	25	-	975 W AC	-	●	1 RU
WS-C3650-48FQM-E	40 Gbps	48	-	-	4	-	IP Services	●	4094	48	25	-	975 W AC	-	●	1 RU
WS-C3650-48FQ-L	40 Gbps	48	-	-	4	-	LAN Base	-*1	255	48	25	-	1025 W AC	●	-	1 RU
WS-C3650-48FQ-S	40 Gbps	48	-	-	4	-	IP Base	●	4094	48	25	-	1025 W AC	●	-	1 RU
WS-C3650-48FQ-E	40 Gbps	48	-	-	4	-	IP Services	●	4094	48	25	-	1025 W AC	●	-	1 RU
WS-C3650-12X48FD-L NEW	40 Gbps	48	12	-	2	-	LAN Base	-*1	255	48	27	-	1100 W AC	●	-	1 RU
WS-C3650-12X48FD-S NEW	40 Gbps	48	12	-	2	-	IP Base	●	4094	48	27	-	1100 W AC	●	-	1 RU
WS-C3650-12X48FD-E NEW	40 Gbps	48	12	-	2	-	IP Services	●	4094	48	27	-	1100 W AC	●	-	1 RU
WS-C3650-12X48UQ-L NEW	40 Gbps	48	12	-	4	-	LAN Base	-*1	255	48	27	11	1100 W AC	●	-	1 RU
WS-C3650-12X48UQ-S NEW	40 Gbps	48	12	-	4	-	IP Base	●	4094	48	27	11	1100 W AC	●	-	1 RU
WS-C3650-12X48UQ-E NEW	40 Gbps	48	12	-	4	-	IP Services	●	4094	48	27	11	1100 W AC	●	-	1 RU
WS-C3650-12X48UR-L NEW	40 Gbps	48	12	-	8	-	LAN Base	-*1	255	48	27	11	1100 W AC	●	-	1 RU
WS-C3650-12X48UR-S NEW	40 Gbps	48	12	-	8	-	IP Base	●	4094	48	27	11	1100 W AC	●	-	1 RU
WS-C3650-12X48UR-E NEW	40 Gbps	48	12	-	8	-	IP Services	●	4094	48	27	11	1100 W AC	●	-	1 RU
WS-C3650-12X48UZ-L NEW	40 Gbps	48	12	-	-	2	LAN Base	-*1	255	48	27	11	1100 W AC	●	-	1 RU
WS-C3650-12X48UZ-S NEW	40 Gbps	48	12	-	-	2	IP Base	●	4094	48	27	11	1100 W AC	●	-	1 RU
WS-C3650-12X48UZ-E NEW	40 Gbps	48	12	-	-	2	IP Services	●	4094	48	27	11	1100 W AC	●	-	1 RU

■ Power Supply Module for the Cisco Catalyst 3650 Series

SKU	Description
PWR-C2-250WAC	250 W AC Power Supply Module
PWR-C2-640WAC	640 W AC Power Supply Module
PWR-C1-715WAC	715 W AC Power Supply Module
PWR-C2-1025WAC	1025 W AC Power Supply Module
PWR-C1-1100WAC	1100 W AC Power Supply Module
PWR-C2-640WAC	640 W DC Power Supply Module

■ Cisco IOS Upgrade License for the Cisco Catalyst 3650 Series

SKU	Description
L-C3650-24-L-S	Cisco IOS IP Base License for 24-port IP Base model
L-C3650-24-S-E	Cisco IOS IP Services License for 24-port IP Base model
L-C3650-24-L-E	Cisco IOS IP Services License for 24-port IP Base model
L-C3650-48-L-S	Cisco IOS IP Base License for 48-port IP Base model
L-C3650-48-S-E	Cisco IOS IP Services License for 48-port IP Base model
L-C3650-48-L-E	Cisco IOS IP Services License for 48-port IP Base model

■ Cisco StackWise-160 Module for the Cisco Catalyst 3650 Series

SKU	Description
C3650-STACK-KIT	Cisco StackWise-160 Module

■ Additional Access Point License for the Cisco 3650 Series

SKU	Additional	Primary Upgrade SKU
L-LIC-CTIOS-1A	1	L-LIC-CT3650-UPG

*1 Cisco IOS IP Base/IP Services License is required.

Cisco Catalyst Compact Switches Transition Guide

■ Cisco Catalyst 2960-C/2960-CX Series

Legacy Models	Suggested Models
WS-C2960C-8TC-S/L	WS-C2960CX-8TC-L
WS-C2960C-8PC-L	WS-C2960CX-8PC-L
WS-C2960CPD-8TT-L	WS-C2960CX-8TC-L
WS-C2960CPD-8PT-L	WS-C2960CX-8PC-L
WS-C2960C-12PC-L	WS-C2960CX-8PC-L
WS-C2960CG-8TC-L*1	WS-C2960CX-8TC-L

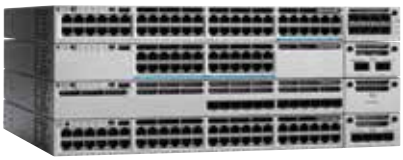
■ Cisco Catalyst 3560-C/3560-CX Series*1

Legacy Models	Suggested Models
WS-C3560C-8PC-S	WS-C3560CX-8PC-S
WS-C3560C-12PC-S	WS-C3560CX-12PC-S WS-C3560CX-12PD-S
WS-C3560CG-8TC-S	WS-C3560CX-8TC-S WS-C3560CX-12TC-S
WS-C3560CG-8PC-S	WS-C3560CX-8PC-S WS-C3560CX-8XPD-S
WS-C3560CPD-8PT-S	WS-C3560CX-8PT-S

*1Search for EOL10691 at cisco.com.

Cisco Catalyst 3850 Series

Next-generation stackable L2/L3 fixed-configuration switches featuring a wireless controller function. These switches feature the industry's fastest 480 Gbps stack function, support for multiple Power Supply Modules and innovative power-sharing function to achieve a flexible and advanced redundant configuration. They also provide common intelligent services for both wired/wireless LAN networks, such as QoS and security.



Highlights

- Equipped with Cisco IOS XE Universal Image (Supports LAN Base/IP Base/IP Services)
- Equipped with the Unified Access Data Plane (UADP) ASIC
- Built-in controller function capable of managing up to 100 wireless access points (Supports IP Base/IP Services)
- Equipped with Cisco Catalyst Multigigabit Technology (mGig)-enabled downlink ports (some models)
- Equipped with PoE+/UPOE power supplying downlink ports (UPOE ports are only incorporated on some PSE models)
- Equipped with MACsec-enabled downlink ports (IP Base/IP Services models)
- MACsec-enabled uplink ports (Optional, IP Base/IP Services models)
- Supports Cisco StackPower*1
- Supports Cisco StackWise-480*1

Cisco Catalyst 3850 Series

SKU	Wireless Throughput	Downlinks				Uplinks*2			Cisco IOS	MAC sec	Max VLANs	PoE Output Ports*4			Power Supply	Rack Mount
		GE	mGig	SFP	SFP / SFP +	SFP	SFP / SFP +	QSFP+				PoE 15.4 W	PoE + 30 W	UPOE 60 W		
WS-C3850-24T-L	20 Gpbs	24	-	-	-	4	2	-	LAN Base	-*3	255	-	-	-	350 W AC	1 RU
WS-C3850-24T-S	20 Gpbs	24	-	-	-	4	2	-	IP Base	●	4094	-	-	-	350 W AC	1 RU
WS-C3850-24T-E	20 Gpbs	24	-	-	-	4	2	-	IP Services	●	4094	-	-	-	350 W AC	1 RU
WS-C3850-24P-L	20 Gpbs	24	-	-	-	4	2	-	LAN Base	-*3	255	24	14	-	715 W AC	1 RU
WS-C3850-24P-S	20 Gpbs	24	-	-	-	4	2	-	IP Base	●	4094	24	14	-	715 W AC	1 RU
WS-C3850-24P-E	20 Gpbs	24	-	-	-	4	2	-	IP Services	●	4094	24	14	-	715 W AC	1 RU
WS-C3850-24U-L	20 Gpbs	24	-	-	-	4	2	-	LAN Base	-*3	255	24	14	13	715 W AC	1 RU
WS-C3850-24U-S	20 Gpbs	24	-	-	-	4	2	-	IP Base	●	4094	24	14	13	715 W AC	1 RU
WS-C3850-24U-E	20 Gpbs	24	-	-	-	4	2	-	IP Services	●	4094	24	14	13	715 W AC	1 RU
WS-C3850-24XU-L	40 Gbps	-	24	-	-	4	8	2	LAN Base	-*3	255	24	24	24	1100 W AC	1 RU
WS-C3850-24XU-S	40 Gbps	-	24	-	-	4	8	2	IP Base	●	4094	24	24	24	1100 W AC	1 RU
WS-C3850-24XU-E	40 Gbps	-	24	-	-	4	8	2	IP Services	●	4094	24	24	24	1100 W AC	1 RU
WS-C3850-48T-L	40 Gbps	48	-	-	-	4	4	-	LAN Base	-*3	255	-	-	-	350 W AC	1 RU
WS-C3850-48T-S	40 Gbps	48	-	-	-	4	4	-	IP Base	●	4094	-	-	-	350 W AC	1 RU
WS-C3850-48T-E	40 Gbps	48	-	-	-	4	4	-	IP Services	●	4094	-	-	-	350 W AC	1 RU
WS-C3850-48P-L	40 Gbps	48	-	-	-	4	4	-	LAN Base	-*3	255	28	14	-	715 W AC	1 RU
WS-C3850-48P-S	40 Gbps	48	-	-	-	4	4	-	IP Base	●	4094	28	14	-	715 W AC	1 RU
WS-C3850-48P-E	40 Gbps	48	-	-	-	4	4	-	IP Services	●	4094	28	14	-	715 W AC	1 RU
WS-C3850-48F-L	40 Gbps	48	-	-	-	4	4	-	LAN Base	-*3	255	48	26	-	1100 W AC	1 RU
WS-C3850-48F-S	40 Gbps	48	-	-	-	4	4	-	IP Base	●	4094	48	26	-	1100 W AC	1 RU
WS-C3850-48F-E	40 Gbps	48	-	-	-	4	4	-	IP Services	●	4094	48	26	-	1100 W AC	1 RU
WS-C3850-48U-L	40 Gbps	48	-	-	-	4	4	-	LAN Base	-*3	255	48	26	13	1100 W AC	1 RU
WS-C3850-48U-S	40 Gbps	48	-	-	-	4	4	-	IP Base	●	4094	48	26	13	1100 W AC	1 RU
WS-C3850-48U-E	40 Gbps	48	-	-	-	4	4	-	IP Services	●	4094	48	26	13	1100 W AC	1 RU
WS-C3850-12X48U-L	40 Gbps	36	12	-	-	4	8	2	LAN Base	-*3	255	48	48	36	1100 W AC	1 RU
WS-C3850-12X48U-S	40 Gbps	36	12	-	-	4	8	2	IP Base	●	4094	48	48	36	1100 W AC	1 RU
WS-C3850-12X48U-E	40 Gbps	36	12	-	-	4	8	2	IP Services	●	4094	48	48	36	1100 W AC	1 RU
WS-C3850-12S-S	20 Gbps	-	-	12	-	4	2	-	IP Base	●	4094	-	-	-	350 W AC	1 RU
WS-C3850-12S-E	20 Gbps	-	-	12	-	4	2	-	IP Services	●	4094	-	-	-	350 W AC	1 RU
WS-C3850-12XS-S	40 Gbps	-	-	-	12	-	4	-	IP Base	●	4094	-	-	-	350 W AC	1 RU
WS-C3850-12XS-E	40 Gbps	-	-	-	12	-	4	-	IP Services	●	4094	-	-	-	350 W AC	1 RU
WS-C3850-24S-S	20 Gbps	-	-	24	-	4	2	-	IP Base	●	4094	-	-	-	350 W AC	1 RU
WS-C3850-24S-E	20 Gbps	-	-	24	-	4	2	-	IP Services	●	4094	-	-	-	350 W AC	1 RU
WS-C3850-24XS-S	40 Gbps	-	-	-	24	-	8	2	IP Base	●	4094	-	-	-	715 W AC	1 RU
WS-C3850-24XS-E	40 Gbps	-	-	-	24	-	8	2	IP Services	●	4094	-	-	-	715 W AC	1 RU
WS-C3850-48XS-S	40 Gbps	-	-	-	48	-	-	4	IP Base	●	4094	-	-	-	750 W AC	1 RU
WS-C3850-48XS-E	40 Gbps	-	-	-	48	-	-	4	IP Services	●	4094	-	-	-	750 W AC	1 RU
WS-C3850-48XS-F-S	40 Gbps	-	-	-	48	-	-	4	IP Base	●	4094	-	-	-	750 W AC	1 RU
WS-C3850-48XS-F-E	40 Gbps	-	-	-	48	-	-	4	IP Services	●	4094	-	-	-	750 W AC	1 RU

Network Module for the Cisco Catalyst 3850 Series

SKU	Description	Supported Configuration (SFP/SFP+/QSFP)
C3850-NM-4-1G	Network Module equipped with SFP module slots for 24/48-port models, mGig models, 1 G fiber models	4/0/0
C3850-NM-2-10G	Network Module equipped with SFP+ module slots for 24/48-port models, mGig models, 1 G fiber models	4/0/0 3/1/0 2/2/0 0/2/0
C3850-NM-4-10G	Network Module equipped with SFP+ module slots for 48-port models, mGig models, 10 G fiber models	4/0/0 3/1/0 2/2/0 1/3/0 0/4/0
C3850-NM-8-10G	Network Module equipped with SFP+ module slots for mGig models & 24-port 10 G fiber models	8/8/0
C3850-NM-2-40G	Network Module equipped with QSFP module slots for mGig models & 24-port 10 G fiber models	0/0/2

Power Supply Module for the Cisco Catalyst 3850 Series

SKU	Description
PWR-C1-350WAC	350 W AC Power Supply Module
PWR-C1-715WAC	715 W AC Power Supply Module
PWR-C1-1100WAC	1100 W AC Power Supply Module
PWR-C1-440WDC	440 W DC Power Supply Module

SKU	Description
PWR-C3-750WAC-R	750 W AC Front-to-Back Airflow Power Supply Module for WS-C3850-48XS
PWR-C3-750WAC-F	750 W AC Back-to-Front Airflow Power Supply Module for WS-C3850-48XS
PWR-C3-750WDC-R	750 W DC Front-to-Back Airflow Power Supply Module for WS-C3850-48XS
PWR-C3-750WDC-F	750 W DC Back-to-Front Airflow Power Supply Module for WS-C3850-48XS

*1 48-ports 10 G fiber models are not supported*2 Network Module for the Cisco Catalyst 3850 Series is required (Except for 48-port fiber model).
*3 Cisco IOS IP Base/IP Services License is required.*4 For the default power supply configuration.

■ Additional Access Point License for the Cisco 3850 Series

SKU	Additional	Primary Upgrade SKU
L-LIC-CTIOS-1A	1	L-LIC-CT3850-UPG

■ Cisco IOS XE Upgrade License for the Cisco Catalyst 3850 Series

SKU	Description
L-C3850-12-S-E	Cisco IOS IP Services License for 12-port IP Base model
L-C3850-24-L-S	Cisco IOS IP Base License for 24-port LAN Base model
L-C3850-24-S-E	Cisco IOS IP Services License for 24-port IP Base model
L-C3850-24-L-E	Cisco IOS IP Services License for 24-port LAN Base model
L-C3850-48-L-S	Cisco IOS IP Base License for 48-port LAN Base model
L-C3850-48-S-E	Cisco IOS IP Services License for 48-port IP Base model
L-C3850-48-L-E	Cisco IOS IP Services License for 48-port LAN Base model

■ Cisco Catalyst 3850 Series Bundle

SKU	Bundle			
	Model	Network Module	Number of Access Point Licenses	Cisco IOS
WS-C3850-24PW-S	WS-C3850-24P-S	-	5	IP Base
WS-C3850-24UW-S	WS-C3850-24U-S	-	5	IP Base
WS-C3850-24XUW-S	WS-C3850-24XU-S	-	5	IP Base
WS-C3850-48W-S	WS-C3850-48P-S	-	5	IP Base
WS-C3850-48PW-S	WS-C3850-48F-S	-	5	IP Base
WS-C3850-48UW-S	WS-C3850-48U-S	-	5	IP Base
WS-C3850-12X48UW-S	WS-C3850-12X48U-S	-	5	IP Base
WS-C3850-16XS-S	WS-C3850-12XS-S	C3850-NM-4-10G	5	IP Base
WS-C3850-16XS-E	WS-C3850-12XS-E	C3850-NM-4-10G	5	IP Services
WS-C3850-32XS-S	WS-C3850-24XS-S	C3850-NM-8-10G	5	IP Base
WS-C3850-32XS-E	WS-C3850-24XS-E	C3850-NM-8-10G	5	IP Services

Cisco Catalyst Multigigabit Technology (mGig)

■ Challenges for Wired LAN Posed by 11ac "Gigabit Wireless LAN"

IEEE 802.11ac is a super high-speed wireless standard that delivers a theoretical maximum throughput of up to 6.9 Gbps. Wireless LAN is literally entering the "Gigabit era", but the migration to 11ac is presenting wired LAN with "old and new" challenges. In other words, these are the same old challenges that were experienced during the migration from 11a/g to 11n.
During the migration from 11a/g to 11n, it was obvious that Fast Ethernet switches (max 100 Mbps) had insufficient capacity to server as access switches for accommodating the access points. Similarly today, it is obvious that 1-Gigabit Ethernet switches (1 GE, max 1000 Mbps) have insufficient capacity when migrating from 11n to 11ac. Specifically:

- A bottleneck will occur if the uplink port of the access switches accommodating multiple 11ac compatible access points is 1 GE.
- A bottleneck will occur if the downlink port of the access switches accommodating 11ac Wave compatible access points is 1 GE.

Therefore, as was during the migration from 11a/g to 11n, replacement of access switches is therefore indispensable in order to unleash the full potential of 11ac.
The only current IEEE standard that is faster than 1 GE is 10 Gigabit Ethernet (10 GE) with copper or optical fiber cables. However, there are some difficulties associated with the deployment of 10 GE-compatible switches.

- Cable re-installation is required in many cases: Category 5e accounts for 46 % and Category 6 accounts for 28 % of the copper cables currently installed in corporations around the world, respectively. 10 GE via copper is not supported for Category 5e cables and is limited to a length of 55 meters for Category 6 cables. Installations of optical fiber cables and copper wire cables both require huge costs.
- Current 10 GE does not support PoE: Power supply units and power cables would be required for the access points.

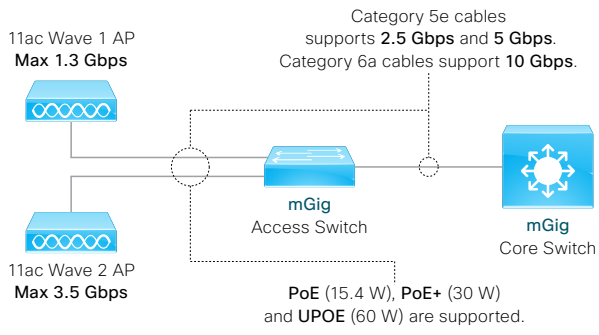
■ Cisco Catalyst Multigigabit Technology (mGig)

Cisco's innovative Cisco Catalyst Multigigabit Technology (mGig) has been developed to address all of these challenges posed by the deployment of 11ac. Largely, mGig offers the following three advantages:

- Multi-speed: Category 5e cables support 100 Mbps, 1 Gbps, 2.5 Gbps and 5 Gbps; and category 6a cables support 10 Gbps, respectively.
- Cable type: A wide variety of cable types are supported including Category 5e, Category 6, and Category 6a.
- PoE: PoE (15.4 W), PoE+ (30 W), and UPOE (60 W) are supported unlike the current 10 GE.

mGig is based on the technology of the NBASE-T Alliance established by Cisco in October 2014. A large number of vendors are participating in the NBASE-T Alliance; and IEEE standardization is currently being promoted for 2.5GBASE-T for 5GBASE-T.

■ Advantages of mGig



■ Cisco Catalyst Multigigabit Technology (mGig): Speeds and Cables

Cable Type	1 Gbps	2.5 Gbps	5 Gbps	10 Gbps
Cat 5e	●	●	●	-
Cat 6	●	●	●	●55m
Cat 6a	●	●	●	●

Cisco Catalyst 4500E Series

L2/L3 modular switches equipped with a 3/6/7/10-slot chassis. These switches can be configured with components that offer intergenerational upward and backward compatibility, including Chassis, Supervisor Engine and Line Card. Their outstanding cost performance will ensure the protection of investment over long periods.

Highlights

- Broad range of interface options for 10/100/1000 and mGig on copper and 1 G/10 G on Fiber
- Equipped with Cisco IOS XE Universal Image (Supports LAN Base/IP Base/Enterprise Services)
- Equipped with the Unified Access Data Plane (UADP) ASIC (WS-X45-SUP8-E)
- Built-in controller function capable of managing up to 100 wireless access points (Supports IP Base/Enterprise Services on WS-X45-SUP8-E)
- Supports Cisco VSS (Switching capacity of up to 1.6 Tbps)
- Supports Cisco TrustSec (MACsec/SGT/SGACL)
- Switching capacity of up to 928 Gbps (WS-X45-SUP8-E)
- Bandwidth of up to 48 Gbps per slot
- IPv4 throughput of up to 250 Mpps (WS-X45-SUP7-E/WS-X45-SUP8-E)
- IPv6 throughput of up to 125 Mpps (WS-X45-SUP7-E/WS-X45-SUP8-E)
- Equipped with Cisco Catalyst Multigigabit Technology (mGig)-enabled downlink ports (WS-X4748-12X48U+E)

Chassis for the Cisco Catalyst 4500E Series

SKU	Slots		Supervisor Engine Redundancy	Maximum Ports (equipped with Line Card)			Maximum PoE Power Supply (per slot)	Slots for Power Supply Module	Rack Mount
	Supervisor Engine	Line Card		GE	SFP	SFP+			
WS-C4503-E	1	2	-	96	96	24	1500 W	2	7 RU
WS-C4506-E	1	5	-	240	240	60	1500 W	2	10 RU
WS-C4507R+E	2	5	●	240	240	60	1500 W	2	11 RU
WS-C4510R+E	2	8	●	384	384	96	1500 W *1	2	14 RU

Supervisor Engine for the Cisco Catalyst 4500E Series

SKU	Switching Capacity	Throughput		SFP/SFP+	Cisco IOS	Registered L3 Routes		Compatible Chassis			
		IPv4	IPv6			IPv4	IPv6	WS-C4503-E	WS-C4506-E	WS-C4507R+E	WS-C4510R+E
WS-X45-SUP7L-E	520 Gbps	225 Mpps	110 Mpps	2	IP Base	64K	32K	●	●	●	-
WS-X45-SUP7-E	848 Gbps	250 Mpps	125 Mpps	4	IP Base	256K	128K	●	●	●	●
WS-X45-SUP8L-E	560 Gbps	225 Mpps	110 Mpps	4	IP Base	64K	32K	●	●	●	-
WS-X45-SUP8-E	928 Gbps	250 Mpps	125 Mpps	8	IP Base	256K	128K	●	●	●	●

Line Card for the Cisco Catalyst 4500E Series

SKU	Per-slot Bandwidth	Ports				PoE Output Ports		MAC sec	Power-saving (EEE)
		GE	SFP	SFP/SFP+	mGig	PoE+	UPOE		
WS-X4648-RJ45-E	24 Gbps	48	-	-	-	-	-	-	-
WS-X4648-RJ45V+E	24 Gbps	48	-	-	-	48	-	-	-
WS-X4612-SFP-E	24 Gbps	-	12	-	-	-	-	-	-
WS-X4624-SFP-E	24 Gbps	-	24	-	-	-	-	-	-
WS-X4748-RJ45-E	48 Gbps	48	-	-	-	-	-	●	●
WS-X4748-RJ45V+E	48 Gbps	48	-	-	-	48	-	●	-
WS-X4748-UPOE+E	48 Gbps	48	-	-	-	48	48 *2	●	●
WS-X4748-12X48U+E	48 Gbps	36	-	-	12	48	48 *2	●	●
WS-X4712-SFP-E	48 Gbps	-	12	-	-	-	-	●	-
WS-X4724-SFP-E	48 Gbps	-	24	-	-	-	-	●	-
WS-X4748-SFP-E	48 Gbps	-	48	-	-	-	-	●	-
WS-X4712-SFP+E	48 Gbps	-	-	12	-	-	-	●	-

Power Supply Module for the Cisco Catalyst 4500E Series

SKU	Type	Connectors	Maximum Output Power (Redundancy Mode)		Maximum PoE Devices (Redundancy Mode)		
			Data	PoE	PoE 15.4 W	PoE+ 30 W	UPOE 60 W
PWR-C45-1000AC	AC	1	1000 W + 40 W	-	-	-	-
PWR-C45-1300ACV	AC	1	1000 W + 40 W	800 W	48	24	12
PWR-C45-1400AC	AC	1	1360 W + 40 W	-	-	-	-
PWR-C45-2800ACV	AC	1	1360 W + 40 W	1400 W	84	43	21
PWR-C45-4200ACV	AC	2	1360 W + 40 W	1850 W (110 V) / 3700 W (220 V)	223	114	57
PWR-C45-6000ACV	AC	2	2200 W + 40 W	1850 W (110 V) / 4800 W (220 V)	289	148	74
PWR-C45-9000ACV	AC	3	1960 W + 40 W	2500 W (110 V) / 7500 W (220 V)	384	232	116

Cisco IOS XE Upgrade License for the Cisco Catalyst 4500E Series

SKU	Description
L-C4500E-LB-IP	Bundled IP Base License
L-C4500E-IP-ES	Cisco IOS Enterprise Services License for Supervisor Engine
L-C4500E-LB-ES	Bundled Cisco IOS Enterprise Services License

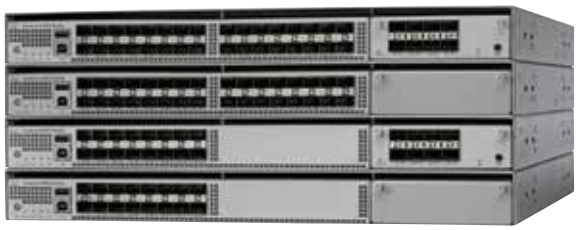
Cisco Catalyst 4500E Series Bundle

SKU	Bundle				Upgrade Options			
	Chassis	Supervisor Engine	Line Card	Cisco IOS	WS-X4748-UPOE+E	WS-X45-SUP8-E WS-X4748-RJ45V+E	WS-X45-SUP8-E WS-X4748-UPOE+E	WS-X45-SUP8-E WS-X4748-12X48U+E
WS-C4503E-S7L+48V+	WS-C4503-E	WS-X45-SUP7L-E	WS-X4648-RJ45V+E	LAN Base	C4500E-S3-UPOE	-	C4500E-3NR-8E-UPOE	C4500E-3NR-8E-MGIG
WS-C4506E-S7L+96	WS-C4506-E	WS-X45-SUP7L-E	WS-X4648-RJ45-E x 2	LAN Base	-		-	-
WS-C4506E-S7L+96V+	WS-C4506-E	WS-X45-SUP7L-E	WS-X4648-RJ45V+E x 2	LAN Base	C4500E-S6-UPOE	-	C4500E-6NR-8E-UPOE	C4500E-6NR-8E-MGIG
WS-C4507RE-S7L+96	WS-C4507R+E	WS-X45-SUP7L-E	WS-X4648-RJ45-E x 2	LAN Base	-	-	-	-
WS-C4507RE+96V+	WS-C4507R+E	WS-X45-SUP7L-E	WS-X4648-RJ45V+E x 2	LAN Base	C4500E-S7-UPOE	C4500E-S7L-S8	C4500E-7R-S8E-UPOE	C4500E-7R-S8E-MGIG
WS-C4510RE-S7+96V+	WS-C4510R+E	WS-X45-SUP7-E	WS-X4748-RJ45V+E x 2	LAN Base	C4500E-S7-UPOE	-	-	-
WS-C4510RE-S8+96V+	WS-C4510R+E	WS-X45-SUP8-E	WS-X4748-RJ45V+E x 2	LAN Base	C4510RE-S8-UPOE	-	-	C4510RE-S8-MGIG

*1 Slots 3, 4, 7-10 are 750 W. *2 Depends on modes of operation (Redundant 1 + 1 Mode, Redundant N + 1 Mode, Combined Mode).

Cisco Catalyst 4500-X Series

L3 fixed-configuration switches equipped with SFP+ module slots. These switches deliver best-in-class scalability, simplified network virtualization, and integrated network services for space-constrained environments in campus networks. These switches can be expanded to accommodate SFP+ module slots using optional Network Modules.



Highlights

- Equipped with Cisco IOS XE Universal Image (Supports IP Base/Enterprise Services)
- Support for SDN/OpenFlow 1.3
- Supports Cisco VSS (Switching capacity of up to 1.6 Tbps)
- Cisco TrustSec-enabled hardware (MACsec/SGT/SGACL)
- Switching capacity of up to 800 Gbps
- IPv4 throughput of up to 250 Mpps
- IPv6 throughput of up to 125 Mpps
- Network module equipped with 8 SFP+ ports (Optional)

Cisco Catalyst 4500-X Series

SKU	SFP/SFP+		Cisco IOS	Registered L3 Routes		Multicast Routes		Cooling Fan	Power Supply Module Slots	Rack Mount
	Default	Maximum		IPv4	IPv6	IPv4	IPv6			
WS-C4500X-16SFP+	16	24*1	IP Base	64K	32K	24K	12K	Front air intake/Rear exhaust	2	1 RU
WS-C4500X-F-16SFP+	16	24*1	IP Base	64K	32K	24K	12K	Rear air intake/Front exhaust	2	1 RU
WS-C4500X-32SFP+	32	40*1	IP Base	256K	128K	32K	32K	Front air intake/Rear exhaust	2	1 RU
WS-C4500X-F-32SFP+	32	40*1	IP Base	256K	128K	32K	32K	Rear air intake/Front exhaust	2	1 RU
WS-C4500X-24X-IPB	24	24	IP Base	64K	32K	24K	12K	Front air intake/Rear exhaust	2	1 RU
WS-C4500X-24X-ES	24	24	Enterprise Services	64K	32K	24K	12K	Front air intake/Rear exhaust	2	1 RU
WS-C4500X-40X-ES	40	40	Enterprise Services	256K	128K	32K	32K	Front air intake/Rear exhaust	2	1 RU

Network Module for the Cisco Catalyst 4500-X Series

SKU	Description	Number of SFP/SFP+ Ports
C4KX-NM-8SFP+	Network Module equipped with SFP+ module slots	8

Power Supply Module for the Cisco Catalyst 4500-X Series

SKU	Description	Compatible SKU
C4KX-PWR-750AC-R	750 W AC Front-to-Back Cooling Power Supply Module	WS-C4500X-16SFP+/WS-C4500X-32SFP+/ WS-C4500X-24X-IPB/WS-C4500X-24X-ES/WS-C4500X-40X-ES
C4KX-PWR-750AC-F	750 W AC Back-to-Front Cooling Power Supply Module	WS-C4500X-F-16SFP+/WS-C4500X-F-32SFP+
C4KX-PWR-750DC-R	750 W DC Front-to-Back Cooling Power Supply Module	WS-C4500X-16SFP+/WS-C4500X-32SFP+/ WS-C4500X-24X-IPB/WS-C4500X-24X-ES/WS-C4500X-40X-ES
C4KX-PWR-750DC-F	750 W DC Back-to-Front Cooling Power Supply Module	WS-C4500X-F-16SFP+/WS-C4500X-F-32SFP+

Cisco IOS XE Upgrade License for the Cisco Catalyst 4500-X Series

SKU	Description	Compatible SKU
L-C4500X-16P-IP-ES	Cisco IOS Enterprise Services License for 16/24-port IP Base model	WS-C4500X-16SFP+/WS-C4500X-F-16SFP+/WS-C4500X-24X-IPB
L-C4500X-IP-ES	Cisco IOS Enterprise Services License for 24-port IP Base model	WS-C4500X-32SFP+/WS-C4500X-F-32SFP+

*1 Network Module for the Cisco Catalyst 4500-X Series is required.

Cisco Virtual Switching System (VSS)

Cisco Virtual Switching System (VSS) is a cluster technology for operating two Cisco Catalyst Switches as one virtual logical switch. Both the Data Plane and Switch Fabric functionalities of the switches comprising a cluster will operate at 100 % performance. It is therefore possible to configure a single logical switch capable of delivering 200% better performance than native Cisco Catalyst Switches. This technology also offers the following benefits in addition to performance improvement:

- Simple topology (No-loop network with no need for STP)

Since two physical switches are operated as one logical switch, there is no need for a redundancy protocol such as STP between the physical switches.

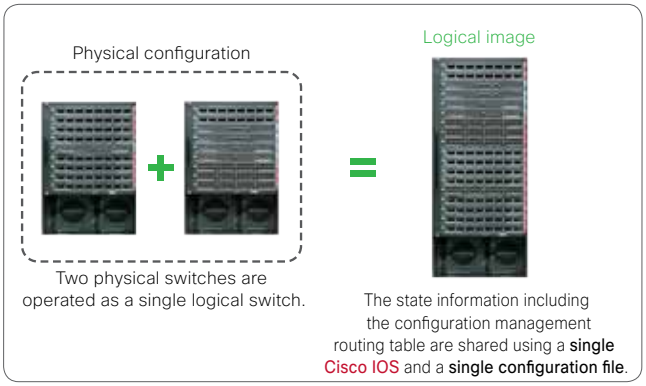
- Single routing instance

The second physical switch will continue to operate in the event when one of the physical switches fails. There will be no service interruption due to switching of networks and/or reconstruction of routing tables.

- Network manageability

The workload of the network administrator will be reduced as he/she only needs to configure and manage one logical switch instead of two physical switches.

Cisco Virtual Switching System (VSS) is supported on the Cisco Catalyst 4500-X/4500E/6500/6800 Series.



Cisco Catalyst 6500 Series

L3 modular switches equipped with a 3/4/6/7/13-slot chassis. These switches deliver the industry's top-level performance that is suitable for deployment in the core layer, providing integration with a variety of network services including wireless and security and an unmatched level of investment protection.

