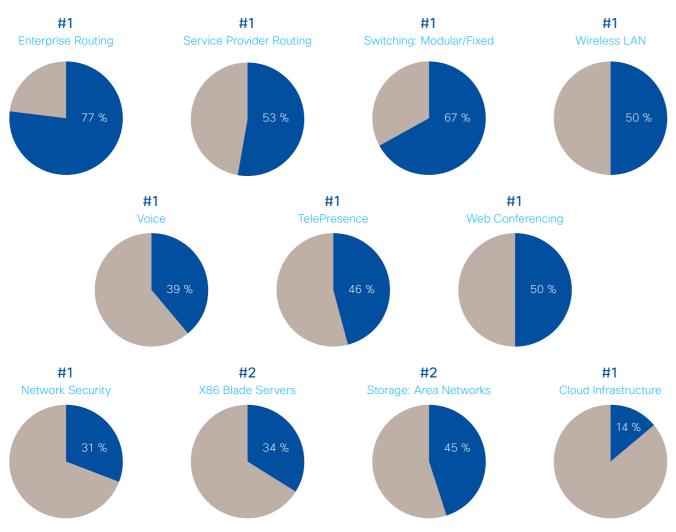
Our Leading Market Share



Source: Dell'Oro, Synergy, Infonetics, ACG; Q1'CY15 Market share data (Network Security share DOES include Sourcefire; Web Conferencing is SaaS; Cloud Infrastructure is Q4'CY14 Synergy data).

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Cisco Catalog - Asia Pacific

Vol.3 2015 November - 2016 January

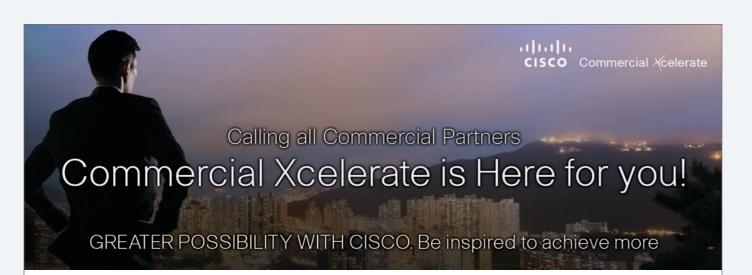


Cisco ONE Software

The More Flexible, Cost-Effective Solution Makes Buying Your Infrastructure Software Faster and Easier







A Whole New Level of Excitement!

Cisco is enriching the incentive program to better recognize and reward our commercial partners.

Cisco Commercial Xcelerate brings you the following 3 tiers of rewards. Whether you are promoting low end volume products or complex solutions, you begin to earn points once you start selling!

Featuring the Enterprise Network products:

Velocity Products Xcelerator	Focus Products Xcelerator	Midmarket Solutions Xcelerator			
PRODUCT FAMILY / SKU	PRODUCT FAMILY / SKU	SOLUTIONS			
Cisco Well Known Classic	Hybrid Router	All-In-One Branch			
Catalyst 2960X Series	C891-24X/K9	Base			
0.11.10000	IWAN	(Hybrid Rother + AP1830 + ASA5506)			
Catalyst 2960+ Series	ISR4321 Series	Advanced			
Small Business	ISR4331 Series	(ISR4300 + AP1850 + Cat2960X +			
Top 14 ~ 30 High Volume SB SKU	ISR4351 Series	ASA5508)			
*Varies by countries	Cisco Mobility Express	Premium (ISR4300 + CME2700 + Cat3650 +			
Cisco 800 BB	AIR-AP1702I-"X"-WLC	ASA5516)			
Top 5 Cisco 800 Series SKU	AIR-AP2702I-UX-WLC	Unified Access Bundle			
Top o close dee delines dire	AIR-AP3702I-UX-WLC	(One Network Solution)			
Wireless Everywhere	AP1830 Series				
AIR 1700 Series	AP1850 Series	Selected ONENTWK SKUs			
	mGig Switches				
AIR 2700 Series	WS-C3560-CX-8XPD-S	Cisco mGig Office			
Cisco 1900/2900 Routers *For ASEAN countries only	Catalyst 3850-24XU / 12X48U	Cisco maig Office			
Cisco 1900 Series	Catalyst 3K with NaaS/NaaE Solution *For Korea only	Any of Mgig switch + CME			
Cisco 2900 Series	Catalyst 3K Series				
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*Product eligibility varies from country to country. Promotion is applicable to Australia, New Zealand, Singapore, Malaysia, Philippines, Indonesia, Thailand, Vietnam, Korea, and India only.



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What's New

Cisco ONE Software

Faster and Easier

The More Flexible, Cost-Effective Solution Makes Buying Your Infrastructure Software

Cisco Network as a Sensor and Enforcer

as a Powerful Security Sensor and Enforcer

Activate Your Cisco Network

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1 Training Provider **5** Architecture Specializations

Interprise Networking • Security • Collaboration





Global Knowledge.





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.

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

FEATURE

Cisco ONE Software: Buy All Applications/Licenses as a Suite

Cisco ONE Software is a valuable and flexible way to buy software for your data center, WAN, and access domains. At each stage in the product lifecycle, Cisco ONE Software helps make buying, managing, and upgrading your network and infrastructure software easier.

When you buy: Instead of choosing from hundreds of separately priced software features, you purchase a single Cisco ONE Software product. Instead of a single perpetual license tied to the lifetime of your hardware, we offer flexibility with a choice of licensing options.

When you use: Your Cisco ONE Software investment can grow in value through ongoing innovation, updates, and upgrades. And coming soon with Cisco ONE Software, you'll have the freedom to deploy your licenses on physical or virtual machines.

When you refresh: You benefit from lower costs and lower TCO. Cisco ONE Software licenses are not tied to specific hardware, so they are portable to the next generation of applicable devices.







Wireless

Next-Generation Wireless for the Mobile Enterprise

Ideal for small and medium-sized networks, the Cisco Aironet 1830 Series delivers industry-leading wireless performance with support for the latest Wi-Fi standard, IEEE's new 802.11ac Wave 2 specification

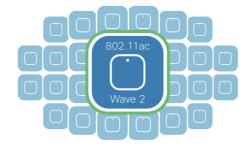
With 802.11ac Wave 2, the Cisco Aironet 1830 Series provides a data rate of up to 867 Mbps on the 5-GHz radio, exceeding the data rates offered by today's high-end 802.11n access points



Deploy and Manage Your Wi-Fi Network in a Snap

The Cisco Mobility Express Solution is specifically designed to help small and medium-sized networks easily and costeffectively deliver enterprise-class wireless access to employees and customers.

Now you can deploy your small to midsize wireless LAN in less than 10 minutes. You can also easily manage and troubleshoot your network using advanced software-based wireless controller functions built right into your Cisco Aironet 1830/1850 Series at no extra charge





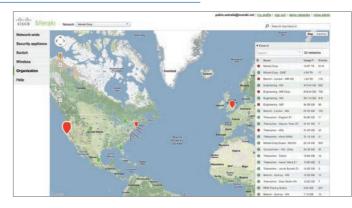
Meraki

Cloud-Managed IT. Fast Business Outcomes

The Cisco Meraki portfolio is centrally managed from the cloud. The feature-rich, easy-to-use Meraki cloud architecture can enable customers worldwide to solve new business problems and reduce operating costs.

Cloud Networking provides centralized management, visibility, and control without the cost and complexity of controller appliances or overlay management software.

Cisco Meraki products are built from the ground up for cloud management, and come out of the box with centralized management, layer 7 device and application visibility, real time web-based diagnostics, monitoring, reporting, and much, much more. Cisco Meraki deploys quickly and easily, without training or proprietary command line interfaces.











Cloud Managed Switches



Cloud Managed Security Appliances



Mobility Management

Small Business

Advanced Features for Demanding Environments, at an Affordable Price

The Cisco Small Business 350X Series Stackable Managed Switches and the Cisco Small Business 550X Series Stackable Managed Switches are a new line of stackable managed Ethernet switches that provide the rich capabilities you need to support a more demanding network environment, at a very affordable price.



Cisco Small Business 550X Series Stackable Managed Switches

These models provide 12, 16, 24 or 48 ports of 10 Gigabit Ethernet, providing a solid foundation for your current business applications, as well as those you are planning for the future. At the same time, these switches are easy to deploy and manage, without a large IT staff. These switches are Cisco's most costeffective platforms with 10 Gigabit Ethernet and Stacking.







FEATURE Cisco ONE Software

The More Flexible, Cost-Effective Solution Makes Buying Your Infrastructure Software Faster and Easier

What if buying complete IT solutions across your data center, WAN, and access domains were as simple as a single purchase? With Cisco ONE Software, we are making it easier for you to extract the value in your network infrastructure.

Making Software Buying Simple

Cisco ONE Software is a valuable and flexible way to buy software for your data center, WAN, and access domains. At each stage in the product lifecycle, Cisco ONE Software helps make buying, managing, and upgrading your network and infrastructure software easier.

Cisco ONE Software is organized by domains (Data Center, WAN, and Access) and feature sets (Foundation, Advanced Applications, and Advanced Security). Cisco ONE for Access offers a comprehensive fea-

ture set for wired and wireless access. Cisco ONE for WAN provides complete functionality for the branch and network edge. Cisco ONE for Data Center provides functionality for physical and virtualized data centers, across network and compute resources, and provides secure, scalable support for private and hybrid clouds. Finally, Cisco ONE Advanced Security provides a robust set of threat defense capabilities and central policy management.

Cisco ONE for Access

Cisco ONE for Access is a simple and economical solution for deploying branch and campus switches and wireless access points. It offers an uncompromised user experience in a highly secure and feature-rich access infrastructure.

Cisco ONE Foundation for Switching provides a solution to:

- Manage a large switching infrastructure more efficiently.
- Help reduce expenses by simplifying network deployment and management.
- Oentralize network access policies across wired and wireless networks.
- Manage wired, wireless, and VPN users and devices easily.
- Help improve the energy efficiency of your connected devices.

Cisco ONE Campus Fabric:

- Delivers a better user experience in complex switching environments.
- Helps you scale your network for business expansion and increases resiliency for your mission-critical applications.

Cisco ONE Foundation for Wireless offers connectivity and management solutions to:

- Build business-class Wi-Fi networks.
- Create trusted wireless LAN (WLAN) access points.
- Manage mobile devices across the network more efficiently.
- Deliver location-based services for your users.
- Provide highly secure access for guest and employee access.

Cisco ONE Advanced Mobility Services:

 Help you create personalized mobile experiences for your users and start unlocking the potential of your business with wireless security and advance mobile location and analytics.

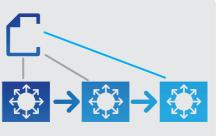


■ Cisco ONE Software: Buy All Applications/Licenses as a Suite

Software Suites
Offered as a Solution



 Customer buys all licenses in one package and has freedom to turn on what they need Licensing Portability
Access to Ongoing Innovation



- License can be moved to new hardware as it is purchased
- Incentive to upgrade frequently to optimize performance

Perpetual, Subscription & ELA Options



- License can be purchased to be used forever
- License subscription can be purchased for a finite time
- Enterprise License Agreements allow customer to purchase all licenses for multiple devices in one package and distribute over time

Cisco ONE for WAN

Cisco ONE for WAN provides rich capabilities for branch offices and the network edge. If you want to implement new branch-office initiatives and secure IP WAN connections, this is the right solution.

Cisco ONE Foundation for WAN connects and better secures your branch offices while keeping WAN bandwidth costs under control and gives you solutions to:

- Improve application performance.
- Deploy hybrid WANs with high reliability.
- Automate deployment with centralized policies and distributed enforcement.
- Strengthen network security.
- Manage the energy use of connected devices more easily.

Cisco ONE WAN Collaboration integrates voice and video across your branches to increase productivity and helps remote branch facilities to:

- Extend rich-media capabilities to branches with more secure video.
- Improve branch and cloud telephony reliability.
- Simplify transition to IP collaboration at your own pace and budget.
- Migrate easily from time-division multiplexing (TDM) to Session Initiation Protocol (SIP) trunking.
- Manage collaboration sessions centrally.

Cisco ONE for Data Center

Cisco ONE for Data Center can help you build a scalable, resilient, and efficient data center. You can move workloads and resources between different cloud models, quickly, more securely, and in compliance with your policies. You can also reduce costs and increase IT agility with highly secure private, public, and hybrid clouds for your physical and virtual environments.

Cisco ONE Foundation for Data Center Networking:

- Improves visibility and consistency across physical and virtual networks.
- Delivers global reach across your businesses and data centers.
- Delivers automation to simplify management of compute and virtual network environments.
- Adds performance and port density with greater fault tolerance.
- Increases operational efficiency with performance and power management

Cisco ONE Data Center Fabric

 Helps you create a scalable, intelligent network by converging your LANs and SANs.

Cisco ONE Foundation for Compute:

- Increases security in your virtual environments.
- Deploys foundational automation across compute and virtual infrastructure layers across private and hybrid environments.
- Uses programmable application containers for your converged data center.
- Monitors performance and energy of your compute and virtual network
- Manages multiple UCS domains from a single management console.

Cisco ONE Enterprise Cloud Suite:

Delivers the tools for creating, monitoring, self-service ordering, and lifecycle management of your private cloud. It provides unified provisioning and management of both Cisco and multi-vendor hardware.

FEATURE Cisco Network as a Sensor and Enforcer

Activate Your Cisco Network as a Powerful Security Sensor and Enforcer

Cybercrime is now a major global business, rendering traditional approaches to security inadequate. Organizations need to add another layer of protection by using the network itself to detect anomalous behavior and enforce security policies. The Cisco 'Network as a Sensor' and 'Network as an Enforcer' solutions deliver deep visibility and pervasive control to mitigate threats before, during, and after an attack.

The Enterprise Cybercrime Landscape

Global enterprise networks face an epidemic of cybercrime. Fully 100 percent of the business networks analyzed by Cisco threat research teams contained traffic going to websites that host malware, according to the Cisco 2014 Annual Security Report.

Cybercrime is a major global business composed of extremely profitable crime syndicates. Cybercriminals build malware directly targeting an organization's specific vulnerabilities, often discovered through extensive surveillance of the organization's networks and business practices. These threats can remain in the network for months gathering data about the company's network, devices, and users before launching attacks elsewhere in the organization's environment.

Further complicating matters, the number of potential points of infiltration into the organizations is expanding because of the growth in mobility, cloud, and the Internet of Things (IoT). The continuous growth of connected endpoints exponentially expands the attack surface for malware. An average organization uses as many as 40 separate security tools to defend against threats. However, it's nearly impossible to correlate data from so many disparate systems and uncover the source and trajectory of security threats.

Instead, your customers can leverage the network itself as a sensor and enforce to complement traditional security systems and better detect and mitigate threats in the earliest stages of attack.

Cisco Network as a Sensor

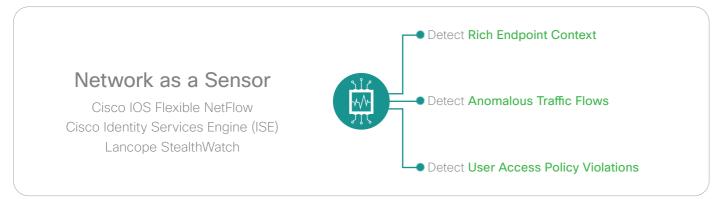
With so many access attempts occurring beyond the traditional enterprise network perimeter, you now need security everywhere. Fortunately, your Cisco network already contains what you need to do the job. We call it the Cisco Network as a Sensor solution. By simply activating the embedded security capabilities in your Cisco network, you can transform your network into a full-blown security monitoring system that gives you broad and deep visibility into your network and everything that connects to it.

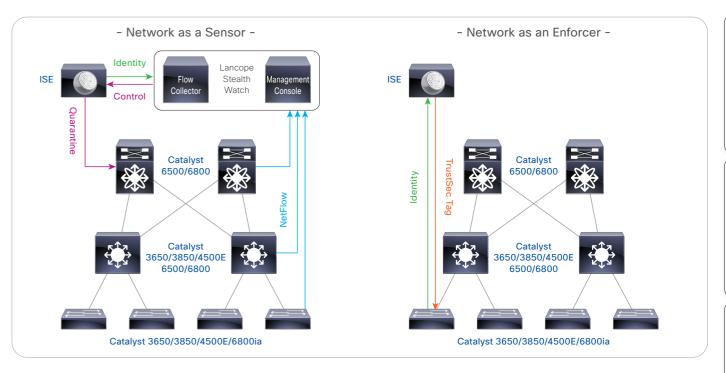
If you can't see network threats, how can you defend against them?

The Cisco Network as a Sensor solution addresses this issue head-on.

You get the global network visibility you need in the form of detailed security analytics generated by Cisco IOS Flexible NetFlow, contextual data from the Cisco Identity Services Engine (ISE), and real-time monitoring and alerts from partner technology, Lancope StealthWatch.

The solution determines the baseline profile for your network. From there it can then rapidly detect malicious activities – abnormal data movements, suspicious traffic, advanced threats – anywhere in your environment. You see how your traffic is flowing, which devices are accessing your network and what malicious activities might be taking place on your network.





■ Cisco Catalyst Switches Compatibility

	NetFlow	TrustSec
2960-CX (LAN Base)	Lite	-
3560-CX	Lite	SGT, SGACL
2960-X (LAN Base/IP Lite)	Lite	SXP
3650	Full Flexible	SGT, SGACL
3850	Full Flexible	SGT, SGACL
4500E (SUP8-E)	Full Flexible	SGT, SGACL
6500 (SUP2T)	Full Flexible	SGT, SGACL
6800 (SUP2T)	Full Flexible	SGT, SGACL

Cisco NetFlow

- Full Flexible Provides full scale NetFlow for all traffic without CPU impact
- Lite Provides sampled NetFlow, reducing total visibility

Cisco TrustSec

- SGT Supports inline packet tagging
- SGACL Supports SGT-based access control
- SXP Supports exchange of tag assignment with upstream SGT-capable device

Cisco Network as an Enforcer

Each network connection, whether created by cloud services, mobility, the Internet of Things (IoT), or something else, represents a potential attack entry point. Your challenge is to balance the network access that users and devices need with risk mitigation.

The good news is that your Cisco network already contains the tools to do that. You just need to activate them to allow your network to serve as an enforcer of network security policy. For example, you can contain threats by using Cisco TrustSec and Cisco ISE to partition your network into smaller segments. Through a software-defined approach to network segmentation, you can then protect the segments using specific group

policies that determine user access based on user roles and their business needs and greatly reduce your "attack surface." That means that even if hackers do make their way into your network, they can no longer move freely about and cause widespread damage.

With your Cisco network acting as a network security enforcer, you centrally apply your security policies networkwide. The right users and devices now enjoy the right access, and you contain the impact of an attack. Cisco ISE serves as the centralized policy engine that provides real-time access control decisions for Cisco switches, routers, and security devices.