Highlights

- Equipped with Cisco IOS (Supports IP Base/IP Services/Advanced IP Services/ Advanced Enterprise Services)
- Supports Cisco VSS (Switching capacity of up to 4 Tbps)
- Supports Cisco TrustSec (MACsec/SGT/SGACL)
- Switching capacity of up to 2.08 Tbps
- Bandwidth of up to 80 Gbps per slot
- IPv4 throughput of up to 720 Mpps (WS-C6513-E)
- IPv6 throughput of up to 390 Mpps (WS-C6513-E)
- Supports various Services Modules (Wireless Services Module 2, ASA Services Module, etc.)

Chassis for the Cisco Catalyst 6500 Series

SKU	IPv4 Throughput	Slots			Supervisor Engine Redundancy	Maximum Ports (equipped with Line Card)						Slots for Power Supply Module	Rack Mount
		Supervisor Engine	SE/LC	Line Card		GE	SFP	SFP/ SFP+	10GB-T	X2/ SFP+	CFP/ QSFP		
WS-C6503-E	150 Mpps	1	1	1	●	96	96	64	32	32	8/16	2	4 RU
WS-C6504-E	210 Mpps	1	1	2	●	144	144	96	64	64	12/24	2	5 RU
WS-C6506-E	330 Mpps	1	1	4	●	240	240	160	80	80	20/40	2	12 RU
WS-C6509-E	510 Mpps	1	1	7	●	384	384	256	128	128	32/64	2	15 RU
WS-C6509-V-E	510 Mpps	1	1	7	●	384	384	256	128	128	32/64	2	21 RU
WS-C6513-E	720 Mpps	2	-	11	●	528	528	352	176	176	44/88	2	20 RU

Supervisor Engine for the Cisco Catalyst 6500 Series

SKU	Switching Capacity	Equipped PFC	Equipped MSFC	Ports				Cisco IOS	Registered L3 Routes		Registered NetFlow
				SFP	SFP/SFP+	X2	QSFP		IPv4	IPv6	
VS-S2T-10G	2.08 Tbps	PFC4	MSFC5	3	-	2	-	IP Base	256K	128K	256K
VS-S2T-10G-XL	2.08 Tbps	PFC4XL	MSFC5	3	-	2	-	IP Base	1024K	512K	1024K
C6800-SUP6T	6 Tbps	PFC4	MSFC5	-	8	-	2	IP Services	256K	128K	512K
C6800-SUP6T-XL	6 Tbps	PFC4XL	MSFC5	-	8	-	2	IP Services	1024K	512K	1024K

Line Card for the Cisco Catalyst 6500 Series

SKU		Per-slot Bandwidth	Ports					Mac sec	VSL
DFC4-equipped model	DFC4XL-equipped model		GE	SFP	SFP/SFP+	X2/SFP+	CFP/QSFP		
WS-X6824-SFP-2T	WS-X6824-SFP-2TXL	20 Gbps	-	24	-	-	-	-	-
WS-X6848-TX-2T	WS-X6848-TX-2TXL	40 Gbps	48	-	-	-	-	-	-
C6800-48P-TX	C6800-48P-TX-XL	40 Gbps	48	-	-	-	-	-	-
WS-X6848-SFP-2T	WS-X6848-SFP-2TXL	40 Gbps	-	48	-	-	-	-	-
C6800-48P-SFP	C6800-48P-SFP-XL	40 Gbps	-	48	-	-	-	-	-
WS-X6816-10G-2T	WS-X6816-10G-2TXL	40 Gbps	-	-	-	16*1	-	-	●
C6800-8P10G	C6800-8P10G-XL	80 Gbps	-	-	8	-	2*2	●	●
C6800-16P10G	C6800-16P10G-XL	80 Gbps	-	-	16	-	4*2	●	●
C6800-32P10G	C6800-32P10G-XL	80 Gbps	-	-	32	-	8*2	●	●

Power Supply Module for the Cisco Catalyst 6500 Series

SKU	Type	Connectors	Maximum Output Power	Compatible Chassis					
				WS-C6503-E	WS-C6504-E	WS-C6506-E	WS-C6509-E	WS-C6509-V-E	WS-C6513-E
PWR-1400-AC*3	AC	1	1400 W	●	-	-	-	-	-
PWR-2700-AC/4	AC	1	2700 W	-	●	-	-	-	-
WS-CAC-3000W	AC	1	3000 W	-	-	●	●	●	●
WS-CAC-6000W	AC	2	6000 W	-	-	●	●	●	●
WS-CAC-8700W-E	AC	3	8700 W	-	-	●	●	●	●
PWR-2700-DC/4	DC	2	2700 W	-	●	-	-	-	-
PWR-4000-DC	DC	3	4000 W	-	-	●	●	●	●
PWR-6000-DC	DC	4	6000 W	-	-	●	●	●	●

Fan Tray for the Cisco Catalyst 6500 Series

SKU	Description
WS-C6503-E-FAN	Fan Tray for WS-C6503-E
FAN-MOD-4HS=	Fan Tray for WS-C6504-E
WS-C6506-E-FAN	Fan Tray for WS-C6506-E

SKU	Description
WS-C6509-E-FAN	Fan Tray for WS-C6509-E
WS-C6509-V-E-FAN	Fan Tray for WS-C6509-V-E
WS-C6513-E-FAN=	Fan Tray for WS-C6513-E

Cisco Catalyst 6500 Series Bundle

SKU	Bundle				
	Chassis	Supervisor Engine	Line Card	Fan tray	Cisco IOS
VS-C6503E-SUP2T	WS-C6503-E	VS-S2T-10G	-	WS-C6503-E-FAN	IP Services
VS-C6504E-SUP2T	WS-C6504-E	VS-S2T-10G	-	FAN-MOD-4HS	IP Services
VS-C6506E-SUP2T	WS-C6506-E	VS-S2T-10G	-	WS-C6506-E-FAN	IP Services
VS-C6509E-SUP2T	WS-C6509-E	VS-S2T-10G	-	WS-C6509-E-FAN	IP Services
VS-C6509VE-SUP2T	WS-C6509-V-E	VS-S2T-10G	-	WS-C6509-V-E-FAN	IP Services
VS-C6513E-SUP2T	WS-C6513-E	VS-S2T-10G	-	WS-C6513-E-FAN	IP Services

*1 SFP+ Converter (CVR-X2-SFP10G) is required to mount SFP+ module.
*2 QSFP Active Optical breakout Cable (QSFP-4X10G-AOCxM) or QSFP Converter (CVR-4SFP10G-QSFP on roadmap) is required to mount QSFP module.
*3 Power Entry Module (PEM-20A-AC+) is required.

Cisco Catalyst 6800 Series

L3 switches optimized for 10/40/100 Gigabit Ethernet. The product lineup includes the fixed-configuration Cisco Catalyst 6840-X/6880-X Series, the modular Cisco Catalyst 6807-XL.

Highlights

- Equipped with Cisco IOS (Supports IP Base/IP Services/Advanced IP Services/ Advanced Enterprise Services) *1
- Supports Cisco VSS (C6807-XL has a switching capacity of up to 22.8 Tbps)
- Supports Cisco TrustSec (MACsec/SGT/SGACL)
- Switching capacity of up to 11.4 Tbps (C6807-XL)
- Bandwidth of up to 880 Gbps per slot (C6807-XL)
- IPv4 throughput of up to 300 Mpps (C6880-X)
- IPv6 throughput of up to 150 Mpps (C6880-X)
- Equipped with 2 Native uplink ports of 40 G QSFP (C6824-X-LE-40G/ C6840-X-LE-40G)

Chassis for the Cisco Catalyst 6840-X Series

SKU	Switching Capacity	Ports		Maximum Ports		Cisco IOS	Registered L3 Routes		Registered NetFlow	Slots for Power Supply Module	Rack Mount
		SFP/ SFP+	QSFP	SFP/ SFP+	QSFP		IPv4	IPv6			
C6816-X-LE	80 Gbps	16	-	16	4*3	IP Services	256K	128K	512K	2	2 RU
C6832-X-LE	160 Gbps	32	-	32	8*3	IP Services	256K	128K	1024K	2	2 RU
C6824-X-LE-40G	160 Gbps	24	2	24 + 8*2	2 + 6*3	IP Services	256K	128K	1024K	2	2 RU
C6840-X-LE-40G	240 Gbps	40	2	40 + 8*2	2 + 10*3	IP Services	256K	128K	1536K	2	2 RU

Power Supply Module for the Cisco Catalyst 6840-X Series

SKU	Description
C6840-X-750W-AC	750 W AC Power Supply Module
C6840-X-1100W-AC	1100 W AC Power Supply Module

SKU	Description
C6840-X-750W-DC	750 W DC Power Supply Module
C6840-X-1100W-DC	1100 W DC Power Supply Module

Chassis for the Cisco Catalyst 6880-X Series

SKU	Slots for Port Card	Switching Capacity	Maximum Ports (equipped with Line Card)		Cisco IOS	Registered L3 Routes		Registered NetFlow	Slots for Power Supply Module	Rack Mount
			SFP +	QSFP*3		IPv4	IPv6			
C6880-X-LE	4	2 Tbps	80	20	IP Services	256K	128K	512K	2	4.85 RU
C6880-X	4	2 Tbps	80	20	IP Services	2048K	1024K	512K	2	4.85 RU

Multi-rate Port Card for the Cisco Catalyst 6880-X Series

SKU	Per-slot Bandwidth	SFP/SFP+	Registered L3 Routes		Multicast Routes		MAC sec	Compatible Chassis	
			IPv4	IPv6	IPv4	IPv6		C6880-X-LE	C6880-X
C6880-X-LE-16P10G	80 Gbps	16	256K	128K	128K	128K	●	●	-
C6880-X-16P10G	80 Gbps	16	2048K	1024K	128K	128K	●	-	●

Power Supply Module for the Cisco Catalyst 6880-X Series

SKU	Description
C6880-X-3KW-AC	3000 W AC Power Supply Module
C6880-X-3KW-DC	3000 W DC Power Supply Module

Fan Tray for the Cisco Catalyst 6880-X Series

SKU	Description
C6880-X-FAN	Fan Tray for the Cisco Catalyst 6880-X Series

Chassis for the Cisco Catalyst 6807-XL

SKU	Slots		Maximum Ports (equipped with Line Card)						Slots for Power Supply Module	Rack Mount
	Supervisor Engine	Line Card	GE	SFP	SFP/SFP+	10GB-T	X2/ SFP+	CFP/QSFP		
C6807-XL	2	5	240	240	160	80	80	20/40	4	10 RU

Supervisor Engine for the Cisco Catalyst 6807-XL

SKU	Switching Capacity	Equipped PFC	Equipped MSFC	Ports				Cisco IOS	Registered L3 Routes		Registered NetFlow
				SFP	SFP/SFP+	X2	QSFP		IPv4	IPv6	
VS-S2T-10G	2.08 Tbps	PFC4	MSFC5	3	-	2	-	IP Base	256K	128K	256K
VS-S2T-10G-XL	2.08 Tbps	PFC4XL	MSFC5	3	-	2	-	IP Base	1024K	512K	1024K
C6800-SUP6T	6 Tbps	PFC4	MSFC5	-	8	-	2	IP Services	256K	128K	512K
C6800-SUP6T-XL	6 Tbps	PFC4XL	MSFC5	-	8	-	2	IP Services	1024K	512K	1024K

Line Card for the Cisco Catalyst 6807-XL

SKU		Per-slot Bandwidth	Ports					Mac sec	VSL
DFC4-equipped model	DFC4XL-equipped model		GE	SFP	SFP/SFP+	X2/SFP+	CFP/QSFP		
WS-X6824-SFP-2T	WS-X6824-SFP-2TXL	20 Gbps	-	24	-	-	-	-	-
WS-X6848-TX-2T	WS-X6848-TX-2TXL	40 Gbps	48	-	-	-	-	-	-
C6800-48P-TX	C6800-48P-TX-XL	40 Gbps	48	-	-	-	-	-	-
WS-X6848-SFP-2T	WS-X6848-SFP-2TXL	40 Gbps	-	48	-	-	-	-	-
C6800-48P-SFP	C6800-48P-SFP-XL	40 Gbps	-	48	-	-	-	-	-
WS-X6816-10G-2T	WS-X6816-10G-2TXL	40 Gbps	-	-	-	16*4	-	-	●
C6800-8P10G	C6800-8P10G-XL	80 Gbps	-	-	8	-	2*5	●	●
C6800-16P10G	C6800-16P10G-XL	80 Gbps	-	-	16	-	4*5	●	●
C6800-32P10G	C6800-32P10G-XL	160 Gbps	-	-	32	-	8*5	●	●

Power Supply Module for the Cisco Catalyst 6807-XL

SKU	Description
C6800-XL-3KW-AC	3000 W AC Power Supply Module

Fan Tray for the Cisco Catalyst for 6807-XL

SKU	Description
C6807-XL-FAN	Fan Tray for Cisco Catalyst 6807-XL

Cisco Catalyst 6807-XL Bundle

SKU	Bundle				
	Chassis	Supervisor Engine	Power Supply Module	Fan Tray	Cisco IOS
C6807-XL-S2T-BUN	C6807-XL	VS-S2T-10G	C6800-XL-3KW-AC x 2	C6807-XL-FAN	IP Services

*1 Cisco Catalyst 6840-X/6880-X Series supports the Cisco IOS IP Services/Advanced Enterprise Services.
*2 SFP+ direct-attach breakout cable (QSFP-4SFP10G-CUxM, QSFP-4x10G-ACxM) or SFP+ Active Optical breakout Cable (QSFP-4X10G-AOCxM) is required to mount SFP/SFP+ module.
*3 QSFP Converter (CVR-4SFP10G-QSFP on roadmap) is required to mount QSFP module.*4 SFP+ Converter (CVR-X2-SFP10G) is required to mount SFP+ module.
*5 QSFP Active Optical breakout Cable (QSFP-4X10G-AOCxM) or QSFP Converter (CVR-4SFP10G-QSFP on roadmap) is required to mount QSFP module.

Cisco Catalyst 4500/6500/6800 Series Transition Guide

Chassis for the Cisco Catalyst 4500 Series

Legacy Models	Current Models
WS-C4503*1	WS-C4503-E
WS-C4506*1	WS-C4506-E
WS-C4507R-E*2	WS-C4507R+E
WS-C4510R-E*2	WS-C4510R+E

Supervisor Engine for the Cisco Catalyst 4500 Series

Legacy Models	Current Models
WS-X4516-10GE*3	WS-X45-SUP7L-E WS-X45-SUP8L-E WS-X45-SUP7-E WS-X45-SUP8-E
WS-X45-SUP6L-E*4	WS-X45-SUP7L-E WS-X45-SUP8L-E
WS-X45-SUP6-E*5	WS-X45-SUP7-E WS-X45-SUP8-E

Line Card for the Cisco Catalyst 4500 Series

Legacy Models	Current Models
WS-X4148-RJ*6	WS-X4748-RJ45-E
WS-X4248-RJ45V*7	WS-X4748-RJ45V+E WS-X4748-UPOE+E WS-X4748-12X48U+E
WS-X4306-GB*8	WS-X4712-SFP-E WS-X4724-SFP-E WS-X4748-SFP-E
WS-X4418-GB*9	WS-X4712-SFP-E WS-X4724-SFP-E WS-X4748-SFP-E
WS-X4506-GB-T*9	WS-X4748-RJ45V+E WS-X4748-UPOE+E WS-X4712-SFP-E WS-X4724-SFP-E WS-X4748-SFP-E
WS-X4548-GB-RJ45*3	WS-X4748-RJ45-E
WS-X4524-GB-RJ45V*10	WS-X4748-RJ45V+E WS-X4748-UPOE+E WS-X4748-12X48U+E
WS-X4548-GB-RJ45V*3	WS-X4748-RJ45V+E WS-X4748-UPOE+E WS-X4748-12X48U+E
WS-X4548-RJ45V+*11	WS-X4748-RJ45V+E WS-X4748-UPOE+E WS-X4748-12X48U+E
WS-X4648-RJ45-E*12	WS-X4748-RJ45-E
WS-X4548-RJ45V+*11	WS-X4748-RJ45V+E WS-X4748-UPOE+E WS-X4748-12X48U+E
WS-X4648-RJ45V+E*12	WS-X4748-RJ45V+E WS-X4748-UPOE+E WS-X4748-12X48U+E
WS-X4612-SFP-E*12	WS-X4712-SFP-E WS-X4724-SFP-E WS-X4748-SFP-E
WS-X4624-SFP-E*12	WS-X4712-SFP-E WS-X4724-SFP-E WS-X4748-SFP-E

Chassis for the Cisco Catalyst 6500/6800 Series

Legacy Models	Current Models
WS-C6503*13	C6807-XL
WS-C6506*13	C6807-XL
WS-C6509*13	C6807-XL
WS-C6509-NEB*14	WS-C6509-V-E
WS-C6509-NEB-A*15	WS-C6509-V-E
WS-C6513*16	WS-C6513-E

Supervisor Engine for the Cisco Catalyst 6500/6800 Series

Legacy Models	Current Models (PFC4)	Current Models (PFC4XL)
WS-SUP32-GE-3B*17	VS-S2T-10G	VS-S2T-10G-XL
WS-SUP32-10GE-3B*17	VS-S2T-10G	VS-S2T-10G-XL
WS-SUP720-3B*18	VS-S2T-10G	VS-S2T-10G-XL
WS-SUP720-3BXL*18	-	VS-S2T-10G-XL
VS-S720-10G-3C*19	VS-S2T-10G	VS-S2T-10G-XL
VS-S720-10G-3CXL*19	-	VS-S2T-10G-XL

Line Card for the Cisco Catalyst 6500/6800 Series

Legacy Models	Current Models (PFC4)	Current Models (PFC4XL)
WS-X6148-FE-SFP*20	WS-X6848-SFP-2T C6800-48P-SFP	WS-X6848-SFP-2TXL C6800-48P-SFP
WS-X6148A-GE-TX*21	WS-X6848-TX-2T	WS-X6848-TX-2TXL
WS-X6548-GE-TX*20	WS-X6848-TX-2T	WS-X6848-TX-2TXL
WS-X6516A-GBIC*20	WS-X6824-SFP-2T	WS-X6824-SFP-2TXL
WS-X6724-SFP*19	WS-X6824-SFP-2T	WS-X6824-SFP-2TXL
WS-X6748-GE-TX*22	C6800-48P-TX	C6800-48P-TX-XL
WS-X6748-SFP*22	WS-X6848-SFP-2T C6800-48P-SFP	WS-X6848-SFP-2TXL C6800-48P-SFP
WS-X6716-10T-3C*19	-	-
WS-X6716-10T-3CXL*19	-	-
WS-X6716-10G-3C*19	WS-X6816-10G-2T C6800-16P10G	-
WS-X6716-10G-3CXL*19	-	WS-X6816-10G-2TXL C6800-16P10G-XL
WS-X6708-10G-3C*22	C6800-8P10G	-
WS-X6708-10G-3CXL*22	-	C6800-16P10G-XL
WS-X6908-10G-2T*22	C6800-8P10G	-
WS-X6908-10G-2TXL*22	-	C6800-16P10G-XL
WS-X6904-40G-2T*22	C6800-16P10G C6800-32P10G	-
WS-X6904-40G-2TXL*22	-	C6800-16P10G-XL C6800-32P10G-XL
WS-X6816-10T-2T*22	-	-
WS-X6816-10T-2TXL*22	-	-

*1 Search for EOL6869 at cisco.com.*2 Search for EOL8168 at cisco.com.*3 Search for EOL8162 at cisco.com.*4 Search for EOL9604 at cisco.com.
*5 Search for EOL8975 at cisco.com.*6 Search for EOL9420 at cisco.com.*7 Search for EOL9424 at cisco.com.*8 Search for EOL8969 at cisco.com.
*9 Search for EOL7380 at cisco.com.*10 Search for EOL6879 at cisco.com.*11 Search for EOL9426 at cisco.com.*12 Search for EOL10936 at cisco.com.
*13 Search for EOL3037 at cisco.com.*14 Search for EOL6564 at cisco.com.*15 Search for EOL6720 at cisco.com.*16 Search for EOL8193 at cisco.com.
*17 Search for EOL7769 at cisco.com.*18 Search for EOL8147 at cisco.com.*19 Search for EOL9892 at cisco.com.*20 Search for EOL7770 at cisco.com.
*21 Search for EOL9058 at cisco.com.*22 Search for EOL10550 at cisco.com.

Modules & Accessories

■ Cisco Redundant Power System (RPS) 2300

SKU	Description	Compatible Series									
		2960-CX	3560-CX	2960-Plus	2960-X	3650	3850	4500E	4500-X	6500	6800
PWR-RPS2300	Cisco RPS 2300 Chassis	–	–	–	●	●*3	–	–	–	–	●*4
C3K-PWR-750WAC	750 W AC Power Supply Module for Cisco RPS 2300	–	–	–	●*1 *2	●*3	–	–	–	–	●*4
CAB-RPS2300=	Spare 14-pin RPS Cable for Cisco RPS 2300	–	–	●	–*1 *2	–	–	–	–	–	–
CAB-RPS2300-E=	Spare 22-pin RPS Cable for Cisco RPS 2300	–	–	–	●*1 *2	●*3	–	–	–	–	●*4

■ Cisco Transceiver Module

SKU	Description	Compatible Series									
		2960-CX	3560-CX	2960-Plus	2960-X	3650	3850	4500E	4500-X	6500	6800
GLC-GE-100FX	100BASE-FX SFP Module	●	●	●	●	●	●	●	–	●	●
GLC-T	1000BASE-T SFP Module	–	–	●	●	●	●	●	●	●	●
GLC-SX-MMD	1000BASE-SX SFP Module (DOM)	●	●	●	●	●	●	●	●	●	●
GLC-LH-SMD	1000BASE-LX SFP Module (DOM)	●	●	●	●	●	●	●	●	●	●
GLC-BX-D	1000BASE-BX SFP Module (1490 nm)	●	●	●	●	●	●	●	●	●	●
GLC-BX-U	1000BASE-BX SFP Module (1310 nm)	●	●	●	●	●	●	●	●	●	●
GLC-EX-SMD	1000BASE-EX SFP Module	●	●	–	●	●	●	●	●	●	●
GLC-ZX-SMD	1000BASE-ZX SFP Module	●	●	●	●	●	●	●	●	●	●
SFP-10G-SR	10GBASE-SR SFP+ Module	–	●	–	●	●	●	●	●	●	●
SFP-10G-LR	10GBASE-LR SFP+ Module	–	●	–	●	●	●	●	●	●	●
SFP-10G-LRM	10GBASE-LRM SFP Module	–	●	–	●	●	●	●	●	●	●
SFP-10G-ER	10GBASE-ER SFP+ Module	–	●	–	●	●	●	●	●	●	●
SFP-10G-SR-S	Cisco 10GBASE-SR SFP+ Module for MMF	–	●	–	●	●	●	●	●	●	●
SFP-10G-LR-S	Cisco 10GBASE-LR SFP+ Module for SMF	–	●	–	●	●	●	●	●	●	●
SFP-10G-ER-S	Cisco 10GBASE-ER SFP+ Module for SMF	–	●	–	●	●	●	●	●	●	●
SFP-10G-ZR-S	Cisco 10GBASE-ZR SFP+ Module for SMF	–	●	–	●	●	●	●	●	●	●
SFP-10G-ZR	Cisco 10GBASE-ZR SFP+ Module for SMF	–	●	–	●	●	●	●	●	●	●
X2-10GB-CX4	10GBASE-CX4 X2 Module	–	–	–	–	–	–	●	–	●	●*5
X2-10GB-LRM	10GBASE-LRM X2 Module	–	–	–	–	–	–	●	–	●	●*5
X2-10GB-SR	10GBASE-SR X2 Module	–	–	–	–	–	–	●	–	●	●*5
X2-10GB-LR	10GBASE-LR X2 Module	–	–	–	–	–	–	●	–	●	●*5
X2-10GB-ER	10GBASE-ER X2 Module	–	–	–	–	–	–	●	–	●	●*5
X2-10GB-ZR	10GBASE-ZR X2 Module	–	–	–	–	–	–	●	–	●	●*5
CVR-X2-SFP	TwinGig Converter for X2 Module	–	–	–	–	–	–	●	–	–	–
CVR-X2-SFP10G	SFP+ Converter for X2 Module	–	–	–	–	–	–	●	–	●	●*5
CFP-40G-SR4	40GBASE-SR4 CFP Module	–	–	–	–	–	–	–	–	●	●*5
CFP-40G-LR4	40GBASE-LR4 CFP Module	–	–	–	–	–	–	–	–	●	●*5
CVR-CFP-4SFP10G	FourX SFP+ Converter for CFP Module	–	–	–	–	–	–	–	–	●	●*5
CVR-QSFP-SFP10G	SFP/SFP+ Converter for QSFP Module	–	–	–	–	–	–	–	–	●	●*5
CVR-4SFP10G-QSFP	QSFP Converter for SFP+ Module	–	–	–	–	–	●	●	●	●	●

*1 LAN Lite model does not support stacking.*2 IP Lite model is not supported.*3 Mini models only.*4 Cisco Catalyst 6880-Series and Cisco Catalyst 6807-XL are not supported.
*5 Cisco Catalyst 6880-X is not supported.

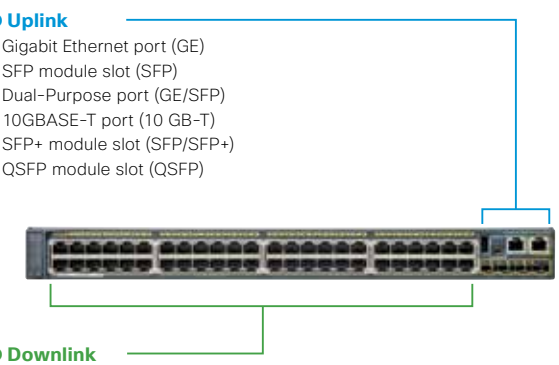
Ports

Cisco Catalyst Switches support the following interface ports for uplink and downlink connections:

- Fast Ethernet port (FE)
- Gigabit Ethernet port (GE)
- Multigigabit Ethernet port (mGig)
- SFP module slot (SFP)
- Dual-Purpose port (GE/SFP)
- 10GBASE-T port (10GB-T)
- X2 module slot (X2)
- SFP+ module slots (SFP/SFP+)
- CFP module slot (CFP)
- QSFP module slot (QSFP)

The bracketed notations are abbreviations used in the specification comparison tables in this catalog. A dual-purpose port is an interface combining a Gigabit Ethernet port with an SFP module slot and is notated as GE/SFP (Either one can be activated independently). Similarly, SFP+ module slots are notated as SFP/SFP+ due to their compatibility with SFP. SFP/SFP+ modules can be mounted to X2, CFP, or QSFP module slots using an appropriate converter.
In most cases, the supported port interfaces and number of ports of each product can be determined from their SKU (Refer to page 14 for details).

■ Ports Supported by Fixed-Configuration Cisco Catalyst Switches (e.g.)



Wireless

Wireless Access Points / Controllers

Why Cisco for Wireless

Winning wireless is absolutely CRITICAL for Cisco – it allows us to enable the digital transformation trend our customers are moving towards.

- Cisco's wireless business is $2.5+ Billion – 4x our nearest competitor
- As of Q1FY16 Cisco's WLAN market share was 48%*
- In Q1FY16 Cisco worldwide WLAN revenue grew 3.5% year over year*
- 12+ years of Gartner MQ leadership
- 600,000+ unique WLAN customers
- Comprehensive on-premise and cloud-managed WLAN and LAN portfolios
- Installed in 95% of the Fortune of 1,000
- Wireless R&D spend >$400mil per year

Source *IDC Worldwide WLAN Market report – Q3CY15

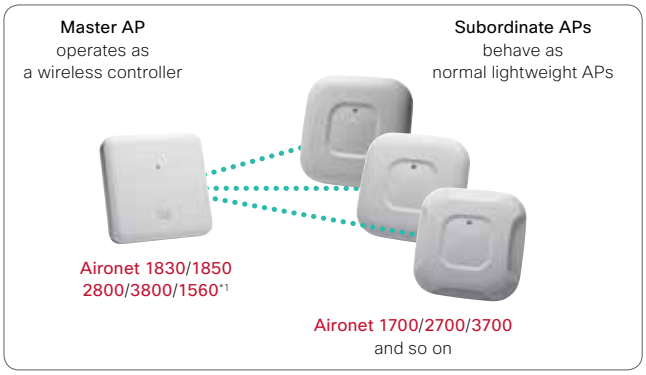
Cisco Mobility Express Solution

The **Cisco Mobility Express Solution** is specifically designed to help small and medium-sized networks easily and cost-effectively deliver enterprise-class wireless access to employees and customers.
Cisco Mobility Express Solution is an on-premise, managed Wi-Fi solution that:

- Provides an easy, over-the-air interface for deployment in under **10 minutes**
- Is ideal for small and medium-sized deployments of up to **25 access points** and **500 clients**
- Is supported on **Cisco Aironet 1830/1850/2800/3800/1560 Series**[*1]
- Can control other access points, such as Cisco Aironet 1700/2700/3700 Series

3-step over-the-air wireless network configuration

In the Cisco Mobility Express Solution, one access point (AP), running the Cisco Mobility Express wireless controller, is designated as the **master AP**. Other access points, referred to as **subordinate APs**, associate to this master AP. The master AP operates as a **wireless controller**, to manage and control the subordinate APs, and also operates as an access point to serve clients. The subordinate APs behave as normal lightweight access points to serve clients.

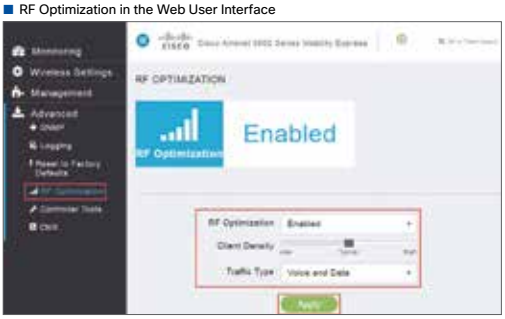


Cisco Mobility Express Software for Cisco Wireless Release 8.3 NEW

In the **Cisco Wireless Release 8.3**, the following new features and functionalities have been introduced to the Cisco Mobility Express Software:

- **Cisco CMX Cloud**: Enjoy CMX Connect for guest access & Presence Analytics with Cisco Mobility Express by the simple configuration both on Cisco Mobility Express Web UI and CMX in the cloud.
- **Automatic Redirect to the Initial Configuration Wizard**: No need to type 192.168.1.1 IP in the browser to access and set up Cisco Mobility Express.
- **Internal DHCP Server**: No external DHCP server required.
- **NTP Server Pools & OpenDNS**: Three NTP server pools are automatically configured and resolved using OpenDNS.
- **RF Optimization in the Web User Interface**: RF Optimization added on Web UI and parameters can be modified if RF characteristics change.
- **SNMP v3 in the Web UI**: SNMP v2c/v3 are supported in Web UI, also configurable from CLI including v1.
- **Online Software Update**: software download directly from cisco.com to APs. No need to download locally and unzipped, or to configure TFTP parameters.
- **Automatic Addition of APs to Mobility Express Network**: AP will automatically download code from cisco.com and join the network. No manual intervention is needed.
- **Force Mobility Express Failover**: In the Web UI, "Make me Controller" starts the controller function on the selected subordinate AP.
- **Enhanced Resiliency with Standalone Mode on 11ac Wave 2 APs**: Standalone mode will be supported on 11ac Wave 2 APs as well as 11ac Wave 1 APs. Even if master AP went offline, clients connected to these APs will stay connected and will continue to switch data locally.
- **Customized Guest Portal**: Custom Portal and Social login is supported by CMX Connect.

■ RF Optimization in the Web User Interface



■ CMX Settings in the Web User Interface

*1 Cisco Aironet 1560 Series are to be supported in future software release.

IEEE 802.11ac

IEEE 802.11ac (11ac) is the successor of IEEE 802.11n (11n), which is the current mainstream wireless standard. It outperforms typical 1 GE wired LAN with a maximum throughput of 6.9 Gbps, compared against the theoretical maximum throughput of 600 Mbps of 11n. 11ac achieves higher communication speeds by strengthening the following three elements:

- Higher density modulation method: Increased from 64QAM to 256QAM (11n)
- Expansion of channel bonding: Increased from 40 MHz max. (11n) to 80 MHz max. (11ac Wave 1) or up to 160 MHz (11ac Wave 2)
- Further evolved MIMO (Multiple Input Multiple Output): Increased the maximum number of data streams in 11n from 4 to 8 and upgraded the simultaneous communication capability from 1:1 to 1:n (Multi-User MIMO)

Among Cisco's Access Points, the Cisco Aironet 1700/1810/1810W/1830 Series, the Cisco Aironet 1560/1570/2700/3700 Series, the Cisco Aironet 1850 Series, and the Cisco Aironet 2800/3800 Series are compatible with 11ac, delivering theoretical maximum throughputs of 867 Mbps, 1.3 Gbps, 1.7 Gbps and 2.6 Gbps, respectively.

■ IEEE 802.11n/ac Specification Comparison

Standard/Number of Data Streams		Theoretical Maximum Throughput			
		20 MHz	40 MHz	80 MHz	160 MHz
IEEE 802.11n	1 stream	72 Mbps	150 Mbps	-	-
	2 streams	144 Mbps	300 Mbps	-	-
	3 streams	216 Mbps	450 Mbps	-	-
	4 streams	288 Mbps	600 Mbps	-	-
IEEE 802.11ac	1 stream	-	200 Mbps	433 Mbps	866 Mbps
	2 streams	-	400 Mbps	866 Mbps	1733 Mbps
	3 streams	-	600 Mbps	1299 Mbps	2600 Mbps
	4 streams	-	800 Mbps	1733 Mbps	3466 Mbps
	5 streams	-	1000 Mbps	2166 Mbps	4333 Mbps
	6 streams	-	1200 Mbps	2599 Mbps	5200 Mbps
	7 streams	-	1400 Mbps	3033 Mbps	6066 Mbps
	8 streams	-	1600 Mbps	3466 Mbps	6933 Mbps

Cisco High Density Experience (HDX) Technology

With the introduction of IEEE 802.11ac (11ac) technology, networks are only going to get more crowded. We have enhanced Cisco High Density Experience (HDX) suite of solutions, which automatically manages the airwaves and improves Wi-Fi performance. Available on the Cisco Aironet 2700/2800/3700/3800 Series Indoor Access Points and the Cisco Aironet 1560/1570 Series Outdoor Access Point, HDX is regularly updated with new features that alleviate high-density network strain and improve user experiences as 11ac and other trends load the airwaves with more traffic.