Switches



L2 / L3 Switches

Line-up of Cisco Catalyst Switches Core 4500-X Series Core / Access Cisco Catalyst Cisco Catalys Cisco Catalyst 3650 Series 3850 Series 4500F Series Access Cisco Catalyst 2960-Plus Series Compact Cisco Catalyst Cisco Catalyst 2960-CX Series 3560-CX Series L3 L2 L2 compact switches suitable for deployment in the access layer. See page 16. These switches deliver basic network services even outside the wiring closet. L3 compact switches suitable for deployment in the access layer. See page 16 These switches deliver advanced network services even outside the wiring closet L2 fixed-configuration switches suitable for deployment in the access layer. See page 17. FE is supported on all downlink ports. L2/L3 fixed-configuration switches suitable for deployment in the access layer. See page 18. GE and stacking are supported on all downlink ports. L2/L3 fixed-configuration switches suitable for deployment in the access layer or core layer. See page 19. Provide a wireless controller function to server as an integrated platform for wired/wireless LAN networks. Next-generation L2/L3 fixed-configuration switches suitable for deployment in the access layer or core layer. See page 20. Provide a wireless controller function to server as an integrated platform for wired/wireless LAN networks. L2/L3 modular switches suitable for deployment in the access layer or core layer. See page 22. The superior cost performance of these switches ensure the protection of investment over long periods. L3 fixed-configuration switches suitable for deployment in the core layer. See page 24. Deliver excellent expandability and performance in environments with space constraints. L3 modular switches suitable for deployment in the core layer. See page 25. Provide a wide range of network services thanks to their top-of-the-industry performance.

L3 fixed-configuration/modular switches suitable for deployment in the core layer.

Provide network services optimized for 10/40/100 Gigabit Ethernet.

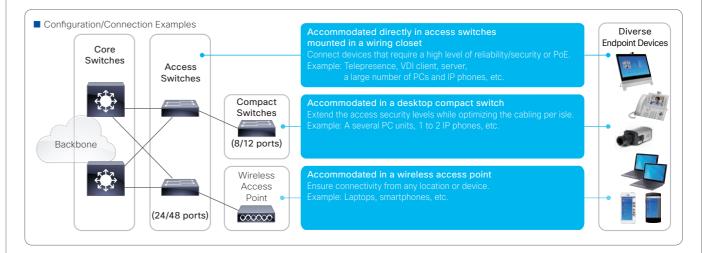
Selection of Cisco Catalyst Switches

Access Switches and Core Switches

Medium-sized corporate networks today are generally configured in two layers with access switches and core switches. Access switches are used to connect the end devices such as client PCs, IP phones and wireless access points; and core switches are used to consolidate lines by connecting multiple access switches. Switches with higher performance than access switches should be selected for core switches as their role is to consolidate a large number of lines.

■ L2 Switches and L3 Switches

Switches can be categorized into L2 switches (Layer 2 switches) and L3 switches (Layer 3 switches) based on their functionality. In general, L2 switches are used for access switches and L3 switches are used for core switches, respectively. However, L3 switches should also be selected for access switches when offering services with higher added value to the end users such as MACsec, which is a part of the Cisco TrustSec solution. The Cisco Catalyst 3650/3850/4500E Series support the upgrade from L2 to L3 switches via a Cisco IOS upgrade license.



■ Fixed-Configuration Switches and Modular Switches

Typically, fixed-configuration switches (or box-type switches) are referred to as having low cost and low performance; and modular switches (or chassis-type switches) are referred to as having high cost and high performance. However, when the port unit prices of multiple fixed-configuration switches and a single modular switch are put to comparison, the latter cost may become lower as the number of ports increases.

High-performance switches should generally be selected for the core switches. However, in a small-sized network, a sufficient performance and redundant configuration can be achieved by connecting the fixed-configuration Cisco Catalyst 3650/3850 Series switches in a stack.

■ Compact Switches

In some physical environments such as an office, it may be impossible or labor- and cost-intensive to run separate wiring from access switches installed in a wiring closet to the end devices such as a client PC, IP phone and wireless access points. The Cisco Catalyst 2960-CX/3560-CX Series compact switches have been developed to resolve these issues.

All models feature space-saving dimensions of under $5 \text{ cm} \times 27 \text{ cm} \times 24 \text{ cm}$ with weight under 2 kg as well as a stylish, fanless low-noise design, making them suitable for installation in locations that are within sight of end users, such as on a desktop, counter or wall.

In addition to addressing issues related to the cable wiring, installation space, some models also support the innovative PoE pass-through functionality to resolve any power supply issues.

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)

See page 26

- SFP+ module slots (SFP/SFP+)
- CFP module slot (CFP)

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 or CFP 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 12 for details).



- Gigabit Ethernet port (GE)

- SFP module slot (SFP)
- Dual-Purpose port (GE/SFP)
- 10GBASE-T port (10 GB-T)
- SFP+ module slot (SFP/SFP+)



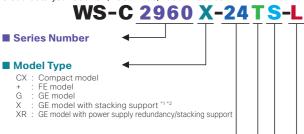
Downlink

- Fast Ethernet port (FE)
- Gigabit Ethernet port (GE)
- Multigigabit Ethernet port (mGig)
- SFP module slot (SFP)
- SFP+ module slot (SFP/SFP+)

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



■ Downlink Ports

■ Number of Ports

8. 24. or 48

: Data-only port : Port with PoE power supply support (Full 15.4 W power on 8 ports) Port with PoE power supply support (Full 15.4 W power on 24 ports) *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 : GE port : GE port

SFP module slot SFP/SFP+ module slot

■ Cisco IOS

S : LAN Lite L or LL : LAN Base

■ Number of Slots 3, 6, 7, or 10

None : Not supported
R : Supported

Cisco Catalyst 4500E Series (Chassis)

■ Supervisor Engine Redundancy

Cisco Catalyst 4500E Series (Line Card)

Cisco Catalyst 3560-CX/3650/3850 Series

■ Series Number

■ Number of Ports

8, 12, 24, or 48

■ Downlink Ports

■ Cisco IOS : LAN Base

Data-only port

SFP module slot

mGig port or SFP/SFP+ module slot



WS-C 3850 -24 XU-S

Port with PoE power supply support (Full 15.4 W power on 24 ports) *
 Port with PoE power supply support (Full 15.4 W power on 48 ports) *
 Port with UPOE power supply support (Full 15.4 W power on 48 ports) *

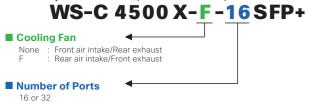
■ Bandwidth per Slot

■ Port Interface

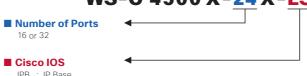
GE port with PoE+ power supply support U, UPOE: GE port with UPOE power supply support

mGig port SEP SFP module slot X2 module slot SEP/SEP+ module slot

Cisco Catalyst 4500-X Series (no Network Module)



Cisco Catalyst 4500-X Series (with Network Module) WS-C 4500 X-24 X-ES



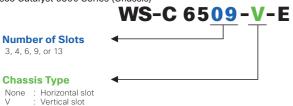
IPB : IP Base ES : Enterprise Services

Cisco Catalyst 6500 Series (Chassis)

■ Number of Slots

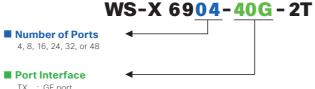
3. 4. 6. 9. or 13

■ Chassis Type



WS-C 4507 R+E

Cisco Catalyst 6500/6800 Series (Line Card)



TX : GE port SFP : SFP module slot : 10GBASE-T port

: X2 module slot or SFP/SFP+ module slot

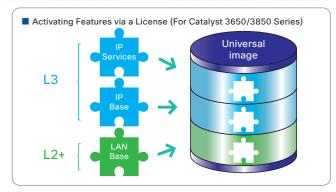
40G: CFP module slot

*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.

Cisco IOS on Cisco Catalyst Switches

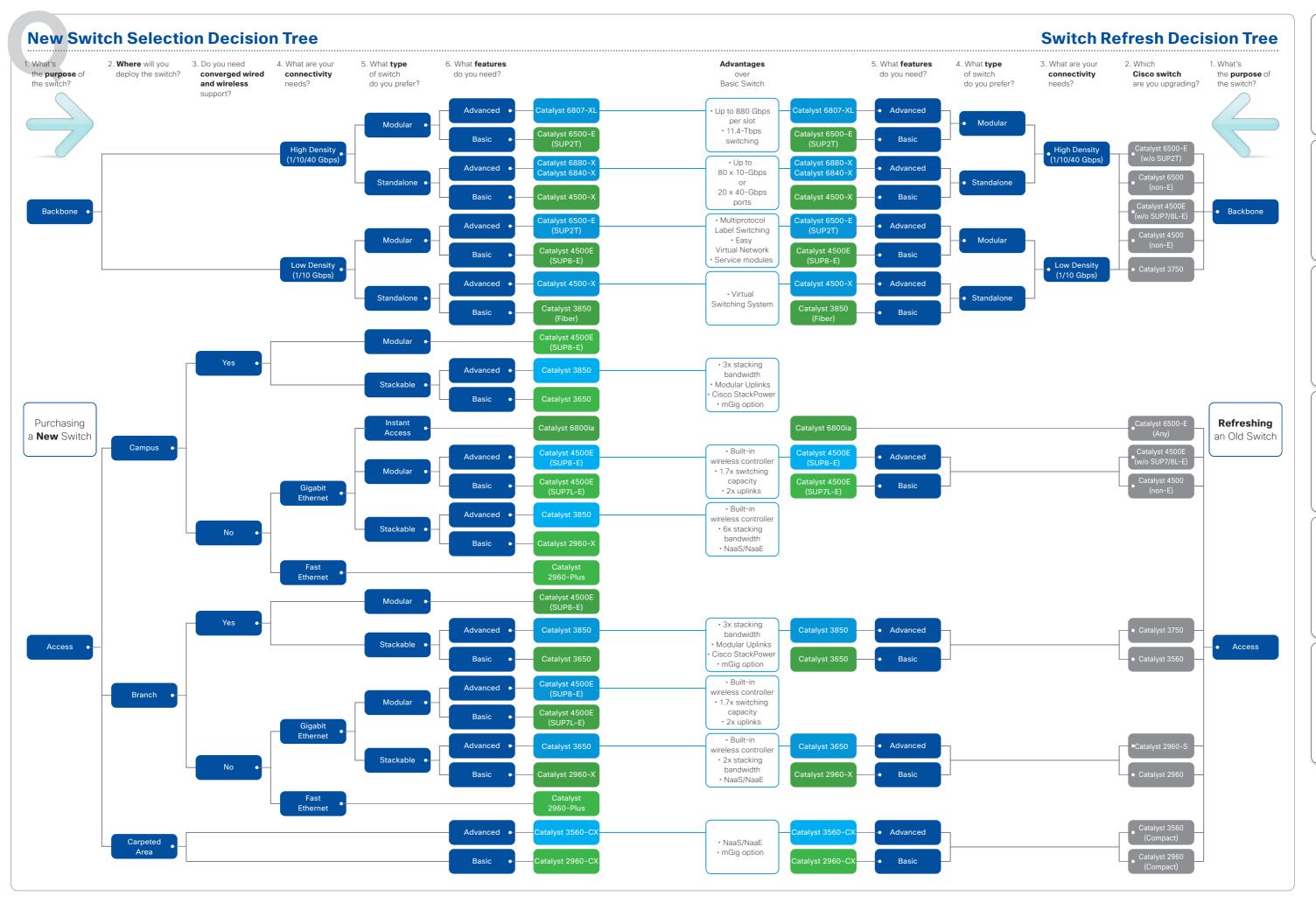
Cisco Catalyst Switches incorporate the Cisco IOS (Internetwork Operating System), which is a high-performance network infrastructure software. LAN Lite and LAN Base feature sets provide the L2 level features, and IP Lite, IP Base, IP Services, Advanced IP Services, Enterprise Services, and Advanced 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.



	co IOS ure Sets	LAN Lite	LAN Base	IP Lite	IP Base	IP Services	Enterprise Services	Advanced IP Services	Advanced Enterprise Services
	2960-CX	-	•	-	-	-	-	-	-
	3560-CX	-	-	-	•	•	-	-	-
	2960- Plus	•	•	-	-	-	-	-	-
	2960-X	•	•	•	-	-	-	-	-
Support- ed	3650	-	•	-	•	•	-	-	-
	3850	-	•	-	•	•	-	-	-
	4500-X -		-	-	•	-	•	-	-
	4500E	-	•	-	•	-	•	-	-
	6500	-	-	-	•	•	-	•	•
	6800	-	-	-	•	•	-	•	•
L2		- IEEE 802.1 Q trunking - STP (Spanning tree protocol) - CDP - DTP - UDLD - VTP - EtherChannel - LACP - LLDP - Storm control on port-by-port basis	All LAN Lite functions PLUS: - Flex Link - Link State Tracking - LLDP-MED	All LAN Base fea	tures				
L3		-	- Static Routing	- Static Routing - RIP - PIM Stub - EIGRP Stub - Policy-based routing (PBR)	- Static Routing - RIP - PIM Stub - EIGRP Stub - OSPF for Routed Access - WCCP ¹¹ - Policy-based routing (PBR)	All IP Base functions PLUS: - OSPF - EIGRP - BGP - IS-IS'2 - VRF-Lite - WCCP - Policy-based routing (PBR)	All IP Base functions PLUS: - OSPF - EIGRP - BGP - IS-IS - VRF-Lite - Policy-based routing (PBR)	All IP Services functions PLUS: - IS-IS - MPLS - E0MPLS - L3 VPN	All Advanced IP Services functions PLUS: - L2 VPN (Native VPLS, A-VPLS)
Managea	ability	- SNMP - RMON - SPAN - TDR - Smart Ports - Smart Install (client)	All LAN Lite functions PLUS: - RSPAN - Cisco IOS IP SLA (responder)	All LAN Base features	All LAN Base fun - Smart Install (d - Cisco IOS EEM - Cisco IOS IP SI	irector)			
- SSL			All LAN Lite functions PLUS: - ALC in Layer 2-4 - DHCP snooping - Dynamic ARP inspection - IP source guard - Web authentication - TrustSec SXP	All LAN Base functions PLUS: - Router ACL - VLAN ACL - Private VLAN	All LAN Base fun - Router ACL - VLAN ACL - Private VLAN - TrustSec SGT/! - MACsec		All LAN Base functions PLUS: - Smart Install (director) - Cisco IOS EEM - Cisco IOS IP SLA (initiator)		
QoS		- SRR	All LAN Lite functions PLUS: - AutoQoS - DSCP	All LAN Base fun - Separate policy					

^{*}T Cisco Catalyst 3560-CX/3650 Series are not supported. *2 Cisco Catalyst 6500/6800 Series require the Cisco IOS Advanced IP Services/Advanced Enterprise Services image



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

	Downlinks Uplinks			Web MAC		Max	Instant	PoE Output Ports			AC		Rack			
SKU	GE	mGig	GE	SFP	SFP/ SFP+	Cisco IOS	Auth	sec	VLANs	Access	PoE 7.7 W	PoE 15.4 W	PoE+ 30 W	Power	Magnet	Mount
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.

■ Cisco Catalyst 3560-CX Series

	Downlinks Uplinks		Web MAC		Max	Max Instant		PoE Output Ports				Rack				
SKU	GE	mGig	GE	SFP	SFP/ SFP+	Cisco IOS	Auth	sec	VLANs	Access	PoE 7.7 W	PoE 15.4 W	PoE+ 30 W	AC Power	Magnet	Mount
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		
POILS	Downlinks	8 x GE	8 x GE		
PoF	PoE	=	124 W PoE+		
POE	Perpetual PoE	=	●*1		
Hardware	DRAM, Flash	128 MB, 64 MB	512 MB, 128 MB		
Other	Security	802.1x	802.1x, SXP*2		
Other	AVC	-	NetFlow Lite		

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

Parameter	Feature	3560-CG	3560-CX		
	Uplinks	2 x GE or 2 x SFP	2 x GE and SFP/SFP+*3		
Ports	Downlinks	8 x GE	8 x GE or 12 x GE		
	mGig	-	●*4		
	PoE	124 W PoE+	240 W PoE+		
	PoE pass-through	1 x UPOE, 23.8 W	2 x UPOE, 144.8 W ^{*1}		
PoE	DC Power	-	●*1		
	Power Stacking	-	Horizontal*1		
	Perpetual PoE	-	•		
Ease of Management	Instant Access	-	●*3		
Software	Cisco IOS	IP Base Only	IP Base, IP Services		
Hardware	DRAM, Flash	128 MB, 64 MB	512 MB, 128 MB		
	Security	802.1x, MACsec	802.1x, MACsec, SXP*1, SGACL*1		
Other	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

	Downlinks	Downlinks Uplinks						PoE Out	out Ports		
SKU	FE	GE	SFP	GE/ SFP	Cisco IOS	Web Auth	Max VLANs	PoE 7.7 W	PoE 15.4 W	AC Power	Rack Mount
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

■ Fast Ethernet Models

Stacking Supported	Stacking Not Supported				
2960-SF Fos *1	2960-Plus				
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-I	WS-C2960+24LC-L				
W3-029003-F24F3-L	WS-C2960+24PC-L				
WS-C2960S-F48TS-L	WS-C2960+48TC-L				
WS-C2960S-F48LPS-L	WS-C2960+48PST-I				
WS-C2960S-F48FPS-L	W3-02900+40P31-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	-	-	•

■ Gigabit Ethernet Models

2960-S [68] *1	2960-X
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-C2960S-24TD-L	WS-C2960X-24TD-L
-	WS-C2960X-24PSQ-L *2
WS-C2960S-24PS-L	WS-C2960X-24PS-L
WS-C2960S-24PD-L	WS-C2960X-24PD-L
WS-C2960S-48TS-L	WS-C2960X-48TS-L
WS-C2960S-48TD-L	WS-C2960X-48TD-L
WS-C2960S-48LPS-L	WS-C2960X-48LPS-L
WS-C2960S-48FPS-L	WS-C2960X-48FPS-L
WS-C2960S-48LPD-L	WS-C2960X-48LPD-L
WS-C2960S-48FPD-L	WS-C2960X-48FPD-L
-	WS-C2960XR-24TS-I
-	WS-C2960XR-24TD-I
-	WS-C2960XR-24PS-I
-	WS-C2960XR-24PD-I
-	WS-C2960XR-48TS-I
-	WS-C2960XR-48TD-I
-	WS-C2960XR-48LPS-I
-	WS-C2960XR-48FPS-I
-	WS-C2960XR-48LPD-I
-	WS-C2960XR-48FPD-I

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

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

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	Downlinks		Uplinks			Web	Max	PoE	Output I	Ports		Power	Power		Flex	Rack
SKU	GE	GE	SFP	SFP/ SFP+	Cisco IOS	Auth	VLANs	PoE 7.7 W	PoE 15.4 W	PoE+ 30 W	Fanless	Supply	Redun- dancy	RPS	Stack Plus	Mount
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 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.

■ 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 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.