- **Flexible Radio Assignment & Dual 5-GHz**[*1]: Allows the access points to intelligently determine the operating mode of serving radios based on the RF environment. The Dual 5-GHz mode enables both radios to operate in 5-GHz client serving mode, allowing an industry-leading **5.2 Gbps** (2 x 2.6 Gbps) over-the-air speed while increasing client capacity.
- **Turbo performance**: Dedicates CPU & RAM to each radio, allows access points to scale to 60 clients or more, with each client running media-rich video or interactive traffic, without any performance degradation.
- **Cisco ClientLink for 11ac**: improves downlink performance to all mobile devices, including one-, two-, and three-spatial-stream devices on 11a/b/g/n/ac while improving battery life on mobile devices such as smartphones and tablets.
- **Cisco CleanAir for 11ac**: enhanced with 80-, and 160-MHz channel support, provides proactive, high-speed spectrum intelligence to combat performance problems due to wireless interference.
- **Optimized Roaming**: Helps ensure that client devices associate with the access point in their coverage range that offers the fastest data rate available.
- **Dynamic Bandwidth Selection**: Automatically selects the optimal channel width for each radio. For example: If radar is detected on part, but not all, of the frequency, the access point can narrow the serving channel rather than moving entirely to a new frequency, enhancing spectrum efficiency.
- **Zero Impact AVC**[*1]: Uses dedicated hardware acceleration to improve the performance of line-speed applications such as Cisco Application Visibility and Control (AVC).

Cisco ClientLink for 11ac

In a mixed environment with low-speed clients (e.g. 11a/g clients) and high-speed clients (e.g. 11n/ac clients), the communication performance of the entire wireless LAN network will be dragged down by the slower clients. The Cisco ClientLink technology implemented on Cisco Aironet Access Points uses the signal processing expansion function, which is embedded in the chipset, to analyze the uplink communication signals from the client and strengthen/optimize the downlink communication signals to enhance the communication performance of low-speed clients. Cisco ClientLink 3.0/4.0 implemented on the Cisco Aironet 1560/1570/2700/2800/3700/3800 Series use the third or fourth antenna of the access points to also enhance the communication performance of 11n/ac-compatible clients supporting up to three data streams, including the iPhone, iPad and latest laptops.

Boost overall throughput
in mixed-client wireless networks

Does NOT require any special capabilities in the client device to work

Cisco CleanAir for 11ac

Cisco CleanAir is an innovative technology for the Controller-based Wireless Solution that enables construction of self-recovering, self-optimizing wireless LAN environments.

In conventional technologies, the network administrators were required to move around carrying a sensor-equipped laptop in order to identify the source of radio interference. In Cisco CleanAir, Cisco Aironet Access Points with built-in ASIC (a dedicated custom chip) serve the roles of a measuring instrument and an analyzer for the wireless environment; and the data obtained from the Cisco Aironet Access Points are presented in a visualized manner. This enables network administrators to identify the cause of a problem and fix it promptly and efficiently. This technology also offers the wireless resource management function which alleviates problems by automatically optimizing the frequency band after detecting a radio interference.

Cisco Aironet 1570/2700/3700 Series support the 80 MHz channel bandwidth of 11ac Wave 1, and Cisco Aironet 1560/2800/3800 Series support the 160 MHz channel bandwidth of 11ac Wave 2.

*1 Cisco Aironet 2800/3800 Series only.

Cisco Connected Mobile Experiences (CMX) Solutions

Cisco Connected Mobile Experiences (CMX) is a revolutionary solution that collects and analyzes the location of wireless LAN (Wi-Fi) devices such as smartphones and tablets for business utilization. This solution supports the monetization of wireless LAN in a wide range of sectors including retail, services, transportation, healthcare, education, and government offices.

Cisco CMX provides the services described below.

For details on Cisco CMX, visit the following Web site:

http://www.cisco.com/go/cmx

Cisco CMX Detect & Locate

service enables you to view and track devices in your deployment.

The Detect & Locate service uses the data provided by Cisco WLCs to calculate the X,Y location (based the floor map uploaded) of wireless devices that are detected by the access points that support the wireless LAN (WLAN) to a high degree of precision

Offering a Variety of Analysis Methods including Traffic Line Information and Residence Time

Cisco CMX Analytics

provides a set of data analytic tools for analyzing Wi-Fi device locations. The Analytics service helps organizations use the network as a data source to view visitors' behavior patterns and trends, which will in turn help businesses improve visitor experience and boost customer service.

- Device count
- Dwell time
- Dwell time breakdown
- Associated User Report
- Path analysis
- Correlation

Venue Efficiency

By helping you better understand how your visitors actually behave while at your site, Cisco CMX helps you make the best use of your floor plan. With this improved insight, you can:

- Determine the most trafficked locations to position advertisements, products or services
- Adjust venue layout to optimize traffic flow in periods of high use
- Staff service locations to accommodate visitor flows and time of day
- Evaluate impact of floor plan adjustments
- Office/building/store space utilization (e.g., great for helping an enterprise figure out how its workforce is using office space, and optimizing that usage)

For your customers and your business, the Cisco CMX solution can deliver the right information at the right time.

Cisco CMX Connect & Engage

provides intuitive, simple, highly customizable, and location-aware guest services in the form of a captive portal that offers multiple types of guest on-boarding experiences:

- Registration Form
- Social or Registration Login
- Customized Portal (Engage)
- Social Login
- SMS Form
- PMS Auth Form

Engaging with guests opens a direct channel of communication that lets businesses better understand and deliver what your guests want. With CMX Connect & Engage you can:

- Increase loyalty of existing customers and attract new customers by providing them with a personalized experience
- Heighten the guest experience by providing wireless access and key information during their journey
- Increase visitor satisfaction by helping them make decisions more aligned with their needs

Cisco CMX Cloud

Cisco CMX Cloud revolutionizes the delivery of wireless guest access and in-venue analytics, integrating seamlessly with Cisco wireless infrastructure. This cloud-delivered Software-as-a-Service (SaaS) offering is quick to deploy and intuitive to use. The affordable subscription-billing model helps reduce initial investments in equipment (capital expenditures [CapEx]) and IT resources. Ultimately, this solution accelerates how wireless infrastructure can deliver business outcomes by:

- Detecting all Wi-Fi devices (the "devices") in the venue and providing analytics on their presence, including dwell times, new vs. repeat visitors, and peak times
- Providing an easy-to-use guest-access solution for visitors through a custom portal using various authentication methods including social, self-registration, and Short Message Service (SMS)
- Engaging visitors directly on the guest portal page or mobile app with location-based content
- Sign up for a Free 60 days trial → http://cmxcloud.cisco.com/

Cisco Connected Mobile Experiences Cloud

SKU	Description	SKU	Description
AIR-CMX-SVC-CX*1	CMX Cloud Connect.	AIR-CMX-SVC-CPAX*1	CMX Cloud Connect with Presence Analytics.

*1 AIR-CMX-CLOUD is required.

Wireless Product Line

Cisco Aironet Access Points

Indoor Access Points

All indoor models of the Cisco Aironet Access Points are compatible with the IEEE 802.11 standards including IEEE 802.11a/b/g/n and the latest standard IEEE 802.11ac which provides throughput up to 2.6 Gbps (some models are IEEE 802.11ac-compatible). A wide lineup of models are available including: (1) Lightweight compact models featuring a streamlined body with built-in antenna and integrated LAN/power cable using PoE (Power over Ethernet) for stylish installation without spoiling the aesthetics of the office; (2) Heavy-duty models with a wide selection of external antennas and featuring a rigid metal chassis to support a wide range of operating temperatures for use in factories, warehouses and stores where environmental requirements are strict; and (3) High-performance models for telecommuters and satellite offices offering the same level of security and network services as the headquarters office.

See page 40 to 41 for details.

Outdoor Access Points

The outdoor models of the Cisco Aironet Access Points deliver high-speed and stable wireless LAN environments in various locations such as in a massive city-size area, inside a company building, a factory ground, or a mining field. Featuring a chassis with IEC IP67 waterproof and NEMA Type 4X certified outdoor dust/rust resistance, a wide lineup of outdoor models is available to meet the diversifying customer needs in the harshest of environments. Available models include the lightweight compact model with a polished exterior design that blends into the surrounding environment, the PoE power supplying model capable of powering surveillance cameras, and the model with built-in cable modem for utilizing the existing cable network.

See page 42 for details.

Cisco Wireless Controllers

Cisco Wireless Controller is a platform that enables centralized management of multiple Cisco Aironet Access Points including remote bases. This platform automates the configuration management required for deploying/adding Cisco Aironet Access Points to reduce the workload of the network administrator, as well as provide the control functions needed to establish a stable wireless LAN environment. The control functions include load balancing of Cisco Aironet Access Points and prompt and dynamic response to changes in the wireless environment.

See page 45 for details.

Mobility Services & Network Management Tools

Cisco Mobility Services Engine (MSE), which delivers a wide range of mobility services such as collecting the location of mobile devices, and Cisco Prime Infrastructure, that is designed to dramatically simplify network operations by providing management of wired and wireless network seamlessly, these are two critical components of Cisco CleanAir.

See page 47 for details.

Cisco Aironet Access Points

Indoor Access Points

	11ac Wave 1	11ac Wave 2
2.6 Gbps		Cisco Aironet 2800 Series Cisco Aironet 3800 Series
1.7 Gbps		Cisco Aironet 1850 Series
1.3 Gbps	Cisco Aironet 2700 Series Cisco Aironet 3700 Series	
867 Mbps	Cisco Aironet 1700 Series	Cisco Aironet 1810 Series Cisco Aironet 1810W Series Cisco Aironet 1830 Series

Cisco Aironet Indoor Access Points

All models of Cisco Aironet Indoor Access Points are compatible with the IEEE 802.11n standard; and some models are also compatible with IEEE 802.11ac delivering high-speed and stable wireless LAN environments with a theoretical maximum throughput of between 300 Mbps and 2.6 Gbps. A broad selection of models is available for various installation environments and network requirements.

- Built-in antenna model: These models feature a streamlined body and an integrated LAN/power cable using PoE (Power over Ethernet) for a stylish installation that blends into the office environment.
- External antenna model: These models feature a rigid metal chassis and support a wide range of operating temperatures for use in factories, warehouses and stores where environmental requirements are very strict. A wide selection of antennas are available for these models to suit different installation environments (Refer to page 37-38 for details on the Cisco Aironet Antennas).

There are two types of models for Cisco Aironet Indoor Access Points: Standalone (or Mobility Express)and Controller-based models. The Controller-based models are designed to operate in linkage with the Cisco Wireless Controller.

Highlights

- IEEE 802.11n-compatible (All models)
- IEEE 802.11ac Wave 1-compatible (Cisco Aironet 1700/2700/3700 Series)
- IEEE 802.11ac Wave 2-compatible (Cisco Aironet 1810/1810W/1830/1850/2800/3800 Series)
- Supports 2.4 GHz/5 GHz dual-band (All models)
- Supports Cisco CleanAir Express (Controller-based models of the Cisco Aironet 1700 Series)
- Supports Cisco CleanAir (Controller-based models of Cisco Aironet 2700/2800/3700/3800 Series, refer to page 31 for details on the technology)
- Supports Cisco OfficeExtend (Controller-based models, excluding some models)
- Supports Cisco ClientLink (excluding some models, refer to page 31 for details on the technology)
- Supports Cisco BandSelect (Controller-based models, excluding some models)

For details on Cisco Aironet Indoor Access Points, visit the following Web site:

http://www.cisco.com/go/ap

Cisco Aironet Access Points Transition Guide

Cisco Aironet Indoor Access Points

11n	11ac Wave 1	11ac Wave 2
Cisco Aironet 600 Series OfficeExtend	-	Cisco Aironet 1810 Series OfficeExtend
Cisco Aironet 700 Series	-	Cisco Aironet 1830 Series
Cisco Aironet 700W Series	-	Cisco Aironet 1810W Series
Cisco Aironet 1040 Series Cisco Aironet 1600 Series	Cisco Aironet 1700 Series	Cisco Aironet 1850 Series
Cisco Aironet 1140 Series Cisco Aironet 1250 Series Cisco Aironet 1260 Series Cisco Aironet 2600 Series	Cisco Aironet 2700 Series	Cisco Aironet 2800 Series
Cisco Aironet 3500 Series Cisco Aironet 3600 Series	Cisco Aironet 3700 Series	Cisco Aironet 3800 Series

*1 Cisco Aironet 3600/3700 Series are planned to support 11ac Wave 2 via addition of a module.

Cisco Aironet 700 Series

Dimensions (Height x Width x Depth): 5.08 x 17.78 x 17.78 cm Weight: 0.48 kg

SKU	Stand alone	Controller based	Clean Air	Office Extend	Client Link	Band Select	IEEE 802		Ports		PoE (PD)*1		Antenna
							11n	11ac	GE	mGig	802.3af	802.3at	
AIR-SAP702I-x-K9	●	-	-	-	-	●	●	-	1	-	●	-	Built-in
AIR-CAP702I-x-K9	-	●	-	-	-	●	●	-	1	-	●	-	Built-in

Cisco Aironet 700W Series

Dimensions (Height x Width x Depth): 4.06 x 15.24 x 10.16 cm Weight: 0.39 kg

SKU	Stand alone	Controller based	Clean Air	Office Extend	Client Link	Band Select	IEEE 802		Ports		PoE (PD)*1		Antenna
							11n	11ac	GE	mGig	802.3af	802.3at	
AIR-CAP702W-x-K9	-*3	●	-	-	-	●	●	-	5*2*4	-	●	-	Built-in

Cisco Aironet 1700 Series

Dimensions (Height x Width x Depth): 5.05 x 22.07 x 22.07 cm Weight: 1.00 kg

SKU	Stand alone	Controller based	Clean Air	Office Extend	Client Link	Band Select	IEEE 802		Ports		PoE (PD)*1		Antenna
							11n	11ac	GE	mGig	802.3af	802.3at	
AIR-CAP1702I-x-K9	-*3	●	●*5	●	-	●	●	●	2*6	-	●	-	Built-in

Cisco Aironet 1810 Series OfficeExtend

Dimensions (Height x Width x Depth): 4.06 x 16.51 x 11.43 cm Weight: 0.54 kg

SKU	Stand alone	Controller based	Clean Air	Office Extend	Client Link	Band Select	IEEE 802		Ports		PoE (PD)*1		Antenna
							11n	11ac	GE	mGig	802.3af	802.3at	
AIR-OEAP1810-x-K9	-	●	-	●	-	-	●	●	4*2*4	-	●*7	●	Built-in

Cisco Aironet 1810W Series

Dimensions (Height x Width x Depth): 4.06 x 16.51 x 11.43 cm Weight: 0.54 kg

SKU	ME Master	Controller based	Clean Air	Office Extend	Client Link	Band Select	IEEE 802		Ports		PoE (PD)*1		Antenna
							11n	11ac	GE	mGig	802.3af	802.3at	
AIR-AP1810W-x-K9	-*3	●	-	-	-	●	●	●	4*2*4	-	●*7	●	Built-in

Cisco Aironet 1830 Series

Dimensions (Height x Width x Depth): 5.08 x 21.08 x 21.08 cm Weight: 1.42 kg

SKU	ME Master	Controller based	Clean Air	Office Extend	Client Link	Band Select	IEEE 802		Ports		PoE (PD)*1		Antenna
							11n	11ac	GE	mGig	802.3af	802.3at	
AIR-AP1832I-x-K9C	●*8	-	-	-	-	●	●	●	1	-	●*7	●	Built-in
AIR-AP1832I-x-K9	-*3	●	-	-	-	●	●	●	1	-	●*7	●	Built-in

Cisco Aironet 1850 Series

Dimensions (Height x Width x Depth): 5.08 x 21.08 x 21.08 cm Weight: 1.42 kg

SKU	ME Master	Controller based	Clean Air	Office Extend	Client Link	Band Select	IEEE 802		Ports		PoE (PD)*1		Antenna
							11n	11ac	GE	mGig	802.3af	802.3at	
AIR-AP1852I-x-K9C	●*8	-	-	-	-	●	●	●	2*6	-	●*7	●	Built-in
AIR-AP1852E-x-K9C	●*8	-	-	-	-	●	●	●	2*6	-	●*7	●	External
AIR-AP1852I-x-K9	-*3	●	-	-	-	●	●	●	2*6	-	●*7	●	Built-in
AIR-AP1852E-x-K9	-*3	●	-	-	-	●	●	●	2*6	-	●*7	●	External

Cisco Aironet 2700 Series

Dimensions (Height x Width x Depth): 5.05 x 22.07 x 22.07 cm Weight: 1.00 kg

SKU	Stand alone	Controller based	Clean Air	Office Extend	Client Link	Band Select	IEEE 802		Ports		PoE (PD)*1		Antenna
							11n	11ac	GE	mGig	802.3af	802.3at	
AIR-CAP2702I-x-K9	-*3	●	●	●	●	●	●	●	2*6	-	●*7	●	Built-in
AIR-CAP2702E-x-K9	-*3	●	●	●	●	●	●	●	2*6	-	●*7	●	External

Cisco Aironet 2800 Series

Dimensions (Height x Width x Depth): 5.51 x 22.00 x 22.05 cm Weight: 1.60 kg*9

SKU	ME Master	Controller based	Clean Air	Office Extend	Client Link	Band Select	IEEE 802		Ports		PoE (PD)*1		Antenna
							11n	11ac	GE	mGig	802.3af	802.3at	
AIR-AP2802I-x-K9C	●*8	-	●	●	●	●	●	●	2*6	-	-	●	Built-in
AIR-AP2802E-x-K9C	●*8	-	●	●	●	●	●	●	2*6	-	-	●	External
AIR-AP2802I-x-K9	-*3	●	●	●	●	●	●	●	2*6	-	-	●	Built-in
AIR-AP2802E-x-K9	-*3	●	●	●	●	●	●	●	2*6	-	-	●	External

Cisco Aironet 3700 Series

Dimensions (Height x Width x Depth): 5.36 x 22.10 x 22.10 cm Weight: 1.13 kg

SKU	Stand alone	Controller based	Clean Air	Office Extend	Client Link	Band Select	IEEE 802		Ports		PoE (PD)*1		Antenna
							11n	11ac	GE	mGig	802.3af	802.3at	
AIR-CAP3702I-x-K9	-*3	●	●	●	●	●	●	●	1	-	●*7	●	Built-in
AIR-CAP3702E-x-K9	-*3	●	●	●	●	●	●	●	1	-	●*7	●	External
AIR-CAP3702P-x-K9	-*3	●	●	-	●	●	●	●	1	-	●*7	●	External

Cisco Aironet 3800 Series

Dimensions (Height x Width x Depth): 6.25 x 22.00 x 22.05 cm Weight: 2.00 kg*10

SKU	ME Master	Controller based	Clean Air	Office Extend	Client Link	Band Select	IEEE 802		Ports		PoE (PD)*1		Antenna
							11n	11ac	GE	mGig	802.3af	802.3at	
AIR-AP3802I-x-K9C	●*8	-	●	●	●	●	●	●	1	1	-	●	Built-in
AIR-AP3802E-x-K9C	●*8	-	●	●	●	●	●	●	1	1	-	●	External
AIR-AP3802P-x-K9C	●*8	-	●	●	●	●	●	●	1	1	-	●	External
AIR-AP3802I-x-K9	-*3	●	●	●	●	●	●	●	1	1	-	●	Built-in
AIR-AP3802E-x-K9	-*3	●	●	●	●	●	●	●	1	1	-	●	External
AIR-AP3802P-x-K9	-*3	●	●	-	●	●	●	●	1	1	-	●	External

Cisco Hyperlocation Solution for the Cisco Aironet 3700 Series

SKU	Description
AIR-RM3010L-x-K9=	Hyperlocation Module with Advance Security.
AIR-ANT-LOC-01=	Hyperlocation Antenna, Model 1, Attached Omni.

*1 The Cisco Aironet Power Supply Option is required when not using PoE receiving (Refer to page 38 for details). *2 A dedicated WAN port is included.
*3 Migration to the standalone model is supported via software. *4 PoE power supplying GE x 1 is included. *5 Cisco CleanAir Express is supported in Cisco AireOS 8.0 or higher.
*6 AUX x 1 is included. *7 Some features are disabled when powered via PoE (see datasheet). *8 Supported in Cisco Mobility Express software.
*9 Aironet 2802E - Dimensions (Height x Width x Depth): 6.35 x 22.00 x 22.28 cm, Weight: 2.10 kg
*10 Aironet 3802E and 3802P - Dimensions (Height x Width x Depth): 6.65 x 22.00 x 22.05 cm, Weight: 2.10 kg

Outdoor Access Points

Cisco Aironet Outdoor Access Points

The Cisco Aironet Outdoor Access Points deliver high-speed and stable wireless LAN environments in various locations such as in a massive city-size area, inside a company building, a factory ground, or a mining field. Featuring a chassis with IEC IP67 waterproof and NEMA Type 4X certified outdoor dust/rust resistance, a wide lineup of outdoor models is available to meet the diversifying customer needs in the harshest of environments.

- Built-in antenna models: Cisco Aironet 1532I, Cisco Aironet 1562I/D, and Cisco Aironet 1572IC have a polished exterior design that blends into the surrounding environment.
- External antenna models: A wide selection of antennas are available for Cisco Aironet 1532E, Cisco Aironet 1562E/PS, and Cisco Aironet 1572EAC/EC to suit different installation environments (Refer to page 37-38 for details on the Cisco Aironet Antennas).
- Built-in cable modem models: Cisco Aironet 1572IC/EC incorporate a cable modem that is compatible with DOCSIS 3.0 (24x8), an international standard for communication services via coaxial cables used for cable television, etc.

Cisco Aironet 1532I
Cisco Aironet 1562I/D NEW

Cisco Aironet 1532E
Cisco Aironet 1562E/PS NEW

Cisco Aironet 1572EAC/EC

Cisco Aironet 1572IC

Highlights

- IEC IP67 waterproof (All models)
- NEMA Type 4X certified outdoor dust/rust resistance (All models)
- Designed for harsh outdoor environments (All models)
- Supports built-in SFP module slot (Cisco Aironet 1560/1570 Series)
- Supports GPS (Cisco Aironet 1570 Series) *1
- IEEE 802.11n compatible (All models)
- IEEE 802.11ac Wave 1-compatible (Cisco Aironet 1570 Series)
- IEEE 802.11ac Wave 2-compatible (Cisco Aironet 1560 Series)
- Supports 2.4 GHz/5 GHz dual-band (All models)
- Supports 4.9-GHz public safety band (Cisco Aironet 1562PS)
- Supports Cisco CleanAir (Cisco Aironet 1560/1570 Series, Refer to page 31 for details on the technology)
- Supports ClientLink (Cisco Aironet 1560/1570 Series, Refer to page 31 for details on the technology)
- Supports Cisco BandSelect (All models)
- Supports Cisco High Density Experience (HDX) (Cisco Aironet 1560/1570 Series)

Model Name	Dimensions (Height x Width x Depth)	Maximum Weight
Cisco Aironet 1532I	22.86 x 17.78 x 10.16 cm	2.27 kg
Cisco Aironet 1532E	25.40 x 17.78 x 10.16 cm	2.49 kg
Cisco Aironet 1562I NEW	22.86 x 17.27 x 9.90 cm	2.54 kg
Cisco Aironet 1562E NEW	22.86 x 17.27 x 9.90 cm	2.54 kg
Cisco Aironet 1562D NEW	22.86 x 17.27 x 10.92 cm	2.59 kg
Cisco Aironet 1562PS NEW	22.86 x 17.27 x 9.90 cm	2.54 kg
Cisco Aironet 1572IC	29.97 x 20.07 x 20.07 cm	5.22 kg
Cisco Aironet 1572EAC	29.97 x 20.07 x 16.00 cm	6.12 kg
Cisco Aironet 1572EC	29.97 x 20.07 x 16.00 cm	6.12 kg

Cisco Aironet 1530 Series

SKU	Clean Air	Client Link	Band Select	Ports			Power Supply Options						Antennas			
				GE	SFP	Cable	AC	DC	PoE (PSE)	PoE+ (PD)	UPOE (PD)	PoC (PD)	Built-in Omnidirectional	Built-in Directional	External Dual-band	External Single-band
AIR-CAP1532I-x-K9	–	–	●	2	–	–	–	●	–	–	●	–	3	–	–	–
AIR-CAP1532E-x-K9	–	–	●	2	–	–	–	●	–	●	–	–	–	–	2	2 + 2

Cisco Aironet 1560 Series NEW

SKU	Clean Air	Client Link	Band Select	Ports			Power Supply Options						Antennas			
				GE	SFP	Cable	AC	DC	PoE (PSE)	PoE+ (PD)	UPOE (PD)	PoC (PD)	Built-in Omnidirectional	Built-in Directional	External Dual-band	External Single-band
AIR-AP1562I-x-K9	●	●	●	1	1	–	–	●	–	–	●	–	3	–	–	–
AIR-AP1562E-x-K9	●	●	●	1	1	–	–	●	–	●	–	–	–	–	2	2 + 2
AIR-AP1562D-x-K9	●	●	●	1	1	–	–	●	–	●	–	–	–	2	–	–
AIR-AP1562PS-x-K9	●	●	●	1	1	–	–	●	–	●	–	–	–	–	2	2 + 2

Cisco Aironet 1570 Series

SKU	Clean Air	Client Link	Band Select	Ports			Power Supply Options						Antennas			
				GE	SFP	Cable	AC	DC	PoE (PSE)	PoE+ (PD)	UPOE (PD)	PoC (PD)	Built-in Omnidirectional	Built-in Directional	External Dual-band	External Single-band
AIR-AP1572ICn-x-K9*3	●	●	●	2	1	1	–	●	–	–	–	●	4	–	–	–
AIR-AP1572EAC-x-K9	●	●	●	2	1	–	●	●	●*4	–	●	–	–	–	4	2 + 2
AIR-AP1572ECn-x-K9*3	●	●	●	2	1	1	–	●	–	–	–	●	–	–	4	2 + 2

*1 GPS Antenna (AIR-ANT-GPS-1) is required. *2 2.4 GHz: 3 Tx / 3 Rx Antennas with 3 streams. 5 GHz: 2 Tx / 3 Rx Antennas with 2 streams.
*3 If "n" is "1", Diplex Filter split of: 5-42/88-1000 MHz. If "n" is "2", Diplex Filter split of: 5-85/108-1002 MHz. If "n" is "3", Diplex Filter split of: 5-65/108-1002 MHz. *4 PoE+ power supply is supported.

NEW Cisco Aironet® 1560 Series Outdoor Access Points offer the latest 802.11ac Wave 2 functions in a rugged, low-profile housing that service providers and enterprises can deploy easily.

Ideal for applications requiring rugged outdoor Wi-Fi coverage, the Cisco Aironet 1560 Series Access Points offer the latest IEEE 802.11ac Wave 2 radio standard in a compact, aesthetically pleasing, easy-to-deploy package. The 1560 Series offers flexible deployment options for service providers, enterprise networks, and public safety networks that need the fastest links possible for mobile, outdoor clients (smartphones, tablets, and laptops) and wireless backhaul. With options for internal or external antennas, the 1560 Series Access Points give network operators the flexibility to balance their desired wireless coverage with their need for easy deployment.

*1 Customers are responsible for verifying approval for use in their individual countries.
To verify approval that corresponds to a particular country, or the regulatory domain used in a specific country, see http://www.cisco.com/go/aironet/compliance.
Not all models available for all regulatory domains. Not all regulatory domains have been approved. As they are approved, the SKU will be available on the Global Price List.

Cisco Aironet Antennas and Accessories

Cisco Aironet 2.4 GHz Omni-directional Antenna

SKU	Installation/Dimensions	Gain (dBi)
AIR-ANT2420V-N	12.70 x 2.54 cm	2.0
AIR-ANT2450V-N	27.94 x 2.54 cm	5.0
AIR-ANT2455V-N	31.75 x 2.54 cm	5.5
AIR-ANT2480V-N	49.53 x 2.22 cm	8.0

Cisco Aironet 2.4 GHz Directional Antenna

SKU	Installation/Dimensions/Weight	Gain (dBi)
AIR-ANT2413P2M-N	Patch 19.81 x 19.81 x 3.05 cm 0.61 kg	13.0

Cisco Aironet Dual-band Omni-directional Antenna

SKU	Installation/Dimensions/Weight	Gain (dBi)
AIR-ANT2524V4C-R	Ceiling mount 18.42 x 18.42 x 2.54 cm 0.59 kg	2.0 (2.4 GHz) 4.0 (5 GHz)
AIR-ANT2544V4M-R	Wall mount 55.37 x 16.00 cm 0.67 kg	4.0 (2.4 GHz) 4.0 (5 GHz)
AIR-ANT2547V-N	28.19 x 3.18 cm 170 g	4.0 (2.4 GHz) 7.0 (5 GHz)
AIR-ANT2547VG-N	28.19 x 3.18 cm 170 g	4.0 (2.4 GHz) 7.0 (5 GHz)
AIR-ANT2568VG-N	37.59 x 3.81 cm 204 g	6.0 (2.4 GHz) 8.0 (5 GHz)

Cisco Aironet 5 GHz Omni-directional Antenna

SKU	Installation/Dimensions	Gain (dBi)
AIR-ANT5140V-N	12.70 x 2.54 cm	4.0
AIR-ANT5175V-N	29.59 x 2.54 cm	7.5
AIR-ANT5180V-N	27.94 x 2.54 cm	8.0

Cisco Aironet 5 GHz Directional Antenna

SKU	Installation/Dimensions/Weight	Gain (dBi)
AIR-ANT5114P2M-N	Patch 19.81 x 19.81 x 3.05 cm 0.61 kg	14.0

Cisco Aironet Dual-band Dipole Antenna

SKU	Color/Dimensions/Weight	Gain (dBi)
AIR-ANT2524DB-R	Black 16.84 x 2.11 cm 36.85 g	2.0 (2.4 GHz) 4.0 (5 GHz)
AIR-ANT2524DG-R	Grey 16.84 x 2.11 cm 36.85 g	2.0 (2.4 GHz) 4.0 (5 GHz)
AIR-ANT2524DW-R	White 16.84 x 2.11 cm 36.85 g	2.0 (2.4 GHz) 4.0 (5 GHz)
AIR-ANT2535SDW-R	White 8.38 x 3.18 cm 48.19 g	3.0 (2.4 GHz) 5.0 (5 GHz)

Cisco Aironet Dual-band Directional Antenna

SKU	Installation/Dimensions/Weight	Gain (dBi)
AIR-ANT2566P4W-R	Patch 16.00 x 27.94 x 3.05 cm 0.64 kg	6.0 (2.4 GHz) 6.0 (5 GHz)
AIR-ANT2566D4M-R	Patch 25.40 x 25.40 x 4.09 cm 1.36 kg	6.0 (2.4 GHz) 6.0 (5 GHz)
AIR-ANT2588P3M-N	Patch 30.48 x 17.78 x 2.79 cm 0.45 kg	8.0 (2.4 GHz) 8.0 (5 GHz)
AIR-ANT2513P4M-N	Patch 30.48 x 17.78 x 2.79 cm 0.45 kg	13.0 (2.4 GHz) 13.0 (5 GHz)

For details on Cisco Aironet Antennas, visit the following Web site:

http://www.cisco.com/go/antenna

■ Cisco Aironet 2.4 GHz Omni-directional Antenna Model Compatibility Comparison

SKU	Gain (dBi)		Compatible Models										
	2.4 GHz	5 GHz	1852E	2702E	2802E	3702E	3702P	3802E	3802P	1532E	1562E	1562PS	1572E
AIR-ANT2420V-N	2.0	-	-	-	-	-	-	-	-	-	-	-	●
AIR-ANT2450V-N	5.0	-	-	-	-	-	-	-	-	●	●	●	●
AIR-ANT2455V-N	5.5	-	-	-	-	-	-	-	-	-	-	-	-
AIR-ANT2480V-N	8.0	-	-	-	-	-	-	-	-	●	●	●	●

■ Cisco Aironet 5 GHz Omni-directional Antenna Model Compatibility Comparison

SKU	Gain (dBi)		Compatible Models										
	2.4 GHz	5 GHz	1852E	2702E	2802E	3702E	3702P	3802E	3802P	1532E	1562E	1562PS	1572E
AIR-ANT5140V-N	-	4.0	-	-	-	-	-	-	-	-	-	-	●
AIR-ANT5175V-N	-	7.5	-	-	-	-	-	-	-	-	-	-	-
AIR-ANT5180V-N	-	8.0	-	-	-	-	-	-	-	●	●	●	●

■ Cisco Aironet 2.4 GHz Directional Antenna Model Compatibility Comparison

SKU	Gain (dBi)		Compatible Models										
	2.4 GHz	5 GHz	1852E	2702E	2802E	3702E	3702P	3802E	3802P	1532E	1562E	1562PS	1572E
AIR-ANT2413P2M-N	13.0	-	-	-	-	-	-	-	-	●	●	●	●

■ Cisco Aironet 5 GHz Directional Antenna Model Compatibility Comparison

SKU	Gain (dBi)		Compatible Models										
	2.4 GHz	5 GHz	1852E	2702E	2802E	3702E	3702P	3802E	3802P	1532E	1562E	1562PS	1572E
AIR-ANT5114P2M-N	-	14.0	-	-	-	-	-	-	-	●	●	●	●

■ Cisco Aironet Dual-band Di-pole Antenna Model Compatibility Comparison

SKU	Gain (dBi)		Compatible Models										
	2.4 GHz	5 GHz	1852E	2702E	2802E	3702E	3702P	3802E	3802P	1532E	1562E	1562PS	1572E
AIR-ANT2524DB-R	2.0	4.0	●	●	●	●	●	●	●	-	-	-	-
AIR-ANT2524DG-R	2.0	4.0	●	●	●	●	●	●	●	-	-	-	-
AIR-ANT2524DW-R	2.0	4.0	●	●	●	●	●	●	●	-	-	-	-
AIR-ANT2535SDW-R	3.0	5.0	●	●	●	●	●	●	●	-	-	-	-

■ Cisco Aironet Dual-band Omni-directional Antenna Model Compatibility Comparison

SKU	Gain (dBi)		Compatible Models										
	2.4 GHz	5 GHz	1852E	2702E	2802E	3702E	3702P	3802E	3802P	1532E	1562E	1562PS	1572E
AIR-ANT2524V4C-R	2.0	4.0	●	●	●	●	●	●	●	-	-	-	-
AIR-ANT2544V4M-R	4.0	4.0	●	●	●	●	●	●	●	-	-	-	-
AIR-ANT2547V-N	4.0	7.0	-	-	-	-	-	-	-	●	●	●	●
AIR-ANT2547VG-N	4.0	7.0	-	-	-	-	-	-	-	●	●	●	●
AIR-ANT2568VG-N	6.0	8.0	-	-	-	-	-	-	-	-	●	●	●

■ Cisco Aironet Dual-band Directional Antenna Model Compatibility Comparison

SKU	Gain (dBi)		Compatible Models										
	2.4 GHz	5 GHz	1852E	2702E	2802E	3702E	3702P	3802E	3802P	1532E	1562E	1562PS	1572E
AIR-ANT2566P4W-R	6.0	6.0	●	●	●	●	●	●	●	-	-	-	-
AIR-ANT2566D4M-R	6.0	6.0	●	●	●	●	●	●	●	-	-	-	-
AIR-ANT2588P3M-N	8.0	8.0	-	-	-	-	-	-	-	●	●	●	●
AIR-ANT2513P4M-N	13.0	13.0	-	-	-	-	●	-	●	-	●	●	●

■ Cisco Aironet Power Supply Options

SKU	Description	Compatible Models													
		700	700W	1810	1810W	1830	1850	1700	2700	2800	3700	3800	1530	1560	1570
AIR-PWRINJ4=	Power Injector	●	●	-	-	●	●	●	●	-	●	-	-	-	-
AIR-PWRINJ5=	Power Injector	●	●	●	●	●*1	●*1	●	●*2	-	-	-	-	-	-
AIR-PWRINJ6=	Power Injector	●	●	●	●	●	●	●	●	●	●	●	●	●*3	-
AIR-PWRINJ-30=	Power Injector	-	-	-	-	-	-	-	-	-	-	-	●	-	-
AIR-PWRINJ1500-2=	Power Injector	-	-	-	-	-	-	-	-	-	-	-	●	-	●*4
AIR-PWRINJ-60RGD1= NEW	Power Injector	-	-	-	-	-	-	-	-	-	-	-	-	●	●
AIR-PWRINJ-60RGD2= NEW	Power Injector	-	-	-	-	-	-	-	-	-	-	-	-	●	●
AIR-PWR-B=	Power Supply Module	●	-	-	-	-	-	●	●	-	●	-	-	-	-
AIR-PWR-C=	Power Supply Module	-	●	-	-	●	●	-	-	-	-	-	-	-	-
AIR-PWR-D=	Power Supply Module	●	●	●	●	●	●	-	-	-	-	-	-	-	-
AIR-PWR-50=	Power Supply Module	-	-	-	-	-	-	-	-	-	-	●	-	-	-
AIR-PWRADPT-1530=	Power Supply Module	-	-	-	-	-	-	-	-	-	-	-	●	-	-
AIR-PWRADPT-RGD1= NEW	Power Supply Module	-	-	-	-	-	-	-	-	-	-	-	●	●	-

*1 Full features are supported when powered via PoE+, AIR-PWRINJ4= or AIR-PWR-C= (The AIR-PWRINJ5 supports PoE receiving only).
*2 Full features are supported when powered via PoE+, AIR-PWRINJ4= or AIR-PWR-B= (The AIR-PWRINJ5 supports PoE receiving only).
*3 Cisco Aironet 1562I: Full features are supported when powered via UPOE, AIR-PWRINJ-60RGD1/2= or AIR-PWRADPT-RGD1= (The AIR-PWRINJ6 supports PoE+ receiving only).
*4 Cisco Aironet 1572ICn is not supported.

Cisco Wireless Controllers

Appliance/ Virtual Machine		Cisco 2500 Series Wireless Controller	Cisco Virtual Wireless Controller		Cisco 5500 Series Wireless Controller	Cisco 8500 Series Wireless Controller
Switch/ Module	Cisco Catalyst 3650 Series	Cisco Catalyst 3850 Series	Cisco Catalyst 4500E Series (SUP8-E)	Cisco Wireless Services Module 2 (WiSM2)		
Access Point (Mobility Express)	Cisco Aironet 1830/1850/2800/ 3800/1560 Series*1					

Number of Managed Access Points → More

Cisco Wireless Controllers is a platform that enables controller-based management of multiple Cisco Aironet Access Points including remote bases. An extensive lineup of products includes expansion modules for integrating services to the Cisco Catalyst 6500 Series, software products for VMware ESX/ESXi and Linux Kernel-based Virtual Machine (KVM), and dedicated hardware appliances. A flexible licensing system is adopted for the number of managed access points, making it one of the most cost-effective solutions in the industry. The required number of managed access points can be selected based on the network requirements at the time of deployment; and the number of managed access points can be expanded flexibly based on the post-deployment network requirements.

Cisco 2500 Series Wireless Controller

Dimensions (Height x Width x Depth): 4.39 x 20.32 x 17.15 cm Maximum Weight: 1.59 kg

SKU	OS	Managed Access Points		Clients	RF tags	Throughput	Office Extend	Wireless Mesh	Ports			Rack mount
		Default	Maximum						GE	SFP	SFP +	
AIR-CT2504-5-K9	AireOS	5	75	1,000	500	1 Gbps	●	●	4	-	-	-*2
AIR-CT2504-15-K9	AireOS	15	75	1,000	500	1 Gbps	●	●	4	-	-	-*2
AIR-CT2504-25-K9	AireOS	25	75	1,000	500	1 Gbps	●	●	4	-	-	-*2
AIR-CT2504-50-K9	AireOS	50	75	1,000	500	1 Gbps	●	●	4	-	-	-*2

Cisco Virtual Wireless Controller

SKU	OS	Managed Access Points		Clients	RF tags	Throughput	Office Extend	Wireless Mesh	Ports			Rack mount
		Default	Maximum						GE	SFP	SFP +	
L-AIR-CTVM-5-K9	AireOS	5	3,000	32,000	3,000	500 Mbps	●	-	-	-	-	-

Cisco Wireless Services Module 2 WiSM2

SKU	OS	Managed Access Points		Clients	RF tags	Throughput	Office Extend	Wireless Mesh	Ports			Rack mount
		Default	Maximum						GE	SFP	SFP +	
WS-SVC-WISM2-1-K9	AireOS	100	1,000	15,000	5,000	20 Gbps	●	●	-	-	-	-
WS-SVC-WISM2-3-K9	AireOS	300	1,000	15,000	5,000	20 Gbps	●	●	-	-	-	-
WS-SVC-WISM2-5-K9	AireOS	500	1,000	15,000	5,000	20 Gbps	●	●	-	-	-	-
WS-SVC-WISM2-K-K9	AireOS	1,000	1,000	15,000	5,000	20 Gbps	●	●	-	-	-	-

Cisco 5500 Series Wireless Controller 5508/5520

SKU	OS	Managed Access Points		Clients	RF tags	Throughput	Office Extend	Wireless Mesh	Ports			Rack mount
		Default	Maximum						GE	SFP	SFP +	
AIR-CT5508-12-K9	AireOS	12	500	7,000	5,000	8 GB/s	●	●	-	8	-	1 RU
AIR-CT5508-25-K9	AireOS	25	500	7,000	5,000	8 GB/s	●	●	-	8	-	1 RU
AIR-CT5508-50-K9	AireOS	50	500	7,000	5,000	8 GB/s	●	●	-	8	-	1 RU
AIR-CT5520-K9	AireOS	0	1,500	20,000	25,000	20 Gbps	●	●	-	-	2	1 RU
AIR-CT5520-50-K9	AireOS	50	1,500	20,000	25,000	20 Gbps	●	●	-	-	2	1 RU

Cisco 8500 Series Wireless Controller 8510/8540

SKU	OS	Managed Access Points		Clients	RF tags	Throughput	Office Extend	Wireless Mesh	Ports			Rack mount
		Default	Maximum						GE	SFP	SFP +	
AIR-CT8510-300-K9	AireOS	300	6,000	64,000	50,000	10 Gbps	●	●	-	-	2	1 RU
AIR-CT8510-500-K9	AireOS	500	6,000	64,000	50,000	10 Gbps	●	●	-	-	2	1 RU
AIR-CT8510-1K-K9	AireOS	1,000	6,000	64,000	50,000	10 Gbps	●	●	-	-	2	1 RU
AIR-CT8510-3K-K9	AireOS	3,000	6,000	64,000	50,000	10 Gbps	●	●	-	-	2	1 RU
AIR-CT8510-6K-K9	AireOS	6,000	6,000	64,000	50,000	10 Gbps	●	●	-	-	2	1 RU
AIR-CT8540-K9	AireOS	0	6,000	64,000	50,000	40 Gbps	●	●	-	-	4	2 RU
AIR-CT8540-1K-K9	AireOS	1,000	6,000	64,000	50,000	40 Gbps	●	●	-	-	4	2 RU

*1 Cisco Aironet 1560 Series are to be supported in future software release. *2 Rack Mounting Brackets (AIR-CT2504-RMNT) is required.

■ Additional Access Point License for Cisco 2500 Series Wireless Controller[*1]

SKU	Additional	Compatible Models
L-LIC-CT2504-1A	1	2504
L-LIC-CT2504-5A	5	2504
L-LIC-CT2504-25A	25	2504

■ Additional Access Point License for Cisco Virtual Wireless Controller[*2]

SKU	Additional	Compatible Models
L-LIC-CTVM-1A	1	-
L-LIC-CTVM-5A	5	-
L-LIC-CTVM-25A	25	-

■ Additional Access Point License for Cisco Wireless Services Module 2 (WiSM2)[*3]

SKU	Additional	Compatible Models
L-LIC-WISM2-100A	100	6500/6800
L-LIC-WISM2-200A	200	6500/6800

■ Additional Access Point License for Cisco 5500 Series Wireless Controller[*4]

SKU	Additional	Compatible Models
L-LIC-CT5508-1A	1	5508
L-LIC-CT5508-25A	25	5508
L-LIC-CT5508-50A	50	5508
L-LIC-CT5508-100A	100	5508
L-LIC-CT5508-250A	250	5508
LIC-CT5520-1A	1	5520

■ Additional Access Point License for Cisco 8500 Series Wireless Controller[*5]

SKU	Additional	Compatible Models
L-LIC-CT8500-1A	1	8510
L-LIC-CT8500-100A	100	8510
L-LIC-CT8500-500A	500	8510
L-LIC-CT8500-1000A	1,000	8510
LIC-CT8540-1A	1	8540

*1 L-LIC-CT2504-UPG is required. *2 L-LIC-CTVM-UPG is required. *3 L-LIC-WISM2-UPG is required. *4 L-LIC-CT5508-UPG or L-LIC-CT5540-UPG is required.
*5 L-LIC-CT8500-UPG or L-LIC-CT8540-UPG is required.

Cisco Wireless Controller Software

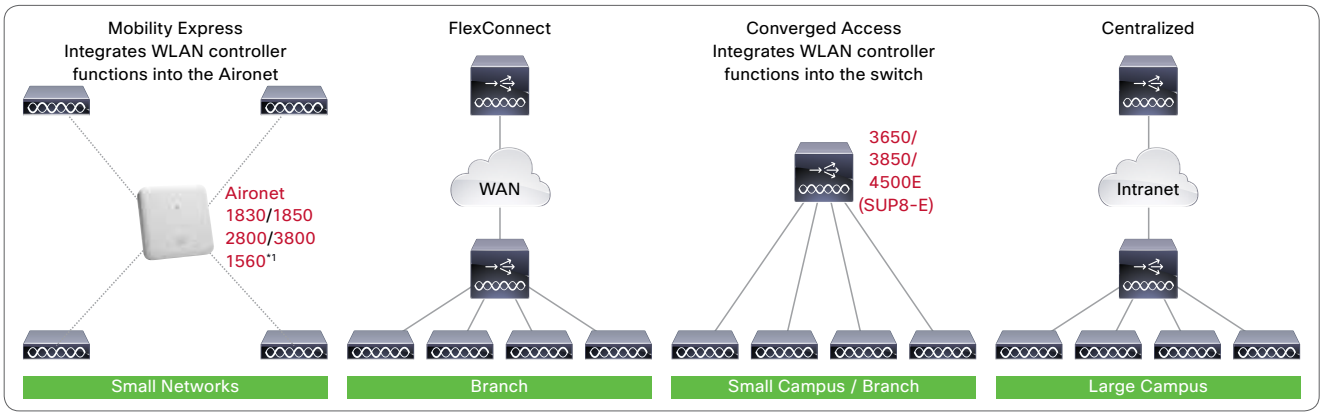
Unlike traditional products, the Cisco Catalyst 3650/3850 Series and the Supervisor Engine 8-E for Cisco Catalyst 4500E Series incorporate the Cisco IOS XE based wireless controller software. Rich features of the Cisco IOS including Flexible NetFlow, advanced QoS and dACL (downloadable Access Control List) can be provided for wireless LAN networks as well.

■ Cisco Wireless Controller Software Specification Comparison

	AirOS	IOS-XE
Resilience	Client SSO, AP SSO, N+1, High-availability option SKU	AP SSO, Multiple LAG, High-availability option SKU
QoS	Alloy QoS	High level of QoS (MQC)
Security	Dynamic ACLs, SGA (SXP)	dACL
Roaming	L2 and L3 FSR, IEEE 802.11r, Neighbor List	L2 and L3 FSR
Service	Bonjour, AVC, Static Netflow	Flexible Netflow, AVC
Command Line Interface	Secure FTP	Cisco IOS CLI, Secure Shell, EEM/TCL/TK

Deployment Modes

Cisco's wireless solutions can be broadly classified into Standalone systems that operate Cisco Aironet Access Points individually and Controller-based systems that centrally manage multiple Cisco Aironet Access Points using a Cisco Wireless Controller. Multiple expansion modes are also supported in Controller-based systems.



The Mesh Mode, FlexConnect + Mesh Mode, OfficeExtend Mode, Monitor Mode, Rogue Detector Mode, and Sniffer Mode are also supported.

■ Cisco Wireless Controller Deployment Mode Compatibility Comparison

Platform	Deployment Modes					
	Mobility Express	FlexConnect	Converged Access	Centralized	Mesh	OfficeExtend
Cisco Aironet 1830/1850 Series Access Points	●	-	-	-	-	-
Cisco Aironet 2800/3800 Series Access Points	●	-	-	-	-	-
Cisco Aironet 1560 Series Outdoor Access Points	●*1	-	-	-	-	-
Cisco 2500 Series Wireless Controller	-	●	-	●	●	●
Cisco Virtual Wireless Controller	-	●	-	-	-	-
Cisco 5500 Series Wireless Controller	-	●	●*2 *3	●	●	●
Cisco Wireless Services Module 2 (WiSM2)	-	●	●*2 *3	●	●	●
Cisco 8500 Series Wireless Controller	-	●	-	●	●	●

*1 Cisco Aironet 1560 Series are to be supported in future software release. *2 Cisco Wireless Controller Software release 7.3.112.0 is required. *3 Cisco AireOS 8.1 and higher are not supported.

Mobility Services & Network Management Tools

Cisco Mobility Services Engine (MSE)

Cisco Mobility Services Engine (MSE) is a platform that provides a wide range of mobility services including Cisco CleanAir, Cisco Base Location Services, Cisco Connected Mobile Experiences (CMX), and Cisco Wireless Intrusion Prevention System (wIPS). This platform is implemented as a software product on VMware ESX/ESXi or as a hardware appliance.

Cisco Connected Mobile Experiences (CMX) release 10

Cisco CMX 10 is a platform that enhances the Cisco wireless LAN by:

- Calculating the location of all wireless devices in a venue, including mobile devices, tags, rogue access points, and wireless interferers.
- Generating advanced location analytics (CMX Analytics).
- Providing a visitor wireless onboarding platform (CMX Connect).
- Calculating the location of Bluetooth Low Energy (BLE) beacons.

Cisco Connected Mobile Experiences (CMX) release 10 License

- **Cisco CMX Base License**

Provides the ability to determine the location of Wi-Fi clients, Bluetooth low energy (BLE) beacons, devices, and RFID tags, CMX Connect, third-party integration using standard REST APIs.

- **Cisco CMX Advanced License**

Provides all the CMX Base services and CMX Analytics, CMX Presence Analytics

- **Cisco wIPS Monitor Mode License**

Provides wIPS for Cisco Aironet Access Points in monitor mode (will be available in a future release).

- **Cisco wIPS Enhanced Local Mode License**

Provides wIPS for Cisco Aironet Access Points in local mode (will be available in a future release).

Cisco Mobility Services Engine (MSE)

SKU	Description	Managed Access Points	
		Location service CMX	wIPS Monitor Mode wIPS Enhanced Local Mode
L-MSE-7.0-K9	Software product	5,000	10,000
AIR-MSE-3365-K9	Hardware appliance	10,000	10,000

Cisco CMX Base License

SKU		Supported Access Points
MSE 8.0[*1]	CMX 10.x[*2]	
L-LS-1AP	L-LS-1AP-N	1
L-LS-100AP	-	100
L-LS-1000AP	-	1,000

Cisco wIPS Monitor Mode License

SKU		Supported Access Points
MSE 8.0[*1]	CMX 10.x[*2]	
L-WIPS-MM-1AP	TBD	1
L-WIPS-MM-100AP	TBD	100
L-WIPS-MM-1000AP	TBD	1,000

Cisco CMX Advanced License

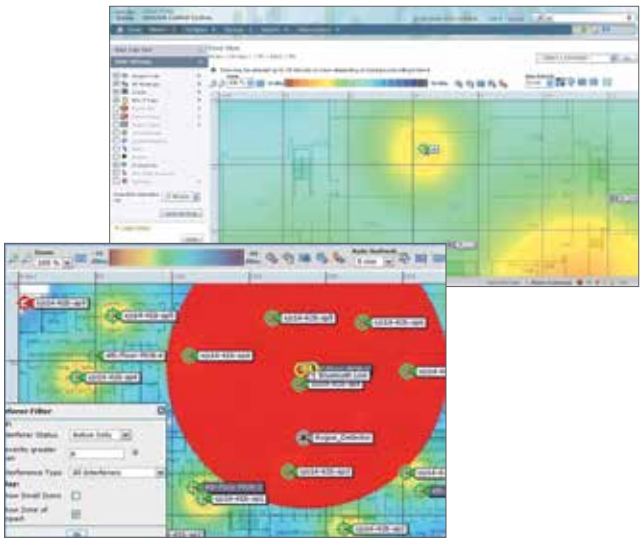
SKU		Supported Access Points
MSE 8.0[*1]	CMX 10.x[*2]	
L-AD-LS-1AP	L-AD-LS-1AP-N	1
L-AD-LS-100AP	-	100
L-AD-LS-1000AP	-	1,000
L-UPG-LS-1AP	L-UPG-LS-1AP-N	1

Cisco wIPS Enhanced Local Mode License

SKU		Supported Access Points
MSE 8.0[*1]	CMX 10.x[*2]	
L-WIPS-ELM-1AP	TBD	1
L-WIPS-ELM-100AP	TBD	100
L-WIPS-ELM-1000AP	TBD	1,000

Cisco Prime Infrastructure

Cisco Prime Infrastructure is an integrated management platform that enables comprehensive management of the entire network including wired/wireless LAN at the headquarters and branches. This platform not only enables devices comprising wired/wireless LAN networks to be managed as physical assets but also enables the networks to be managed from the user service level perspective, based on the rich information collected from the devices.



Cisco Prime Infrastructure 3.x Hardware Appliance

SKU	Description
PI-UCS-APL-K9	Generation 2 Hardware Appliance
PI-UCS-APL-U-K9	Upgrade from Generation 1

Cisco Prime Infrastructure 3.x Software & Base License[*3]

SKU	Description
R-PI30-SW-K9	Prime Infrastructure 3.0 Software
L-MGMT3X-PI-BASE	Base License

Cisco Prime Infrastructure 3.x High Availability License[*3]

SKU	Description
L-MGMT3X-HA	High Availability License

Cisco Prime Infrastructure 3.x Lifecycle & Assurance License[*3]

SKU	Managed Devices	QTY
L-MGMT3X-2K-K9	Cisco Catalyst 2000 Series	1
L-MGMT3X-3K-K9	Cisco Catalyst 3000 Series	1
L-MGMT3X-4K-K9	Cisco Catalyst 4000 Series	1
L-MGMT3X-6K-K9	Cisco Catalyst 6000 Series	1
L-MGMT3X-CSR1-K9	Cisco CSR 1000 Series	1
L-MGMT3X-800SR-K9	Cisco ISR 800 Series	1
L-MGMT3X-ISR1-K9	Cisco ISR 1000 Series	1
L-MGMT3X-ISR2-K9	Cisco ISR 2000 Series	1
L-MGMT3X-ISR3-K9	Cisco ISR 3000 Series	1
L-MGMT3X-ISR4-K9	Cisco ISR 4000 Series	1
L-MGMT3X-ASR1K9	Cisco ASR 1000 Series	1
L-MGMT3X-AP-K9	Cisco Aironet Access Point	1
L-MGMT3X-N2K-K9	Cisco Nexus 2000 Series Fabric Extender (FEX)	1
L-MGMT3X-N3K-K9	Cisco Nexus 3000 Series	1
L-MGMT3X-N5K-K9	Cisco Nexus 5000 Series	1
L-MGMT3X-N6K-K9	Cisco Nexus 6000 Series	1
L-MGMT3X-N7K-K9	Cisco Nexus 7000 Series	1
L-MGMT3X-N93XX-K9	Cisco Nexus 9300 Series	1
L-MGMT3X-N9K-K9	Cisco Nexus 9000 Series	1

*1 L-MSE-PAK is required. *2 L-MSE-PAK-N is required. *3 R-MGMT3X-N-K9 is required.

Cisco Virtual Beacon

The next generation of location accuracy is here

Cisco has developed a unique and highly innovative solution to the problem by combining sophisticated cloud-based software (Cisco® Connected Mobile Experiences (CMX) Cloud Beacon Center), on-premises 16-element steerable BLE antenna array (Cisco Beacon Point) and mobile software development kit (SDK) software for iOS and Android devices

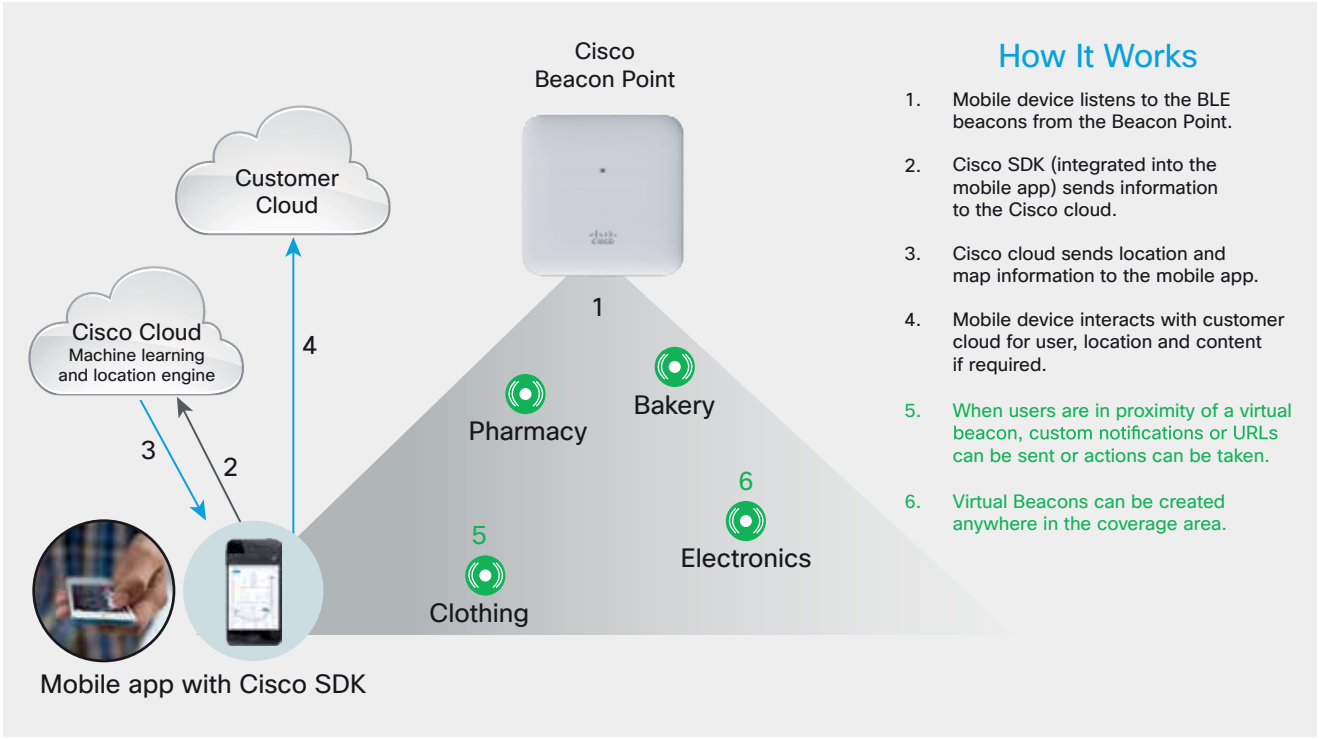
Cisco's Virtual BLE Beacon solution delivers high-accuracy location using Cisco Beacon Point hardware and CMX Cloud Beacon Center management. Generate eight virtual beacons from a single Beacon Point. It's as easy as dropping a pin on a map. Get true blue-dot experience for navigation plus proximity marketing, all at your fingertips.

What's inside the Virtual BLE Beacon Solution

Cisco Beacon Point is an industry-first virtual BLE array with 16 steerable antenna elements that can create eight virtual beacons . IT teams can deploy beacon points in their venues to achieve desired coverage, with each beacon point covering 2500 square feet of area and mounted at heights up to 13-15 feet. Unlike traditional physical beacon, Beacon points have IP addresses and can be easily managed by network IT teams. Beacon points are powered over standard Power over Ethernet (PoE; 802.3af or 802.3at) and connect over the Internet to the CMX Cloud Beacon Center.

CMX Cloud Beacon Center is s subscription software delivered via the cloud. The Beacon Center application, show n in Figure 2, offers a w ay to create virtual beacons anywhere in the coverage area by a simple click, drag, and drop operation from the user interface. Administrators can create proximity messages or use the built-in zone and path editor for analytics and wayfinding. Marketers can deliver real-time, location-aw are, personalized content to increase customer engagement and measure the effectiveness of marketing campaigns. Businesses can now focus on outcomes while reducing the footprint of on-premises servers and battery-operated devices. Provisioning and deployment are quick and easy via the cloud. The Cisco Virtual Beacon SDK supports iOS and Android mobile devices.

Cisco Virtual Beacon – How it works



How It Works

1. Mobile device listens to the BLE beacons from the Beacon Point.
2. Cisco SDK (integrated into the mobile app) sends information to the Cisco cloud.
3. Cisco cloud sends location and map information to the mobile app.
4. Mobile device interacts with customer cloud for user, location and content if required.
5. When users are in proximity of a virtual beacon, custom notifications or URLs can be sent or actions can be taken.
6. Virtual Beacons can be created anywhere in the coverage area.

System Requirements

CMX Cloud Beacon Center	CMX Cloud Beacon Center manages Cisco Beacon Points and allows the creation of virtual beacons
Cisco Beacon Point	Cisco Beacon Point transmits directional BLE beams to enable virtual beacons
Cisco Virtual Beacon SDK enabled mobile app	Cisco Virtual Beacon SDK detects BLE beams and interacts with the cloud. The SDK is a required component and should be integrated into any branded app developed for proximity engagement or way f inding. SDK is available for the last two major versions of iOS and Android.

Summary

Cisco virtual beacon technology introduces Cisco CMX Cloud Beacon Center and Cisco Beacon Points to:

- Deliver wayfinding and proximity engagement use cases
- Experience highly accurate location finding
- Replace battery-operated beacons with virtual beacons
- Eliminate expensive RF calibrations
- Deliver operational simplicity for a scalable BLE beacon solution for your enterprise

Routers

Integrated Services Routers

Line-up of Cisco ISR

Previously, even the small-scale bases were required to install a wide range of devices including switches, wireless access points and WAN optimization appliances. Cisco Integrated Services Routers (ISR) are "super routers" that are capable of integrating the network services provided by these multiple devices into a single platform. These routers are not only capable of integrating multiple services but also have the flexibility to add new services as required via license activation and/or addition of expansion modules. Adoption of these routers results in simpler network configuration, helping to reduce the device costs as well as operation and maintenance costs.

Routing

Switching

Wireless
(Access Points/Controller)

Security
(Firewall/IPS/VPN)

Unified Communication
(Call Control/Messaging)

WAN Optimization

Cisco ISR can integrate
the routing service & other services
into a single unit!

High ↑

Performance & Functionality

4431

4451

4351

4321

4331

891F/891-24X
892FSP/897VA/899G

819H/G/HG

881W/881-V

867VAE

Fixed-configuration | **Modular (NIM/SM-X)** *1

Cisco ISR 800 Series	Fixed-configuration latest generation integrated services routers suitable for deployment in small-sized branches, home offices and Machine-to-Machine (M2M) environments.	See page 52 for details.
Cisco ISR 4000 Series	Modular latest generation integrated services routers suitable for deployment in branches that require a provision of application-aware services.	See page 53 for details.

Cisco 4221 “new kid on the block”

ISR4221 – An entry level ISR4000 IWAN router for small branch

The Cisco ISR4221 Router is the New Entry Level Modular platforms providing support for IWAN. Build on the same Cisco IOS XE it offers the rich feature set from the ISR4000 family.

Most small branch deployments require an entry level modular ISR for WAN diversity and intelligent use of resource at an affordable price. ISR4221 provide the best of both worlds. It provides 2 NIM slots for any WAN combo and the feature rich performance to support Intelligent WAN deployment for small branch. The ISR4221 provides for a performance of 35 (and 75Mbps with Performance License) for Data and Security services. Supporting the diverse set of ISR4000 NIM modules, the ISR4221 provides container support for Snort IPS. Please contact your Cisco Representative for more details on part numbers.

Benefits of Migrating to Cisco ISR 4000 Series

The Cisco ISR 4000 Series build on 20 years of branch-office routers, adding services and horsepower for the needs of modern branch offices and allowing businesses to:

- Quickly open new remote offices or easily add additional services
- Operate an entire branch office with a single box
- Give IT departments more time for innovation by automating repetitive tasks and orchestrating security and application services

The Cisco ISR 4000 Series address the problems that modern branch offices face, without giving up any of the existing services of previous-generation Cisco ISRs. It also brings Services Containers Virtualisation to networking so that IT can adopt services faster and repurpose resources as needs change. And it delivers additional computing power for local application survivability, data backup, and local analytics processing.

The new architecture of the Cisco ISR 4000 Series delivers up to 2 Gbps in a converged platform, typically 4 to 10 times faster than the previous-generation ISRs.

Cisco ISR 4000 Series is the Leading platform for Cisco SD-WAN/Intelligent WAN solution deployment. Cisco ISR 4000 Series allow customers to easily deploy their branches using an SDN Controller Approach (IWAN-App and APIC-EM), deploy their branches in an

Hybrid-WAN context and deploy Application Performance based routing (PFRv3), get visibility and control (AVC) and optimise applications behaviour using integrated WAN- Optmization (WAAS) and intelligent local HTTP/HTTPS caching with market leading Akamai Connect Technology.

The virtualization technology available both embedded (Integrated Services Containers) within the Cisco ISR 4000 Series and through additional data center-class server modules (Cisco UCS E Series Servers) offers new levels of converged capability.

■ Series Comparison

Branch Network Needs	Features	Cisco ISR 1800/2800/3800 Series	Cisco ISR 1900/2900/3900 Series	Cisco ISR 4000 Series	Benefits
Scale with high performance	Maximum throughput	Up to 50 Mbps	Up to 350 Mbps	Up to 2 Gbps	4 to 10 times performance increase for the same price as the ISR G2
	Separate data, control, and services planes	–	–	●	Minimal performance impact as network services are added and throughput increases
	Integrated service container	–	–	●	No need for additional branch appliances; add network services using pluggable virtual machines
	Integrated compute with Cisco UCS E-Series Servers	–	●	●	Local compute resources for applications, data backup, and analytics
	Cisco IOS XE Operating System	–	–	●	Higher availability for network services with multicore processing
Uncompromised user experience	Cisco Application Visibility and Control (AVC)	–	●	●	Visibility into 1000+ applications for capacity planning and prioritization
	Intelligent path selection (PfR v3)	–	●	●	Improve application experience and lower costs with path selection using real-time analytics
	WAN optimization (WAAS and Akamai)	–	–	–	Integrated application performance and offload WAN with Layer 4–7 optimization
Security	Sourcefire Intrusion Detection System (IDS)	–	●	●	Industry-leading advanced threat defense
	Cloud Web Security with Advanced Malware Protection (AMP)	–	●	●	Scale secure direct Internet access with consistent policy enforcement
	Multicore hardware VPN acceleration	–	–	●	High-performance encryption for secure WAN
Reduced costs and increased business agility	Pay-as-you-grow performance and services	–	–	●	Ability to buy what you need today and upgrade anytime without complete equipment upgrades
	Cisco ONE Software Suites	–	●	●	Predictable OpEx spend, license portability, and investment protection
	Intelligent WAN app with Cisco APIC Enterprise Module	–	●	●	Automated provisioning for faster deployment

Cisco ISR 800 Series

Fixed-configuration Integrated Services Routers suitable for deployment in small-sized branches, home offices and Machine-to-Machine (M2M) environments. In addition to the routing service, a wide variety of services including switching, wireless security, unified communication, and entry-level WAN optimization can be integrated using a single router unit.