■ 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

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 to support Cisco ONE (Open Network Environment)
- Built-in controller function capable of managing up to 50 wireless access points (Supports IP Base/IP Services)
- Equipped with PoE+ power supplying downlink ports (PSE model)
- Equipped with MACsec-enabled downlink./uplink ports (IP Base/IP Services models)
- Supports Cisco StackWise-160

Cisco Catalyst 3650 Series

	Wireless	Downlinks	Up	links		MAC	Max		PoE Outp	out Ports		Power	Rack
SKU	Throughput	GE	SFP	SFP/ SFP+	Cisco IOS	sec	VLANs	PoE 7.7 W	PoE 15.4 W	PoE+ 30 W	UPOE 60 W	Supply	Mount
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	-	4/2	LAN Base	-*1	255	-	-	-	-	250 W AC	1 RU
WS-C3650-24TD-S	20 Gpbs	24	-	4/2	IP Base	•	4094	-	-	-	-	250 W AC	1 RU
WS-C3650-24TD-E	20 Gpbs	24	-	4/2	IP Services	•	4094	-	-	-	-	250 W AC	1 RU
WS-C3650-24PS-L	20 Gpbs	24	4	-	LAN Base	-*1	255	24	24	13	-	640 W AC	1 RU
WS-C3650-24PS-S	20 Gpbs	24	4	-	IP Base	•	4094	24	24	13	-	640 W AC	1 RU
WS-C3650-24PS-E	20 Gpbs	24	4	-	IP Services	•	4094	24	24	13	-	640 W AC	1 RU
WS-C3650-24PD-L	20 Gpbs	24	-	4/2	LAN Base	-*1	255	24	24	13	-	640 W AC	1 RU
WS-C3650-24PD-S	20 Gpbs	24	-	4/2	IP Base	•	4094	24	24	13	-	640 W AC	1 RU
WS-C3650-24PD-E	20 Gpbs	24	-	4/2	IP Services	•	4094	24	24	13	-	640 W AC	1 RU
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	-	4/2	LAN Base	-*1	255	-	-	-	-	250 W AC	1 RU
WS-C3650-48TD-S	40 Gbps	48	-	4/2	IP Base	•	4094	-	-	-	-	250 W AC	1 RU
WS-C3650-48TD-E	40 Gbps	48	-	4/2	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	48	25	13	-	640 W AC	1 RU
WS-C3650-48PS-S	40 Gbps	48	4	-	IP Base	•	4094	48	25	13	-	640 W AC	1 RU
WS-C3650-48PS-E	40 Gbps	48	4	-	IP Services	•	4094	48	25	13	-	640 W AC	1 RU
WS-C3650-48PD-L	40 Gbps	48	-	4/2	LAN Base	-*1	255	48	25	13	-	640 W AC	1 RU
WS-C3650-48PD-S	40 Gbps	48	-	4/2	IP Base	•	4094	48	25	13	-	640 W AC	1 RU
WS-C3650-48PD-E	40 Gbps	48	-	4/2	IP Services	•	4094	48	25	13	-	640 W AC	1 RU
WS-C3650-48PQ-L	40 Gbps	48	-	4	LAN Base	-*1	255	48	25	13	-	640 W AC	1 RU
WS-C3650-48PQ-S	40 Gbps	48	-	4	IP Base	•	4094	48	25	13	-	640 W AC	1 RU
WS-C3650-48PQ-E	40 Gbps	48	-	4	IP Services	•	4094	48	25	13	-	640 W AC	1 RU
WS-C3650-48FS-L	40 Gbps	48	4	-	LAN Base	-*1	255	48	48	25	-	1025 W AC	1 RU
WS-C3650-48FS-S	40 Gbps	48	4	-	IP Base	•	4094	48	48	25	-	1025 W AC	1 RU
WS-C3650-48FS-E	40 Gbps	48	4	-	IP Services	•	4094	48	48	25	-	1025 W AC	1 RU
WS-C3650-48FD-L	40 Gbps	48	-	4/2	LAN Base	-*1	255	48	48	25	-	1025 W AC	1 RU
WS-C3650-48FD-S	40 Gbps	48	-	4/2	IP Base	•	4094	48	48	25	-	1025 W AC	1 RU
WS-C3650-48FD-E	40 Gbps	48	-	4/2	IP Services	•	4094	48	48	25	-	1025 W AC	1 RU
WS-C3650-48FQ-L	40 Gbps	48	-	4	LAN Base	-*1	255	48	48	25	-	1025 W AC	1 RU
WS-C3650-48FQ-S	40 Gbps	48	-	4	IP Base	•	4094	48	48	25	-	1025 W AC	1 RU
WS-C3650-48FQ-E	40 Gbps	48	-	4	IP Services	•	4094	48	48	25	-	1025 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-C2-1025WAC	1025 W AC Power Supply Module
PWR-C2-640WAC	640 W DC Power Supply Module

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

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

■ Cisco IOS Upgrade License for the Cisco Catalyst 3650 Series

L-C3650-24-L-S Cisco IOS IP Base License for 24-port IP Base model

L-C3650-48-L-E	Cisco IOS IP Services 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-S	Cisco IOS IP Base License for 48-port IP Base model
L-C3650-24-L-E	Cisco IOS IP Services License for 24-port IP Base model
L-03650-24-S-E	CISCO IOS IP Services License for 24-port IP Base model

■ Additional Access Point License for the Cisco 3650 Series

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

Ciona Catalyat 26E0 Carina Bundle

Cisco Catalyst 3650 Series Bundle						
SKU		Bundle				
SKU	Model	Number of Access Point Licenses	Cisco IOS			
WS-C3650-24PWS-S	WS-C3650-24PS-S	5	IP Base			
WS-C3650-24PWD-S	WS-C3650-24PD-S	5	IP Base			
WS-C3650-48FWS-S	WS-C3650-48FS-S	5	IP Base			
WS-C3650-48FWD-S	WS-C3650-48FD-S	5	IP Base			
WS-C3650-48FWQ-S	WS-C3650-48FQ-S	5	IP Base			

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

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 OoS 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 to support Cisco ONE (Open Network Environment)
- 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
- Supports Cisco StackWise-480

Cisco Catalyst 3850 Series

	Wireless	Downlinks		l	Jplink:	S ¹	Cisco	MAC	Max			put Ports		Power	Rack		
SKU	Throughput	GE	mGig	SFP	SFP / SFP +	SFP	SFP /	QSFP	IOS	sec	VLANs	PoE 7.7 W	PoE 15.4 W	PoE + 30 W	UPOE 60 W	Supply	Mount
WS-C3850-24T-L	20 Gpbs	24	-	-	-	4	2	-	LAN Base	-*2	255	-	-	-	-	350 W AC	1 RU
NS-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	-*2	255	24	24	14	-	715 W AC	1 RU
WS-C3850-24P-S	20 Gpbs	24	-	-	-	4	2	-	IP Base	•	4094	24	24	14	-	715 W AC	1 RU
WS-C3850-24P-E	20 Gpbs	24	-	-	-	4	2	-	IP Services	•	4094	24	24	14	-	715 W AC	1 RU
WS-C3850-24U-L	20 Gpbs	24	-	-	-	4	2	-	LAN Base	-*2	255	24	24	14	13	715 W AC	1 RU
WS-C3850-24U-S	20 Gpbs	24	-	-	-	4	2	-	IP Base	•	4094	24	24	14	13	715 W AC	1 RU
WS-C3850-24U-E	20 Gpbs	24	-	-	-	4	2	-	IP Services	•	4094	24	24	14	13	715 W AC	1 RU
WS-C3850-24XU-L	40 Gbps	-	24	-	-	8	8	2	LAN Base	_*2	255	24	24	24	24	1100 W AC	1 RU
WS-C3850-24XU-S	40 Gbps	-	24	-	-	8	8	2	IP Base	•	4094	24	24	24	24	1100 W AC	1 RU
WS-C3850-24XU-E	40 Gbps	-	24	-	-	8	8	2	IP Services	•	4094	24	24	24	24	1100 W AC	1 RU
WS-C3850-48T-L	40 Gbps	48	-	-	-	4	4	-	LAN Base	-*2	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
NS-C3850-48P-L	40 Gbps	48	-	-	-	4	4	-	LAN Base	-*2	255	48	28	14	-	715 W AC	1 RU
WS-C3850-48P-S	40 Gbps	48	-	-	-	4	4	-	IP Base	•	4094	48	28	14	-	715 W AC	1 RU
WS-C3850-48P-E	40 Gbps	48	-	-	-	4	4	-	IP Services	•	4094	48	28	14	-	715 W AC	1 RU
WS-C3850-48F-L	40 Gbps	48	-	-	-	4	4	-	LAN Base	-*2	255	48	48	26	-	1100 W AC	1 RU
NS-C3850-48F-S	40 Gbps	48	-	-	-	4	4	-	IP Base		4094	48	48	26	-	1100 W AC	1 RU
WS-C3850-48F-E	40 Gbps	48	-	-	-	4	4	-	IP Services	•	4094	48	48	26	-	1100 W AC	1 RU
WS-C3850-48U-L	40 Gbps	48	-	-	-	4	4	-	LAN Base	-*2	255	48	48	26	13	1100 W AC	1 RU
WS-C3850-48U-S	40 Gbps	48	-	-	-	4	4	-	IP Base	•	4094	48	48	26	13	1100 W AC	1 RU
WS-C3850-48U-E	40 Gbps	48	-	-	-	4	4	-	IP Services	•	4094	48	48	26	13	1100 W AC	1 RU
WS-C3850-12X48U-L	40 Gbps	36	12	-	-	8	8	2	LAN Base	-*2	255	48	48	48	36	1100 W AC	1 RU
WS-C3850-12X48U-S	40 Gbps	36	12	-	-	8	8	2	IP Base	•	4094	48	48	48	36	1100 W AC	1 RU
WS-C3850-12X48U-E	40 Gbps	36	12	-	-	8	8	2	IP Services	•	4094	48	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	2	-	IP Base	•	4094	-	-	-	-	350 W AC	1 RU
WS-C3850-12XS-E	40 Gbps	-	-	-	12	4	2	-	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	8	2	IP Base	•	4094	-	-	-	-	715 W AC	1 RU
WS-C3850-24XS-E	40 Gbps	-	-	-	24	8	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

- Network Module for	the close cutaryst cook corres	
SKU	Description	Supported Configuration (SFP/SFP+/QSFP)
C3850-NM-4-1G	Network Module equipped with SFP module slots for 12/24/48-port models	4/0/0
C3850-NM-2-10G	Network Module equipped with SFP+ module slots for 12/24/48-port models	3/1/0, 2/2/0, 0/2/0
C3850-NM-4-10G	Network Module equipped with SFP+ module slots for 48-port 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 fiber model	0/8/0
C3850-NM-2-40G	Network Module equipped with QSFP module slots for mGig models & 24-port fiber model	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 Network Module for the Cisco Catalyst 3850 Series is required (Except for 48-port fiber model). *2 Cisco IOS IP Base/IP Services License is required. *3 For the default power supply configuration

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

■ Additional Access Point License for the Cisco 3850 Series ■ 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 State of the State of th									
SKU	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-

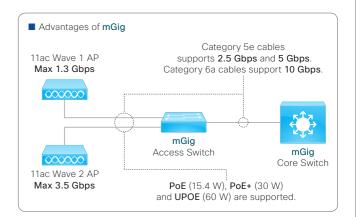
- Cable re-installation is required in many cases: Category 5e accounts for 46 % and Category 6 accounts for 28 % of the copper cables currently installed in corporations around the world, respectively. 10 GE via copper is not supported for Category 5e cables and is limited to a length of 55 meters for 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,
- 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.



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

			- 3, -1		
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 built to support Cisco ONE (Open Network Environment) (WS-X45-SUP8-E)
- Support for SDN/OpenFlow 1.3
- 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

	Slots		Supervisor	Maximum Por	ts (equipped w	vith Line Card)	Maximum	Slots for	Rack	
SKU	Supervisor Engine	Line Card	Engine Redundancy	GE	SFP	SFP+	PoE Power Supply (per slot)	Power Supply Module	Mount	
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	Throughput				Registered L3 Routes		Compatible Chassis			
	Capacity	IPv4	IPv6	SFP/SFP+	Cisco IOS	IPv4	IPv6	WS- C4503-E	WS- C4506-E	WS- C4507R+E	WS- C4510R+E
WS-X45-SUP7L-E	520 Gbps	225 Mpps	110 Mpps	4	IP Base	64K	32K	•	•	•	-
WS-X45-SUP7-E	848 Gbps	250 Mpps	125 Mpps	4	IP Base	256K	128K	•	•	•	•
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		Po	orts		PoE Out	out Ports	MAC	Power-saving	
SKU	Bandwidth	GE SFP		SFP/SFP+	mGig	PoE+	UPOE	sec	(EEE)	
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 Ou	tput Power (Redundancy Mode)	Maximum PoE Devices (Redundancy Mode)			
SKU	Type	Connectors	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 4500F Series Bundle

		Bu	ndle		Upgrade Options				
SKU	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-C4503E-S7L+48V+	WS-C4503-E	WS-X45-SUP7L-E	WS-X4648-RJ45V+E	LAN Base	C4500E-S3-UPOE	=	C4500E-3NR-8E-UPOE		
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		
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		
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	-	-		

^{*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)

Converged Access

Multiple deployment modes are supported in Cisco's wireless solutions.

Converged Access Mode is a distributed deployment mode for integrating the wired/wireless LAN networks on the Network Edge Cisco Catalyst 3650/3850 Series or the Supervisor Engine 8-E for the Cisco Catalyst 4500E Series

One advantage of the Converged Access Mode is its capability to distribute the wireless controller function (i.e. traffic) using the following two operation modes

Mobility agent (MA)

The default operation mode of the Cisco Catalyst 3650/3850 Series or the Supervisor Engine 8–E (SUP8–E) for the Cisco Catalyst 4500E Series. MA maintains the client database by constantly terminating the CAPWAP (Control And Provisioning of Wireless Access Points) tunnel from the connected access points. It is designed to deliver consistent services for wired/wireless LAN networks, including high level of QoS and security. The Cisco IOS IP Base/IP Services/Enterprise Services license is required in order to operate in this mode.

Mobility controller (MC)

In addition to the MA function, MC also manages and adjusts the entire control target (i.e. **Mobility Subdomain**) including the roaming between switch peer groups (SPG), radio resource management (RRM) and **Cisco CleanAir**. Mobility Subdomain consists of one MC and two MAs.

The Cisco IOS IP Base/IP Services/Enterprise Services license and additional access point licenses for the number of access points are required in order to operate in this mode.

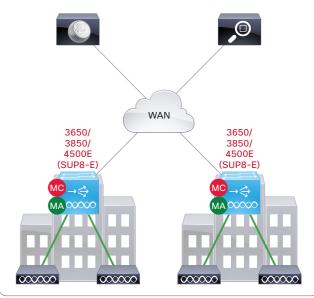
Up to 100 access points and up to 2,000 clients are supported in a small-scale deployment in which a single Cisco Catalyst 3650/3850 Series switch or Supervisor Engine 8-E for the Cisco Catalyst 4500E Series is serving as MC. Up to 200 access points and up to 4,000 clients are supported in a medium-scale deployment, in which up to two Cisco Catalyst 3650/3850 Series switches or the Supervisor Engine 8-E for the Cisco Catalyst 4500E Series is serving as MC.

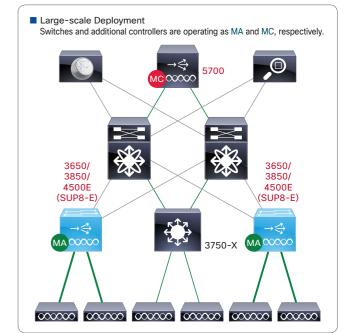
In a larger scale deployment, up to 1,200 access points and 14,000 clients can be supported by operating the Cisco Catalyst 3650/3850 Series or Supervisor Engine 8-E for the Cisco Catalyst 4500E Series as MA and additional controllers as MC. The controllers supporting the Converged Access Mode is the Cisco 5700 Series Wireless Controller.

■ Converged Access Mode Key Benefits

- Single platform for both wired and wireless deployment
- Application visibility with Flexible Netflow and Wireshark for both wired and wireless network
- Advanced security with TrustSec for both wired and wireless network
- Embedded Event Manager
- Advanced ACL functionality, including downloadable ACLs
- Advanced Cisco IOS Software-based OoS

■ Small to Medium-scale Deployment Switches are operating as MA & MC in up to two subdomains





Wireless Deployment Mode Comparison Table

	Autonomous	FlexConnect	Centralized	Converged Access	
Target	Small-scale WLAN	Base	Campus	Base/Campus	
Purchasing decision	WLAN only	WLAN only	WLAN only	LAN/WLAN	
Benefits	- Simple and cost-effective small WLAN	Expandable to a large number of remote bases Simple operation and main- tenance using host controller	Simple operation with centralized management of WLAN Visualization of WLAN traffic using controller	- Common operation for LAN. WLAN -A single enforce- ment point- Single OS (Cisco IOS) -Traffic visualized in all network layers - Performance optimized for IEEE 802.11ac	
Main considerations	- No detection of limited RRM and unauthorized access	- L2 roaming only - WAN BW and delay requirements	- System throughput	- Catalyst 3850 on the access layer	
Highest quality RF	•	•	•	•	
Centralized policies (Cisco Identity Services Engine)	•	•	•	•	
Centralized management (Cisco Prime Infrastructure)	•	•	•	•	
Failover time of less than one second	=	•	•	•	
Advanced features and high level of scalability	-	•	•	•	
Application visibility and control	-	•	•	•	
TrustSec/SGA	_	_	•	•	
LAN/WAN using a single OS	-	-	● *1	•	
Traffic visibility of the entire network	_	_	_	•	
Common policies for LAN/WLAN	=	-	-	•	

^{*1} Cisco 5700 Series Wireless Controller is required.

Cisco Catalyst 4500-X Series

L3 fixed-configuration switches equipped with SFP+ module slots. These switches deliver the same level of performance as the latest supervisor engine of the Cisco Catalyst 4500E Series, while having a 1 RU space-saving and power-thrifty design. These switches can be expanded to accommodate SFP+ module slots using optional Network Modules.

- 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

·											
CVII	SFP/SFP+		Cisco IOS	Registered L3 Routes		Multicast Routes		Ozalian Fan	Power Supply Module	Rack	
SKU	Default	Maximum		IPv4 IPv6 IPv4 IPv6		IPv6	Cooling Fan	Number of slots	Mount		
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.

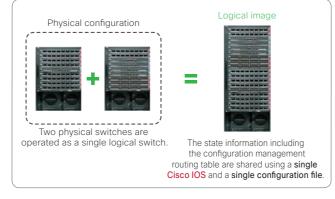
Single routing instance

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.

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

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

	Slots			Supervisor							Slots for	Rack	
SKU	IPv4 Throughput	Supervisor Engine	SE/LC	Line Card	Engine Redundancy	GE	SFP	SFP/ SFP+	10GB-T	X2/ SFP+	CFP/ QSFP	Power Supply Module	Mount
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	Equipped	Equipped	Po	rts	Cisco IOS	Registered L3 Routes		Registered
SKU	Capacity	PFC	MSFC	SFP	X2	CISCO IOS	IPv4	IPv6	NetFlow
VS-S2T-10G	2.08 Tbps	PFC4	MSFC5	3	2	IP Base	256K	128K	512K
VS-S2T-10G-XL	2.08 Tbps	PFC4XL	MSFC5	3	2	IP Base	1024K	512K	1024K

■ Line Card for the Cisco Catalyst 6500 Series & Cisco Catalyst 6807-XL

SKU	Per-slot	ot Ports						MAC	VSL	
DFC4-equipped model	DFC4XL-equipped model	Bandwidth	GE	SFP	SFP/SFP+	10GB-T	X2/SFP+	CFP/QSFP	sec	VSL
WS-X6848-TX-2T	WS-X6848-TX-2TXL	40 Gbps	48	-	-	-	-	- 1	-	-
C6800-48P-TX	C6800-48P-TX-XL	40 Gbps	48	-	-	-	-	-	-	-
WS-X6824-SFP-2T	WS-X6824-SFP-2TXL	20 Gbps	-	24	-	-	-	-	-	-
WS-X6848-SFP-2T	WS-X6848-SFP-2TXL	40 Gbps	-	48	-	-	-	-	-	-
C6800-48P-SFP	C6800-48P-SFP-XL	40 Gbps	-	48	-	-	-	-	-	-
C6800-8P10G	C6800-8P10G-XL	80 Gbps	-	-	8	-	-	2*4		
C6800-16P10G	C6800-16P10G-XL	80 Gbps	-	-	16	-	-	4*4		
C6800-32P10G	C6800-32P10G-XL	80 Gbps*1	-	-	32	-	-	8*4		
WS-X6816-10T-2T	WS-X6816-10T-2TXL	40 Gbps	-	-	-	16	-	-	-	
WS-X6908-10G-2T	WS-X6908-10G-2TXL	80 Gbps	-	-	-	-	8*2	-		
WS-X6816-10G-2T	WS-X6816-10G-2TXL	40 Gbps	-	-	-	-	16*2	-	-	
WS-X6904-40G-2T	WS-X6904-40G-2TXL	80 Gbps	-	-	-	-	16*3	4		

■ Power Supply Module for the Cisco Catalyst 6500 Series

SKU	Turno	Connectors	Maximum	Compatible Chassis							
SKU	Туре	Connectors	Output Power	WS-C6503-E	WS-C6504-E	WS-C6506-E	WS-C6509-E	WS-C6509-V-E	WS-C6513-E		
PWR-1400-AC*5	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	-	•	-	-	-	-		
WS-CDC-2500W	DC	2	2500 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	SKU	Description
WS-C6503-E-FAN	Fan Tray for WS-C6503-E	WS-C6509-E-FAN	Fan Tray for WS-C6509-E
FAN-MOD-4HS=	Fan Tray for WS-C6504-E	WS-C6509-V-E-FAN	Fan Tray for WS-C6509-V-E
WS-C6506-E-FAN	Fan Tray for WS-C6506-E	WS-C6513-E-FAN=	Fan Tray for WS-C6513-E

■ Cisco Catalyst 6500 Series Bundle

SKU			Bundle		
SKU	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-C6506E-S2T-6816	WS-C6506-E	VS-S2T-10G	WS-X6816-10G-2T x 2	WS-C6506-E-FAN	IP Services
VS-C6506E-S2T-6904	WS-C6506-E	VS-S2T-10G	WS-X6904-40G-2T x 2	WS-C6506-E-FAN	IP Services
VS-C6509E-SUP2T	WS-C6509-E	VS-S2T-10G	-	WS-C6509-E-FAN	IP Services
VS-C6509E-S2T-6816	WS-C6509-E	VS-S2T-10G	WS-X6816-10G-2T x 2	WS-C6509-E-FAN	IP Services
VS-C6509E-S2T-6904	WS-C6509-E	VS-S2T-10G	WS-X6904-40G-2T x 2	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} Cisco Catalyst 6807-XL supports 160 Gbps. *2 SFP+ Converter (CVR-X2-SFP10G) is required to mount SFP+ module.

*3 X2 module is not supported. FourX SFP+ Converter (CVR-CFP-4SFP10G) is required to mount SFP+ module.

*4 QSFP Active Optical breakout Cable (QSFP-4X10G-AOCxM) or QSFP Converter (CVR-4SFP10G-QSFP on roadmap) is required to mount QSFP module. *5 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, and the Cisco Catalyst 6800ia Series dedicated for Cisco Catalyst Instant Access.

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

	Switching	Po	rts	Maximu	m Ports	Cisco	Registered	L3 Routes	Dogistored	Slots for	Rack
SKU	Capacity	SFP/ SFP+	QSFP	SFP/ SFP+	QSFP	IOS	IPv4	IPv6	Registered NetFlow	Power Supply Module	Mount
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
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	Switching Capacity		m Ports th Line Card)	Cisco IOS	Registered	L3 Routes	Registered NetFlow	Slots for Power Supply	Rack Mount
	Port Card	Сараспу	SFP +	QSFP*3	103	IPv4	IPv6	Netriow	Module	Would
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

CVII	Per-slot SFP/SFP+		Registered L3 Routes		Multicast Routes		MAC	Compatible Chassis	
SKU Bandwidth		3FP/3FP+	IPv4	IPv6	IPv4	IPv6	sec	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 F	an Tray for the Cisco Catalyst 6880-X Series

■ Chassis for Cisco Catalyst for 6807-XL

	Slo	ots		Maxim	um Ports (equi	ipped with Lin	e Card)		Slots for	Dook
SKU	Supervisor Engine	Line Card	GE	SFP	SFP/SFP+	10GB-T	X2/ SFP+	CFP/QSFP	Power Supply Module	Rack Mount
C6807-XL	2	5	240	240	160	80	80	20/40	4	10 RU

■ Supervisor Engine for Cisco Catalyst 6807-XL

CKI	Switching Equipped Equipped Ports		rts	Cisco IOS	Registered L3 Routes		Registered		
SKU	Capacity	PFC	MSFC	SFP	X2	CISCO IUS	IPv4	IPv6	NetFlow
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

■ Power Supply Module for Cisco Catalyst for 6807-XL

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

■ Fan Tray for Cisco Catalyst for 6807-XL

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

■ Cisco Catalyst 6807-XL Bundle

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

Cisco Catalyst 6800ia Series

Oloco Catalyot Goodla oc	1103												
	Dow	nlinks	Cisco	MAC		PoE Out	out Ports		Dower	Power		Flex	Dook
SKU	GE	SFP / SFP +	IOS	sec	PoE 7.7 W	PoE 15.4 W	PoE + 30 W	UPOE 60 W	Power Supply	Redun- dancy	RPS	Stack Plus	Rack Mount
C6800IA-48TD	48	2	_*4	•	-	-	-	-	Fixed AC	-	•	•	1 RU
C6800IA-48FPD	48	2	_*4	•	48	48	24	-	Fixed AC	-	•		1 RU
C6800IA-48FPDR	48	2	_*4	•	48	48	24	-	1025 W AC	●*5		•	1 RU

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 Integrated with the Instant Access parent switch.

Power Supply Module for C6800IA-48FPDR (PWR-C2-1025WAC) is required.

Modules & Accessories

■ Cisco Redundant Power System (RPS) 2300

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

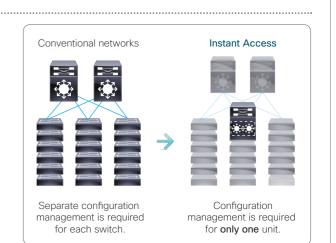
Cisco Transceiver Module

SKU	Description					Compatil	ble Serie	S			
JKO	Description	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	-	•	-	•	•	•	•	•	•	•
X2-10GB-CX4	10GBASE-CX4 X2 Module	-	-	-	-	-	-	•	-	•	•*
X2-10GB-LRM	10GBASE-LRM X2 Module	-	-	-	-	-	-	•	-	•	•*
X2-10GB-SR	10GBASE-SR X2 Module	-	-	-	-	-	-	•	-	•	•*
X2-10GB-LR	10GBASE-LR X2 Module	-	-	-	-	-	-	•	-	•	•*
X2-10GB-ER	10GBASE-ER X2 Module	-	-	-	-	-	-	•	-	•	•**
X2-10GB-ZR	10GBASE-ZR X2 Module	-	-	-	-	-	-	•	-	•	•**
CVR-X2-SFP	TwinGig Converter for X2 Module	-	-	-	-	-	-	•	-	-	-
CVR-X2-SFP10G	SFP+ Converter for X2 Module	-	-	-	-	-	-	•	-	•	•*
CFP-40G-SR4	40GBASE-SR4 CFP Module	-	-	-	-	-	-	-	-	•	•
CFP-40G-LR4	40GBASE-LR4 CFP Module	-	-	-	-	-	-	-	-	•	•*
CVR-CFP-4SFP10G	FourX SFP+ Converter for CFP Module	-	-	-	-	-	-	-	-	•	•**
CVR-QSFP-SFP10G	SFP/SFP+ Converter for QSFP Module	-	-	-	-	-	-	-	-	•	•*
CVR-4SFP10G-QSFP	QSFP Converter for SFP+ Module	-	-	-	-	-	•	•	•	•	•*

*1 LAN Lite model does not support stacking. *2 IP Lite model is not supported. *3 Cisco Catalyst 6880-Series and Cisco Catalyst 6807-XL are not supported. *4 Cisco Catalyst 6800-X and Cisco Catalyst 6800ia Series are not supported. *5 Cisco Catalyst 6800ia Series are not supported.

Cisco Catalyst Instant Access

Cisco Catalyst Instant Access is a solution that is designed to dramatically simplify network operations. The operational management points for access and core layers are combined into one for operational simplicity. This solution consists of Cisco Catalyst 6500/6800 Series core switches (Instant Access parent) and Cisco Catalyst 6800ia Series /Cisco Catalyst 3560-CX Series (WS-C3560CX-8XPD-S/WSC3560CX-12PD-S)access switches(Instant Access client). The Cisco Catalyst 6800ia Series switches connect uplink to the Cisco Catalyst 6500/6800 Series and operate as remote line card, allowing them to be treated as a single virtual switch. This enables the functions of the Cisco Catalyst 6500/6800 Series to be expanded to the access layer of the network with ease, without increasing the operation man-hours. A Supervisor Engine (VS-S2T-10G/VS-S2T-10GXL) and a Line Card (WS-X6904-40G-2T/ C6800-8P10G/C6800-16P10G/C6800-32P10G) are required when using the Cisco Catalyst 6500 Series or Cisco Catalyst 6807-XL as an Instant Access parent. And a Multi-rate Port Card (C6880-X-16P10G) is required when using the Cisco Catalyst 6880-X Series as an Instant Access parent. Deployment of the Cisco Virtual Switching System (VSS) is also necessary.



Wireless

Wireless Access Points / Controllers



New Features of Cisco Aironet 1850/1830 Series

Cisco Aironet 1850/1830 Series are Cisco's first access points that support IEEE 802.11ac Wave 2 technology. With 11ac Wave 2, Cisco Aironet 1850 Series provide a data rate of up to 1.7 Gbps on the 5 GHz radio, more than triple the rates offered by today's high-end 11n access points. And Cisco Aironet 1830 Series provide a data rate of up to 866 Mbps on the 5 GHz radio. These also enable a total aggregate dual-radio PHY data rate of 2.0 Gbps and 1.0 Gbps respectively, providing the necessary foundation for enterprise and service provider networks to stay ahead of the performance and bandwidth expectations and needs of their wireless users.

■ MU-MIMO

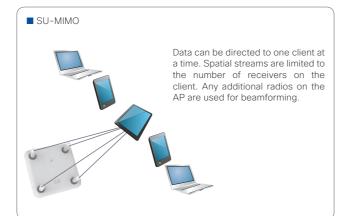
With 11n and 11ac Wave 1, a device can transmit multiple spatial streams at once, but only directed to a single address. For individually addressed frames, only a single device (or user) gets data at a time. This is referred to as SU-MIMO (Single-User Multiple Input and Multiple Output).

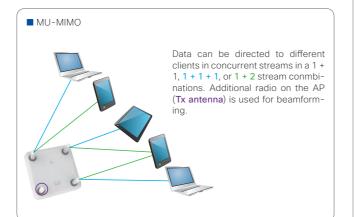
With the advent of 11ac Wave 2, a new technology is defined, called MU-MI-MO (Multi-User MIMO). Using this technology, an access point can use its antennas and radio systems to transmit to different clients, all at the same time over the same frequency spectrum. These parallel transmissions improve RF efficiency when client devices also support 11ac Wave 2.

Cisco Aironet 1850 Series support 4 \times 4 SU-MIMO with four spatial streams, and 4 \times 4 MU-MIMO with three spatial streams. Cisco Aironet 1830 Series support 3 \times 3 SU-MIMO and MU-MIMO with two spatial streams.

Link Aggregation

Many switches support links up to 1 Gbps throughput. However, with newer 11ac Wave 2 access points, it is possible (or at least the potential exists) that the access point traffic could exceed 1 Gbps. It is not likely to occur until MU-MIMO and 4 spatial stream 11 ac Wave 2 clients become more commonplace. To address this potential issue, Cisco have implemented Link Aggregation into the Cisco Aironet 1850 Series. Link Aggregation is the only method to gain higher throughput on access point that does not support multi-gigabit technologies such as NBASE-T.





Cisco Mobility Express Solution NEW-

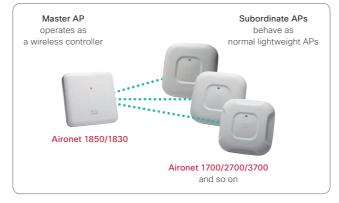
The Cisco Mobility Express Solution is specifically designed to help small and medium-sized networks easily and cost-effectively deliver enterprise-class wireless access to employees and customers.

 ${\it Cisco Mobility Express Solution is an on-premise, managed Wi-Fi solution that:}$

- 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 1850/1830 Series
- Can control other access points, such as Cisco Aironet 1700/2700/3700 Series



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.



Why Cisco?

Robust Stability

Cisco was one of the first corporations to foresee that wireless LAN would eventually either replace wired LAN or occupy the same position as wired LAN. In order for this transition to occur, high-speed communication was one of the primary requirements for wireless LAN. Cisco Wireless products are the best acheiving products on the market, with IEEE 802.11ac PHY rates of 1.7 Gbps. However, high-speed communication alone is not enough to promote the use of wireless LAN in business. In addition to providing a high level of reliability without security risks such as information leakage and data theft, it is critical that wireless LAN has the required stability to ensure that user convenience is not compromised by factors such as impaired or broken communications. Cisco has developed a wide array of technologies and solutions to address such needs. Cisco's wireless products provide unparalleled stability based on over 15+ years of development achievements.

- Stability is pursued from the hardware design phase, including the use of custom chips.
- Radio interference is avoided intelligently based on reliable information related to the "type", "location", "impact range" and "degree of impact" of the source of interference.
- Automatic calibration is performed in areas where service is unavailable. In the unlikely event of failure of a wireless access point, a neighboring wireless access point takes its place automatically.
- Performance and stability of conventional IEEE 802.11a/g/n clients are enhanced as well, not just the IEEE 802.11ac clients.
- Dual-band compatible clients are automatically guided to a clean, interference-free 5 GHz band.
- Cisco verifies the compatibility with a wide array of vendors through the Wi-Fi Alliance certification as well as proprietary certification programs.

Unparalleled Level of Visualization

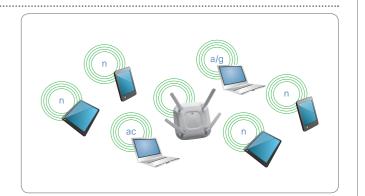
Radio waves are invisible, and this fact can often cause a nightmare for wireless LAN network administrators. Potential problems related to the radio environment may include "The communication speed is slowing down without any known cause," "Some kind of interference is occurring but its level of impact is unknown," etc. Visualization of wireless LAN is therefore one of the important trends today. Cisco's wireless access points incorporate a dedicated custom chip which functions as a measuring instrument and/or analyzer for the radio wave environment. Unlike the software-based data used in competitors' products, Cisco visualizes the radio wave intensity and type, location, impact range and degree of impact of the interference source in great precision and detail, based on highly accurate hardware-based data. The quality of the radio wave can also be visualized using this data. Visualization also includes identification of protocols and applications in the wireless LAN, making it "completely transparent" and significantly enhancing the network manageability.

Quantifying and Graphically Visualizing the Radio Wave Quality (AQ) in a Floor Map



Cisco ClientLink

In a mixed environment with low-speed clients (e.g. IEEE 802.11a/g clients) and high-speed clients (e.g. IEEE 802.11n/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 implemented on the Cisco Aironet 1570/2700/3700 Series use the third or fourth antenna of the access points to also enhance the communication performance of IEEE 802.11n-compatible clients supporting up to three data streams, including the iPhone, iPad and latest laptops. In Cisco ClientLink 3.0, the communication performance of IEEE 802.11ac-compatible clients can be enhanced without implementing special hardware or software on the client side.



Cisco CleanAir

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 CleanAir can be implemented for the following products:

- Cisco Aironet 1570/1700/2700/3700 Series: Collects data by detecting and categorizing the radio interference in wireless LAN network.
- Cisco Wireless Controller: Analyzes the collected data to identify the cause and dynamically optimizes the entire wireless LAN network.
- Cisco Mobility Service Engine (MSE): Tracks wireless LAN devices and collects the location information and the radio interference range.
- Cisco Prime Infrastructure: Visualizes the entire wireless LAN environment.

¹ Cisco Aironet 1700 Series support Cisco CleanAir Express in Cisco AireOS 8.0 or later. Cisco Aironet 1570/2700/3700 Series support the 80 MHz channel bandwidth of IEEE 802.11ac.

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. This solution already has an excellent deployment track record overseas. And in Asia Pacific positive results have been obtained in demonstration experiments conducted at events such as Interop Tokyo 2013/2014; and its commercial deployment is already in the pipeline

Cisco CMX provides the services described below

■ Offering a Variety of Analysis Methods including

Traffic Line Information and Residence Time

This function anonymously detects and traces Wi-Fi device signals to obtain, aggregate and visualize the number of Wi-Fi users and their movement for

In the Copenhagen Airport case study, for example, this function enabled analysis of the general movement route and staying area/time of travelers (i.e. Wi-Fi users) during their departure and arrival, enabling better understanding of their different behavior patterns. This has enabled optimization of personnel allocation based on crowding and adjustment of the facility layout for improved customer convenience, helping to deliver services that guarantee high levels of customer satisfaction in a cost-effective manner. This function has also facilitated effective attraction of customers through optimization of the advertisement layout, contributing to bursting the earnings of duty free shops and tenant

Customer Engagement

The ability to capture new and keep existing customers by delivering more value is essential to continued growth in all industries. Cisco CMX allows customers mobile users to connect through your onsite wireless LAN. It opens a direct channel of communication that lets you better understand and deliver what your guests want. When you more effectively engage your mobile users,

- 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 brand exposure through social media check-in and feed streaming
- Increase visitor satisfaction by helping them make decisions more aligned with their needs

■ 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
- Evaluate impact of floor plan adjustments

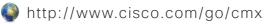
For your customers and your business, the Cisco CMX solution can deliver the right information at the right time.

Cisco CMX for Facebook Wi-Fi

Cisco has also begun a new Cisco CMX service called Cisco CMX for Facebook Wi-Fi in collaboration with Facebook. In hotels and shops that are deploying this service. Wi-Fi users can use free wireless I AN by checking in with the facility using the facility's wireless network. This solution not only improves user convenience but also offers a variety of business benefits including better

customer recognition thanks to the increased number of check-ins and marketing based on the customer information collected anonymously by Facebook.