■ Highlights

- Equipped with Cisco IOS Universal Image (Compatible with IP Base/ Advanced Security/Advanced IP Services)
- Built-in managed switch
- Built-in IEEE 802.11n/ac-compatible wireless access point with full Airport support (C881W-x-K9)
- Supports 4G LTE wireless WAN

Family	SKU	Lan Ports		WLAN	WAN Ports						Security			Speedup	Voice	Rack mount
		FE	GE	AP	FE	GE	GE SFP2	V.92/ ISDN	xDSL	4G LTE	FW	IPS	VPN	WAASX		
819	C819H-K9	4				1					Y	Y	Y			
	C819HWD-E-K9	4		AGN		1					Y	Y	Y			
	C819G-4G-GA-K9	4				1				Y	Y	Y	Y			
	C819GW-LTE-GA-EK9	4		AGN		1				Y	Y	Y	Y			
860	C866VAE-K9	3	1			1			ADSL/VDSL Annex B/J1		Y	N	Y			No
	C866VAE-W-E-K9	3	1	802.11n		1			ADSL/VDSL Annex B/J1		Y	N	Y			No
	C867VAE-K9	3	1			1			ADSL/VDSL Annex A		Y	N	Y			No
	C867VAE-W-E-K9	3	1	802.11n		1			ADSL/VDSL Annex A		Y	N	Y			No
880	C881-K9	4			1						Y	Y	Y			Option
	C881WD-E-K9	4		11ac	1						Y	Y	Y			Option
	C881G-4G-GA-K9	4			1					yes	Y	Y	Y			Option
	C886VA-K9	4							ADSL/VDSL Annex B/J1		Y	Y	Y			Option
	C886VA-W-E-K9	4		11n					ADSL/VDSL Annex B/J1		Y	Y	Y			Option
	C886VAG-LTE-GA-K9	4							ADSL/VDSL Annex B/J1	yes	Y	Y	Y			Option
	C887VA-K9	4							ADSL/VDSL Annex A		Y	Y	Y			Option
	C887VA-WD-E-K9	4		11ac					ADSL/VDSL Annex A		Y	Y	Y			Option
	C887VAG-4G-GA-K9	4							ADSL/VDSL Annex A	yes	Y	Y	Y			Option
	C887VAM-K9	4							ADSL/VDSL Annex M		Y	Y	Y			Option
	C887VAM-W-E-K9	4		11n					ADSL/VDSL Annex M		Y	Y	Y			Option
	C888-K9	4							G.SHDSL EFM/ATM		Y	Y	Y			Option
890	C891F-K9		8		1	1	1	y/y			Y	Y	Y			Option
	C891-24X-K9		24		0	2	2				Y	Y	Y			yes
	C891FW-E-K9		8	AGN	1	1	1	y/y			Y	Y	Y			Option
	C892FSP-K9		8		0	2	1				Y	Y	Y			Option
	C896VA-K9		8		0	1	1	ISDN	ADSL/VDSL Annex B/J1		Y	Y	Y			Option
	C896VAG-LTE-GA-K9		8		0	1	1		ADSL/VDSL Annex B/J1	Y	Y	Y	Y			Option
	C897VA-K9		8		0	1	1	ISDN	ADSL/VDSL Annex A		Y	Y	Y			Option
	C897VAW-E-K9		8	AGN	0	1	1		ADSL/VDSL Annex A		Y	Y	Y			Option
	C897VAM-W-E-K9		8	AGN	0	1	1		ADSL/VDSL Annex M		Y	Y	Y			Option
	C897VA-M-K9		8		0	1	1		ADSL/VDSL Annex M		Y	Y	Y			Option
	C897VAG-LTE-GA-K9		8		0	1	1		ADSL/VDSL Annex A	Y	Y	Y	Y			Option
	C897VAMG-LTE-GA-K9		8		0	1	1		ADSL/VDSL Annex M	Y	Y	Y	Y			Option
	C897VAB-K9		8		0	1	1		ADSL/VDSL Annex A		Y	Y	Y			Option
	C897VAGW-LTE-GAEK9		8	AGN	0	1	1		ADSL/VDSL Annex A + Bonding	Y	Y	Y	Y			Option
	C898EA-K9		8		0	1	1		G.SHDSL EFM/ATM		Y	Y	Y			Option
	C898EAG-LTE-GA-K9		8		0	1	1		G.SHDSL EFM/ATM	Y	Y	Y	Y			Option
	C899G-LTE-GA-K9		8		0	2	1			Y	Y	Y	Y			Option

Machine-to-Machine (M2M)

Machine-to-Machine (M2M) is a technology that aggregates the intercommunications between machines without human intervention. This technology is already used in a wide range of devices such as vending machines, surveillance systems and sensor-equipped measuring instruments; and its adoption is expected to continue at an accelerated pace. The most important elements for network devices offering the M2M technology are compactness, mobility and durability.

In the case of vending machines, for example, the network device needs to be compact to allow installation inside the machines. Mobility is also important as it is cheaper to use the mobile 4G network than installing a wired broadband line for each vending machine. Depending on the installation location, the network device must also have the durability to withstand the high temperatures in summer.

Cisco 819H/G/HG has been developed to address these issues. Both models feature a palm-sized compact chassis and are compatible with 4G LTE 2.0 wireless LAN. Furthermore, Cisco 819H/HG can operate in temperatures between -23 and +60 deg C and in up to 95% humidity and have superior vibration and impact resistance to withstand industrial use. A wide variety of mounting options are supported including DIN rail, floor and wall mounting.

Cisco ISR 4000 Series

Modular Integrated Services Routers suitable for deployment in bases that require a provision of application-aware services. In addition to the routing service, these routers can integrate a wide variety of services including switching, wireless security, unified communication, WAN optimization and service virtualization. Since the control, data, and service resources are isolated at the hardware level, it is possible to deliver application-aware services with high availability even when at high loads.

■ Highlights

- Equipped with Cisco IOS XE
- Equipped with multi-core CPU and 4 GB memory
- Equipped with multi-core CPU, 4 GB memory for the control plane and 2 GB Memory for the data plane
- Various network services are integrated via Expansion Modules (NIM/SM-X slots)
- Supports the Cisco UCS E Series Server

■ Cisco ISR 4000 A-la-carte Series Bundles Comparison

Bundles	Characters Included in SKU	Bundled Licenses/Modules				
		IOS SEC	IOS UC	IOS APP	CME/SRST	PVDM4
Security Bundles	SEC	●	–	–	–	–
Voice Bundles	V	–	●	–	–	●*1
Voice Security Bundles	VSEC	●	●	–	–	●*1
Application Experience Bundles	AX	●	–	●	–	–
Application Experience Voice Bundles	AXV	●	●	●	–	●*1

■ Cisco ISR 4000 Series A-la-carte

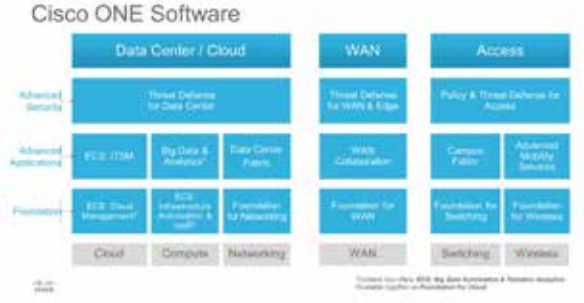
SKU	Cisco IOS	Expansion Slots			Ports					Speedup	Wireless			Security			Voice	Rack mount
		NIM	SM/ SM-X	PVDM	FE	GE	ISDN Backup	xDSL	Voice	WAAS	AP	WLC	4G	FW	IPS	VPN	GW Call Control MSG	
ISR4321/K9	IP Base	2	–	1	–	2*2	–*3	–*3	–*3	–*4	–	–*3	–*3	–*5	–*5	–*5	–*6	●
ISR4321-SEC/K9	IP Base + SEC	2	–	1	–	2*2	–*3	–*3	–*3	–*4	–	–*3	–*3	●	●	●	–*6	●
ISR4321-V/K9	IP Base + UC	2	–	1	–	2*2	–*3	–*3	–*3	–*4	–	–*3	–*3	–*5	–*5	–*5	●	●
ISR4321-AX/K9	IP Base + SEC + APP	2	–	1	–	2*2	–*3	–*3	–*3	●	–	–*3	–*3	●	●	●	–*6	●
ISR4321-AXV/K9	IP Base + SEC + UC + APP	2	–	1	–	2*2	–*3	–*3	–*3	●	–	–*3	–*3	●	●	●	●	●
ISR4331/K9	IP Base	2	1	1	–	3*2	–*3	–*3	–*3	–*4	–	–*3	–*3	–*5	–*5	–*5	–*6	●
ISR4331-SEC/K9	IP Base + SEC	2	1	1	–	3*2	–*3	–*3	–*3	–*4	–	–*3	–*3	●	●	●	–*6	●
ISR4331-V/K9	IP Base + UC	2	1	1	–	3*2	–*3	–*3	–*3	–*4	–	–*3	–*3	–*5	–*5	–*5	●	●
ISR4331-AX/K9	IP Base + SEC + APP	2	1	1	–	3*2	–*3	–*3	–*3	●	–	–*3	–*3	●	●	●	–*6	●
ISR4331-AXV/K9	IP Base + SEC + UC + APP	2	1	1	–	3*2	–*3	–*3	–*3	●	–	–*3	–*3	●	●	●	●	●
ISR4351/K9	IP Base	3	2	1	–	3*2	–*3	–*3	–*3	–*4	–	–*3	–*3	–*5	–*5	–*5	–*6	●
ISR4351-SEC/K9	IP Base + SEC	3	2	1	–	3*2	–*3	–*3	–*3	–*4	–	–*3	–*3	●	●	●	–*6	●
ISR4351-V/K9	IP Base + UC	3	2	1	–	3*2	–*3	–*3	–*3	–*4	–	–*3	–*3	–*5	–*5	–*5	●	●
ISR4351-AX/K9	IP Base + SEC + APP	3	2	1	–	3*2	–*3	–*3	–*3	●	–	–*3	–*3	●	●	●	–*6	●
ISR4351-AXV/K9	IP Base + SEC + UC + APP	3	2	1	–	3*2	–*3	–*3	–*3	●	–	–*3	–*3	●	●	●	●	●
ISR4431/K9	IP Base	3	–	1	–	4*2	–*3	–*3	–*3	–*4	–	–*3	–*3	–*5	–*5	–*5	–*6	●
ISR4431-SEC/K9	IP Base + SEC	3	–	1	–	4*2	–*3	–*3	–*3	–*4	–	–*3	–*3	●	●	●	–*6	●
ISR4431-V/K9	IP Base + UC	3	–	1	–	4*2	–*3	–*3	–*3	–*4	–	–*3	–*3	–*5	–*5	–*5	●	●
ISR4431-AX/K9	IP Base + SEC + APP	3	–	1	–	4*2	–*3	–*3	–*3	●	–	–*3	–*3	●	●	●	–*6	●
ISR4431-AXV/K9	IP Base + SEC + UC + APP	3	–	1	–	4*2	–*3	–*3	–*3	●	–	–*3	–*3	●	●	●	●	●
ISR4451-X/K9	IP Base	3	2	1	–	4*2	–*3	–*3	–*3	–*4	–	–*3	–*3	–*5	–*5	–*5	–*6	●
ISR4451-X-SEC/K9	IP Base + SEC	3	2	1	–	4*2	–*3	–*3	–*3	–*4	–	–*3	–*3	●	●	●	–*6	●
ISR4451-X-V/K9	IP Base + UC	3	2	1	–	4*2	–*3	–*3	–*3	–*4	–	–*3	–*3	–*5	–*5	–*5	●	●
ISR4451-X-AX/K9	IP Base + SEC + APP	3	2	1	–	4*2	–*3	–*3	–*3	●	–	–*3	–*3	●	●	●	–*6	●
ISR4451-X-AXV/K9	IP Base + SEC + UC + APP	3	2	1	–	4*2	–*3	–*3	–*3	●	–	–*3	–*3	●	●	●	●	●
ISR4451XWAAS-200G	IP Base + SEC + APP	2	2	1	–	4*2	–*3	–*3	–*3	●	–	–*3	–*3	●	●	●	–*6	●

*1 Cisco 4321 is not supported. *2 SFP module slot or dual-purpose port is included. *3 Expansion Module is required. *4 Feature Licenses or Expansion Modules are required. *5 Cisco IOS SEC License is required. *6 Feature Licenses, etc. are required according to the Cisco IOS UC License and configuration.

Cisco ONE Software for WAN on the Cisco ISR 4000 Series

Cisco ONE Software is a valuable and flexible way to buy software for your WAN. At each stage in the product lifecycle, Cisco ONE Software helps make buying, managing, and upgrading your network and infrastructure software easier.Cisco ONE provides customers with four key benefits:

- Access to software services-enabled ongoing innovation and new technology from Cisco
- Investment protection of software purchases through software services-enabled license portability
- Software suites that address typical customer use case scenarios at an attractive price
- Flexible licensing models to smoothly distribute customer's software spending over time The diagram on the right shows avialable Cisco ONE suites for the ISR space.



Modules & Accessories

Cisco IOS Technology Package Licenses

SKU	Description	Compatible Models																
		800	1921	1941	1941W	2901	2911	2921	2951	3925	3945	3925E	3945E	4321	4331	4351	4431	4451
SL-4320-SEC-K9	Cisco IOS SEC License for Cisco ISR 4321	–	–	–	–	–	–	–	–	–	–	–	–	●	–	–	–	–
SL-4330-SEC-K9	Cisco IOS SEC License for Cisco ISR 4331	–	–	–	–	–	–	–	–	–	–	–	–	–	●	–	–	–
SL-4350-SEC-K9	Cisco IOS SEC License for Cisco ISR 4351	–	–	–	–	–	–	–	–	–	–	–	–	–	–	●	–	–
SL-44-SEC-K9	Cisco IOS SEC License for Cisco ISR 4400 Series	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	●	●
SL-4320-UC-K9	Cisco IOS UC License for Cisco ISR 4321	–	–	–	–	–	–	–	–	–	–	–	–	●	–	–	–	–
SL-4330-UC-K9	Cisco IOS UC License for Cisco ISR 4331	–	–	–	–	–	–	–	–	–	–	–	–	–	●	–	–	–
SL-4350-UC-K9	Cisco IOS UC License for Cisco ISR 4351	–	–	–	–	–	–	–	–	–	–	–	–	–	–	●	–	–
SL-44-UC-K9	Cisco IOS UC License for Cisco ISR 4400 Series	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	●	●
SL-4320-APP-K9	Cisco IOS APP License for Cisco ISR 4321	–	–	–	–	–	–	–	–	–	–	–	–	●	–	–	–	–
SL-4330-APP-K9	Cisco IOS APP License for Cisco ISR 4331	–	–	–	–	–	–	–	–	–	–	–	–	–	●	–	–	–
SL-4350-APP-K9	Cisco IOS APP License for Cisco ISR 4351	–	–	–	–	–	–	–	–	–	–	–	–	–	–	●	–	–
FL-4320-HSEC-K9	Cisco IOS HSEC License for Cisco ISR 4321*1	–	–	–	–	–	–	–	–	–	–	–	–	●	–	–	–	–
FL-4330-HSEC-K9	Cisco IOS HSEC License for Cisco ISR 4331*1	–	–	–	–	–	–	–	–	–	–	–	–	–	●	–	–	–
FL-4350-HSEC-K9	Cisco IOS HSEC License for Cisco ISR 4351*1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	●	–	–
FL-44-HSEC-K9	Cisco IOS HSEC License for Cisco ISR 4400 Series*1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	●	●
L-FL-CME-SRST-5	Cisco Unified CME or SRST 5 License*2 *3	●	–	–	–	●	●	●	●	●	●	●	●	●	●	●	●	●
L-FL-CME-SRST-25	Cisco Unified CME or SRST 25 License *2	–	–	–	–	●	●	●	●	●	●	●	●	●	●	●	●	●
L-FL-CME-SRST-100	Cisco Unified CME or SRST 100 License *2	–	–	–	–	–	–	●	●	●	●	●	●	–	●	●	●	●
FL-CUBEE-5-RED	Cisco Unified BEe 5 Redundant Configuration License*2	–	–	–	–	●	●	●	●	●	●	●	●	●	●	●	●	●
FL-CUBEE-25-RED	Cisco Unified BEe 25 Redundant Configuration License*2	–	–	–	–	●	●	●	●	●	●	●	●	●	●	●	●	●
FL-CUBEE-100-RED	Cisco Unified BEe 100 Redundant Configuration License*2	–	–	–	–	●	●	●	●	●	●	●	●	●	●	●	●	●
FL-CUBEE-500-RED	Cisco Unified BEe 500 Redundant Configuration License*2	–	–	–	–	–	–	–	●	●	●	●	●	–	–	●	●	●
FL-CUBEE-1000-RED	Cisco Unified BEe 1000 Redundant Configuration License*2	–	–	–	–	–	–	–	–	–	●	●	●	–	–	●	●	●
L-FL-C800-APP	Cisco IOS APP License for Cisco ISR 800 Series*5	●	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
FL-4320-PERF-K9	Cisco IOS Performance-on-demand License for Cisco ISR 4321	–	–	–	–	–	–	–	–	–	–	–	–	●	–	–	–	–
FL-4330-PERF-K9	Cisco IOS Performance-on-demand License for Cisco ISR 4331	–	–	–	–	–	–	–	–	–	–	–	–	–	●	–	–	–
FL-4350-PERF-K9	Cisco IOS Performance-on-demand License for Cisco ISR 4351	–	–	–	–	–	–	–	–	–	–	–	–	–	–	●	–	–
FL-44-PERF-K9	Cisco IOS Performance-on-demand License for Cisco ISR 4400 Series	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	●	●
SL-44-APP-K9	Cisco IOS APP License for Cisco ISR 4400 Series	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	●	●

*1 Cisco IOS SEC License is required. *2 Cisco IOS UC License is required. *3 Cisco ISR 800 Series only supports Cisco 881-V. *4 Cisco IOS APP License is required.
*5 Cisco ISR 800 Series only supports Cisco 891F/892FSP/897VA/899G.

Extension Module for Cisco ISR 1900/2900/3900/4000 Series (1 of 2)

SKU	Description	Slot	4321	4331	4351	4431	4451
NIM-ES2-4	EtherSwitch Module (L2, 4-port GE)	NIM	●	●	●	●	●
NIM-ES2-8	EtherSwitch Module (L2, 8-port GE)	NIM	●	●	●	●	●
NIM-ES2-8-P	EtherSwitch Module (L2, 8-port GE/PoE+)	NIM	●	●	●	●	●
SM-X-ES3-16-P	SM-X EtherSwitch Module (L2/L3, 16-port GE/PoE+)	SM*1	–	●	●	–	●
SM-X-ES3-24-P	SM-X EtherSwitch Module (L2/L3, 24-port GE/PoE+)	SM*1	–	●	●	–	●
SM-X-ES3D-48-P	SM-X EtherSwitch Module (L2/L3, 48-port GE/PoE+)	SM*1	–	–	●	–	●
NIM-VAB-A	Multi Mode VDSL2/ADSL/2/2+ (Annex A)	NIM	●	●	●	●	●
NIM-VA-B	Multi Mode VDSL2/ADSL/2/2+ (Annex B)	NIM	●	●	●	●	●
NIM-VAB-M	Multi Mode VDSL2/ADSL/2/2+ (Annex M)	NIM	●	●	●	●	●
NIM-1T	Serial WAN Module (1-port)	NIM	●	●	●	●	●
NIM-2T	Serial WAN Module (2-port)	NIM	●	●	●	●	●
NIM-4T	Serial WAN Module (4-port)	NIM	●	●	●	●	●
SM-X-1T3/E3	T3/E3 Module (1 port)	SM*1	–	●	●	–	●
NIM-1GE-CU-SFP	GE/SFP Module (1-port)	NIM	●	●	●	●	●
NIM-2GE-CU-SFP	GE/SFP Module (2-port)	NIM	●	●	●	●	●
SM-X-6X1G	GE/SFP Service Module (6-port)	SM-X	–	●	●	–	●
SM-X-4X1G-1X10G	GE/SFP (4-port) or SFP+ (1-port) Service Module	SM-X	–	●	●	–	●

Cisco UCS E Series Servers for Cisco ISR 1900/2900/3900/4000 Series

SKU	CPU Cores	Memory		Internal Drive Slots	RAID	Slot	Compatible Models														
		Default	Maximum				1921	1941	1941W	2901	2911	2921	2951	3925	3945	3925E	3945E	4321	4331	4351	4431	4451
UCS-EN120E-54/K9	4	4 GB	4 GB	1	–	EHWIC	●	●	–	●	●	●	●	●	●	●	●	–	–	–	–	–
UCS-EN120E-58/K9	4	8 GB	8 GB	1	–	EHWIC	●	●	–	●	●	●	●	●	●	●	●	–	–	–	–	–
UCS-EN120E-108/K9	4	8 GB	8 GB	1	–	EHWIC	●	●	–	●	●	●	●	●	●	●	●	–	–	–	–	–
UCS-EN120E-208/K9	4	8 GB	8 GB	1	–	EHWIC	●	●	–	●	●	●	●	●	●	●	●	–	–	–	–	–
UCS-EN140N-M2/K9	4	8 GB	8 GB	1	–	NIM	–	–	–	–	–	–	–	–	–	–	–	●	●	●	●	●
UCS-EN120S-M2/K9	2	4 GB	16 GB	2	0/1	SM*1	–	–	–	–	●	●	●	●	●	●	●	–	●	●	–	●
UCS-E140S-M2/K9	4	8 GB	16 GB	2	0/1	SM*1	–	–	–	–	●	●	●	●	●	●	●	–	●	●	–	●
UCS-E160S-M3/K9 NEW	6	8 GB	32 GB	2	0/1	SM*1	–	–	–	–	●	●	●	●	●	●	●	–	●	●	–	●
UCS-E160D-M2/K9	6	8 GB	96 GB	3	0/1/5	SM*1	–	–	–	–	–	–	–	●	●	●	●	–	–	●	–	●
UCS-E180D-M2/K9	8	8 GB	96 GB	3	0/1/5	SM*1	–	–	–	–	–	–	–	●	●	●	●	–	–	●	–	●

■ Extension Module for Cisco ISR 1900/2900/3900/4000 Series (2 of 2)

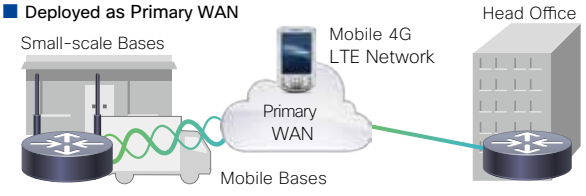
SKU	Description	Slot	Compatible Models															
			1921	1941	1941W	2901	2911	2921	2951	3925	3945	3925E	3945E	4321	4331	4351	4431	4451
NIM-4G-LTE-GA	4G LTE Wireless WAN Module for Global	NIM	–	–	–	–	–	–	–	–	–	–	–	●	●	●	●	●
NIM-4G-LTE-VZ	4G LTE Wireless WAN Module for Verizon	NIM	–	–	–	–	–	–	–	–	–	–	–	●	●	●	●	●
NIM-4G-LTE-ST	4G LTE Wireless WAN Module for Sprint	NIM	–	–	–	–	–	–	–	–	–	–	–	●	●	●	●	●
NIM-4G-LTE-NA	4G LTE Wireless WAN Modulefor North America	NIM	–	–	–	–	–	–	–	–	–	–	–	●	●	●	●	●
NIM-2FXS	Voice Module (2-port FXS)	NIM	–	–	–	–	–	–	–	–	–	–	–	●	●	●	●	●
NIM-4FXS	Voice Module (4-port FXS)	NIM	–	–	–	–	–	–	–	–	–	–	–	●	●	●	●	●
NIM-2FXO	Voice Module (2-port FXO)	NIM	–	–	–	–	–	–	–	–	–	–	–	●	●	●	●	●
NIM-4FXO	Voice Module (4-port FXO)	NIM	–	–	–	–	–	–	–	–	–	–	–	●	●	●	●	●
NIM-2FXS/4FXO	Voice Module (2-port FXS and 4-port FXO)	NIM	–	–	–	–	–	–	–	–	–	–	–	●	●	●	●	●
NIM-4E/M	Voice Module (4-port E/M)	NIM	–	–	–	–	–	–	–	–	–	–	–	●	●	●	●	●
NIM-2BRI-NT/TE	Voice Module (2-port BRI)	NIM	–	–	–	–	–	–	–	–	–	–	–	●	●	●	●	●
NIM-4BRI-NT/TE	Voice Module (4-port BRI)	NIM	–	–	–	–	–	–	–	–	–	–	–	●	●	●	●	●
NIM-1MFT-T1/E1	Voice/WAN Module (1-port T1/E1)	NIM	–	–	–	–	–	–	–	–	–	–	–	●	●	●	●	●
NIM-2MFT-T1/E1	Voice/WAN Module (2-port T1/E1)	NIM	–	–	–	–	–	–	–	–	–	–	–	●	●	●	●	●
NIM-4MFT-T1/E1	Voice/WAN Module (4-port T1/E1)	NIM	–	–	–	–	–	–	–	–	–	–	–	●	●	●	●	●
NIM-8MFT-T1/E1	Voice/WAN Module (8-port T1/E1)	NIM	–	–	–	–	–	–	–	–	–	–	–	●	●	●	●	●
NIM-1CE1T1-PRI	Voice/WAN Module (1-port T1/E1/G.703)	NIM	–	–	–	–	–	–	–	–	–	–	–	●	●	●	●	●
NIM-2CE1T1-PRI	Voice/WAN Module (2-port T1/E1/G.703)	NIM	–	–	–	–	–	–	–	–	–	–	–	●	●	●	●	●
NIM-8CE1T1-PRI	Voice/WAN Module (8-port T1/E1/G.703)	NIM	–	–	–	–	–	–	–	–	–	–	–	●	●	●	●	●
PVDM4-32	High-density Voice DSP Module (16-channel)	PVDM4*3	–	–	–	–	–	–	–	–	–	–	–	●	●	●	●	●
PVDM4-64	High-density Voice DSP Module (32-channel)	PVDM4*3	–	–	–	–	–	–	–	–	–	–	–	●	●	●	●	●
PVDM4-128	High-density Voice DSP Module (64-channel)	PVDM4*3	–	–	–	–	–	–	–	–	–	–	–	●	●	●	●	●
PVDM4-256	High-density Voice DSP Module (128-channel)	PVDM4*3	–	–	–	–	–	–	–	–	–	–	–	●	●	●	●	●
PVDM4-64U128	Factory Upgrade from PVDM4-64 to PVDM4-128	PVDM4*3	–	–	–	–	–	–	–	–	–	–	–	●	●	●	●	●
PVDM4-64U256	Factory Upgrade from PVDM4-64 to PVDM4-256	PVDM4*3	–	–	–	–	–	–	–	–	–	–	–	●	●	●	●	●
SM-X-PVDM-500	High-density Voice DSP Module (768-channel)	SM-X	–	–	–	–	–	–	–	–	–	–	–	–	●	●	–	●
SM-X-PVDM-1000	High-density Voice DSP Module (1,024-channel)	SM-X	–	–	–	–	–	–	–	–	–	–	–	–	●	●	–	●
SM-X-PVDM-2000	High-density Voice DSP Module (2,048-channel)	SM-X	–	–	–	–	–	–	–	–	–	–	–	–	–	●*4	–	●
SM-X-PVDM-3000	High-density Voice DSP Module (3,080-channel)	SM-X	–	–	–	–	–	–	–	–	–	–	–	–	–	●*4	–	●

*1 SM-X slot is used for the Cisco ISR 4000 Series.

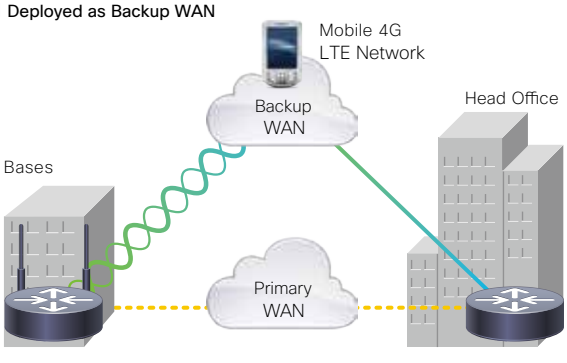
4G LTE Wireless WAN Solutions

Mobile 4G LTE networks can be deployed rapidly as primary or backup WAN by incorporating the 4G LTE Wireless WAN Module on Cisco ISR 1900/2900/3900/4000 Series. Bandwidth can be utilized even more efficiently by using the module in combination with Cisco Wide Area Application Services (WAAS).

■ Deployed as Primary WAN



■ Deployed as Backup WAN



*1SM-X slot is used for the Cisco ISR 4000 Series.*2Cisco ISR 1900 Series only supports data communications.*3Also supported by a PVDM4 slot on Voice NIMs.
*4Supports up to 1,024 channels.

Cisco Wide Area Application Services (WAAS)

What is Cisco WAAS?

Cisco Wide Area Application Services (WAAS) is an effective solution for achieving optimization of inter-office WAN and application acceleration. This solution addresses the WAN-specific issues such as delays to enhance the TCP-based application performance.

■ Same Level of Application Performance as LAN Connection

Cisco WAAS enables applications to be used via WAN with the same level of performance as via LAN.

- Optimized throughput: Enhances the WAN environment even further by improving the behavior of the transport protocol.
- More efficient bandwidth: Minimizes the sending/receiving of redundant data patterns using DRE (Data Redundancy Elimination) and compression technology.
- Application speedup: Achieves efficient utilization of bandwidth by eliminating delays using technologies such as read-ahead, protocol proxy and caching.

■ Full Support for Citrix XenDesktop and XenApp

VDI (Virtual Desktop Infrastructure) solutions that are becoming increasingly popular to address the challenges in the fields of business flexibility and sustainability as well as compliance/security requirements. However, since the communications from a client to a virtual desktop (i.e. server) are achieved via a network, network delay and bandwidth limit need to be considered carefully (especially via WAN).

Cisco WAAS has obtained Citrix's compatibility certification for their VDI solutions Citrix XenDesktop and XenApp and delivers the following benefits.

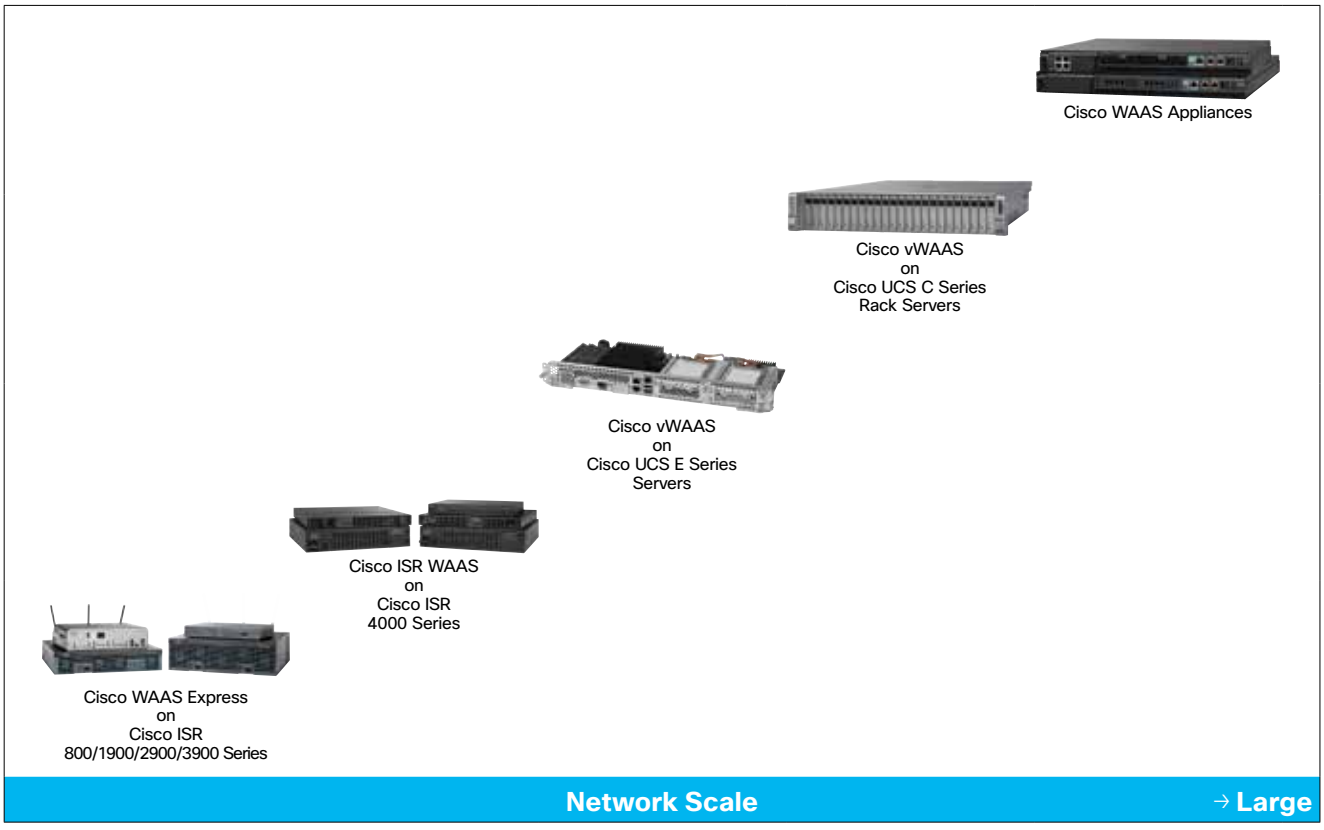
- Enhances the virtual desktop performance on WAN by up to 70 %
- Increases the number of simultaneous Citrix client connections by up to twice without the costly upgrade of the WAN bandwidth.
- Up to 60 % reduction of the WAN bandwidth requirements
- Up to 98 % optimization of the printing via WAN
- Supports Citrix MSI (Multi Stream ICA)

For details on Cisco WAAS, visit the following Web site:

http://www.cisco.com/go/waas

Cisco WAAS Product Portfolio

Cisco WAAS is available in various types to suit different purposes and scales. These products can be used to achieve WAN optimization and application acceleration in a variety of operating environments, resulting in enhanced corporate productivity.



Cisco WAAS Express	Software products suitable for bases, integrated into Cisco IOS on the Cisco ISR 800/1900/2900/3900 Series, and activated by Cisco IOS Feature License or Cisco IOS APP license.
Cisco ISR WAAS	Software products suitable for bases or data centers/headquarters, integrated into Cisco IOS XE on the Cisco ISR 4000 Series, and activated by Cisco IOS APP License.
Cisco vWAAS	Software products suitable for bases or data centers/headquarters, implemented on VMware ESX/ESXi which is supported by Cisco UCS E Series Servers and Cisco UCS C Series Rack Servers.
Cisco WAAS Appliances	Hardware appliances suitable for bases or data centers/headquarters.