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



Cisco Connected Stadium Wi-Fi Solutions

Proliferation of smartphones and tablet devices combined with increased usage of visual content such as photos and videos in social media networks have resulted in a sharp increase of the 3G/4G LTE network traffic. High expectations are being placed on wireless LAN to offload the increased traffic. However, wireless LAN is facing the critical challenge of ensuring high-capacity and stable connectivity in crowded locations where a large number of people access the network simultaneously, such as in sports/entertainment complexes and event venues. Cisco Connected Stadium Wi-Fi is a solution that can achieve a denser in-

stallation by reducing the coverage area of each wireless access point (Cisco Aironet 3702P) to ensure sufficient communication capacity and coverage even in a crowded stadium environment containing tens of thousands of users. This solution achieves the targeted coverage for each wireless access point using directional narrow-beam antennas and utilizes an advanced wireless resource management (RRM) system to optimize the performance of the entire network in high-density wireless LAN environments. The solution has already been adopted by a large number of corporations around the world, including the Seibu Prince

High-density and high-quality wireless LAN environments can ensure increased user satisfaction and revenue through provision of new fan-centric services, etc. For example, Seibu Prince Dome offers a dedicated service website called "Lions Wi-Fi". This service provides a new dimension of sports entertainment allowing visitors to view the player profiles in the "Player Database", check the real-time game statistics, see the gourmet guide of the Seibu Dome and view the "Lions@ YouTube" while enjoying the ball game.

■ Left: Conventional Solution

Covering a large area with one wireless access point: Limited capacity per user

Right: Cisco Connected Stadium Wi-Fi

Covering a small area with one wireless access point: Increased capacity



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 1.7 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 32 to 33 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 PoF power supplying model capable of powering surveillance cameras, and the model with built-in cable modem for utilizing the existing cable network.



See page 34 for details.



Cisco Wireless Controller

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 37 to 38 for details.



Mobility Services & Network Management Tools

Cisco Mobility 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 39 for details.



Cisco Aironet Access Points

Indoor Access Points

4 Tx / 4 Rx					11ac		11ac
Antennas					Cisco Aironet 3700 Series		Cisco Aironet 1850 Series*3
3 Tx / 4 Rx Antennas					Cisco Aironet		
					2700 Series		
3 Tx / 3 Rx Antennas				Cisco Aironet		NEW- 11ac	
				1700 Series		1830 Series*2	
2 Tx / 2 Rx Antennas			Photos Bridge				
	Cisco Aironet 600 Series*1	Cisco Aironet 700 Series	Cisco Aironet 700 W Series				
		2 streams		2 streams	3 streams	2 streams	3 streams
	1	1n, SU-MIM	0	11ac Wave	1, SU-MIMO	11ac Wave	2, MU-MIMO

■ 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 1.7 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 stylish installation without spoiling the aesthetics of the office.
- 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 35-36 for details on the Cisco Aironet Antennas).

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

- 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 1830/1850 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 2700/3700 Series, refer to page 29 for details on the technology)
- Supports Cisco OfficeExtend (Controller-based models, excluding some models)
- Supports Cisco ClientLink (excluding some models, refer to page 29 for details on the technology) • Supports Cisco BandSelect (Controller-based models, excluding some

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



1 2 Tx / 3 Rx Antennas. *2 2.4 GHz: 3 Tx / 3 Rx Antennas with 2 streams SU-MIMO. 5 GHz: 3 Tx / 3 Rx Antennas with 2 streams SU-MIMO or 2 streams MU-MIMO. *3 2.4 GHz: 3 Tx / 4 Rx Antennas with 3 streams SU-MIMO. 5 GHz: 4 Tx / 4 Rx Antennas with 4 streams SU-MIMO or 3 streams MU-MIMO.

IEEE 802.11ac

IEEE 802.11ac is the successor of IEEE 802.11n, 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 Ciscos' wireless access points, the Cisco Aironet 1700 Series, the Cisco Aironet 1570/2700/3700 Series and the Cisco Aironet 1850 Series are compatible with IEEE 802.11ac, delivering theoretical maximum throughputs of 867 Mbps, 1.3 Gbps, and 1.7 Gbps, respectively.*

Not all 11ac-compatible access points are created equal. Cisco has added Cisco High Density Experience (HDX) technology to the Cisco Aironet 1570/2700/3700 Series to handle the increased performance and density expected in these networks. Cisco HDX provides performance tuning, RF interference mitigation, spectrum monitoring, and roaming optimization for high client density networks.

■ IEEE 802.11n/ac Specification Comparison

Standard	d/Number of	The	oretical Maxir	mum Through	put
Data	Streams	20 MHz	40 MHz	80 MHz	160 MHz
	1 stream	72 Mbps	150 Mbps	-	-
IEEE	2 streams	144 Mbps	300 Mbps	-	-
802.11n	3 streams	216 Mbps	450 Mbps	-	-
	4 streams	288 Mbps	600 Mbps	-	-
	1 stream	-	200 Mbps	433 Mbps	866 Mbps
	2 streams	-	400 Mbps	866 Mbps	1733 Mbps
	3 streams	-	600 Mbps	1299 Mbps	2600 Mbps
IEEE	4 streams	-	800 Mbps	1733 Mbps	3466 Mbps
802.11ac	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

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

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

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

■ Standalone Access Points*1

Country	Australia	Brunei	China	Fiji	Hong Kong	India	Indonesia	Japan	Korea	Macau	Malaysia	Mongolia	New Zealand	Philippines	Singapore	Sri Lanka	Taiwan	Thailand	Vietnam
Х	Z	S	C, H	N	N	D, N	C, F	Q	K	С	С	E	Z	А	S	E	Т	Е	E

■ Controller-based Indoor Access Points*

Country	Australia	Brunei	China	Fiji	Hong Kong	India	Indonesia	Japan	Korea	Macau	Malaysia	Mongolia	New Zealand	Philippines	Singapore	Sri Lanka	Taiwan	Thailand	Vietnam
	N, Z	S	C, H	N	N, S	D, N	C, F	P, Q	K	С	С	E	N, Z	А	S	Е	Т	E, S	E, S

■ Controller-based Outdoor Access Points*

Country	Australia	Brunei	China	Fiji	Hong Kong	India	Indonesia	Japan	Korea	Macau	Malaysia	Mongolia	New Zealand	Philippines	Singapore	Sri Lanka	Taiwan	Thailand	Vietnam
	N, Z	-	C, H	-	N	D, N	C, F	Q	K	-	С	-	N, Z	А	S	-	Т	E	E

■ Controller-based Universal Access Points*

Country	Australia	Brunei	China	Fiji	Hong Kong	India	Indonesia	Japan	Korea	Macau	Malaysia	Mongolia	New Zealand	Philippines	Singapore	Sri Lanka	Taiwan	Thailand	Vietnam
	UX	UX	UX	UX	UX	UX	UX	UX	UX	UX	UX	-	UX	UX	UX	UX	UX	UX	UX

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 regulatory domains have been approved. As they are approved, the part numbers will be available on the Global Price List.

*T 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

SKU	Stand	Controller	Clean	Office	Client	Band		802	2.4 GHz	5 GHz	GE	PoE	Antenna
AIR-OEAP602I-x-K9	alone -	based	Air	Extend	Link -	Select	11n	11ac		•	ports 5 *1	(PD) -	Built-in
Cisco Aironet 700 Ser		0 . "	Ol	Ott	Oli I			eight x Wid 802	th x Depth):	5.08 x 17			ght: 0.48 l
SKU	Stand alone	Controller based	Clean Air	Office Extend	Client Link	Band Select	11n	11ac	2.4 GHz	5 GHz	GE ports	PoE (PD)	Antenna
AIR-SAP702I-x-K9	•	-	-	-	-	•		-	•	•	1	*2	Built-in
AIR-CAP702I-x-K9	-		-	-	-			-			1	•*2	Built-in
Cisco Aironet 700W S	eries					Dime	nsions (He	eight x Wid	th x Depth):	4.06 x 15	.24 x 10.16	cm Weig	ht: 0.39
SKU	Stand	Controller	Clean	Office	Client	Band		802	2.4 GHz	5 GHz	GE	PoE	Antenna
	alone	based	Air	Extend	Link	Select	11n	11ac	Z.+ GITIZ		ports	(PD)	
AIR-CAP702W-x-K9	_*3	•	-	-	-	•	•	-		•	5 *1	•*2	Built-in
Cisco Aironet 1700 Se							_ `	0	lth x Depth)	: 5.05 x 22			ght:1.00
SKU	Stand	Controller	Clean Air	Office Extend	Client	Band Select		802	2.4 GHz	5 GHz	GE	PoE (PD)	Antenna
AIR-CAP1702I-x-K9	alone _*3	based	All *5	Exterio	Link	Select	11n	11ac			ports 2 *6	(PD)	Built-ir
AIR-CAP 1/021-X-K9			_										Bullt-II
Cisco Aironet 1830 Se					* "			0	th x Depth):	5.08 x 21		_	ght: 1.42
SKU	ME Master	Controller	Clean Air	Office Extend	Client Link	Band Select	11n	802 11ac	2.4 GHz	5 GHz	GE ports	PoE (PD)	Antenn
AIR-AP1832I-x-K9C	•*7	-	-	-	-	•	•	•	•	•	1	● *2 *8	Built-ir
AIR-AP1832I-UXK9C	•*7	-	-	-	-	•	•	•	•		1	● *2 *8	Built-ir
AIR-AP1832I-x-K9	- *3	•	-	-	-	•	•	•	•	•	1	● *2 *8	Built-ir
AIR-AP1832I-UXK9	_ *3		-	-	-						1	● *2 *8	Built-in
Cisco Aironet 1850 Se	eries					Dime		Ü	th x Depth):	5.08 x 21	.08 x 21.08	cm Weig	ght: 1.42
SKU	ME Master	Controller based	Clean Air	Office Extend	Client Link	Band Select		802	2.4 GHz	5 GHz	GE ports	PoE (PD)	Antenna
AIR-AP1852I-x-K9C NEW	*7	Daseu	All -	- Exterio	LIIIK	Select	11n	11ac		•	2 *6	(PD)	Built-in
AIR-AP1852E-x-K9C NEW	*7	_	-	_	_						2 *6	*2	Externa
AIR-AP1852I-UXK9C NEW	● *7	-	-	-	-		•	ě		•	2 *6	● *2 *9	Built-ir
AIR-AP1852E-UXK9CNEW	•*7	-	-	-	-	•	•	•	•		2 *6	● *2 *9	Externa
AIR-AP1852I-x-K9	- *3	•	-	-	-	•	•	•	•		2 *6	● *2 *9	Built-ir
AIR-AP1852E-x-K9	_ *3	•	-	-	-				•		2 *6	● *2 *9	Externa
AIR-AP1852I-UXK9	- *3 - *3	•	-	-	-	•	•	•	•	•	2 *6	*9	Built-ir
AIR-AP1852E-UXK9	- °		-	-	-						2 *6	● *2 *9	Externa
						Dime		0	th x Depth):	5.05 x 22	.07 x 22.07	cm Weig	ght: 1.00
Cisco Aironet 2700 Se	eries		Clean	Office Extend	Client Link	Band Select	IEEE 11n	11ac	2.4 GHz	5 GHz	GE ports	PoE (PD)	Antenn
	Stand alone	Controller	Air					I Ido			2 *6	*2 *10	Built-ir
SKU	Stand			Exteriu	•		_						
SKU AIR-CAP2702I-x-K9	Stand alone	based	Air		•	•					2 *6	*10 *10	
SKU AIR-CAP2702I-x-K9 AIR-CAP2702E-x-K9	Stand alone =*3 =*3	based	Air		_		•		th v Donth):		2 *6	*2 *10	Externa
SKU AIR-CAP2702I-x-K9 AIR-CAP2702E-x-K9 I Cisco Aironet 3700 Se	Stand alone =*3 =*3	based	Air		_		nsions (He		th x Depth):	5.36 x 22	2 *6	●*10) cm Weig PoE	Externa ght: 1.13
SKU AIR-CAP2702I-x-K9 AIR-CAP2702E-x-K9 Cisco Aironet 3700 Se SKU	Stand alone -*3 -*3 eries Stand alone	based	Air	•	•	Dime Band Select	nsions (He	eight x Wid	th x Depth):		2 *6 .10 x 22.10	PoE (PD)	Externa
Cisco Aironet 2700 Se SKU AIR-CAP2702I-x-K9 AIR-CAP2702E-x-K9 Cisco Aironet 3700 Se SKU AIR-CAP3702I-x-K9	Stand alone -*3 -*3 eries Stand alone -*3	based	Air Clean Air	Office	Client	Dime Band	nsions (He	eight x Wid 802 11ac		5.36 x 22	.10 x 22.10 GE ports	PoE (PD)	Externa ght: 1.13 Antenna Built-in
SKU AIR-CAP2702I-x-K9 AIR-CAP2702E-x-K9 Cisco Aironet 3700 Se	Stand alone -*3 -*3 eries Stand alone	based Controller based	Air Clean Air	Office Extend	Client	Dime Band Select	nsions (He	eight x Wid 802 11ac	2.4 GHz	5.36 x 22 5 GHz	2 *6 .10 x 22.10 GE ports	PoE (PD)	Externa

- 1. A dedicated WAN port is included. *2 The Cisco Aironet Power Supply Option is required when not using PoE receiving (Refer to page 36 for details). *3 Migration to the standalone model is supported via softw *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 Supported in Cisco Mobility Express software. *8 Full features are supported when powered via PoE+, AIR-PWRINJ4= or AIR-PWR-C=. (If PoE is the source of power, the USB port is disabled).

AIR-RM3010L-UXK9 An expansion module that provides Cisco Hyperlocation Solution and advanced security

*9 Full features are supported when powered via PoE+, AIR-PWRINJ4= or AIR-PWR-C-. (If FoE is the source of power, the Cisco Aironet 1852E 2.4-GHz radio will shift to 2 x 3 from 3 x 4, and the AUX and USB port are disabled).
*10 Full features are supported when powered via PoE+, AIR-PWRINJ4= or AIR-PWR-B=.

■ Hyperlocation Module with Advanced Security for the Cisco Aironet 3700 Series

(If PoE is the source of power, the Cisco Aironet 2702 2.4/5-GHz radios will shift to 3 x 3 from 3 x 4, the Cisco Aironet 3702 2.4/5-GHz radios will shift to 3 x 3 from 4 x 4).

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 and Cisco Aironet 1572IC4 have a polished exterior design that blends into the surrounding environ-
- External antenna models: A wide selection of antennas are available for Cisco Aironet 1532E and Cisco Aironet 1572EAC/EC to suit different installation environments (Refer to page 35-36 for details on the Cisco Aironet
- Built-in cable modem models: Cisco Aironet 1572IC incorporate a cable modem that is compatible with DOCSIS 3.0, an international standard for communication services via coaxial cables used for cable television, etc.

- IEC IP67 waterproof (All models)
- NEMA Type 4X certified outdoor dust/rust resistance (Cisco Aironet 1570 Series)
- Designed for hazardous environments, certified Class 1 Div2/Zone2 enclosure (All models)
- Supports GPS (Cisco Aironet 1570 Series) *1
- IEEE 802.11n compatible (All models)
- IEEE 802.11ac compatible (Cisco Aironet 1570 Series)
- Supports 2.4 GHz/5 GHz dual-band (All models)
- Supports 5.6 GHz (W56) frequency band (All models)
- Supports Cisco CleanAir (Cisco Aironet 1570 Series, Refer to page 29 for details on the technology)
- Supports ClientLink (Cisco Aironet 1570 Series, Refer to page 29 for details on the technology)

 • Supports Cisco BandSelect (All models, for wired connection)
- Supports Cisco High Density Experience (HDX) (Cisco Aironet 1570 Series)





Cisco Aironet 1532I



Cisco Aironet 1572IC

CISCO AITORIEL	13/ZEAU

Model Name	Dimensions (Height x Width x Depth)	Maximum Weight
Cisco Aironet 1532I	10.16 x 17.78 x 22.86 cm	2.27 kg
Cisco Aironet 1532E	10.16 x 17.78 x 25.40 cm	2.49 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

	Clean	ClientLink		Band	Ports			Power Supply Options						Antennas			
SKU	Air	2.0	3.0	Select	GE	SFP	Cable	AC	DC	PoE (PSE)	PoE (PD)	UPOE (PD)	PoC (PD)	Built-in Dual-band	External Dual-band	External Single-band	
AIR-CAP1532I-x-K9	-	-	-	•	2	-	-	-	•	-	-	•	-	3*2	-	-	
AIR-CAP1532E-x-K9	-	-	-		2	-	-	-		-		-	-	-	2	2 + 2	

Cisco Aironet 1570 Series

	Clean	ClientLink				Ports		Power Supply Options						Antennas			
SKU	Air	2.0	3.0	Band Select	GE	SFP	Cable	AC	DC	PoE (PSE)	PoE (PD)	UPOE (PD)	PoC (PD)	Built-in Dual-band	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	

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

Oloco Allonci Dual Dana Direct	ional Antonna	
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

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.

Cisco Wireless Controller

Wireless Controller

Appliance/ Virtual Machine Cisco 2500 Series



Wireless Controller



Wireless Controller





Cisco 5500 Series Wireless Controller

Cisco 8500 Series Wireless Controller

Cisco Wireless Services Module 2 (WiSM2)

1 Gbps

Number of Access Points

→ More

■ Cisco Wireless Controller

Module

Cisco Wireless Controller is a platform that enables controller-based management of

is adopted for the number of managed Cisco Aironet 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.

AIR-CT2504-50-K9

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

50

75

■ 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 AIR-CT2504-5-K9 AireOS 5 75 1,000 500 1 Gbps AIR-CT2504-15-K9 AireOS 4 1 000 500 1 Gbps 15 75 AIR-CT2504-25-K9 AireOS 25 75 1,000 500 1 Gbps

500

1,000

■ Cisco Virtual Wireless Controller

AireOS

SKU	os	Managed A	ccess Points	Clients	RF tags	Throughout	Office	Wireless		Ports		Rack
SKU	03	Default	Maximum	Ciletits	Kr lays	Throughput	Extend	Mesh	GE	SFP	SFP +	mount
L-AIR-CTVM-5-K9	AireOS	5	200	3,000	3,000	500 Mbps	•	-	-	-	-	-

■ Cisco 5700 Series Wireless Controller

SKU	os	Managed A	ccess Points	Clients	DE togo	Throughput	Office	Wireless		Ports		Rack
SKU	05	Default	Maximum	Ciletits	RF tags	Throughput	Extend	Mesh	GE	SFP	SFP +	mount
AIR-CT5760-25-K9	IOS-XE	25	1,000	12,000	1,000	60 Gbps	-	-	-	-	6	1 RU
AIR-CT5760-50-K9	IOS-XE	50	1,000	12,000	1,000	60 Gbps	-	-	-	-	6	1 RU
AIR-CT5760-100-K9	IOS-XE	100	1,000	12,000	1,000	60 Gbps	-	-	-	-	6	1 RU
AIR-CT5760-250-K9	IOS-XE	250	1,000	12,000	1,000	60 Gbps	-	-	-	-	6	1 RU
AIR-CT5760-500-K9	IOS-XE	500	1,000	12,000	1,000	60 Gbps	-	-	-	-	6	1 RU
AIR-CT5760-1K-K9	IOS-XE	1,000	1,000	12,000	1,000	60 Gbps	-	-	-	-	6	1 RU

■ Cisco Wireless Services Module 2 (WiSM2)

SKU	os	Managed Access Points		Clients	DE togo	Throughput	Office	Wireless	Ports			Rack	
	SKU	05	Default	Maximum	Ciletits	RF tags	Throughput	Extend	Mesh	GE	SFP	SFP +	mount
	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	Office	Wireless		Ports		Rack
SKU	03	Default	Maximum	Cilents	ts RF tags Throughput		Extend		GE	SFP	SFP +	mount
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 A	ccess Points		DE topo	RF tags Throughput	Office	Wireless		Ports		Rack
SKU	03	Default	Maximum	Ciletits	RF lags	Throughput	Extend	Mesh	GE	SFP	SFP +	mount
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} Rack Mounting Brackets (AIR-CT2504-RMNT) is required.

Cisco Aironet 2.4 GHz Om	Cisco Aironet 2.4 GHz Omni-directional Antenna Model Compatibility Comparison								
SKU	Gair	(dBi)							
SKU	2.4 GHz	5 GHz	1852E	2702E	3702E	3702P	1532E	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)						
SKU	2.4 GHz	5 GHz	1852E	2702E	3702E	3702P	1532E	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

CVII	Gain	(dBi)						
SKU	2.4 GHz	5 GHz	1852E	2702E	3702E	3702P	1532E	1572E
AIR-ANT2413P2M-N	13.0	-	-	-	-	-	•	•

■ Cisco Aironet 5 GHz Directional Antenna Model Compatibility Comparison

CNII	Gain	Gain (dBi)						
SKU	2.4 GHz	5 GHz	1852E	2702E	3702E	3702P	1532E	1572E
AIR-ANT5114P2M-N	-	14.0	-	=	-	=	•	•

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

SKU	Gain (dBi)							
JKU	2.4 GHz	5 GHz	1852E	2702E	3702E	3702P	1532E	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)							
SKU	2.4 GHz	5 GHz	1852E	2702E	3702E	3702P	1532E	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)							
SKU	2.4 GHz	5 GHz	1852E	2702E	3702E	3702P	1532E	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									
SKU	Description	700	700W	1830	1850	1700	2700	3700	1530	1570	
AIR-PWRINJ4=	Power Injector	•	•	•	•	•	•	•	-	-	
AIR-PWRINJ5=	Power Injector	•	•	●*1	●*2	•	●*3	-	-	-	
AIR-PWRINJ-30=	Power Injector	-	-	-	-	-	-	-	•	-	
AIR-PWRINJ1500-2=	Power Injector	-	-	-	-	-	-	-	•	●*4	
AIR-PWR-B=	Power Supply Module	•	-	-	-	•	•	•	-	-	
AIR-PWR-C=	Power Supply Module	-	•	•	•	-	-	-	-		
AIR-PWRADPT2-1530=	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). (If PoE is the source of power, the USB port is disabled).

*2 Full features are supported when powered via PoE+, AIR-PWRINJ4= or AIR-PWR-C= (The AIR-PWRINJ5 supports PoE receiving only).

(If PoE is the source of power, the Cisco Aironet 1852E 2.4-GHz radio will shift to 2 x 3 from 3 x 4, and the AUX and USB port are disabled).

*3 Full features are supported when powered via PoE+, AIR-PWRINJ4= or AIR-PWR-B= (The AIR-PWRINJ5 supports PoE receiving only).

(If PoE is the source of power, the Cisco Aironet 2702 2.4/5-GHz radios will shift to 3 x 3 from 3 x 4).

*4 Cisco Aironet 1572IC4 is not supported.

L-LIC-CTVM-1A

■ Additional Access Point License for Cisco 2500 Series Wireless Controller

L-LIC-CTVM-25A Additional Access Point License for Cisco 5700 Series Wireless Controller

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

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 *5

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* L-LIC-CT8500-100A 100 L-LIC-CT8500-500A

500 L-LIC-CT8500-1000A 1,000

*1 L-LIC-CT2504-UPG is required. *2 L-LIC-CTVM-UPG is required. *3 L-LIC-CT5760-UPG is required. *4 L-LIC-WISM2-UPG is required. *5 L-LIC-CT5508-UPG or L-LIC-CT5540-UPG is required. *6 L-LIC-CT8500-UPG or L-LIC-CT8540-UPG is required.

Cisco Wireless Controller Software

Unlike traditional products, the Cisco 5700 Series Wireless Controllers (and the Cisco Catalyst 3650/3850 Series and the Supervisor Engine 8-E for Cisco Catalyst 4500E Series) incorporate the Cisco IOS XE based wireless

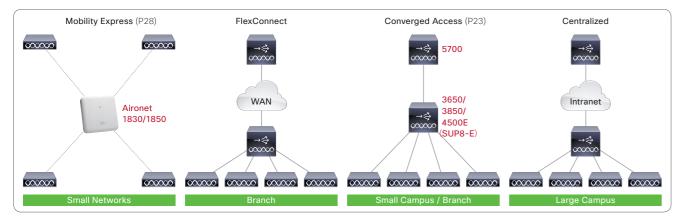
controller software. Rich features of the Cisco IOS including Flexible NetFlow, advanced QoS and dACL (downloadable Access Control List) can be provided for wireless LAN networks as well.

■ 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						
Flation	Mobility Express	FlexConnect	Converged Access	Centralized	Mesh	OfficeExtend	
Cisco Aironet 1830/1850 Series Access Points	•	-	-	•	-	-	
Cisco 2500 Series Wireless Controller	-	•	-	•	•	•	
Cisco Virtual Wireless Controller	-	•	-	-	-	-	
Cisco 5500 Series Wireless Controller	-	•	●*1 *2	•	•	•	
Cisco 5700 Series Wireless Controller	-	-	•	•	-	-	
Cisco Wireless Services Module 2 (WiSM2)	-	•	●*1 *2	•	•	•	
Cisco 8500 Series Wireless Controller	-	•	-	•	•	•	

¹ Cisco Wireless Controller Software release 7.3.112.0 is required. *2 Cisco AireOS 8.1 and higher are not supported

Mobility Services & Network Management Tools

Cisco Mobility Service Engine (MSE)

Cisco Mobility Service 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.

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

■ Cisco Mobility Services Engine (MSE)

		Managed Access Points			
SKU	Description	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	5,000	10,000		

Cisco CMX Base License

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

■ Cisco CMX Advanced License

SKU	Cunnerted Assess Daints	
MSE 8.0*1	CMX 10.x*2	Supported Access Points
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 Monitor Mode License

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

■ Cisco wIPS Enhanced Local Mode License

SKU		Supported Access Boints		
MSE 8.0 ^{*1} CMX 10.x ^{*2}		Supported Access Points		
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

KU	Description
-PI30-SW-K9	Prime Infrastructure 3.0 Software
-MGMT3X-PI-BASE	Base License

High Availability License

■ Cisco Prime Infrastructure 3.x Lifecycle & Assurance License*3 NEW

■ Cisco Prime Infrastructure 3.x High Availability License*3 ■ NEW

L-MGMT3X-HA

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

THE RESERVE Auto Refresh 2 ISI II

Managed Devices	QTY
Cisco ASR 1000 Series	1
Cisco Aironet Access Point	1
Cisco Nexus 2000 Series Fabric Extender (FEX)	1
Cisco Nexus 3000 Series	1
Cisco Nexus 5000 Series	1
Cisco Nexus 6000 Series	1
Cisco Nexus 7000 Series	1
Cisco Nexus 9300 Series	1
Cisco Nexus 9000 Series	1
	Cisco ASR 1000 Series Cisco Aironet Access Point Cisco Nexus 2000 Series Fabric Extender (FEX) Cisco Nexus 3000 Series Cisco Nexus 5000 Series Cisco Nexus 6000 Series Cisco Nexus 7000 Series Cisco Nexus 7000 Series Cisco Nexus 9300 Series

L-MGMT3X-ISR4-K9 Cisco ISR 4000 Series

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

Routers

(Firewall/IPS/VPN)

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Integrated Services Routers

Line-up of Cisco ISR

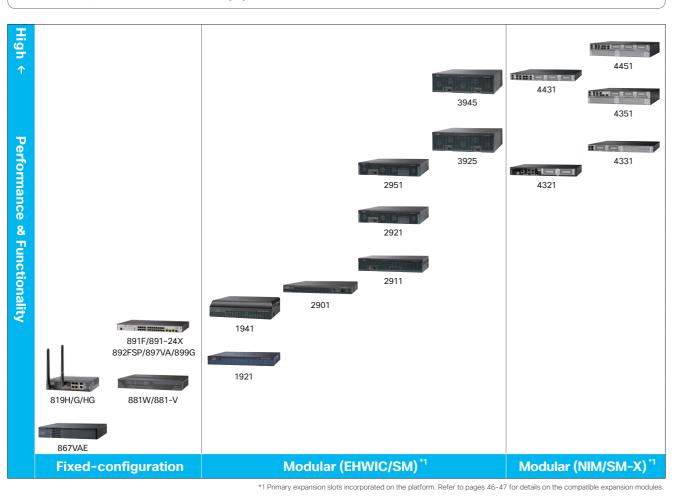
Previously, even the small-scale bases were required to install a wide range of devices including switches, wireless access points and WAN optimization appliances. Cisco Integrated Services Routers (ISR) are "super routers" that are capable of integrating the network services provided by these multiple devices into a single platform. These routers are not only capable of integrating

(Call Control/Messaging)

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.

into a single unit!





Cisco ISR 800 Series

Fixed-configuration second-generation integrated services routers suitable for deployment in small-sized bases, home offices and Machine-to-Machine (M2M) environments.

See page 42 for details.

Cisco ISR 1900/2900/3900 Series

Modular second-generation integrated services routers suitable for deployment in small- to large-sized bases.

See page 43 for details.

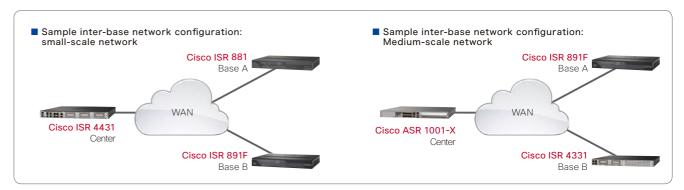
Cisco ISR 4000 Series Modular second-generation integrated services routers suitable for deployment in bases that require a provision of application-aware services.

See page 44 for details.

Selection of Cisco ISR

Routers with higher performance and expandability should be selected for traffic-intensive data centers than the bases. Cisco ISR not only allows selection of bundle models according to the services required at the data centers or bases,

but also respond flexibly to changes in the business needs by means of license activation of Cisco IOS technologies and addition of expansion modules.



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 virtualization 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. The WAN and application optimization services of the Cisco ISR 4000 Series include Cisco Application Visibility and Control (AVC), allowing IT to assess capacity planning; and Cisco Performance Routing Version 3 (PfR v3), which automatically sends traffic across the best connection for current network conditions. Not only does this architecture allow a branch office to run the network with a single box, it also allows use of that box to converge network, computing, and storage resources in the same platform. The virtualization technology available both embedded 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
	Maximum throughput	Up to 50 Mbps	Up to 350 Mbps	Up to 2 Gbps	4 to 10 times performance increase for the sam price as the ISR G2
	Separate data, control, and services planes	-	-	•	Minimal performance impact as network service are added and throughput increases
	Integrated service container	-	-	•	No need for additional branch appliances; ac network services using pluggable virtual machine
Scale with high performance	Integrated compute with Cisco UCS E-Series Servers	-	•	•	Local compute resources for applications, da backup, and analytics
	Cisco IOS XE Operating System	-	-	•	Higher availability for network services with multiple core processing
0.0	Cisco Application Visibility and Control (AVC)	-	•	•	Visibility into 1000+ applications for capacity planing and prioritization
	Intelligent path selection (PfR v3)	-	•	•	Improve application experience and lower coswith path selection using real-time analytics
Uncompromised user experience	WAN optimization (WAAS and Akamai)	-	•	•	Improve application performance and offload Wavith Layer 4–7 optimization and intelligent cachin
\cap	Sourcefire Intrusion Detection System (IDS)	-	•	•	Industry-leading advanced threat defense
	Cloud Web Security with Advanced Malware Protection (AMP)	-	•	•	Scale secure direct Internet access with constent policy enforcement
Security	Multicore hardware VPN acceleration	-	-	•	High-performance encryption for secure WAN
菜	Pay-as-you-grow performance and services	-	-	•	Ability to buy what you need today and upgra anytime without complete equipment upgrades
(8)	Cisco ONE Software Suites	-	•	•	Predictable OpEx spend, license portability, a investment protection
Reduced costs and increased business agility	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 bases, 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 WAN optimization can be integrated using a single router unit.

- Equipped with Cisco IOS Universal Image (Compatible with IP Base/Advanced Security/Advanced IP Services)
- Built-in managed switch
- Built-in IEEE 802.11n-compatible wireless access point (C881W-x-K9)
- Supports 4G LTE wireless WAN (C819G-4G-GA-K9/C819HG-4G-G-K9/C899G-LTE-GA-K9)



Cisco ISR 800 Series (1 of 2)

SKU	Description	Dimensions (Height x Width x Depth)	Maximum Weight
C819H-K9	Cisco 819H Integrated Services Router M2M Hardened Model	4.39 x 19.56 x 20.57 cm	1.45 kg
C819G-4G-GA-K9	Cisco 819G Integrated Services Router 4G LTE 2.0 Wireless WAN M2M Model	4.24 x 19.56 x 18.29 cm	1.04 kg
C819HG-4G-G-K9	Cisco 819HG Integrated Services Router 4G LTE Wireless WAN M2M Hardened Model	4.39 x 19.56 x 20.57 cm	1.45 kg
CISCO867VAE	Cisco 867VAE Integrated Services Router IP Base Model	4.45 x 24.13 x 22.86 cm	2.49 kg
CISCO867VAE-K9	Cisco 867VAE Integrated Services Router Advanced Security Model	3.85 x 20.90 x 19.80 cm	2.49 kg
C881W-x-K9 *1	Cisco 881W Integrated Services Router Wireless Model	4.82 x 32.51 x 26.42 cm	2.49 kg
C881-V-K9	Cisco 881-V Integrated Services Router	4.82 x 32.51 x 24.89 cm	2.49 kg
C891F-K9	Cisco 891F Integrated Services Router	4.62 x 32.28 x 24.84 cm	2.49 kg
C891-24X/K9	Cisco 891-24X Integrated Services Router	4.62 x 43.82 x 30.48 cm	2.49 kg
C892FSP-K9	Cisco 892FSP Integrated Services Router	4.62 x 32.28 x 24.84 cm	2.49 kg
C897VA-K9	Cisco 897VA Integrated Services Router	4.62 x 32.28 x 24.84 cm	2.49 kg
C899G-LTE-GA-K9	Cisco 899G Integrated Services Router 4G LTE 2.0 Wireless WAN Model	4.82 x 32.51 x 26.42 cm	2.58 kg

Cisco ISR 800 Series (2 of 2)

		Downlir	nk Ports			Uplink	Ports			Speedup	Wire	eless		Security		Voice	Rack
SKU	Cisco IOS	FE	GE	FE	GE	GE/SFP	ISDN	xDSL	Voice	WAASX	AP	4G LTE	FW	IPS	VPN	GW Call Control MSG	mount
C819H-K9	Advanced IP Services	4	-	-	1	-	-	-	-	•	-	-	•	•	•	-	_*7
C819G-4G-GA-K9	Advanced IP Services	4	-	-	1	-	-	-	-	•	-	•	•	•	•	-	_*7
C819HG-4G-G-K9	Advanced IP Services	4	-	-	1	-	-	-	-	•	-	•	•	•	•	-	_*7
CISCO867VAE	IP Base	4	-	-	1	-	-	1*2	-	-	-	-	-	-	-	-	-
CISCO867VAE-K9	Advanced Security	4	1	-	1	-	-	1*2	-	-	-	-	•	-	•	-	-
C881W-x-K9	Advanced Security	4	-	1	-	-	-	-	-	-	•	-	•	_*5	•	-	-
C881-V-K9	Advanced IP Services	4	-	1	-	-	-	-	7*3	-	-	-	•	•	•	●*6	-
C891F-K9	Advanced IP Services	-	8	1	-	1	1	-	-	●*4	-	-	•	•	•	-	_*8
C891-24X/K9	Advanced IP Services	-	24	-	-	2	-	-	-	-	-	-	•	•	•	-	_*9
C892FSP-K9	Advanced IP Services	-	8	-	1	1	-	-	-	●*4	-	-	•	•	•	-	_*8
C897VA-K9	Advanced IP Services	-	8	-	1	-	1	1*2	-	●*4	-	-	•	•	•	-	_*8
C899G-LTE-GA-K9	Advanced IP Services	-	8	-	1	1	-	-	-	●*4	-	•	•	•	•	-	_*8

*1 If "x" is "A", A domain for FCC, and if "x" is "E, E domain for ETSI. *2 Annex M is not supported. *3 BRI x 2, FXS x 4, FXO x 1. *4 Feature Licenses are required. *5 Cisco IOS Advanced IP Services License is required *6 Call Control and Messaging (MSG) are not supported. *7 DIN Rail Mount and Floor/Wall Mount are supported (Optional). *8 ACS-890-RM-19 is required. *9 ACS-2901-RM-19 is required.

Machine-to-Machine (M2M)

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 be-

Machine-to-Machine (M2M) is a technology that aggregates the intercommunicative en -23 and +60 deg C and in up to 95% humidity and have superior vibration tions between machines without human intervention. This technology is already and impact resistance to withstand industrial use. A wide variety of mounting options are supported including DIN rail, floor and wall mounting.



Cisco ISR 1900/2900/3900 Series

Modular Integrated Services Routers suitable for deployment in small- to largesized bases. 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.