Application Optimization with Akamai Connect

Cisco WAAS with Akamai Connect provides a suite of integrated WAN optimization, application acceleration, and intelligent caching features in Cisco ISR 4000 running Application Experience services.

The solution extends the well-known Akamai Intelligent Platform with HTTP/HTTPS caching across the last mile into the branch office, turbo charging the application optimization features of the Cisco WAAS. Akamai Connect caching integrates with Cisco IWAN features such as Application Visibility and Control (AVC), Cisco Performance Routing (PfR), and Cisco Wide Area Application Services (WAAS). It is available across the Cisco ISR portfolio and Cisco WAAS Appliances, allowing you to deploy full-service branch-office operations.

Users can access bandwidth-intensive applications instantly, over any network, regardless of where the application is hosted data center, private cloud, public cloud, or the Internet.

Cisco WAAS and Akamai connect can be purchased a-la-carte (see table on the right) or if you choose Cisco ONE Software suites it is already an integral part.

■ Mobile Assisted Selling Application Benchmark Results in Seconds (s)

	Without Akamai Connect	With Akamai Connect 1st Hit	With Akamai Connect 2nd Hit
ERP App	57 s	18 s	2 s
Repair App	70 s	28 s	< 1 s
Catalog App	28 s	13 s	< 1 s

■ Training/Digital Signage Application Benchmark Results in Pixels (p) and Seconds (s)

	Without Akamai Connect	With Akamai Connect
Default Quality	144 p	720 p (HD Automatic)
Time to Load (720 p HD)	14 s	Instant

■ Cisco IWAN with Akamai Connect License

SKU	Description
SL-200-AKC	License for up to 200 WAAS connections
SL-750-AKC	License for up to 750 WAAS connections
SL-1300-AKC	License for up to 1300 WAAS connections
SL-2500-AKC	License for up to 2500 WAAS connections
SL-6K-AKC	License for up to 6000 WAAS connections

■ Cisco WAAS Specification Comparison

Series Name	SKU/Platform		WAN Bandwidth (Max)	TCP Optimized Connections (Max)	WAN Optimization	App Speedup	AppNav	Central Manager Mode Managed Devices
Cisco WAAS Express	L-FL-C880-WAASX[*1]		1.5 Mbps	75	●	-	-	-
	L-FL-C890-WAASX[*1]		2 Mbps	75	●	-	-	-
	L-FL-C1941-WAASX[*1]		4 Mbps	150	●	-	-	-
	L-FL-C2901-WAASX[*1]		6 Mbps	150	●	-	-	-
	L-FL-C2911-WAASX[*1]		6 Mbps	200	●	-	-	-
	L-FL-C2921-WAASX[*1]		6 Mbps	200	●	-	-	-
	L-FL-C2951-WAASX[*1]		6 Mbps	200	●	-	-	-
	L-FL-C3900-WAASX[*1]		10 Mbps	500	●	-	-	-
Cisco ISR WAAS	Cisco 4321		15 Mbps	200	●	●	●	-
	Cisco 4331		25 Mbps	750	●	●	●	-
	Cisco 4351		25 Mbps	750	●	●	●	-
	Cisco 4431		50 Mbps	1,300	●	●	●	-
	Cisco 4451		150 Mbps	2,500	●	●	●	-
Cisco vWAAS	LIC-200-VWAAS		20 Mbps	200	●	●	-	-
	LIC-750-VWAAS		50 Mbps	750	●	●	-	-
	LIC-1300-VWAAS		80 Mbps	1,300	●	●	-	-
	LIC-2500-VWAAS		150 Mbps	2,500	●	●	-	-
	LIC-6K-VWAAS		200 Mbps	6,000	●	●	-	-
	LIC-12K-VWAAS		310 Mbps	12,000	●	●	-	-
	LIC-50K-VWAAS		700 Mbps	50,000	●	●	-	-
Cisco WAAS Appliances	WAVE-294-K9	4 GB Memory	10 Mbps	200	●	●	-	250 (200) [*7] [*8]
		8 GB Memory[*2]	20 Mbps	400	●	●	-	250 (200) [*7] [*8]
	WAVE-594-K9	8 GB Memory	50 Mbps	750	●	●	●[*5]	1,000 (800) [*7] [*8]
		12 GB Memory[*3]	100 Mbps	1,300	●	●	●[*5]	1,000 (800) [*7] [*8]
	WAVE-694-K9	16 GB Memory	200 Mbps	2,500	●	●	●[*6]	2,000 (2,000) [*7] [*8]
		24 GB Memory[*4]	200 Mbps	6,000	●	●	●[*6]	2,000 (2,000) [*7] [*8]

■ Modules for Cisco Wide Area Application Services (WAAS) Appliance

SKU	Description	GE Ports	SFP Ports
WAVE-INLN-GE-4T	GE Module for the Cisco WAAS Appliances[*9]	4	-
WAVE-INLN-GE-8T	GE Module for the Cisco WAAS Appliances	8	-
WAVE-INLN-GE-4SX	SFP Module for the Cisco WAAS Appliances	-	4
WAVE-APNV-GE-12T	AppNav GE Module for the Cisco WAVE 694 WAAS Appliances	12	-
WAVE-APNV-GE-12SFP	AppNav SFP Module for the Cisco WAVE 694 WAAS Appliances	-	12

*1 Maximum DRAM supported by the platform is required. *2 MEM-294-8GB is required. *3 MEM-594-12GB is required. *4 MEM-694-24GB is required.
*5 Cisco AppNav 10 GE Bundle (WAVE-APNV-10GE) is required. *6 Cisco AppNav GE or SFP Module is required. *7 Performance indicators based on Cisco WAAS software release 5.1.
*8 The maximum number of managed devices is reduced by 20 % in an environment containing routers equipped with Cisco WAAS Express. *9 Incorporated on WAVE-294-K9 by default.

APIC-EM SDN Controller

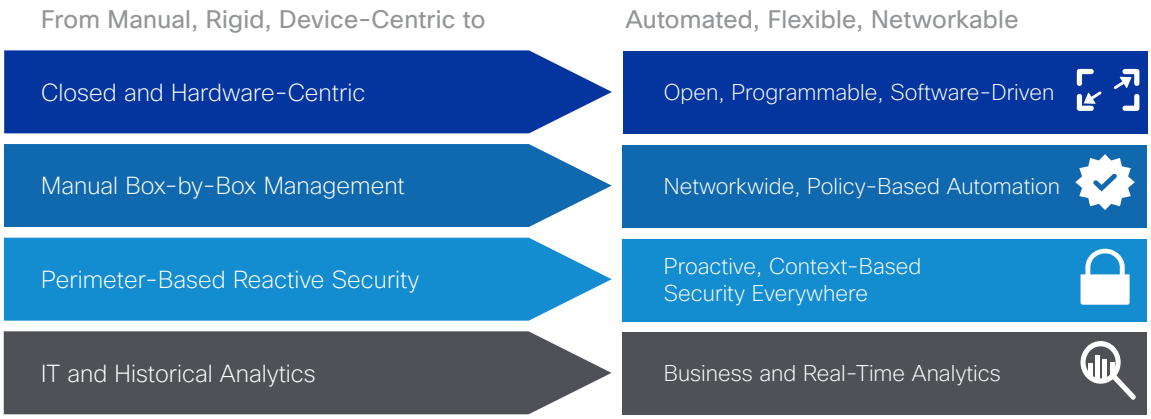
Automation

Simplify network configuration and provisioning with networkwide policy-based enforcement and automation

Software Defined Networking (SDN) is going to give a big push towards Digitization. An important component of the Digitization is having an infrastructure that provide Open, Programmable together with the right tools that can help IT/Network teams with many of the routine operational tasks and also enforce networkwide policy-based automation.

The network shifts to a software-defined model. Historically, enterprise networks have been built on devices in which the hardware and software were tightly coupled. One of the key enablers of fast IT is the evolution to software defined networking (SDN), in which the software and control are abstracted from the underlying hardware. This enables the network to be more open and application aware, and for IT to have centralized control over the end-to-end network.

APIC-EM is Cisco's **SDN controller** for the Access, Campus, WAN and the Branch, currently available and shipping. APIC-EM is a key component of Cisco's Digital Network Architecture that simplify and automate many of the network operation tasks.



Partner Opportunities

Digital transformation is creating a massive opportunity for Cisco's partners. The most successful businesses, cities and countries understand that digital transformation is required to succeed. They are redefining business models, investing in technology, and evolving their talent and cultures. With massive disruption happening to entire industries, huge opportunities exist for new revenue streams and competitive differentiation. Your customers are turning to you to help navigate this historic transition.

With significant growth potential around three key priorities, including core refresh, security, and software/analytics, it is important you as partners are able to position a range of new services, including consultancy, assessment, design, implementation, as well using what's on offer from Cisco as part of DNA Architecture and solutions.

Building right skill sets and start selling more software as a solution

- Customer Benefit – Reduce Complexity
- Partner Benefit – Customers more willing to pay a premium for solutions

Sell Lifecycle Advisory Services

- Customer Benefit – Value Realization
- Partner Benefit – Adoption leads to Expansion and Renewal

Massive trails of usage data can be harvested, curated, and sold back to customers in the form of insights….and those insights are cross sell and upsell opportunities for your sales teams

Sell Advanced Software Integration and Development Services

- Customer Benefit – Innovation at the speed of business
- Partner Benefit – Darren Bibby, from IDC The Partner of the Future, IP software development will yield approximately 70% margins

Offers (1 year limited time offer) for Eligible Partners (Please check the program rules)

- More software value at same price
- Earn $7500 QuickStart vouchers for partner services per $300K list; max 5,
- Earn a free APIC EM Appliance for deals over $600K list

More Value, Same Price	Activate DNA	Automate	0% Financing
More in Cisco ONE Foundation: Stealthwatch, Umbrella Branch[2] (OpenDNS), etc, Cisco Meraki: Buy 3+ years, Get 1 year free	DNA QuickStart Vouchers for Partner Services[3]	Free APIC EM Appliance[4]	Cisco Capital Easy Pay

Overview

APIC-EM SDN controller is a piece of software that runs as a virtual appliance when installed on a hypervisor or a bare-metal x86 server. This software platform is built to host multiple, easy-to-use SDN applications that use open, northbound representational state transfer (REST) APIs and drive core network automation solutions. The platform also supports a number of southbound protocols that enable it to communicate with the breadth of network devices customers already have in place, and extend SDN benefits to both greenfield and brownfield environments, immediately from the start. The goal of the APIC-EM platform is to power next-generation SDN applications that will dramatically lower operational expenditures and increase network agility to align with business needs.

APIC-EM Features:

- Software that runs on any x86 server, offered as a virtual machine or an appliance
- Built-in applications that automate advanced configuration tasks via a guided workflow and user-friendly GUI with no programming skills required
- Integrated analytics, policy, and network abstraction

Benefits:

Massively simplified configuration and provisioning

The controller automates the deployment and compliance checking of network policies across the entire network.

Investment protection

The controller works with existing network infrastructure. There is no need to do an infrastructure replacement. No new network hardware is needed.

Openness, programmability, and customization

The APIC-EM is highly programmable through open APIs (representational state transfer [REST]). It can enable independent software developers to create innovative network services and applications to fuel business growth.

Business policy to network configuration

The controller auto-translates business policy into network device-level policy and enables policy enforcement across an end-to-end network.

Applications:

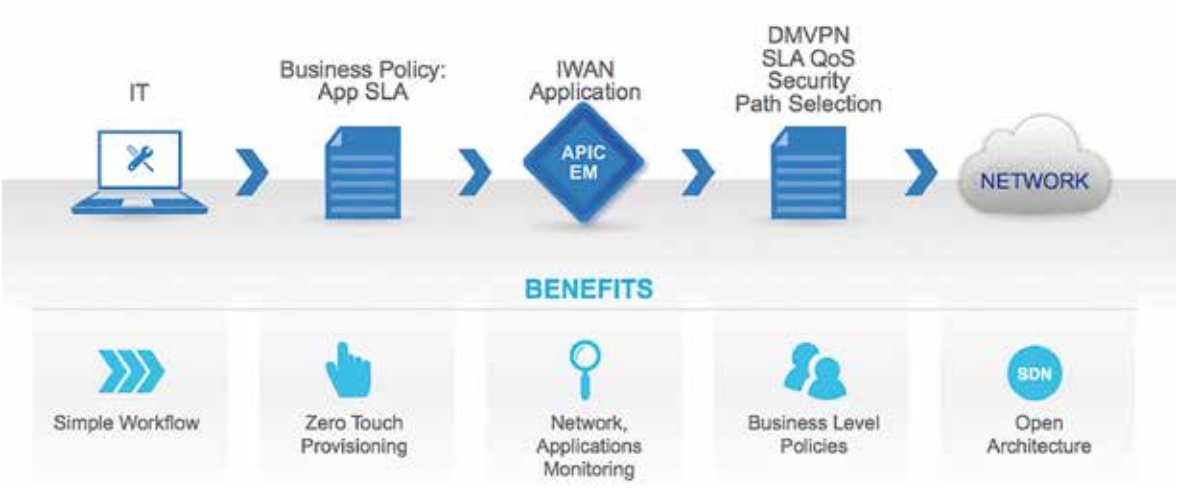
The following are optional applications that can be installed on the controller.

Enterprise Service Automation (ESA) Application

The APIC-EM controller's ESA application centralizes and automates design and management of new network services and branches on any platform, physical or virtual.

Intelligent WAN (IWAN) Application

The APIC-EM controller's Intelligent WAN (IWAN) application automates the configuration of advanced IWAN features on Cisco 4000 Series Integrated Service Routers.



PnP

The APIC-EM Controller's PnP (Plug and Play) application delivers on ZTD (Zero Touch Deployment) for Cisco Enterprise Network routers, switches and wireless controllers.

Path Trace

The APIC-EM Controller's Path Visualization application greatly eases and accelerates the task of connection troubleshooting.

Application Programming Interfaces (API)

APIC-EM supports both northbound and southbound APIs.

The northbound APIs are REST-based and can enable applications to discover and control your network elements using the HTTPs protocol with HTTPs verbs (for example, GET, POST, PUT, and DELETE) with JavaScript Object Notation (JSON) syntax. It is function-rich, highly secure, and can provide you with easy-to-use, programmatic control of your network elements, interfaces, and hosts.

The southbound interface speaks to network elements using command-line interface (CLI) and Simple Network Management Protocol (SNMP). The use of CLI and SNMP can ensure that APIC-EM works with your existing Cisco products. Future versions of APIC-EM will take full advantage of other southbound technologies and device APIs as they are implemented.

System Requirements

The APIC-EM platform and its hosted applications can run as a virtual appliance when installed on a hypervisor or a bare-metal server. It is also available as a hardware appliance. System resources to run these two different form factors follow.

Physical Appliance Specification:

- Server: 64-bit x86
- CPU (cores): 6
- CPU speed: 2.4 GHz
- RAM: 64 GB (Single Node), 32 GB (Per Host for Multi-Node)
- Storage: 500 GB of available or usable storage after hardware RAID
- RAID level: Hardware-based RAID at RAID level 10
- Disk I/O speed: 200 MBps
- Network adapter: 1 or more
- Browser: Chrome (44.0 or later)
- Web access required: Outbound secure web (HTTPS) access from the Cisco APIC-EM to the Internet for automatic updates of the controller software

Virtual Appliance Requirements:

- VMware ESXi Version: 5.1/5.5
- Server: 64-bit x86
- Virtual CPU (vCPU): 6
- CPU speed: 2.4 GHz
- RAM: 64 GB (Single Node), 32 GB (Per Host for Multi-Node)
- Storage: 500 GB of available or usable storage after hardware RAID
- RAID level: Hardware-based RAID at RAID level 10
- Disk I/O speed: 200 MBps
- Network adapter: 1 or more
- Browser: Chrome (44.0 or later)
- Web access required: Outbound secure web (HTTPS) access from the Cisco APIC-EM to the Internet for automatic updates of the controller software

Note: If using the IWAN application, you also must have an HTTP or secure HTTP (HTTPS) proxy to connect the APIC-EM plug-and-play service to the public cloud. This proxy can be a commercial standard HTTP or HTTPS proxy.

Licensing

The Cisco APIC-EM is accessible with a click-through license when you download or install the product.

Ordering Information

The Cisco APIC-EM is available in two form factors: virtual appliance and hardware appliance. The virtual appliance can be downloaded free of charge from Cisco Software Central https://software.cisco.com or Cisco's DevNet community service. The hardware appliance can be purchased directly from Cisco or through our resellers (SKU numbers are listed below).

Virtual Appliance SKUs

R-APICEM-SW-K9	Cisco APIC-EM Controller Software
R-APICEM-SW-K9=	Cisco APIC-EM Controller Software (Spare)

Hardware Appliance SKUs

APIC-EM-APL-R-K9	Cisco APIC EM Controller Appliance 10C-64G-2T
APIC-EM-APL-R-K9=	Cisco APIC EM Controller Appliance 10C-64G-2T (Spare)
APIC-EM-APL-G-K9	Cisco APIC EM Controller Appliance 20C-128G-4T
APIC-EM-APL-G-K9	Cisco APIC EM Controller Appliance 20C-128G-4T (Spare)

Selling Resources for Partners

There are multiple resources available, both learning about APIC-EM, and more importantly Network Programmability, APIs, test and demo the solution, see below the most popular resources.

General information on APIC-EM, including datasheet and selling resources:

www.cisco.com/go/apicem
(on the page scroll down and click on Sales Resources)

APIC-EM Support Documentation and Software including Installation/configuration resources:

http://www.cisco.com/c/en/us/support/cloud-systems-management/one-enterprise-network-controller/tsd-products-support-series-home.html

Network Programmability, API, Download APIC-EM and Installation guide:

https://developer.cisco.com/ Join the Cisco developer community for free and you will have access to 20+ tutorial labs, download SDKs/APIs, access forum and support and more.

Cisco dCloud demo and learning resources for free (CCO login required)

https://dcloud.cisco.com/ Huge catalogue of demos, training and sandboxes for every Cisco architecture, fully scripted, customizable environments available almost instantly in the cloud for free!

Security

Next-Generation Firewalls / Advanced Malware Protection

Why Cisco?

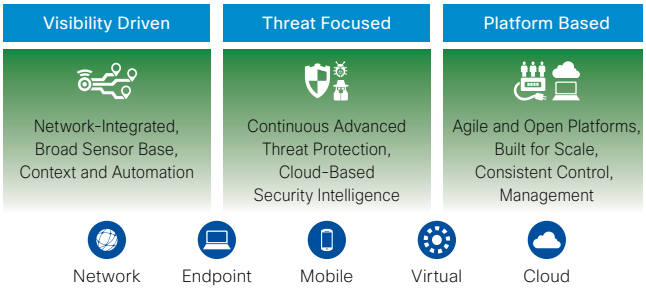
Today's threat landscape is nothing like that of 10 years ago. Simple attacks that caused containable damage have given way to modern, sophisticated, and well-funded cybercrime operations capable of disrupting and causing major loss to organizations and national infrastructure. These are difficult to detect, can remain in networks for long periods of time, and amass resources to launch attacks elsewhere.

Legacy protection methods that exclusively rely on detection and blocking are no longer adequate. It's time for a new security model that addresses the full attack continuum: before, during and after an attack.

To erect the new security model, focus on three strategic imperatives:

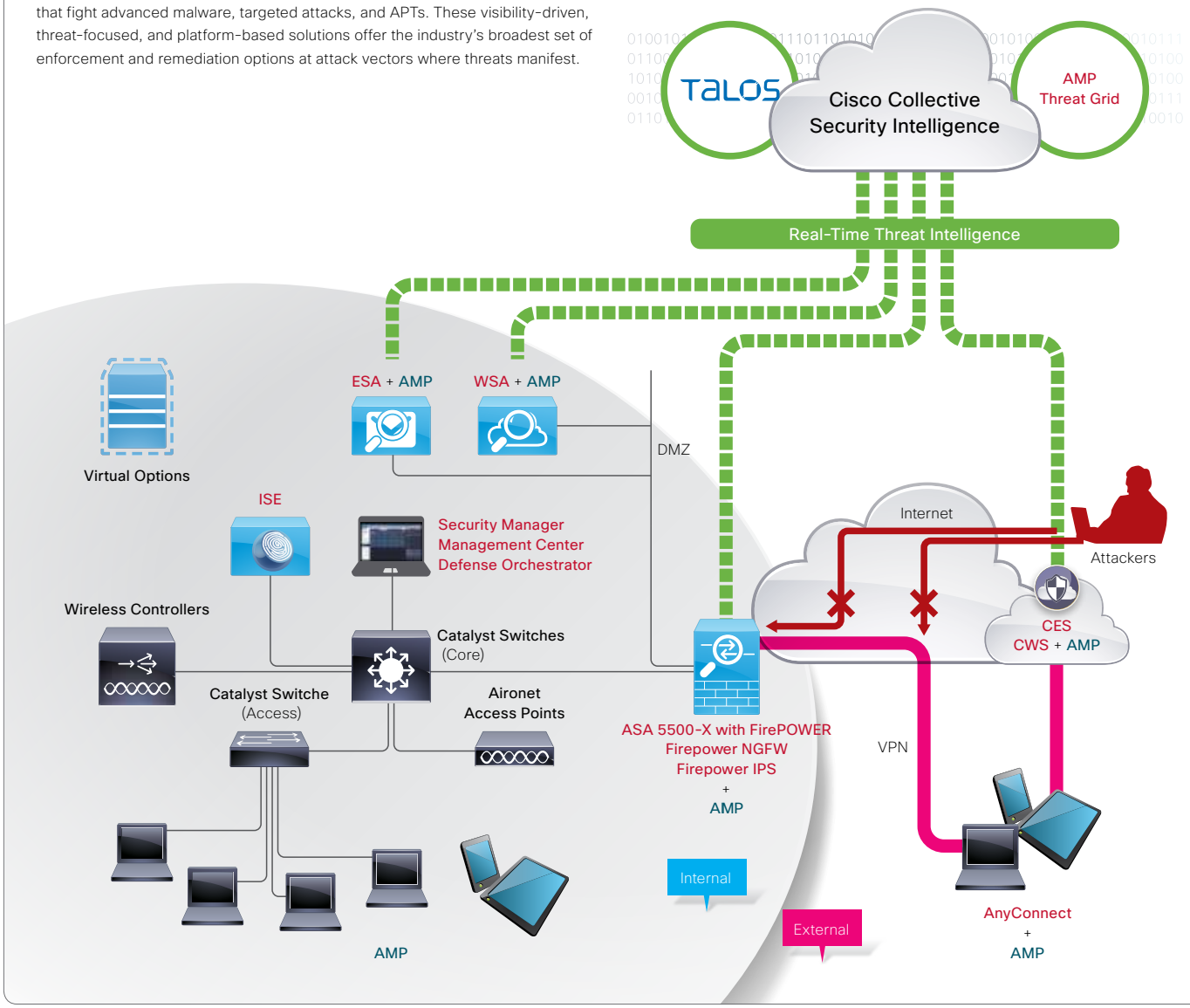
- **Visibility driven**: Get global intelligence and context for deeper insights and better decisions.
- **Threat focused**: Detect, understand, and stop threats across the entire attack continuum
- **Platform based**: Reduce fragmentation by using a platform-based approach to protect the network, devices, and the cloud.

Across-the-board protection (spanning the attack continuum) requires the integration of technologies with different areas of focus. The Cisco security portfolio, offers a comprehensive range of threat-centric cybersecurity solutions that fight advanced malware, targeted attacks, and APTs. These visibility-driven, threat-focused, and platform-based solutions offer the industry's broadest set of enforcement and remediation options at attack vectors where threats manifest.



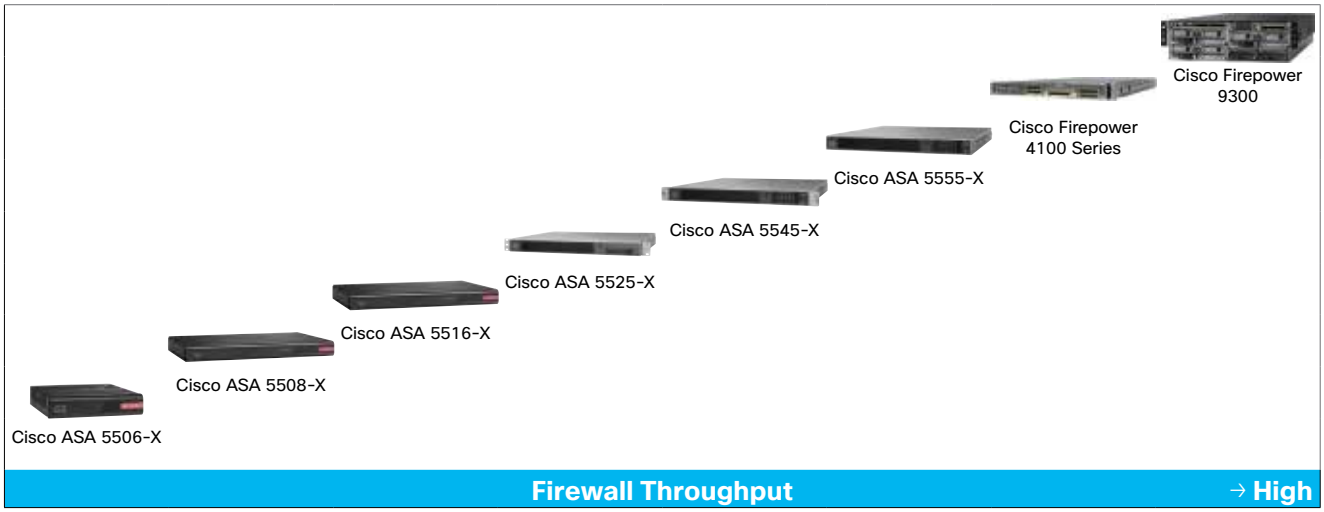
For details on Cisco Security, visit the following Web site:

http://www.cisco.com/go/security



Next-Generation Firewalls

Cisco Firepower Next-Generation Firewall (NGFW)



The Cisco Firepower Next-Generation Firewall (NGFW) is the industry's first fully integrated, threat-focused next-generation firewall with unified management. It includes Application Visibility and Control (AVC), optional Firepower Next-Generation IPS (NGIPS), Cisco Advanced Malware Protection (AMP), and URL Filtering. Cisco Firepower NGFW provides advanced threat protection before, during, and after attacks.

For details on Cisco Firepower Next-Generation Firewall (NGFW), visit the following Web site:

http://www.cisco.com/go/ngfw

- **Stop more threats**: Contain known and unknown malware with leading Cisco AMP and sandboxing. Get application firewalling (AVC) for 4,000 commercial applications, plus additional custom applications.
- **Gain more insight**: Gain superior visibility into your environment with Cisco Firepower NGIPS. Automated risk rankings and impact flags identify priorities for your team.
- **Detect earlier, act faster**: The Cisco Annual Security Report identifies a 100-day median time from infection to detection, across enterprises. Cisco reduces this time to less than a day.
- **Reduce complexity**: Get unified management and automated threat correlation across tightly integrated security functions, including application firewalling, NGIPS, and AMP.
- **Get more from your network**: Enhance security, and take advantage of your existing investments, with optional integration of other Cisco and third-party networking and security solutions.

■ Cisco ASA 5500-FTD-X/5500-X Series

SKU	Throughput				Ports			Interface Card Slots		Power Supply	Rack mount
	FW	FW + AVC	FW + AVC + IPS	VPN	GE	SFP	SFP/SFP+	Security	Network		
ASA5506-FTD-K9	750 Mbps	250 Mbps	125 Mbps	100 Mbps	8	–	–	–	–	1 AC	1 RU
ASA5506W-x-FTD-K9	750 Mbps	250 Mbps	125 Mbps	100 Mbps	8	–	–	–	–	1 AC	1 RU
ASA5506H-FTD-K9	750 Mbps	250 Mbps	125 Mbps	100 Mbps	4	–	–	–	–	1 AC	1 RU
ASA5508-FTD-K9	1 Gbps	450 Mbps	250 Mbps	175 Mbps	8	–	–	–	–	1 AC	1 RU
ASA5516-FTD-K9	1.8 Gbps	850 Mbps	450 Mbps	250 Mbps	8	–	–	–	–	1 AC	1 RU
ASA5525-FTD-K9	2 Gbps	1,100 Mbps	650 Mbps	300 Mbps	8	–*2	–*2	–	1	1 AC	1 RU
ASA5545-FTD-K9	3 Gbps	1,500 Mbps	1,000 Mbps	400 Mbps	8	–*2	–*2	–	1	1 AC	1 RU
ASA5555-FTD-K9	4 Gbps	1,750 Mbps	1,250 Mbps	700 Mbps	8	–*2	–*2	–	1	1 AC	1 RU

■ Interface Cards for the Cisco ASA 5500-FTD-X/5500-X Series

SKU	Description	Compatible Models					
		5506	5508	5516	5525	5545	5555
ASA-IC-6GE-CU-B	Interface Card (6-port GE)	–	–	–	●	–	–
ASA-IC-6GE-CU-C	Interface Card (6-port GE)	–	–	–	–	●	●
ASA-IC-6GE-SFP-B	Interface Card (6-port SFP)	–	–	–	●	–	–
ASA-IC-6GE-SFP-C	Interface Card (6-port SFP)	–	–	–	–	●	●

■ Power Supply Modules for the Cisco ASA 5500-FTD-X/5500-X Series

SKU	Description	Compatible Models					
		5506	5508	5516	5525	5545	5555
ASA-PWR-AC	AC Power Supply Module	–	–	–	–	●	●
ASA-PWR-DC	AC Power Supply Module	–	–	–	–	●	●

*1 Supports reimaging from FTD to ASA and vice versa. *2 Interface Card is required.

■ Cisco Firepower 4100 Series

SKU	Throughput				Ports			Module Slots		Power Supply	Rack mount
	FTD Image*1		ASA Image*1		SFP/SFP+	QSFP+	QSFP28	Security	Network		
	FW + AVC	FW + AVC + IPS	FW	VPN							
FPR4110-NGFW-K9	12 Gbps	10 Gbps	-	-	8	-*2	-	-	2	1 AC	1 RU
FPR4110-ASA-K9	-	-	20 Gbps	8 Gbps	8	-*2	-	-	2	1 AC	1 RU
FPR4120-NGFW-K9	20 Gbps	15 Gbps	-	-	8	-*2	-	-	2	1 AC	1 RU
FPR4120-ASA-K9	-	-	40 Gbps	10 Gbps	8	-*2	-	-	2	1 AC	1 RU
FPR4140-NGFW-K9	25 Gbps	20 Gbps	-	-	8	-*2	-	-	2	1 AC	1 RU
FPR4140-ASA-K9	-	-	60 Gbps	14 Gbps	8	-*2	-	-	2	1 AC	1 RU

■ Network Modules for the Cisco Firepower 4100 Series

SKU	Description
FPR4K-NM-8X10G	Network Module (8-port SFP/SFP+)
FPR4K-NM-4X40G	Network Module (4-port QSFP+)

■ Power Supply Modules for the Cisco Firepower 4100 Series

SKU	Description
FPR4K-PWR-AC-1100	1,100 W AC Power Supply Module
FPR4K-PWR-DC-950	950 W DC Power Supply Module

■ Cisco Firepower 9300

SKU	Throughput (depends on the configuration of Security Modules)				Ports			Module Slots		Power Supply	Rack mount
	FTD Image*1		ASA Image*1		SFP/SFP+	QSFP+	QSFP28	Security	Network		
	FW + AVC	FW + AVC + IPS	FW	VPN							
FPR-C9300-AC	25 to 100 Gbps	20 to 90 Gbps	75 to 225 Gbps	15 to 54 Gbps	-*3	-*2	-*2	3	-*3	2 AC	3 RU
FPR-C9300-DC	25 to 100 Gbps	20 to 90 Gbps	75 to 225 Gbps	15 to 54 Gbps	-*3	-*2	-*2	3	-*3	2 DC	3 RU

■ Supervisor for the Cisco Firepower 9300

SKU	Description
FPR9K-SUP	Supervisor (8-port SFP/SFP+, 2-slot NM)

■ Security Modules for the Cisco Firepower 9300

SKU	Description
FPR9K-SM-24	24 Physical Core Security Module (NEBS Ready)
FPR9K-SM-36	36 Physical Core Security Module

■ Network Modules for the Cisco Firepower 9300

SKU	Description
FPR9K-NM-8X10G	Network Module (8-port SFP/SFP+)
FPR9K-NM-4X40G	Network Module (4-port QSFP+)
FPR9K-DNM-2X100G	Network Module (2-port QSFP28)

■ Power Supply Modules for the Cisco Firepower 9300

SKU	Description
FPR9K-PS-AC	AC Power Supply Module
FPR9K-PS-DC	DC Power Supply Module

*1 Supports reimaging from FTD to ASA and vice versa. *2 Network Module is required. *3 Supervisor is required.

Cisco Firepower Threat Defense License

The Cisco Firepower Next-Generation Firewall (NGFW) ship with a base license for Application Visibility and Control (AVC). Optional subscriptions for Firepower Next-Generation IPS (NGIPS), Cisco Advanced Malware Protection (AMP), and URL Filtering can be added to the base configuration for advanced functionality. The default AVC function provides application identification and control of more than 4,000 applications, detected and classified by risk and business relevance.

One-year, **3-year**, and **5-year** subscriptions for each Firepower service are available.

- **NGIPS**: Provides highly effective threat prevention and full contextual awareness of users, infrastructure, applications, and content to detect multivector threats and automate defense response.
- **AMP**: Delivers inline network protection against sophisticated malware and Cisco Threat Grid sandboxing.
- **URL Filtering**: Adds the capability to filter more than 280 million top-level domains by risk level and more than 82 categories.