- Equipped with Cisco IOS Universal Image (Compatible with IP Base/SEC/UC/APP)
- Field replaceable Cisco Services Performance Engine (SPE) motherboard (Cisco ISR 3900 Series)
- Equipped with multi-core CPU and large-capacity memory
- Various network services are integrated via Expansion Modules (EHWIC/SM slots)
- Supports the Cisco UCS E Series Server
- Built-in IEEE 802.11n-compatible wireless access point (CISCO1941W-x/K9)

Cisco ISR 1900/2900/3900 Series Bundles Comparison

	•					
Bundles	Characters		Bur	ndled Licenses/Modu	ıles	
Duffules	Included in SKU	IOS SEC	IOS UC	IOS APP	CME/SRST	PVDM3
Security Bundles	SEC	•	-	-	=	-
Voice and Video Bundles	V	-	•	-	-	•
CME-SRST Bundles	CME-SRST	-	•	-	•	•
Voice and Video Security Bundles	VSEC	•	•	-	-	•
Application Experience Bundles	AX	•	-	•	_	-

Cisco ISR 1900 Series

		E	xpansi	on Slot	S			Ports			Speedup	1	Vireles	S		Securit	У	Voice	
SKU	Cisco IOS	EHWIC	ISM	SM	PVDM	FE	GE	ISDN Backup	xDSL	Voice	WAAS		WLC		FW	IPS	VPN	GW Call Control MSG	Rack mount
CISCO1921/K9	IP Base	2	-	-	-	_*1	2	_*1	_*1	-	-	-	-	_*1	_*3	_*3	_*3	-	_*4
CISCO1921-SEC/K9	IP Base + SEC	2	-	-	-	_*1	2	_*1	_*1	-	-	-	-	_*1	•	•	•	-	_*4
C1921-AX/K9	IP Base + SEC + APP	2	-	-	-	_*1	2	-*1	-*1	-	•	-	-	-*1	•	•	•	-	_*4
CISCO1941/K9	IP Base	2	1	-	-	_*1	2	_*1	_*1	-	_*2	-	_*1	_*1	_*3	_*3	_*3	-	•
CISCO1941W-x/K9	IP Base	2	-	-	-	_*1	2	_*1	_*1	-	_*2	•	-	_*1	_*3	_*3	_*3	-	•
CISCO1941-SEC/K9	IP Base + SEC	2	1	-	-	_*1	2	-*1	_*1	-	_*2	-	_*1	_*1	•	•	•	-	•
C1941-AX/K9	IP Base + SEC + APP	2	1	-	-	_*1	2	_*1	_*1	-	•	-	_*1	_*1	•	•	•	-	•

Cisco ISR 2900 Series

		E	xpansi	on Slot	S			Ports			Speedup	١	Vireles	s	:	Securit	y	Voice	
SKU	Cisco IOS	EHWIC	ISM	SM	PVDM	FE		ISDN Backup	xDSL	Voice	WAAS	AP	WLC		FW	IPS	VPN	GW Call Control MSG	Rack mount
CISCO2901/K9	IP Base	4	1	-	2	_*1	2	-*1	_*1	-*1	_*2	-	_*1	_*1	_*3	_*3	_*3	-*7	•
CISCO2901-SEC/K9	IP Base + SEC	4	1	-	2	_*1	2	_*1	_*1	_*1	_*2	-	_*1	_*1	•	•	•	_*7	•
C2901-AX/K9	IP Base + SEC + APP	4	1	-	2	_*1	2	_*1	_*1	_*1	•	-	_*1	_*1	•	•	•	-*7	•
CISCO2911/K9	IP Base	4	1	1	2	_*1	3	_*1	_*1	_*1	_*6	-	_*1	_*1	_*3	_*3	_*3	-*7	•
CISCO2911-SEC/K9	IP Base + SEC	4	1	1	2	_*1	3	_*1	_*1	_*1	_*6	-	_*1	_*1	•	•	•	-*7	•
C2911-AX/K9	IP Base + SEC + APP	4	1	1	2	_*1	3	_*1	_*1	_*1		-	_*1	_*1	•	•	•	_*7	•
CISCO2921/K9	IP Base	4	1	1	3	-*1	4*5	_*1	_*1	_*1	_*6	-	_*1	_*1	-*3	-*3	_*3	-*7	•
CISCO2921-SEC/K9	IP Base + SEC	4	1	1	3	_*1	4*5	_*1	_*1	_*1	_*6	-	_*1	_*1	•	•	•	-*7	•
C2921-AX/K9	IP Base + SEC + APP	4	1	1	3	_*1	4*5	_*1	_*1	_*1	•	-	_*1	_*1	•	•	•	_*7	•
CISCO2951/K9	IP Base	4	1	2	3	_*1	4*5	_*1	_*1	_*1	_*6	-	_*1	_*1	_*3	_*3	_*3	_*7	•
CISCO2951-SEC/K9	IP Base + SEC	4	1	2	3	-*1	4*5	_*1	_*1	_*1	_*6	-	_*1	_*1	•	•	•	-*7	•
C2951-AX/K9	IP Base + SEC + APP	4	1	2	3	_*1	4*5	_*1	_*1	_*1	•	-	_*1	_*1	•	•	•	-*7	•

Cisco ISR 3900 Series

		E	xpansi	on Slot	S			Ports			Speedup	١	Vireles	S		Securit	y	Voice	
SKU	Cisco IOS	EHWIC	ISM	SM	PVDM	FE		ISDN Backup	xDSL	Voice	WAAS	AP	WLC	4G	FW	IPS	VPN	GW Call Control MSG	Rack mount
CISCO3925/K9	IP Base	4	1	2	4	-*1	4*5	_*1	_*1	_*1	_*6	-	_*1	-*1	-*3	_*3	-*3	-*7	•
CISCO3925-SEC/K9	IP Base + SEC	4	1	2	4	_*1	4*5	_*1	_*1	_*1	_*6	-	_*1	_*1	•	•	•	_*7	
C3925-AX/K9	IP Base + SEC + APP	4	1	2	4	_*1	4*5	_*1	_*1	_*1	•	-	_*1	_*1	•	•	•	-*7	•
CISCO3945/K9	IP Base	4	1	4	4	_*1	4*5	_*1	_*1	_*1	_*6	-	_*1	_*1	-*3	_*3	-*3	-*7	
CISCO3945-SEC/K9	IP Base + SEC	4	1	4	4	_*1	4*5	_*1	_*1	_*1	_*6	-	_*1	_*1	•	•	•	_*7	•
C3945-AX/K9	IP Base + SEC + APP	4	1	4	4	_*1	4*5	_*1	_*1	_*1		-	_*1	_*1		•	•	_*7	
CISCO3925E/K9	IP Base	3	-	2	3	_*1	4*5	_*1	_*1	_*1	_*6	-	_*1	-*1	_*3	_*3	_*3	-*7	•
CISCO3925E-SEC/K9	IP Base + SEC	3	-	2	3	_*1	4*5	_*1	_*1	_*1	_*6	-	_*1	_*1	•	•	•	_*7	
C3925E-AX/K9	IP Base + SEC + APP	3	-	2	3	_*1	4*5	_*1	_*1	_*1	•	-	_*1	_*1	•	•	•	-*7	•
CISCO3945E/K9	IP Base	3	-	4	3	_*1	4*5	_*1	_*1	_*1	_*6	-	_*1	_*1	_*3	_*3	_*3	_*7	
CISCO3945E-SEC/K9	IP Base + SEC	3	-	4	3	_*1	4*5	_*1	_*1	_*1	_*6	-	_*1	_*1	•	•	•	_*7	•
C3945E-AX/K9	IP Base + SEC + APP	3	-	4	3	_*1	4*5	_*1	_*1	_*1		-	_*1	_*1	•		•	_*7	

^{*1} Expansion Module is required. *2 Feature Licenses are required. *3 Cisco IOS SEC License is required. *4 ACS-1900-RM-19 is required. *5 SFP module slot or dual-purpose port is included *6 Feature Licenses or Expansion Modules are required. *7 Feature Licenses, etc. are required according to the Cisco IOS UC License and configuration.

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 Universal Image (Compatible with IP Base/SEC/UC/AX)
- Equipped with multi-core CPU and 4 GB memory (Cisco 4321/4331/4351; Cisco 4321 is expandable to 8 GB, Cisco 4331/4351 are expandable to 16 GB)
- Equipped with multi-core CPU, 4 GB memory for the control plane and 2 GB Memory for the data plane (Cisco 4431/4451; control plane memory is expandable to 16 GB)
- Various network services are integrated via Expansion Modules (NIM/SM-X slots)
- Supports the Cisco UCS E Series Server

■ Cisco ISR 4000 Series Bundles Comparison

Bundles	Characters		Bun	dled Licenses/Mod	ules	
bullules	Included in SKU	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

		Exp	ansion S	Slots			Ports			Speedup	,	Wireles	S		Securit	у	Voice	
SKU	Cisco IOS	NIM	SM/ SM-X	PVDM	FE	GE	ISDN Backup	xDSL	Voice	WAAS	AP	WLC	4G	FW	IPS	VPN	GW Call Control MSG	Rack mount
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	

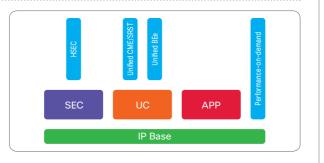
L.
*1 Cisco 4321 is not supported. *2 SFP module slot or dual-purpose port is included. *3 Expansion Module is required. *4 Feature Licenses or Expansion Modules are required. *5 Cisco IOS SEC License is required. *6 Feature Licenses, etc. are required according to the Cisco IOS UC License and configuration.

Cisco IOS on the Cisco ISR 4000 Series

The Cisco IOS Technology Package Licenses for Cisco ISR 4000 Series are available in the following four types: IP Base/Security (SEC)/Unified Collaboration (UC)/ Application Experience (APP).

As with Cisco ISR 800/1900/2900/3900 Series, the IP Base/SEC/UC Licenses are technology sets that provide the IP control functions, IP security functions and IP telephony functions, respectively. The new APP License is a technology set integrating the DATA License, which provides the comprehensive IP control functions of Cisco ISR 1900/2900/3900 Series, with the Cisco Wide Area Application Services (WAAS) License or the Application Visibility & Control (AVC) License.

The APP License is also available for the Cisco ISR 800/1900/2900/3900 Series. Refer to page 45 for details of the APP License.



Modules & Accessories

■ Cisco IOS Technology Package Licenses

CVII	Description							С	ompa	tible	Mode							
SKU	Description	800	1921	1941	1941W	2901	2911	2921	2951	3925	3945	3925E	3945E	4321	4331	4351	4431	4451
L-SL-19-SEC-K9	Cisco IOS SEC License for Cisco ISR 1900 Series	-				-	-	-	-	-	-	-	-	-	-	-	-	-
L-SL-29-SEC-K9	Cisco IOS SEC License for Cisco ISR 2900 Series	-	-	-	-					-	-	-	-	-	-	-	-	-
L-SL-39-SEC-K9	Cisco IOS SEC License for Cisco ISR 3900 Series	-	-	-	-	-	-	-	-					-	-	-	-	-
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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
L-SL-29-UC-K9	Cisco IOS UC License for Cisco ISR 2900 Series	-	-	-	-					-	-	-	-	-	-	-	-	-
L-SL-39-UC-K9	Cisco IOS UC License for Cisco ISR 3900 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-19-APP-K9	Cisco IOS APP License for Cisco ISR 1900 Series	-				-	-	-	-	-	-	-	-	-	-	-	-	-
SL-29-APP-K9	Cisco IOS APP License for Cisco ISR 2900 Series	-	-	-	-					-	-	-	-	-	-	-	-	-
SL-39-APP-K9	Cisco IOS APP License for Cisco ISR 3900 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	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-
SL-44-APP-K9	Cisco IOS APP License for Cisco ISR 4400 Series	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		

■ Cisco IOS Feature Licenses

OKL	0.10							С	ompa	tible	Mode	els						
SKU	Description	800	1921	1941	1941W	2901	2911	2921	2951	3925	3945	3925E	3945E	4321	4331	4351	4431	4451
L-FL-29-HSEC-K9	Cisco IOS HSEC License for Cisco 2921/2951*1	-	-	-	-	-	-	•		-	-	-	-	-	-	-	-	-
L-FL-39-HSEC-K9	Cisco IOS HSEC License for Cisco 3925/3945*1	-	-	-	-	-	-	-	-			-	-	-	-	-	-	-
L-FL-39E-HSEC-K9	Cisco IOS HSEC License for Cisco 3925E/3945E*1	-	-	-	-	-	-	-	-	-	-			-	-	-	-	-
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-29-SNA	Cisco IOS SNA Switching License for Cisco ISR 2900 Series*4	-	-	-	-					-	-	-	-	-	-	-	-	-
L-FL-39-SNA	Cisco IOS SNA Switching License for Cisco ISR 3900 Series*4	-	-	-	-	-	-	-	-					-	-	-	-	-
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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		

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.

Cisco IOS APP License

The Cisco IOS APP License is a technology set integrating the DATA Li- Cisco IOS APP License cense, which provides the comprehensive IP control functions of Cisco ISR 1900/2900/3900 Series, with the Cisco Wide Area Application Services (WAAS) License or the Application Visibility & Control (AVC) License. This license is delivered as a Feature License for Cisco ISR 800 Series and as a Technology Package License or Application Experience Bundle for Cisco ISR 1900/2900/3900/4000 Series.

			E	undle	License	e/Memory		
SKU	SEC	DATA	WAAS-X	ISR WAAS	vWAAS	WAAS/vWAAS Optimized Connections	AVC	DRAM
L-FL-C800-APP	-	-	•	-	-	-	•	
SL-19-APP-K9	-			-	-	-		-
SL-29-APP-K9	-			-	●*1	1300		-
SL-39-APP-K9	-			-		2500		-
SL-4320-APP-K9	-		-		-	2500		-
SL-4330-APP-K9	-		-			2500		-
SL-4350-APP-K9	-		-			2500		-
SL-44-APP-K9	-		-		•*2	2500		-

■ Cisco ISR Application Experience Bundle

			Bundled	License	/Memory			Maximum WAN	Bandwidth (Mbps)/T0	CP Optimized Connec	ctions (Maximum)
Platform	SEC	DATA	WAAS-X	ISR	vWAAS	AVC	DRAM	WAAS-X		vWAAS*³	
	SEC	DATA	WAAS-X	WAAS	VVVAAS	AVC	DRAM	ISR-WAAS	1300	2500	6000
1921	•	•		-	-	•	-	0.512/50		-	-
1941				-	-			4/150	-	-	-
2901				-	-			6/150	-	-	-
2911/2921				-			-	6/200	80/1300	150/2500	200/6000 to
2951	•	•		-	•		-	6/400	80/1300	150/2500	200/6000 to
3925/3945/3925E/3945E				-			-	6/400	80/1300	150/2500	200/6000 to
4321	•	•	-		-			15/200	-	-	-
4331/4351			-				-	25/750	80/1300	150/2500	200/6000 to
4431	•	•	-		-	•		50/1300	-	-	-
4451			-				-	150/2500	80/1300	150/2500	200/6000 to

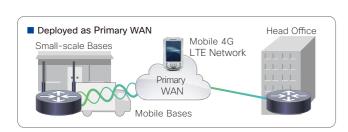
^{*1} Cisco 2901 is not supported. *2 Cisco 4321/4431 is not supported. *3 Cisco UCS E Series Server for Cisco ISR 2900/3900/4000 Series is required

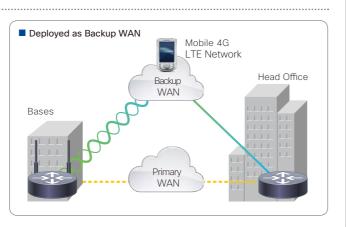
SKU	5		Compatible Models															
SKU	Description	Slot	1921	1941	1941W	2901	2911	2921	2951	3925	3945	3925E	3945E	4321	4331	4351	4431	445
EHWIC-4ESG	Gigabit EtherSwitch Module (L2, 4-port GE)	EHWIC	•	•	•	•	•	•	•	•	•	•	•	-	-	-	-	-
EHWIC-4ESG-P	Gigabit EtherSwitch Module (L2, 4-port GE/PoE)	EHWIC	•	•	•	•	•	•			•	•		-	-	-	-	-
EHWIC-D-8ESG	Gigabit EtherSwitch Module (L2, 8-port GE)	EHWIC	•	•	•	•	•	•	•	•	•	•	•	-	-	-	-	-
EHWIC-D-8ESG-P	Gigabit EtherSwitch Module (L2, 8-port GE/PoE)	EHWIC	•	•	•	•	•	•	•	•	•	•	•	-	-	-	-	-
SM-ES2-16-P	Enhanced EtherSwitch Module (L2, 16-port FE/GE/PoE)	SM	-	-	-	-	•	•	•	•	•	•	•	-	-	-	-	-
SM-ES2-24	Enhanced EtherSwitch Module (L2, 24-port FE/GE)	SM	-	-	-	-	•	•			•	•		-	-	-	-	-
SM-ES2-24-P	Enhanced EtherSwitch Module (L2, 24-port FE/GE/PoE)	SM	-	-	-	-	•	•	•	•	•	•	•	-	-	-	-	-
SM-ES3-16-P	Enhanced EtherSwitch Module (L2/L3, 16-port FE/GE/PoE)	SM	-	-	-	-	•	•			•	•		-	-	-	-	-
SM-ES3-24-P	Enhanced EtherSwitch Module (L2/L3, 24-port FE/GE/PoE)	SM	-	-	-	-	•	•	•	•	•	•	•	-	-	-	-	-
SM-ES3G-16-P	Enhanced EtherSwitch Module (L2/L3, 16-port GE/PoE)	SM	-	-	-	-	•	•			•	•		-	-	-	-	-
SM-ES3G-24-P	Enhanced EtherSwitch Module (L2/L3, 24-port GE/PoE)	SM	-	-	-	-	•	•	•	•	•	•	•	-	-	-	-	-
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+) *1	SM	-	-	-	-	•	•	•	•	•	•	•	-	•	•	-	•
SM-X-ES3-24-P	SM-X EtherSwitch Module (L2/L3, 24-port GE/PoE+) *1	SM	-	-	-	-	•	•		•	•	•		-	•	•	-	
SM-X-ES3D-48-P	SM-X EtherSwitch Module (L2/L3, 48-port GE/PoE+) *1	SM	-	-	-	-	-	•	•	•	•	•	•	-	-	•	-	•
EHWIC-1GE-SFP-CU	GE/SFP WAN Module (1 port)	EHWIC	•	•	•	•	•	•			•	•		-	-	-	-	-
WIC-1B-S/T-V3	ISDN BRI Module (1-port)	EHWIC	•	•	•	•	•	•	•	•	•	•	•	-	-	-	-	-
HWIC-4B-S/T	ISDN BRI Module (4-port)	EHWIC	•	•	•	•	•	•		•	•	•		-	-	-	-	-
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) *1	SM	-	-	-	-	•	•	•	•	•	•	•	-	•	•	-	•
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) *1	SM	-	-	-	-	-	-	-	-	-	-	-	-	•	•	-	
SM-X-4X1G-1X10G	GE/SFP (4-port) or SFP+ (1-port) Service Module *1	SM	-	-	-	-	-	-	-	-	-	-	-	-	•	•	-	•
EHWIC-4G-LTE-ST	4G LTE Wireless WAN Module for Sprint	EHWIC	•	•	•	•	•	•		•	•	•		-	-	-	-	-
EHWIC-4G-LTE-VZ	4G LTE Wireless WAN Module for Verizon	EHWIC	•	•	•	•	•	•	•	•	•	•	•	-	-	-	-	-
EHWIC-4G-LTE-AT	4G LTE Wireless WAN Module for AT&T	EHWIC	•		•	•	•	•		•	•	•	•	-	-	-	-	-
EHWIC-4G-LTE-GB	4G LTE Wireless WAN Module for Europe	EHWIC	•				•			•		•	•	-	-	-	-	١.

*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).