■ Cisco Firepower Threat Defense License Comparison

Licenses	Characters Included in SKU	Next-Generation IPS (NGIPS)	Advanced Malware Protection (AMP)	URL Filtering (URL)
NGIPS License	T	●	-	-
AMP License	AMP	-	●	-
URL License	URL	-	-	●
NGIPS & AMP License	TM	●	●	-
NGIPS & URL License	TC	●	-	●
NGIPS & AMP & URL License	TMC	●	●	●

Security Management

Cisco Firepower Management Center

Cisco Firepower Management Center 750

Cisco Firepower Management Center 2000

Cisco Firepower Management Center 4000

Virtual Cisco Firepower Management Center

Number of Managed Sensors → More

The Cisco Firepower Management Center is the administrative nerve center for a number of Cisco security products running on a number of different platforms. It provides complete and unified management of firewalls, application control, intrusion prevention, URL filtering, and advanced malware protection. The Management Center is the centralized point for event and policy management for the following solutions:

- Cisco Firepower Next-Generation Firewall (NGFW)
- Cisco ASA with FirePOWER Services
- Cisco Firepower Next-Generation IPS (NGIPS)
- Cisco FirePOWER Threat Defense for ISR
- Cisco Advanced Malware Protection (AMP)

■ Cisco Firepower Management Center

SKU	Managed Sensors	IPS Events	Event Storage	Network Maps		Flow Rate	Ports			Power Supply	Rack mount
				Hosts	Users		GE	SFP	SFP/ SFP+		
FS-VMW-2-SW-K9	2	10 million	250 GB	50,000	50,000	–*1	–*1	–*1	–*1	–*1	–*1
FS-VMW-10-SW-K9	10	10 million	250 GB	50,000	50,000	–*1	–*1	–*1	–*1	–*1	–*1
FS-VMW-SW-K9	25	10 million	250 GB	50,000	50,000	–*1	–*1	–*1	–*1	–*1	–*1
FS750-K9	10	20 million	100 GB	2,000	2,000	2,000 fps	2	–	–	1 AC	●
FS2000-K9	70	60 million	1.8 TB	150,000	150,000	12,000 fps	2	–	2	2 AC	●
FS4000-K9	300	300 million	3.2 TB	600,000	600,000	20,000 fps	2	–	2	2 AC	●

*1 Depends on the virtual environment.

Advanced Malware Protection (AMP)

Cisco Advanced Malware Protection (AMP) for Endpoints

The Cisco Advanced Malware Protection (AMP) for Endpoints is an intelligent, enterprise-class advanced malware analysis and protection solution that uses a telemetry model that uses big data, continuous analysis, and advanced analytics to detect, track, analyze, control, and block advanced malware outbreaks across all endpoints: Windows PCs, Macs, Linux, mobile devices, and virtual systems.

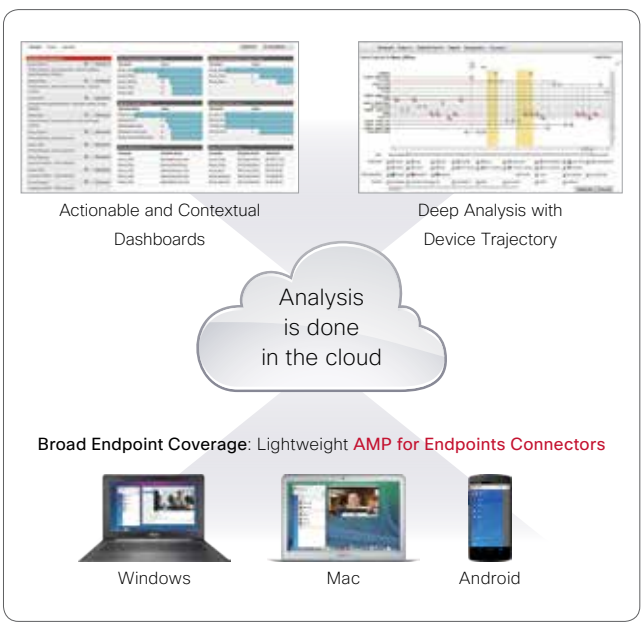
Cisco AMP for Endpoints is managed through an easy-to-use, web-based console. It is deployed through AMP's lightweight endpoint connector, with no performance impact on users - analysis is done in the cloud, not on the endpoint.

The solution is offered as a subscription on endpoints, including coverage for Windows, Macs, Linux, and mobile devices. If your organization has high privacy requirements that restrict using a public cloud, the Cisco AMP Private Cloud Virtual Appliance is an on-premises, air-gapped option.

■ Cisco Advanced Malware Protection (AMP) for Endpoints License*1

SKU			Connectors
1-year	3-year	5-year	
FP-AMP-1Y-S1	FP-AMP-3Y-S1	FP-AMP-5Y-S1	50 to 99
FP-AMP-1Y-S2	FP-AMP-3Y-S2	FP-AMP-5Y-S2	100 to 499
FP-AMP-1Y-S3	FP-AMP-3Y-S3	FP-AMP-5Y-S3	500 to 999
FP-AMP-1Y-S4	FP-AMP-3Y-S4	FP-AMP-5Y-S4	1,000 to 4,999
FP-AMP-1Y-S5	FP-AMP-3Y-S5	FP-AMP-5Y-S5	5,000 to 9,999
FP-AMP-1Y-S6	FP-AMP-3Y-S6	FP-AMP-5Y-S6	10,000 to 12,499
FP-AMP-1Y-S7	FP-AMP-3Y-S7	FP-AMP-5Y-S7	12,500 to 14,999
FP-AMP-1Y-S8	FP-AMP-3Y-S8	FP-AMP-5Y-S8	15,000 to 17,499
FP-AMP-1Y-S9	FP-AMP-3Y-S9	FP-AMP-5Y-S9	17,500 to 19,999
FP-AMP-1Y-S10	FP-AMP-3Y-S10	FP-AMP-5Y-S10	20,000 to 22,499
FP-AMP-1Y-S11	FP-AMP-3Y-S11	FP-AMP-5Y-S11	22,500 to 24,999
FP-AMP-1Y-S12	FP-AMP-3Y-S12	FP-AMP-5Y-S12	25,000 to

1 FP-AMP-LIC= is required.



■ Cisco Advanced Malware Protection (AMP) Virtual Private Cloud Appliance

SKU	Connectors
FP-AMP-CLOUD-SW	10,000

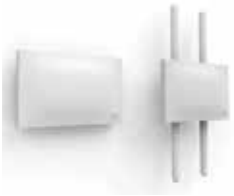
Cisco Meraki

100% Cloud Managed Networking

The Cisco Meraki portfolio of networking devices are centrally managed from the cloud. This feature-rich, easy-to-use cloud architecture enables customers to solve new business problems and reduce operating costs.

- Manage entire network from a single dashboard
- Control users, applications, and devices
- No controller or management hardware to install and maintain
- Secure (PCI and HIPAA-compliant) cloud infrastructure
- Scales from small sites to million-user deployments

Cisco Meraki Cloud Managed Products



Cloud Managed Wireless (MR)

- Indoor and outdoor access point models
- IEEE 802.11ac and 802.11n with ultra-high performance, up to 2.5 Gbps
- Integrated wireless security and guest access
- Third radio dedicated to security and RF optimization (indoor models)
- Ideal for high-density campuses, branches, teleworkers, and rugged/outdoor environments
- Built-in traffic shaping, location analytics, group policies–all configurable with just a few mouse clicks

Cloud Managed Switches (MS)

- GE access switches and 40 GE aggregation switches
- Centrally managed with monitoring and alerts
- Ultra reliable and includes lifetime warranty
- Optimized for voice and video traffic with PoE+ available on all ports

Cloud Managed Security Appliances (MX)

- Complete networking, security, and application control
- Centrally managed from the cloud
- Includes firewall, auto VPN, WAN optimization, and branch routing
- Six models scale from small branches to campuses
- SD-WAN NEW
- AMP NEW

Mobility Management (SM)

- Network-wide visibility and control
- No on-site controller hardware
- Automatic monitoring and alerts
- Seamless over-the-web upgrades

Cloud-Managed Security Cameras (MV) NEW

- Arrange video tiles on the fly for monitoring of key areas
- The Cisco Meraki dashboard provides secure monitoring and management of all your cameras from anywhere in the world.
- Laptop gone missing? Easily identify where it went and export a video clip to share with law enforcement.
- IR illumination allows for video recording in dark environments up to 30m
- Easily define who can see which video streams, view historical footage, and export video, all from the dashboard.
- The MV21 provides drastically simplified industrial design, eliminating the need for tools when re-adjusting the lens
- 128GB of high write endurance solid state storage on each camera eliminates the need for an NVR.

For details on Cisco Meraki, visit the following Web site:

http://www.cisco.com/go/meraki

Cisco Meraki Promotion

Mobility Management Promotion

Cisco Meraki DNA offer: First Year on Us

- "Buy a multi-year license for a new deployment and get an extra year on us"
- Valid for all Cisco Meraki 3+ year licenses on all product families
- This is for new license purchases only, so license renewals are not eligible for this offer.

This DNA offer is valid till end of July 2017

Use Cases

Features Most Used by Our Customers

	Retail	Education	Corporate Office
MX Security	Site-to-Site VPN	Content Filtering	IPS with Sourcefire Advanced Malware Protection (AMP)
MS Switching	Cloning Configurations	Virtual Stacking	Layer 3 and Redundancy
MR Wireless	Cloud CMX Analytics	High-Density WiFi	BYOD Policies
SM Mobility	Tablet Management	Application Management	Security Policy Enforcement

Cisco Meraki MX with SD-WAN and AMP

Cisco Meraki MX Cloud Managed Security Appliance Series are ideal for organizations with large numbers of distributed sites. Since the MX is 100% cloud managed, installation and remote management is simple. The MX has a comprehensive suite of network services, eliminating the need for multiple appliances. These services include Layer 7 application firewall, content filtering, web search filtering, intrusion prevention, web caching, Intelligent WAN with multiple uplinks and 4G failover.

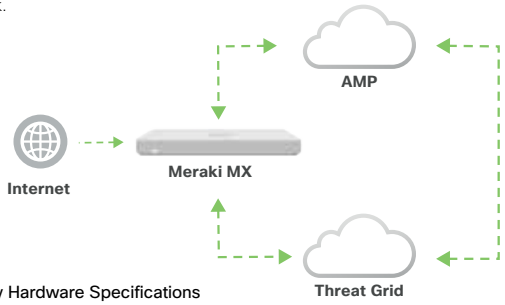
Cisco Meraki AMP

Advanced Malware Protection (AMP)

Advanced Malware Protection (AMP) is an industry-leading anti-malware technology from SourceFIRE, integrated into MX Security Appliances

How does it work ?

With AMP, a world class malware database is paired with context-aware monitoring and reporting, retrospective malware analysis, and Threat Grid sandboxing to provide an anti-malware solution that does more than just prevent users from downloading malware – it provides comprehensive security before, during, and after a malware attack.



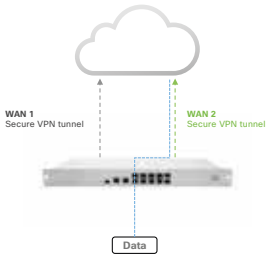
Key Hardware Specifications

	MX64	MX65	MX84	MX100	MX400	MX600
Recommended Users	50	50	200	500	2,000	10,000
Firewall (Mbps)	250	250	500	750	1,000	1,000
Advanced Security (Mbps)	200	200	300	650	1,000	1,000
Max VPN Peers	25	25	100	250	1,000	5,000
Dual WAN Links	●	●	●	●	●	●
Web Caching	–	–	●	●	●	●
Web Cache Size (TB)	–	–	1	1	1	4
Fiber Connectivity	–	–	–	SFP	SFP+	SFP+
Dual Power Supply	–	–	–	–	●	●

SD-WAN

What is SD-WAN?

Software-defined WAN (SD-WAN) is a suite of features designed to allow the network to dynamically adjust to changing WAN conditions without the need for manual intervention by the network administrator. By providing granular control over how certain traffic types respond to changes in WAN availability and performance, SD-WAN can ensure optimal performance for critical applications and help to avoid disruptions of highly performance-sensitive traffic, such as VoIP.



License Editions

	Enterprise	Advanced Security
Stateful Firewall, NAT, DMZ	●	●
Active/Passive HA	●	●
Layer 7 Traffic Shaping	●	●
Cloud-based Management	●	●
Monitoring and Alerts	●	●
Link Aggregation and Failover	●	●
Web Caching	●	●
Site-to-Site and Client VPN	●	●
Client VPN	●	●
SD-WAN	●	●
3G/4G Failover	●	●
IDS/IPS	–	●
Content Filtering with SafeSearch	–	●
Anti-Virus and Anti-Phishing	–	●
Geo-IP Firewall Rules	–	●
AMP	–	●

Cloud Managed Wireless

■ Cisco Meraki MR Cloud Managed Wireless Access Points

Model	Indoor Access Points			
	MR18	MR32	MR42	MR52 NEW
Radios Specification	1 x 11b/g/n radio 1 x 11a/n radio	1 x 11b/g/n radio 1 x 11a/n/ac radio 1 x Bluetooth Low Energy radio	1 x 11b/g/n radio 1 x 11a/n/ac Wave 2 radio 1 x Bluetooth Low Energy radio	1 x 11b/g/n radio 1 x 11a/n/ac radio 1 x Bluetooth Low Energy radio
11n and 11ac Capabilities	2 x 2 MIMO 2 streams	2 x 2 MIMO 2 streams	3 x 3 SU/MU-MIMO 3 streams	4 x 4 MIMO 4 streams
Max Data Rate*1	600 Mbps	1.2 Gbps	1.9 Gbps	2.5 Gbps
Interface	1 × GE	1 × GE	1 × GE	2 × GE

*1Combined aggregate dual-band data rate.

Cloud Managed Switches

■ Cisco Meraki MS Cloud Managed Switches

Model	Layer 2 Access Switches			Layer 3 Access Switches		
	MS220-8 MS220-8P	MS220-24 MS220-24P	MS220-48 MS220-48LP MS220-48FP	MS320-24 MS320-24P	MS320-48 MS320-48LP MS320-48FP	MS350-24 MS350-24P
Downlinks	8 x GE	24 x GE	48 x GE	24 x GE	48 x GE	24 x GE
Uplinks	2 x SFP	4 x SFP	4 x SFP	4 x SFP/SFP+	4 x SFP/SFP+	4 x SFP/SFP+
Stacking	Virtual	Virtual	Virtual	Virtual	Virtual	Virtual + Physical
PoE/PoE+ Power Budget	124 W (-8P)	370 W (-24P)	370 W (-48LP) 740 W (-48FP)	370 W (-24P)	370 W (-48LP) 740 W (-48FP)	370 W (-24P)
Switching Capacity	20 Gbps	48 Gbps	104 Gbps	128 Gbps	176 Gbps	128 Gbps

*1UPOE (60 W) is supported.

Cloud Managed Security Appliances

■ Cisco Meraki MX Cloud Managed Security Appliance Series

Model	Small Branch			
	MX64	MX64W	MX65	MX65W
Recommended Max Users	50	50	50	50
Stateful Firewall Throughput	250 Mbps	250 Mbps	250 Mbps	250 Mbps
Advanced Security Throughput	200 Mbps	200 Mbps	200 Mbps	200 Mbps
Maximum VPN sessions	25	25	25	25
Interfaces	5 x GE	5 x GE	12 x GE (2 PoE+)	12 x GE (2 PoE+)
Wireless	-	1 x 11b/g/n radio 1 x 11a/n/ac radio 2 x 2 MIMO 2 streams 1.2 Gbps	-	1 x 11b/g/n radio 1 x 11a/n/ac radio 2 x 2 MIMO 2 streams 1.2 Gbps

Outdoor Access Points				Model
MR53 NEW	MR66	MR72	MR84 NEW	
1 x 11b/g/n radio 1 x 11a/n/ac radio 1 x Bluetooth Low Energy radio	1 x 11b/g/n radio 1 x 11a/n radio	1 x 11b/g/n radio 1 x 11a/n/ac radio 1 x Bluetooth Low Energy radio	1 × 802.11b/g/n/ac 1 × 802.11a/n/ac 1 × WIDS/WIPS 1 × Bluetooth	Radios Specification
4 x 4 MIMO 4 streams	2 x 2 MIMO 2 streams	2 x 2 MIMO 2 streams	4x4 MU-MIMO 4 Stream	11n and 11ac Capabilities
2.5 Gbps	600 Mbps	1.2 Gbps	2.5 Gbit/sec max rate	Max Data Rate*1
1 × GE 1 × mGig (Up to 2.5 Gbps)	1 × GE	1 × GE	1 x 2.5 Gbps Multigigabit Ethernet port 1 × Gigabit Ethernet port	Interface

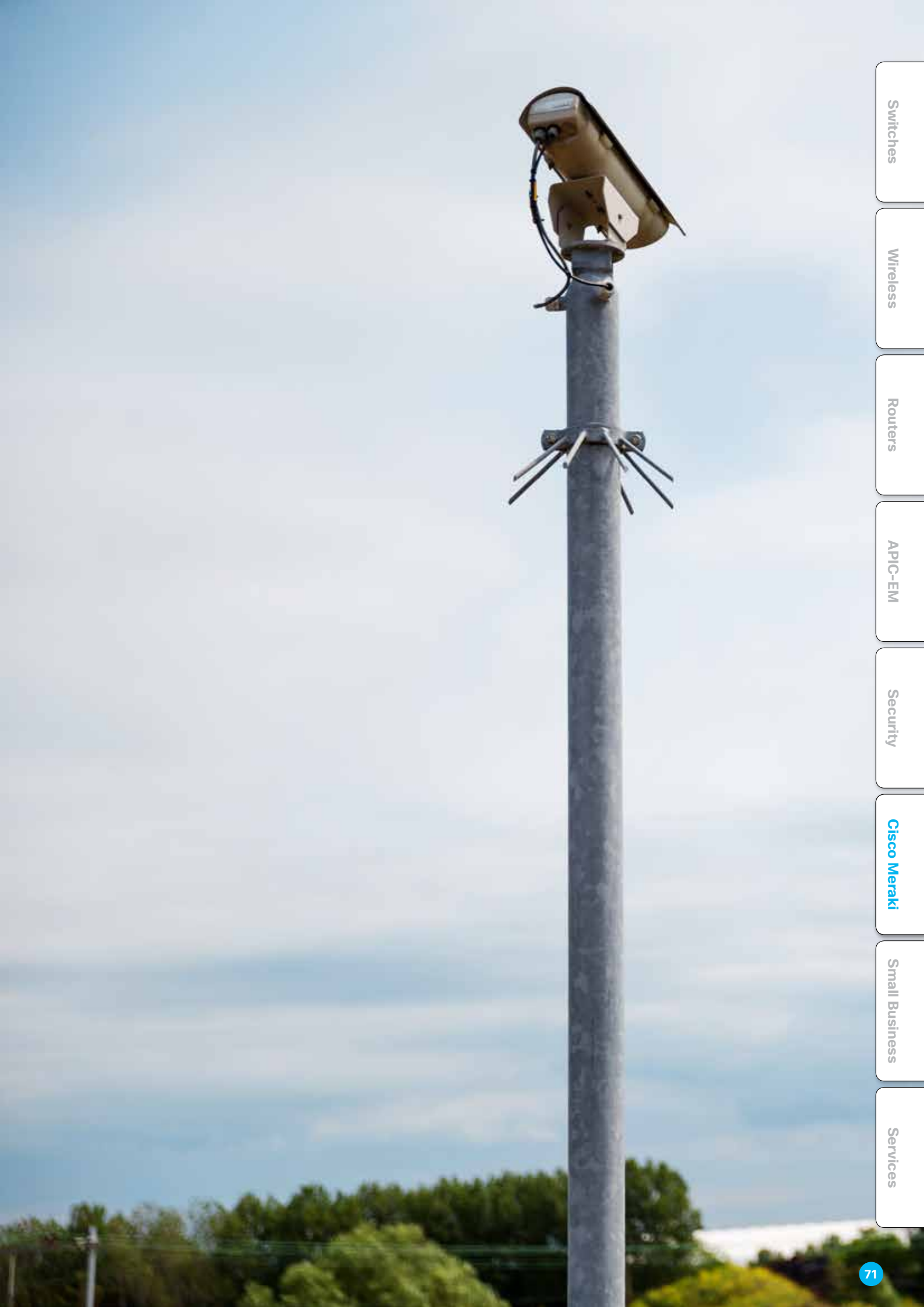
*1 Combined aggregate dual-band data rate.

		Aggregation Switches				Model
MS350-24X NEW	MS350-48 MS350-48LP MS350-48FP	MS410-16	MS410-32	MS425-16 NEW	MS425-32 NEW	
16 x GE, 8 x mGig	48 x GE	16 x SFP	32 x SFP	16 x SFP/SFP+	32 x SFP/SFP+	Downlinks
4 x SFP/SFP+	4 x SFP/SFP+	2 x SFP/SFP+	4 x SFP/SFP+	2 x QSFP+	2 x QSFP+	Uplinks
Virtual + Physical	Virtual + Physical	Virtual + Physical	Virtual + Physical	Virtual + Physical	Virtual + Physical	Stacking
740 W*1	370 W (-48LP) 740 W (-48FP)	-	-	-	-	PoE/PoE+ Power Budget
432 Gbps	176 Gbps	72 Gbps	144 Gbps	480 Gbps	800 Gbps	Switching Capacity

Medium Branch		Large Branch, Campus / Concentrator		Model
MX84	MX100	MX400	MX600	
200	500	2,000	10,000	Recommended Max Users
500 Mbps	750 Mbps	1 Gbps	1 Gbps	Stateful Firewall Throughput
300 Mbps	650 Mbps	1 Gbps	1 Gbps	Advanced Security Throughput
100	250	1,000	5,000	Maximum VPN sessions
10 x GE 2 x SFP	9 x GE 2 x SFP	4 x GE	4 x GE	Interfaces
-	-	-	-	Wireless

Cloud Managed Security Cameras

Model	Indoor Camera MV21 NEW	Outdoor Camera MV72 NEW
Storage	128 GB High endurance solid state storage	128 GB High endurance solid state storage
Variable Field of View:	28° - 82° (Horizontal) 21° - 61° (Vertical) 37° - 107° (Diagonal)	28° - 82° (Horizontal) 21° - 61° (Vertical) 37° - 107° (Diagonal)
Video:	720p HD video recording (1280x720) with H.264 encoding	720p HD video recording (1280x720) with H.264 encoding
Ratings:		Weather-proof IP66-rated housing Vandal-proof IK10-rated hosuing
Interface:	1x 10/100 Base-T Ethernet (RJ45)	1x 10/100 Base-T Ethernet (RJ45)
Warranty:	3 Year hardware warranty	3 Year hardware warranty



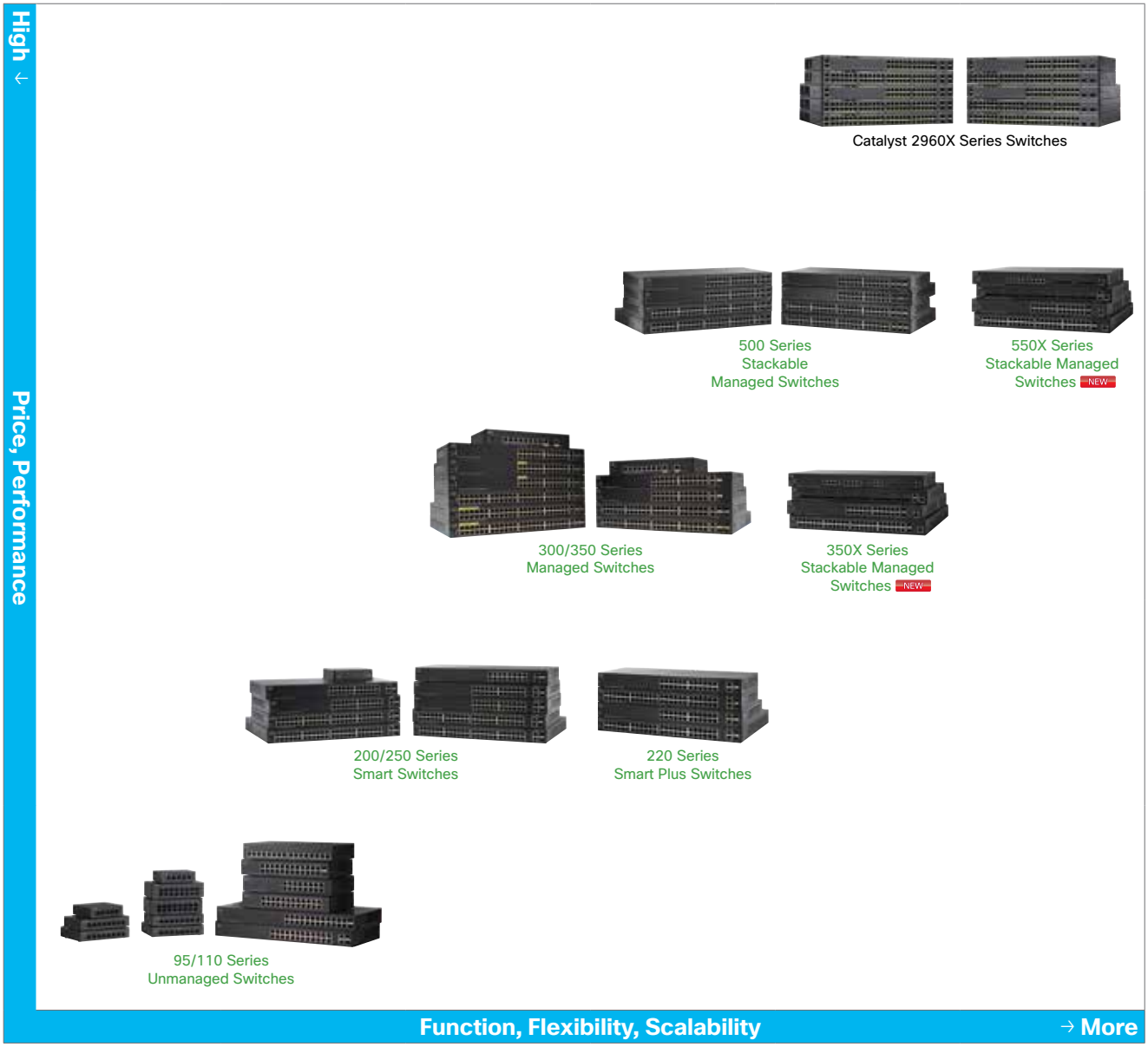
Small Business

Cisco Small Business Switches

Cisco Small Business Switches provide nonblocking, wire-speed switching for 10-, 100-, and 1000-Mbps network clients. These switches can be used to replace the current workgroup hub or switch and to deliver full 1- and 10-Gbps speeds to high-requirement workstations as necessary while continuing to serve other clients at their current speeds.
The switches can also be used to create a local area network within the business, with appropriate link speeds for each user's requirements. Either way, they're perfect for graphics, videos, and other applications that have to move large files across the network quickly.

- 95 Series Unmanaged Switches
- 110 Series Unmanaged Switches
  Get highly affordable Gigabit, Fast Ethernet, and PoE. No setup is required for QoS, network diagnostics, power-saving mode, and loop detection.
- 200 Series Smart Switches
- 250 Series Smart Switches
  Entry-level managed switch features and easy management at a great price. Build a business-class network with the features you need.
- 220 Series Smart Plus Switches
  Get the powerful features, security, and performance of a managed switch with the affordability that's closer to smart switches.
- 300 Series Managed Switches
- 350 Series Managed Switches
  The ideal combination of affordability and advanced network features for small business, these easy to use fully managed switches are the cornerstone of your network.
- 350X Series Stackable Managed Switches
  Our managed switches deliver an ideal combination of affordability and advanced features with 10-Gigabit Ethernet and stacking.
- 500 Series Stackable Managed Switches
  Advanced features, high reliability, and performance at a price you can afford. These stackable managed switches, built for demanding environments, deliver a powerful networking foundation for today and tomorrow.
- 550X Series Stackable Managed Switches
  These next-generation stackable managed switches offer 10-Gigabit Ethernet and advanced capabilities to accelerate your business growth.

Positioning Map



Cisco Small Business 95 Series Unmanaged Switches

New Model Name	Existing Model Name	Orderable SKU	Ports							PoE						AC Power	Fan less	Stackable	Rack Mount
			FE	GE	SFP	GE/SFP	10 GB-T	SFP+	10GB-T/SFP+	Ports	60 W Ports	Power Budget	IEEE 802.3	Input Ports	Pass through				
SF95D-05	SF90D-05	SF95D-05-xx	5	–	–	–	–	–	–	–	–	–	–	–	–	External	●	–	–
SF95D-08	SF90D-08	SF95D-08-xx	8	–	–	–	–	–	–	–	–	–	–	–	–	External	●	–	–
SF95D-16	SF90D-16	SF95D-16-xx	16	–	–	–	–	–	–	–	–	–	–	–	–	External	●	–	–
SF95-24	SF90-24	SF95-24-xx	24	–	–	–	–	–	–	–	–	–	–	–	–	Internal	●	–	1 RU
SG95D-05	SG90D-05	SG95D-05-xx	–	5	–	–	–	–	–	–	–	–	–	–	–	External	●	–	–
SG95D-08	SG90D-08	SG95D-08-xx	–	8	–	–	–	–	–	–	–	–	–	–	–	External	●	–	–
SG95-16	SG92-16	SG95-16-xx	–	16	–	–	–	–	–	–	–	–	–	–	–	Internal	●	–	–
SG95-24	SG92-24	SG95-24-xx	–	22	–	2	–	–	–	–	–	–	–	–	–	Internal	●	–	1 RU

Cisco Small Business 110 Series Unmanaged Switches

New Model Name	Existing Model Name	Orderable SKU	Ports							PoE						AC Power	Fan less	Stackable	Rack Mount
			FE	GE	SFP	GE/SFP	10 GB-T	SFP+	10GB-T/SFP+	Ports	60 W Ports	Power Budget	IEEE 802.3	Input Ports	Pass through				
SF110D-05	SF100D-05	SF110D-05-xx	5	–	–	–	–	–	–	–	–	–	–	–	–	External	●	–	–
SF110D-08	SF100D-08	SF110D-08-xx	8	–	–	–	–	–	–	–	–	–	–	–	–	External	●	–	–
SF110D-08HP	SF100D-08P	SF110D-08HP-xx	8	–	–	–	–	–	–	4	–	32 W	af	–	–	External	●	–	–
SF110D-16	SF100D-16	SF110D-16-xx	16	–	–	–	–	–	–	–	–	–	–	–	–	External	●	–	–
SF110D-16HP	SF100D-16P	SF110D-16HP-xx	16	–	–	–	–	–	–	8	–	64 W	af	–	–	External	●	–	–
SF110-16	SF100-16	SF110-16-xx	16	–	–	–	–	–	–	–	–	–	–	–	–	Internal	●	–	1 RU
SF110-24	SF100-24	SF110-24-xx	24	–	–	–	–	–	–	–	–	–	–	–	–	Internal	●	–	1 RU
SF112-24	SF102-24	SF112-24-xx	–	22	–	2	–	–	–	–	–	–	–	–	–	Internal	●	–	1 RU
SG110D-05	SG100D-05	SG110D-05-xx	–	5	–	–	–	–	–	–	–	–	–	–	–	External	●	–	–
SG110D-08	SG100D-08	SG110D-08-xx	–	8	–	–	–	–	–	–	–	–	–	–	–	External	●	–	–
SG110D-08HP	SG100D-08P	SG110D-08HP-xx	–	8	–	–	–	–	–	4	–	32 W	af	–	–	External	●	–	–
SG110-16	SG100-16	SG110-16-xx	–	16	–	–	–	–	–	–	–	–	–	–	–	Internal	●	–	1 RU
SG110-16HP	n/a	SG110-16HP-xx	–	16	–	–	–	–	–	8	–	64 W	af	–	–	Internal	●	–	1 RU
SG110-24	SG100-24	SG110-24-xx	–	22	–	2	–	–	–	–	–	–	–	–	–	Internal	●	–	1 RU
SG110-24HP	n/a	SG110-24HP-xx	–	22	–	2	–	–	–	12	–	100 W	af	–	–	Internal	–	–	1 RU
SG112-24	SG102-24	SG112-24-xx	–	22	–	2	–	–	–	–	–	–	–	–	–	Internal	●	–	1 RU

Cisco Small Business 200 Series Smart Switches

New Model Name	Existing Model Name	Orderable SKU	Ports							PoE						AC Power	Fan less	Stackable	Rack Mount
			FE	GE	SFP	GE/SFP	10 GB-T	SFP+	10GB-T/SFP+	Ports	60 W Ports	Power Budget	IEEE 802.3	Input Ports	Pass through				
SF200-24	n/a	SLM224GT-xx	24	–	–	2	–	–	–	–	–	–	–	–	–	Internal	●	–	1 RU
SF200-24P	n/a	SLM224PT-xx	24	–	–	2	–	–	–	12	–	100 W	af	–	–	Internal	–	–	1 RU
SF200-24FP	n/a	SF200-24FP-xx	24	–	–	2	–	–	–	24	–	180 W	af	–	–	Internal	–	–	1 RU
SF200-48	n/a	SLM248GT-xx	48	–	–	2	–	–	–	–	–	–	–	–	–	Internal	●	–	1 RU
SF200-48P	n/a	SLM248PT-xx	48	–	–	2	–	–	–	24	–	100 W	af	–	–	Internal	–	–	1 RU
SG200-08	n/a	SLM2008T-xx	–	8	–	–	–	–	–	–	–	–	–	1	–	External	●	–	–
SG200-08P	n/a	SLM2008PT-xx	–	8	–	–	–	–	–	4	–	32 W	af	–	–	External	●	–	–
SG200-10FP	n/a	SG200-10FP-xx	–	8	–	2	–	–	–	8	–	62 W	af	–	–	External	●	–	1 RU
SG200-18	n/a	SLM2016T-xx	–	16	–	2	–	–	–	–	–	–	–	–	–	Internal	●	–	1 RU
SG200-26	n/a	SLM2024T-xx	–	24	–	2	–	–	–	–	–	–	–	–	–	Internal	●	–	1 RU
SG200-26P	n/a	SLM2024PT-xx	–	24	–	2	–	–	–	12	–	100 W	af	–	–	Internal	–	–	1 RU
SG200-26FP	n/a	SG200-26FP-xx	–	24	–	2	–	–	–	24	–	180 W	af	–	–	Internal	–	–	1 RU
SG200-50	n/a	SLM2048T-xx	–	48	–	2	–	–	–	–	–	–	–	–	–	Internal	–	–	1 RU
SG200-50P	n/a	SLM2048PT-xx	–	48	–	2	–	–	–	24	–	180 W	af	–	–	Internal	–	–	1 RU
SG200-50FP	n/a	SG200-50FP-xx	–	48	–	2	–	–	–	48	–	375 W	af	–	–	Internal	–	–	1 RU

Cisco Small Business 220 Series Smart Plus Switches

New Model Name	Existing Model Name	Orderable SKU	Ports							PoE						AC Power	Fan less	Stackable	Rack Mount
			FE	GE	SFP	GE/SFP	10 GB-T	SFP+	10GB-T/SFP+	Ports	60 W Ports	Power Budget	IEEE 802.3	Input Ports	Pass through				
SF220-24	SF200E-24	SF220-24-xx	24	–	–	2	–	–	–	–	–	–	–	–	–	Internal	●	–	1 RU
SF220-24P	SF200E-24P	SF220-24P-xx	24	–	–	2	–	–	–	24	–	180 W	af/at	–	–	Internal	–	–	1 RU
SF220-48	SF200E-48	SF220-48-xx	48	–	–	2	–	–	–	–	–	–	–	–	–	Internal	●	–	1 RU
SF220-48P	SF200E-48P	SF220-48P-xx	48	–	–	2	–	–	–	48	–	375 W	af/at	–	–	Internal	–	–	1 RU
SG220-26	n/a	SG220-26-xx	–	24	–	2	–	–	–	–	–	–	–	–	–	Internal	●	–	1 RU
SG220-26P	n/a	SG220-26P-xx	–	24	–	2	–	–	–	24	–	180 W	af/at	–	–	Internal	–	–	1 RU
SG220-50	n/a	SG220-50-xx	–	48	–	2	–	–	–	–	–	–	–	–	–	Internal	–	–	1 RU
SG220-50P	n/a	SG220-50P-xx	–	48	–	2	–	–	–	48	–	375 W	af/at	–	–	Internal	–	–	1 RU

Cisco Small Business 250 Series Smart Switches

New Model Name	Existing Model Name	Orderable SKU	Ports							PoE						AC Power	Fan less	Stackable	Rack Mount
			FE	GE	SFP	GE/SFP	10 GB-T	SFP+	10GB-T/SFP+	Ports	60 W Ports	Power Budget	IEEE 802.3	Input Ports	Pass through				
SF250-48	SF200-48	SF250-48-K9-xx	48	–	2	2	–	–	–	–	–	–	–	–	–	Internal	●	–	1 RU
SF250-48HP	SF200-48P	SF250-48HP-K9-xx	48	–	2	2	–	–	–	48	–	195 W	af/at	–	–	Internal	–	–	1 RU
SG250-10P	SG200-10FP	SG250-10P-K9-xx	–	8	–	2	–	–	–	8	–	62 W	af/at	2	●	External	●	–	1 RU
SG250-26	SG200-26	SG250-26-K9-xx	–	24	–	2	–	–	–	–	–	–	–	–	–	Internal	●	–	1 RU
SG250-26HP	SG200-26P	SG250-26HP-K9-xx	–	24	–	2	–	–	–	24	–	100 W	af/at	–	–	Internal	–	–	1 RU
SG250-26P	SG200-26FP	SG250-26P-K9-xx	–	24	–	2	–	–	–	24	–	195 W	af/at	–	–	Internal	–	–	1 RU

■ Cisco Small Business 300 Series Managed Switches

New Model Name	Existing Model Name	Orderable SKU	Ports							PoE						AC Power	Fan less	Stackable	Rack Mount
			FE	GE	SFP	GE/SFP	10 GB-T	SFP+	10GB-T/SFP+	Ports	60 W Ports	Power Budget	IEEE 802.3	Input Ports	Pass through				
SF300-08	n/a	SRW208-K9-xx	8	–	–	–	–	–	–	–	–	–	–	–	–	External	●	–	1 RU
SF302-08	n/a	SRW208G-K9-xx	8	–	–	2	–	–	–	–	–	–	–	–	–	External	●	–	1 RU
SF302-08PP	SF302-08P	SF302-08PP-K9-xx	8	–	–	2	–	–	–	8	–	62 W	af/at	–	–	External	●	–	1 RU
SF302-08MPP	SF302-08MP	SF302-08MPP-K9-xx	8	–	–	2	–	–	–	8	–	124 W	af/at	–	–	External	●	–	1 RU
SF300-24	n/a	SRW224G4-K9-xx	24	2	–	2	–	–	–	–	–	–	–	–	–	Internal	●	–	1 RU
SF300-24PP	SF300-24P	SF300-24PP-K9-xx	24	2	–	2	–	–	–	24	–	180 W	af/at	–	–	Internal	–	–	1 RU
SF300-24MP	n/a	SF300-24MP-K9-xx	24	2	–	2	–	–	–	24	–	375 W	af/at	–	–	Internal	–	–	1 RU
SF300-48	n/a	SRW248G4-K9-xx	48	2	–	2	–	–	–	–	–	–	–	–	–	Internal	●	–	1 RU
SF300-48PP	SF300-48P	SF300-48PP-K9-xx	48	2	–	2	–	–	–	48	–	375 W	af/at	–	–	Internal	–	–	1 RU
SG300-10	n/a	SRW2008-K9-xx	–	8	–	2	–	–	–	–	–	–	–	–	–	External	●	–	1 RU
SG300-10PP	SG300-10P	SG300-10PP-K9-xx	–	8	–	2	–	–	–	8	–	62 W	af/at	–	–	External	●	–	1 RU
SG300-10MPP	SG300-10MP	SG300-10MPP-K9-xx	–	8	–	2	–	–	–	8	–	124 W	af/at	–	–	External	●	–	1 RU
SG300-10SFP	n/a	SG300-10SFP-K9-xx	–	–	8	2	–	–	–	–	–	–	–	–	–	External	●	–	1 RU
SG300-20	n/a	SRW2016-K9-xx	–	18	–	2	–	–	–	–	–	–	–	–	–	Internal	●	–	1 RU
SG300-28	n/a	SRW2024-K9-xx	–	26	–	2	–	–	–	–	–	–	–	–	–	Internal	●	–	1 RU
SG300-28PP	SG300-28P	SG300-28PP-K9-xx	–	26	–	2	–	–	–	24	–	180 W	af/at	–	–	Internal	–	–	1 RU
SG300-28MP	n/a	SG300-28MP-K9-xx	–	26	–	2	–	–	–	24	–	375 W	af/at	–	–	Internal	–	–	1 RU
SG300-28SFP	n/a	SG300-28SFP-K9-xx	–	–	26	2	–	–	–	–	–	–	–	–	–	Internal	–	–	1 RU
SG300-52	n/a	SRW2048-K9-xx	–	50	–	2	–	–	–	–	–	–	–	–	–	Internal	–	–	1 RU
SG300-52P	n/a	SG300-52P-K9-xx	–	50	–	2	–	–	–	48	–	375 W	af/at	–	–	Internal	–	–	1 RU
SG300-52MP	n/a	SG300-52MP-K9-xx	–	50	–	2	–	–	–	48	–	740 W	af/at	–	–	Internal	–	–	1 RU

■ Cisco Small Business 350 Series Managed Switches

New Model Name	Existing Model Name	Orderable SKU	Ports							PoE						AC Power	Fan less	Stackable	Rack Mount
			FE	GE	SFP	GE/SFP	10 GB-T	SFP+	10GB-T/SFP+	Ports	60 W Ports	Power Budget	IEEE 802.3	Input Ports	Pass through				
SF350-48	SF300-48	SF350-48-K9-xx	48	–	2	2	–	–	–	–	–	–	–	–	–	Internal	–	–	1 RU
SF350-48P	SF300-48PP	SF350-48P-K9-xx	48	–	2	2	–	–	–	48	8	382 W	af/at	–	–	Internal	–	–	1 RU
SF350-48MP	n/a	SF350-48MP-K9-xx	48	–	2	2	–	–	–	48	8	740 W	af/at	–	–	Internal	–	–	1 RU
SG350-10	SG300-10	SG350-10-K9-xx	–	8	–	2	–	–	–	–	–	–	–	2	●	External	●	–	1 RU
SG350-10P	SG300-10PP	SG350-10P-K9-xx	–	8	–	2	–	–	–	8	–	62 W	af/at	2	●	External	●	–	1 RU
SG350-10MP	SG300-10MPP	SG350-10MP-K9-xx	–	8	–	2	–	–	–	8	–	124 W	af/at	2	●	External	●	–	1 RU
SG355-10P	n/a	SG355-10P-K9-xx	–	8	–	2	–	–	–	8	–	62 W	af/at	2	●	Internal	●	–	1 RU
SG350-28	SG300-28	SG350-28-K9-xx	–	24	2	2	–	–	–	–	–	–	–	–	–	Internal	●	–	1 RU
SG350-28P	SG300-28PP	SG350-28P-K9-xx	–	24	2	2	–	–	–	24	4	195 W	af/at	–	–	Internal	–	–	1 RU
SG350-28MP	SG300-28MP	SG350-28MP-K9-xx	–	24	2	2	–	–	–	24	4	382 W	af/at	–	–	Internal	–	–	1 RU

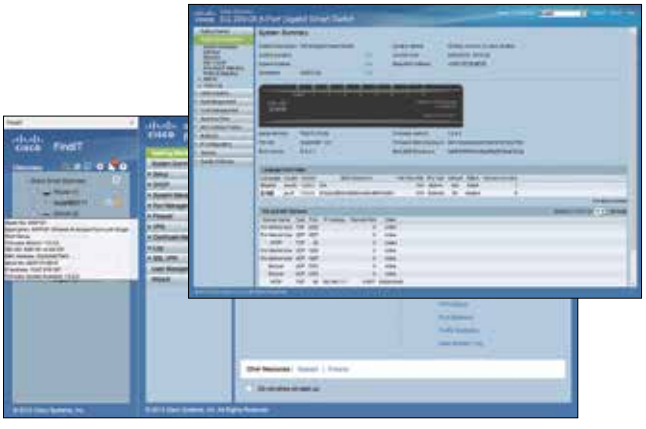
■ Cisco Small Business 350X Series Stackable Managed Switches[*1]

New Model Name	Existing Model Name	Orderable SKU	Ports							PoE						AC Power	Fan less	Stackable	Rack Mount
			FE	GE	SFP	GE/SFP	10 GB-T	SFP+	10GB-T/SFP+	Ports	60 W Ports	Power Budget	IEEE 802.3	Input Ports	Pass through				
SG350X-24 NEW	n/a	SG350X-24-K9-xx	–	24	–	–	–	2	2	–	–	–	–	–	–	Internal	–	●	1 RU
SG350X-24P NEW	n/a	SG350X-24P-K9-xx	–	24	–	–	–	2	2	24	4	195 W	af/at	–	–	Internal	–	●	1 RU
SG350X-24MP NEW	n/a	SG350X-24MP-K9-xx	–	24	–	–	–	2	2	24	4	382 W	af/at	–	–	Internal	–	●	1 RU
SG350X-48 NEW	n/a	SG350X-48-K9-xx	–	48	–	–	–	2	2	–	–	–	–	–	–	Internal	–	●	1 RU
SG350X-48P NEW	n/a	SG350X-48P-K9-xx	–	48	–	–	–	2	2	48	8	382 W	af/at	–	–	Internal	–	●	1 RU
SG350X-48MP NEW	n/a	SG350X-48MP-K9-xx	–	48	–	–	–	2	2	48	8	740 W	af/at	–	–	Internal	–	●	1 RU
SG350XG-2F10	n/a	SG350XG-2F10-K9-xx	–	–	–	–	10	2	–	–	–	–	–	–	–	Internal	–	●	1 RU
SG350XG-24T	n/a	SG350XG-24T-K9-xx	–	–	–	–	22	–	2	–	–	–	–	–	–	Internal	–	●	1 RU
SG350XG-24F	n/a	SG350XG-24F-K9-xx	–	–	–	–	–	22	2	–	–	–	–	–	–	Internal	–	●	1 RU
SG350XG-48T	n/a	SG350XG-48T-K9-xx	–	–	–	–	46	–	2	–	–	–	–	–	–	Internal	–	●	1 RU

*1 The "NEW" models will be released in Q1 FY 2017.

Simple Configuration and Management

Cisco Small Business Products are designed to be configured and managed by small businesses, they include an embedded web-based configuration utility. Their simple graphical user interfaces (GUIs) help your staff easily configure, manage, and troubleshoot your network. (Cisco Small Business 95/110 Series Unmanaged Switches are ready to use right out of the box, there is no software to install and nothing to configure.)



■ Cisco FindIT Network Discovery Utility

Easily integrated with your web browser, the Cisco FindIT Network Discovery Utility automatically discovers any Cisco Small Business devices in your network, and allows you to easily view important information about the device or to connect to the device administration interface. You will also be notified of the availability of firmware updates, and about any devices that are no longer under warranty or covered by a support contract.

■ Cisco Small Business 500 Series Stackable Managed Switches

New Model Name	Existing Model Name	Orderable SKU	Ports							PoE						AC Power	Fan less	Stackable	Rack Mount
			FE	GE	SFP	GE/SFP	10 GB-T	SFP+	10GB-T /SFP+	Ports	60 W Ports	Power Budget	IEEE 802.3	Input Ports	Pass through				
SF500-24	n/a	SF500-24-K9-xx	24	–	2	2	–	–	–	–	–	–	–	–	–	Internal	●	●	1 RU
SF500-24P	n/a	SF500-24P-K9-xx	24	–	2	2	–	–	–	24	–	180 W	af/at	–	–	Internal	–	●	1 RU
SF500-24MP	n/a	SF500-24MP-K9-xx	24	–	2	2	–	–	–	24	–	375 W	af/at	–	–	Internal	–	●	1 RU
SF500-48	n/a	SF500-48-K9-xx	48	–	2	2	–	–	–	–	–	–	–	–	–	Internal	●	●	1 RU
SF500-48P	n/a	SF500-48P-K9-xx	48	–	2	2	–	–	–	48	–	375 W	af/at	–	–	Internal	–	●	1 RU
SF500-48MP	n/a	SF500-48MP-K9-xx	48	–	2	2	–	–	–	48	–	740 W	af/at	–	–	Internal	–	●	1 RU
SG500-28	n/a	SG500-28-K9-xx	–	24	2	2	–	–	–	–	–	–	–	–	–	Internal	●	●	1 RU
SG500-28P	n/a	SG500-28P-K9-xx	–	24	2	2	–	–	–	24	–	180 W	af/at	–	–	Internal	–	●	1 RU
SG500-28MPP	n/a	SG500-28MPP-K9-xx	–	24	2	2	–	–	–	24	–	740 W	af/at	–	–	Internal	–	●	1 RU
SG500-52	n/a	SG500-52-K9-xx	–	48	2	2	–	–	–	–	–	–	–	–	–	Internal	–	●	1 RU
SG500-52P	n/a	SG500-52P-K9-xx	–	48	2	2	–	–	–	48	–	375 W	af/at	–	–	Internal	–	●	1 RU
SG500-52MP	n/a	SG500-52MP-K9-xx	–	48	2	2	–	–	–	48	–	740 W	af/at	–	–	Internal	–	●	1 RU
SG500X-24	n/a	SG500X-24-K9-xx	–	24	–	–	–	4	–	–	–	–	–	–	–	Internal	–	●	1 RU
SG500X-24P	n/a	SG500X-24P-K9-xx	–	24	–	–	–	4	–	24	–	375 W	af/at	–	–	Internal	–	●	1 RU
SG500X-24MPP	n/a	SG500X-24MPP-K9-xx	–	24	–	–	–	4	–	24	–	740 W	af/at	–	–	Internal	–	●	1 RU
SG500X-48	n/a	SG500X-48-K9-xx	–	48	–	–	–	4	–	–	–	–	–	–	–	Internal	–	●	1 RU
SG500X-48P	n/a	SG500X-48P-K9-xx	–	48	–	–	–	4	–	48	–	375 W	af/at	–	–	Internal	–	●	1 RU
SG500X-48MP	n/a	SG500X-48MP-K9-xx	–	48	–	–	–	4	–	48	–	740 W	af/at	–	–	Internal	–	●	1 RU
SG500XG-8F8T	n/a	SG500XG-8F8T-K9-xx	–	–	–	–	8	8	–	–	–	–	–	–	–	Internal	–	●	1 RU

■ Cisco Small Business 550X Series Stackable Managed Switches*1

New Model Name	Existing Model Name	Orderable SKU	Ports							PoE						AC Power	Fan less	Stackable	Rack Mount
			FE	GE	SFP	GE/SFP	10 GB-T	SFP+	10GB-T /SFP+	Ports	60 W Ports	Power Budget	IEEE 802.3	Input Ports	Pass through				
SF550X-24 NEW	n/a	SF550X-24-K9-xx	24	–	–	–	–	2	2	–	–	–	–	–	–	Internal	–	●	1 RU
SF550X-24P NEW	n/a	SF550X-24P-K9-xx	24	–	–	–	–	2	2	24	8	195 W	af/at	–	–	Internal	–	●	1 RU
SF550X-24MP NEW	n/a	SF550X-24MP-K9-xx	24	–	–	–	–	2	2	24	8	382 W	af/at	–	–	Internal	–	●	1 RU
SF550X-48 NEW	n/a	SF550X-48-K9-xx	48	–	–	–	–	2	2	–	–	–	–	–	–	Internal	–	●	1 RU
SF550X-48P NEW	n/a	SF550X-48P-K9-xx	48	–	–	–	–	2	2	48	16	382 W	af/at	–	–	Internal	–	●	1 RU
SF550X-48MP NEW	n/a	SF550X-48MP-K9-xx	48	–	–	–	–	2	2	48	16	740 W	af/at	–	–	Internal	–	●	1 RU
SG550X-24 NEW	n/a	SG550X-24-K9-xx	–	24	–	–	–	2	2	–	–	–	–	–	–	Internal	–	●	1 RU
SG550X-24P NEW	n/a	SG550X-24P-K9-xx	–	24	–	–	–	2	2	24	8	195 W	af/at	–	–	Internal	–	●	1 RU
SG550X-24MP NEW	n/a	SG550X-24MP-K9-xx	–	24	–	–	–	2	2	24	8	382 W	af/at	–	–	Internal	–	●	1 RU
SG550X-24MPP NEW	n/a	SG550X-24MPP-K9-xx	–	24	–	–	–	2	2	24	8	740 W	af/at	–	–	Internal	–	●	1 RU
SG550X-48 NEW	n/a	SG550X-48-K9-xx	–	48	–	–	–	2	2	–	–	–	–	–	–	Internal	–	●	1 RU
SG550X-48P NEW	n/a	SG550X-48P-K9-xx	–	48	–	–	–	2	2	48	16	382 W	af/at	–	–	Internal	–	●	1 RU
SG550X-48MP NEW	n/a	SG550X-48MP-K9-xx	–	48	–	–	–	2	2	48	16	740 W	af/at	–	–	Internal	–	●	1 RU
SG550XG-8F8T	n/a	SG550XG-8F8T-K9-xx	–	–	–	–	8	8	–	–	–	–	–	–	–	Internal	–	●	1 RU
SG550XG-24T	n/a	SG550XG-24T-xx	–	–	–	–	22	–	2	–	–	–	–	–	–	Internal	–	●	1 RU
SG550XG-24F	n/a	SG550XG-24F-xx	–	–	–	–	–	22	2	–	–	–	–	–	–	Internal	–	●	1 RU
SG550XG-48T	n/a	SG550XG-48T-K9-xx	–	–	–	–	46	–	2	–	–	–	–	–	–	Internal	–	●	1 RU

■ Cisco SFP/SFP+ Transceivers

SKU	Description
MGBT1	1000BASE-T SFP transceiver, for Category 5 copper wire, support up to 100 m
MGBSX1	1000BASE-SX SFP transceiver, for multi-mode fiber, 850 nm wavelength, support up to 500 m
GLC-LH-SMD	1000BASE-LH SFP transceiver, for single-mode fiber, 1310 nm wavelength, support up to 10 km
MGBLH1	1000BASE-LH SFP transceiver, for single-mode fiber, 1310 nm wavelength, support up to 40 km
GLC-BX-U	1000BASE-BX-U SFP transceiver, for single-mode fiber, 1310 nm wavelength, support up to 10 km
SFP-H10GB-CU1M	10GBASE-CU SFP transceiver, for Twinax cable, support up to 1
SFP-H10GB-CU3M	10GBASE-CU SFP transceiver, for Twinax cable, support up to 3 m
SFP-H10GB-CU5M	10GBASE-CU SFP transceiver, for Twinax cable, support up to 5 m
SFP-10G-SR-S	S-class 10GBASE-SR SFP+ transceiver, for multi-mode fiber, 850 nm wavelength, support up to 400 m
SFP-10G-SR	10GBASE-SR SFP+ transceiver, for multi-mode fiber, 850 nm wavelength, support up to 400 m
SFP-10G-LR-S	S-class 10GBASE-LR SFP+ transceiver, for single-mode fiber, 1310 nm wavelength, support up to 10 km
SFP-10G-LR	10GBASE-LR SFP+ transceiver, for single-mode fiber, 1310 nm wavelength, support up to 10 km
SFP-10G-LRM	10GBASE-LRM SFP+ transceiver, for multi-mode fiber and single-mode fiber, 1310 nm wavelength, support up to 300 m

*1 The "NEW" models will be released in Q1 FY 2017.

What is Meant by a "xx" & "x" Included in the SKU

Correspondence table of symbols and countries of the "xx" & "x" that is included in the SKU is as follows.

	Australia	China	Hong Kong	India	Indonesia	Korea	Malaysia	New Zealand	Philippines	Singapore	Thailand	Vietnam
xx	AU	CN	G5 SG UK	AS EU G5	AS EU G5	G5 KR	G5 SG UK	AU	AS EU G5	G5 SG UK	AS EU G5	AS EU G5
x	A E	C	A C E	A C E	C E	C K WE	C E	A E	A C E	A C E	E	E

Cisco Small Business Wireless Access Points

Cisco Small Business Wireless Access Points combine business-class features with the reliability and performance needed for small business networks. The Single Point Setup(SPS) feature makes deployment of multiple access point easy and cost effective.

- **Cisco Small Business 100 Series Wireless Access Points**
  Sleek and simple to configure, our 100 Series delivers the performance you need at an affordable price.
- **Cisco Small Business 300 Series Wireless Access Points**
  Get Gigabit speed for your mobile devices. Use our simple controller-less management to manage multiple access points.
- **Cisco Small Business 500 Series Wireless Access Points**
  Get exceptional performance and coverage for mobile devices and next-generation applications. Use our simple, controller-less management to expand your wireless network.

Positioning Map

■ Cisco Small Business 100 Series Wireless Access Points

New SKU	Existing SKU	Wireless Data Rate	Active Users per Radio	IEEE 802					2.4 GHz	5 GHz	Concurrent Radios	Ports		PoE Ports		AC Power
				11a	11b	11g	11n	11ac				FE	GE	Input	Output	
WAP121-x-K9-xx	n/a	300 Mbps	16	-	●	●	●	-	●	-	-	1	-	1*1	-	External
WAP131-x-K9-xx	WAP4410N-xx	300 Mbps	16	●	●	●	●	-	●	●	●	-	1	1*1	-	External
WAP150-x-K9-xx	n/a	867 Mbps	16	●	●	●	●	●	●	●	●	-	1	1*1	-	External

■ Cisco Small Business 300 Series Wireless Access Points

New SKU	Existing SKU	Wireless Data Rate	Active Users per Radio	IEEE 802					2.4 GHz	5 GHz	Concurrent Radios	Ports		PoE Ports		AC Power
				11a	11b	11g	11n	11ac				FE	GE	Input	Output	
WAP321-x-K9	n/a	300 Mbps	32	●	●	●	●	-	●	●	-	-	1	1*2	-	External
WAP351-x-K9	n/a	300 Mbps	32	●	●	●	●	-	●	●	●	-	5	1*2	1	External
WAP361-x-K9	n/a	867 Mbps	32	●	●	●	●	●	●	●	●	-	5	1*2	1	External
WAP371-x-K9	n/a	1299 Mbps	32	●	●	●	●	●	●	●	●	-	1	1*2	-	External

■ Cisco Small Business 500 Series Wireless Access Points

New SKU	Existing SKU	Wireless Data Rate	Active Users per Radio	IEEE 802					2.4 GHz	5 GHz	Concurrent Radios	Ports		PoE Ports		AC Power
				11a	11b	11g	11n	11ac				FE	GE	Input	Output	
WAP551-x-K9	n/a	450 Mbps	32	●	●	●	●	-	●	●	-	-	1	1*2	-	-
WAP561-x-K9	n/a	450 Mbps	32	●	●	●	●	-	●	●	●	-	1	1*2	-	-
WAP571-x-K9	n/a	1299 Mbps	32	●	●	●	●	●	●	●	●	-	2	2*2	-	-
WAP571E-x-K9	n/a	1299 Mbps	32	●	●	●	●	●	●	●	●	-	2	2*2	-	-

*1 Power Adapter (included) or Power Injector is required when not using PoE receiving. *2 Power Adapter or Power Injector is required when not using PoE receiving.

Cisco Small Business Routers

Cisco Small Business Routers are affordable, highly secure network access devices, designed and built for small businesses. Cisco offers a broad range of small business routers to meet any requirement from basic Internet connectivity to high-capacity, business-critical networking.

Positioning Map

■ Cisco Small Business RV Series Routers

New SKU	Existing SKU	WAN Ports				LAN Ports		IPsec Throughput	IPsec VPN Tunnels		Web Filtering	Wireless				AC Power
		FE	GE	xDSL	3G/4G	FE	GE		Site-to-Site	Remote Access		11n	11ac	2.4 GHz	5 GHz	
CVR100W-x-K9-xx	n/a	1	–	–	–	4	–	5 Mbps	1	3	–	●	–	●	–	External
RV042	n/a	2	–	–	–	4	–	59 Mbps	50	50	–	–	–	–	–	External
RV042G-K9-xx	n/a	–	2	–	–	–	4	75 Mbps	50	50	–	–	–	–	–	External
RV110W-x-xx-K9	n/a	1	–	–	–	4	–	5 Mbps	1	5	–	●	–	●	–	External
RV130-K9-xx	RV180-K9-xx	–	1	–	1*1	–	4	50 Mbps	10	10	–	–	–	–	–	External
RV130-WB-K9-xx	RV180-K9-xx	–	1	–	1*1	–	4	50 Mbps	10	10	●	–	–	–	–	External
RV130W-x-K9-xx	RV120W-x-xx RV180W-x-K9-xx	–	1	–	1*1	–	4	50 Mbps	10	10	–	●	–	●	–	External
RV130W-x-WB-K9-xx	RV120W-x-xx RV180W-x-K9-xx	–	1	–	1*1	–	4	50 Mbps	10	10	●	●	–	●	–	External
RV132W-x-K9-xx	n/a	1	–	1	1*1	3	–	3 Mbps	5	5	–	●	–	●	–	External
RV134W-x-K9-xx	n/a	–	1	1	1*1	–	4	20 Mbps	5	5	–	●	●	●	●	External
RV215W-x-K9-xx	n/a	1	–	–	1*1	4	–	5 Mbps	1	5	–	●	–	●	–	External
RV315W-x-K9-xx	n/a	–	2	–	1*1	8	–	100 Mbps	50	50	–	●	–	●	–	External
RV320-K9-xx	n/a	–	2	–	1*1	–	4	100 Mbps	25	25	●	–	–	–	–	External
RV320-WB-K9-xx	n/a	–	2	–	1*1	–	4	100 Mbps	25	25	–	–	–	–	–	External
RV325-K9-xx	n/a	–	2	–	1*1	–	14	100 Mbps	25	25	–	–	–	–	–	External
RV325-WB-K9-xx	n/a	–	2	–	1*1	–	14	100 Mbps	25	25	●	–	–	–	–	External

*1 3G/4G modem is required.

New Models with Web Filtering

Your business and your employees are exposed to phishing, key loggers, spyware, drive-by malware, and other online threats. With the new RV130/130W/320/325 with web filtering, you can keep your employees and users safe from unwanted content and malicious websites. This is accomplished without compromising the users' online experience and can even help boost employee productivity and network performance by limiting Internet surfing to appropriate site categories and eliminating unwanted network traffic. Users are also automatically protected from malicious/compromised websites, regardless of site categorization.

- **Dynamic Web Filtering**
  - Router checks URLs with Cisco cloud
  - Router caches websites to speed up response time over time
- **Classification System**
  - 300 Million web URL's categorized and assigned reputation score
  - Sophisticated website reputation scoring (think of credit score)
  - 80+ content categories
  - Real-time updates
- **No License Renewal are Necessary**

Services

Cisco Smart Net Total Care Service

Your IT infrastructure is the lifeline that connects your business to customers and suppliers. Business success requires maintaining high service levels for your network while reducing costs and expanding your network as your business grows. Cisco Smart Net Total Care can help you meet these objectives by providing technical services and smart capabilities that:

- **Resolve problems faster**
  Identify issues quickly and streamline your incident management processes to reduce network downtime and improve IT service levels.
- **Reduce risk**
  Access to Cisco technical experts combined with smart, proactive tools and capabilities minimizes risks to business continuity.
- **Increase operational efficiency**
  Proactive management and automated processes mean fewer support resource requirements and lower costs for managing your network.

Resolve Problems Faster

24 x 7 x 365 TAC assistance on product use, configuration, and troubleshooting

Get replacement hardware in as little as two hours

Automated diagnostic and support capabilities speed time-to-resolution

Improve Risk Management

Visibility into covered and uncovered devices – comply with corporate policies

Identify IT that is nearing end-of-life – simplify upgrades, planning and budgeting

Ensure that Cisco products are running current, supported software

Increase Operational Efficiency

Reduce the time and staff required for contract management and renewal

Improve planning with inventory and support contracts visibility

Pinpoint and manage product and security alerts – only those relevant to your network

Cisco Smart Assist Service

Cisco Smart Assist Service is a related service to extend the value of Cisco Smart Net Total Care.
This service can help you accelerate the time to enable and use smart capabilities. It provides assistance for installing the Cisco collector and accessing the Smart Net Total Care portal. It also offers onboarding and enablement services such as smart capability training, support for product inventory collection, installed base (IB) reconciliation (twice per year), and Cisco TAC support for the portal and collections.

Feature / Functionality	Smart Net Total Care (SNTC)	Smart Assist
Smart Capabilities Entitlement	●	Through SNTC
Onboarding Installation Assistance	Customer Self-Service	Cisco Assisted
Onboarding Smart Capabilities Training	Customer Self-Service	Cisco Assisted
IB Reconciliation	Customer Self-Service	Twice per year
Technical Support for Portal & Collections	Community Support	TAC

Cisco Smart Net Total Care helps reduce downtime with fast, expert technical support and flexible hardware coverage provided by the Cisco Technical Assistance Center (TAC). Its integrated smart capabilities provide current information about the customer's installed base, contracts, and security alerts to enhance the efficiency of support workflows.

Technical Service and Incident Management

- **Cisco TAC**
  The Cisco TAC is staffed by Cisco professionals certified in a broad range of Cisco products and technologies and service provider architectures. We provide you with access by phone, fax, or email 24 hours a day, 365 days a year and can assist you with product use, configuration, and troubleshooting issues.
- **Advance hardware replacement**
  With our customized hardware support service plans, you can have confidence knowing that your hardware can support your ongoing business needs. Cisco offers multiple service levels with different shipment options.

Advance Hardware Replacement Service Levels

Service Level	Description
Smart Net Total Care 24 x 7 x 2	2-hour response, 24 hours a day, 7 days per week, including holidays
Smart Net Total Care 24 x 7 x4	4-hour response, 24 hours a day, 7 days a week, including holidays
Smart Net Total Care 8 x 5 x4	4-hour response, local business hours based on depot time, 5 days a week
Smart Net Total Care 8 x 5 x Next Business Day	Next-business-day delivery, local business hours based on depot time, 5 days a week

- **Onsite support**
  Cisco is committed to providing professional, customer-focused support services in person at your location. Smart Net Total Care Onsite service includes installation of advance replacement parts.

Onsite Support Service Levels

Service Level	Description
Smart Net Total Care Onsite 24 x 7 x 2	2-hour response, 24 hours a day, 7 days per week, including holidays
Smart Net Total Care Onsite 24 x 7 x 4	4-hour response, 24 hours a day, 7 days a week, including holidays
Smart Net Total Care Onsite 8 x 5 x 4	Based on depot time. 4-hour response, 9 a.m. to 5 p.m., if the request is received before 1 p.m., the service (including parts, labor, and materials) will be provided the same day. For requests received after 1 p.m., the service will be provided the following business day.
Smart Net Total Care Onsite 8 x 5 x NextBusiness Day	Based on depot time. Next business day, 9 a.m. to 5 p.m., if the request is received before 3 p.m., the service (including parts, labor, and materials) will be provided the next business day. After 3 p.m., the service (including parts, labor, and materials) will be provided the following business day.

- **Software updates**
  Cisco provides OS software updates for your licensed feature set. Software releases and any supporting documentation are available through Cisco.com Software Central at http://software.cisco.com/swcentral/home.html.
- **Online self-help support**
  Cisco provides access to the Cisco Support website, which includes Cisco's extensive knowledge library, software downloads, and support tools designed to help users resolve network issues quickly without opening a case.

Security and Product Alerts

- **Hardware alerts**
  Hardware alerts inform you about devices that have reached or are approaching end of life in your network.
- **Software alerts**
  Software alerts inform you about end-of-life issues with specific software versions you are using.
- **Security alerts**
  Security alerts are Product Security Incident Response Team (PSIRT) alerts that inform you about security vulnerabilities associated with specific devices in your network.
- **Field notices**
  Field notices inform you about significant issues (other than security vulnerability issues) with a hardware device or software version.

Service Coverage Management

- **Service coverage reports**
  Device data from installed base collections can be matched against service contracts and purchase orders to identify coverage gaps. View all service contracts and coverage levels, including 24-month advance visibility into upcoming renewal dates. Reviewing coverage information can help ensure that devices in your network have the right kind of coverage for their intended use.
- **Service coverage and renewal management workflow**
  This feature gives you the ability to document and annotate those devices that do not require service coverage and why. You can also assign tasks to people responsible for architectural or budget planning to ask for recommendations about renewing coverage versus replacing specific devices before their service contracts expire.

Product Lifecycle Management

- **Role-based access control (RBAC)**
  The Smart Net Total Care portal gives you control over the types of data that users can see. User views within the portal are based on the user's role, allowing administrators to assign roles and designate network device data visibility for portal users, including partners. For example, a certain group of network administrators may be given access to data for a specific segment of the network, and other groups of users may be restricted to specific types of information such as device configuration data or security alerts.
- **Device data file uploads**
  In addition to data uploads from the Cisco collector, data can be uploaded using manual file uploads (such as from a spreadsheet) or third-party collection mechanisms. After data is uploaded into the portal, it can be analyzed and enriched with Cisco support information.

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