SKU	Description	Cl-A							Com	patib	le Mo	odels						
SKU	Description	Slot	1921	1941	1941W	2901	2911	2921	2951	3925	3945	3925E	3945E	4321	4331	4351	4431	445
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	-	-	-	-	-	-	-	-	-	-	-	•	•	•	•	•
VIC3-2FXS/DID	Voice Module (2-port FXS/DID)	EHWIC	-	-	-	•	•	•	•	•	•	•	•	-	-	-	-	-
VIC2-2BRI-NT/TE	Voice Module (2-port BRI)	EHWIC	-	-	-	•	•	•	•	•	•	•	•	-	-	-	-	-
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	-	-	-	-	-	-	-	-	-	-	-	•	•	•	•	
VWIC3-1MFT-T1/E1	Voice/WAN Module (1-port T1/E1) *2	EHWIC	•	•	•	•	•	•	•	•	•	•	•	-	-	-	-	-
VWIC3-4MFT-T1/E1	Voice/WAN Module (4-port T1/E1)	EHWIC	-	-	-	-	•	•	•	•	•	•	•	-	-	-	-	-
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	-	-	-	-	-	-	-	-	-	-	-	•	•	•	•	•
PVDM3-16	High-density Packet Voice/Video DSP Module (16-channel)	PVDM3	-	-	-	•	•	•	•	•	•	•	•	-	-	-	-	-
PVDM3-32	High-density Packet Voice/Video DSP Module (32-channel)	PVDM3	-	-	-	•	•	•	•	•	•	•	•	-	-	-	-	-
PVDM3-64	High-density Packet Voice/Video DSP Module (64-channel)	PVDM3	-	-	-	•	•	•	•	•	•	•	•	-	-	-	-	-
PVDM3-128	High-density Packet Voice/Video DSP Module (128-channel)	PVDM3	-	-	-	•	•	•	•	•	•	•	•	-	-	-	-	-
PVDM3-192	High-density Packet Voice/Video DSP Module (192-channel)	PVDM3	-	-	-	•	•	•	•	•	•	•	•	-	-	-	-	-
PVDM3-256	High-density Packet Voice/Video DSP Module (256-channel)	PVDM3	-	-	-	•	•	•	•	•	•	•	•	-	-	-	-	-
PVDM4-32	High-density Packet Voice/Video DSP Module (16-channel)	PVDM4 ^{*3}	-	-	-	-	-	-	-	-	-	-	-	•	•	•	•	
PVDM4-64	High-density Packet Voice/Video DSP Module (32-channel)	PVDM4*3	-	-	-	-	-	-	-	-	-	-	-	•	•	•	•	•
PVDM4-128	High-density Packet Voice/Video DSP Module (64-channel)	PVDM4*3	-	-	-	-	-	-	-	-	-	-	-	•	•	•	•	
PVDM4-256	High-density Packet Voice/Video DSP Module (128-channel)	PVDM4*3	-	-	-	-	-	-	-	-	-	-	-	•	•	•	•	•
PVDM4-64U128	Factory Upgrade from PVDM4-64 to PVDM4-128	PVDM4*3	-	-	-	-	_	-	-	-	-	-	-	•	•	•	•	

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

Factory Upgrade from PVDM4-64 to PVDM4-256

PVDM4-64U256

SKU	CPU	Mer	mory	Internal	RAID	Slot							Com	patib	le Mo	odels						
SKU	Cores	Default	Maximum	Drive Slots	KAID	Siot	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-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	-	-	-	-	-	-	-	•	•	•	•	-	-	•	-	•

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

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
- 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











on Cisco ISR 800/1900/2900/3900 Series

Network Scale

→ Large

Software products suitable for bases, integrated into Cisco IOS on the Cisco ISR 800/1900/2900/3900 Series, Cisco WAAS Express and activated by Cisco IOS Feature License or Cisco IOS APP license. Software products suitable for bases or data centers/headquarters, integrated into Cisco IOS XF on the Cisco Cisco ISR WAAS ISR 4000 Series, and activated by Cisco IOS APP License.

Software products suitable for bases or data centers/headquarters, implemented on VMware ESX/ESXi which Cisco vWAAS 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.

Cisco Intelligent WAN (IWAN) with Akamai Connect

Cisco Intelligent WAN (IWAN) with Akamai Connect is a suite of integrated WAN optimization, application acceleration, and intelligent caching features in Cisco ISRs running Application Experience services.

The solution extends the well-known Akamai Intelligent Platform with HTTP caching across the last mile into the branch office, turbo charging the application optimization features of the Cisco IWAN. 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-

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.

■ 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
	L-FL-C880-WAAS	SX*1	1.5 Mbps	75	•	-	-	-
	L-FL-C890-WAAS	SX*1	2 Mbps	75	•	-	-	-
	L-FL-C1941-WAA	ASX*1	4 Mbps	150	•	-	-	-
0' 14/4 4 0 5	L-FL-C2901-WAA	ASX*1	6 Mbps	150	•	-	=	=
Cisco WAAS Express	L-FL-C2911-WAA	ASX*1	6 Mbps	200	•	-	-	-
	L-FL-C2921-WAA	ASX*1	6 Mbps	200	•	-	-	-
	L-FL-C2951-WAA	ASX*1	6 Mbps	200	•	-	-	-
	L-FL-C3900-WAA	ASX*1	10 Mbps	500	•	-	-	-
	Cisco 4321		15 Mbps	200	•	•	•	-
	Cisco 4331		25 Mbps	750	•	•	•	-
Cisco ISR WAAS	Cisco 4351		25 Mbps	750	•	•	•	-
	Cisco 4431		50 Mbps	1,300	•	•	•	-
	Cisco 4451			2,500	•	•	•	-
	LIC-200-VWAAS		20 Mbps	200	•	•	-	-
	LIC-750-VWAAS		50 Mbps	750	•	•	-	-
Cisco vWAAS	LIC-1300-VWAAS	6	80 Mbps	1,300	•	•	-	-
	LIC-2500-VWAAS	3	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	•	•	-	-
	14/41/E 004 KG	4 GB Memory	10 Mbps	200	•	•	-	250 (200) *7
	WAVE-294-K9	8 GB Memory*2	20 Mbps	400	•	•	-	250 (200) *7
0:	sco WAAS Appliances WAVE-594-K9	8 GB Memory	50 Mbps	750	•	•	• *5	1,000 (800) *7
Cisco WAAS Appliances		12 GB Memory*3	100 Mbps	1,300	•	•	● *5	1,000 (800) *7
	14/41/E 004 KG	16 GB Memory	200 Mbps	2,500	•	•	● *6	2,000 (2,000) *7
	WAVE-694-K9	24 GB Memory*4	200 Mbps	6,000	•	•	● *6	2,000 (2,000) *7

■ 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

Cisco WAAS Central Manager

Cisco WAAS Central Manager is a mandatory management tool for all Cisco WAAS implementations. Generally, Cisco WAAS Central Manager is either implemented to a single Cisco WAAS Appliance in the data center or headquarters accommodating the data and application servers, or as Cisco Virtual WAAS (vWAAS) on the VMware ESX/ESXi server.

Cisco WAAS Central Manager can be used to centrally manage a wide range of Cisco WAAS devices distributed across multiple bases, including the Cisco

800/1900/2900/3900 Series with activated Cisco WAAS Express, Cisco ISR 4000 Series with activated Cisco ISR WAAS, and Cisco WAAS Appliances, and so on. An intuitive GUI provides access to functions such as deployment and real-time monitoring of Cisco WAAS devices, fault management and logging, as well as the custom reporting function for creating scheduled reports for up to 2,500 Cisco WAAS devices in the Cisco WAAS topology.

^{*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.

Meraki

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 hardware or management software 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

- Indoor and outdoor access point
- IEEE 802.11ac and 802.11n with ultra-high performance, up to 1.75 Ghps
- 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

- GE access switches and 10 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 ■ Mobility Management

- 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



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

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



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

Mobility Management Promotion

Meraki Systems Manager provides cloud-based over-the-air centralized management, diagnostics, monitoring, and security of the mobile devices managed by your organization. Manage distributed deployments of all of your devices with Systems Manager - without an on-site appliance. Managed devices connect securely to

Meraki's cloud, enabling you to locate devices, deploy software and apps, deliver content, enforce security policies, and monitor all your devices through an intuitive and powerful web-based dashboard.



Receive up to 100 devices of Meraki EMM for free with any Cisco purchase

No license required until network reaches 100+ devices, then licenses are required per device



Cloud Managed Wireless

■ Cisco Meraki MR Cloud Managed Wireless Access Points

		Indoor A	Access Points		Outdoor	Access Points
	MR18	MR26	MR32	MR34	MR66	MR72
Model	=	TAME .	_	_		
Radios Specification	1 x 11b/g/n radio 1 x 11a/n 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 x 11b/g/n radio 1 x 11a/n/ac 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
11n and 11ac Capabilities	2 x 2 MIMO 2 streams	3 x 3 MIMO 3 streams	2 x 2 MIMO 2 streams	3 x 3 MIMO 3 streams	2 x 2 MIMO 2 streams	2 x 2 MIMO 2 streams
Max Data Rate	600 Mbps	900 Mbps	1.2 Gbps	1.75 Gbps	600 Mbps	1.2 Gbps
Interface	1 × GE	1 × GE	1 × GE	1 × GE	1 × GE	1 × GE

Cloud Managed Switches

Cisco Meraki MS Cloud Managed Switches

	La	ayer 2 Access Switch	hes	Layer 3 Acc	ess Switches	Aggregat	ion Switches
Model	MS220-8 MS220-8P	MS220-24 MS220-24P MS220-48 MS220-48		MS320-24 MS320-24P	MS320-48 MS320-48LP MS320-48FP	MS420-24	MS420-48
Downlinks	8 x GE	24 x GE	48 x GE	24 x GE	48 x GE	24 x SFP/SFP+	48 x SFP/SFP+
Uplinks	2 x SFP	4 x SFP	4 x SFP	4 x SFP/SFP+	4 x SFP/SFP+	-	-
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)	-	-
Switching Capacity	20 Gbps	48 Gbps	104 Gbps	128 Gbps	176 Gbps	960 Gbps	960 Gbps

Cloud Managed Security Appliances

■ Cisco Meraki MX Cloud Managed Security Appliance Series

	Sma	II Branch	Mediun	n Branch	Large Branch, Campus / Concentra				
	MX64	MX64W	MX80	MX100	MX400	MX600			
Model	-				in 1.1. mm rm	5.VL 2222			
Recommended Max Users	50	50	100	500	2,000	10,000			
Stateful Firewall Throughput	200 Mbps	200 Mbps	250 Mbps	750 Mbps	1 Gbps	1 Gbps			
Advanced Security Throughput	80 Mbps	80 Mbps	80 Mbps	600 Mbps	1 Gbps	1 Gbps			
Maximum VPN sessions	25	25	50	250	1,000	5,000			
Interfaces	5 x GE	5 x GE	5 x GE	9 x GE 2 x SFP	4 x GE	4 x GE			
	-	1 x 11b/g/n radio 1 x 11a/n radio 2 x 2 MIMO 2 streams 1.2 Gbps	-	-	-	-			

Small Business

Cisco Small Business Switches

Cisco Small Business Switches provide nonblocking, wire-speed switching for 10-, • 95/110 Series Unmanaged Switches 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.

Reliable network performance at an affordable price. Setup is easy with no software to install and nothing to configure.

200 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.

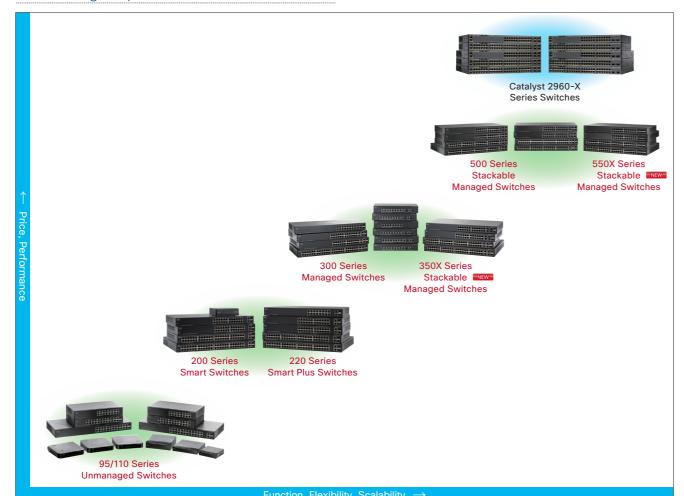
- 220 Series Smart Plus Switches
- Get the powerful features, security, and performance of a managed switch with the affordability that's closer to smart switches.
- 300 Series Managed Switches
- 350X Series Stackable Managed Switches
 ■■■

The ideal combination of affordability and advanced network features for small business, these easy to use fully managed switches are the cornerstone of your

- 500 Series Stackable Managed Switches
- 550X 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.

Positioning Map



■ Cisco Small Business 95 Series Unmanaged Switches

	Eviation					Por	ts				PoE		PoE	40	E	Charle	Dools
New Model Name	Existing Model Name	Orderable SKU	FE		SFP	GE/ SFP	10 GB-T	SFP+	10GB-T /SFP+	Ports	Power Budget	IEEE 802.3	Input Ports	AC Power	Fan less		Rack Mount
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	2	-	-	-	-	-	-	-	-	-	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		-	1 RU
SG95-24	SG92-24	SG95-24-xx	-	22	-	2	-	-	-	-	-	-	-	Internal		-	1 RU

■ Cisco Small Business 110 Series Unmanaged Switches

	Fortage of					Por	เร				POE		PoE	40	E	Charle	Deel
New Model Name	Existing Model Name	Orderable SKU	FE	GE	SFP	GE/ SFP	10 GB-T	SFP+	10GB-T /SFP+	Ports	Power Budget	IEEE 802.3	Input Ports	AC Power	Fan less	Stack able	Rack Moun
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/Cisco Small Business 220 Series Smart Plus Switches

	Eviating					Por	ts				PoE		PoE	AC	Fan	Stack	Rack
New Model Name	Existing Model Name	Orderable SKU	FE		SFP	GE/ SFP	10 GB-T	SFP+	10GB-T /SFP+	Ports	Power Budget	IEEE 802.3	Input Ports	Power	less	able	Mount
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
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 300 Series Managed Switches/Cisco Small Business 350X Series Stackable Managed Switches

	Francisco.					Por	เร				POE		POE	AC	Fan		Rack
New Model Name	Existing Model Name	Orderable SKU	FE	GE	SFP	GE/ SFP	10 GB-T	SFP+	10GB-T /SFP+	Ports	Power Budget	IEEE 802.3	Input Ports	Power	less	Stack able	Mount
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
SG350XG-2F10 NEW-	n/a	SG350XG-2F10-K9-xx	-	-	-	-	10	2	-	-	-	-	-	Internal	-		1 RU
SG350XG-24T NEW	n/a	SG350XG-24T-K9-xx	-	-	-	-	22	-	2	-	-	-	-	Internal	-		1 RU
SG350XG-24F NEW	n/a	SG350XG-24F-K9-xx	-	-	-	-	-	22	2	-	-	-	-	Internal	-		1 RU
SG350XG-48T NEW-	n/a	SG350XG-48T-K9-xx	-	-	-	-	46	-	2	-	-	-	_	Internal	-	•	1 RU

Small Business

	Existing					Por	ts				PoE		PoE	AC	Fan	Stack	Rack
New Model Name	Model Name	Orderable SKU	FE	GE	SFP	GE/ SFP	10 GB-T	SFP+	10GB-T /SFP+	Ports	Power Budget	IEEE 802.3	Input Ports	Power	less	able	Mount
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
G500-28	n/a	SG500-28-K9-xx	-	24	2	2	-	-	-	-	-	-	-	Internal			1 RU
G500-28P	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
G500X-24MPP	n/a	SG500X-24MPP-K9-xx	-	24	-	-	-	4	-	24	740 W	af/at	-	Internal	-	•	1 RU
G500X-48	n/a	SG500X-48-K9-xx	-	48	-	-	-	4	-	-	-	-	-	Internal	-		1 RU
G500X-48P	n/a	SG500X-48P-K9-xx	-	48	-	-	-	4	-	48	375 W	af/at	-	Internal	-		1 RU
G500X-48MP	n/a	SG500X-48MP-K9-xx	-	48	-	-	-	4	-	48	740 W	af/at	-	Internal	-		1 RU
G500XG-8F8T	n/a	SG500XG-8F8T-K9-xx	-	-	-	-	8	8	-	-	-	-	-	Internal	-		1 RU
SG550XG-8F8T NEW	n/a	SG550XG-8F8T-K9-xx	-	-	-	-	8	8	-	-	-	-	-	Internal	-	•	1 RU
SG550XG-24T NEW	n/a	SG550XG-24T-xx	-	-	-	-	22	-	2	-	-	-	-	Internal	-		1 RU

■ Cisco SFP/SFP+ Transceivers

SG550XG-24F NEW n/a

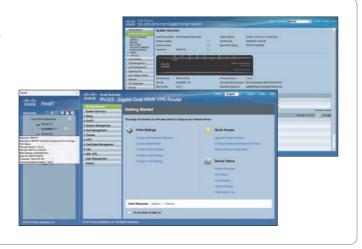
SKU	Description
MFEFX1	100Base-FX SFP transceiver, for multi-mode fiber, 1310 nm wavelength, support up to 2 km
MFELX1	100Base-LX SFP transceiver, for single-mode fiber, 1310 nm wavelength, support up to 15 km
MFEBX1	100Base-BX-20U SFP transceiver for single-mode fiber, 1310 nm wavelength, support up to 20 km
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
MGBLX1	1000BASE-LX 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
MGBBX1	1000BASE-BX-20U SFP transceiver, for single-mode fiber, 1310 nm wavelength, support up to 10 km
SFP-H10GB-CU1M, SFP-H10GB-CU3M, SFP-H10GB-CU5M	10GBASE-CU SFP transceiver, for Twinax cable, support up to 1, 3, 5 m
SFP-10G-SR	10GBASE-SR SFP+ transceiver, for multi-mode fiber, 850 nm wavelength, support up to 400 m
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

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.



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
		0.11	G5	AS	AS	G5	G5		AS	G5	AS	AS
XX	AU	CN	SG UK	EU G5	EU G5	KR	SG UK	AU	EU G5	SG UK	EU G5	EU G5
×	А	С	A C	A C	С	C K	С	ΑE	A C	A C	Е	Е
	E		E	E	E	WE	Е		E	E		

Cisco Small Business Wireless Access Points

Positioning Map

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 Wireless Access Points

Name CKIII	Full-Marine CKII	Wireless	Active			EEE 80	2		2.4		Con-	Po	orts	PoE	Ports	AC
New SKU	Existing SKU	Data Rate	Users per Radio	11a	11b	11g	11n	11ac	GHz	GHz	Radios	FE	GE	Input	Output	Power
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
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
WAP371-x-K9	n/a	1299 Mbps	32	•	•	•	•	•	•	•	•	-	1	1*2	-	External
WAP551-x-K9	n/a	450 Mbps	32					-		•	-	-	1	1*2	-	-
WAP561-x-K9	n/a	450 Mbps	32	•	•	•	•	-	•	•	•	-	1	1*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

Positioning Map

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.



■ Cisco Small Business RV Series Routers

New SKU	Eviating CVII	ν	VAN P	orts	LAN	Ports	IPsec	IPsec V	PN Tunnels	11	EEE 80	2	2.4	AC
New Sku	Existing SKU	FE	GE	3G/4G	FE	GE	Throughput	Site-to-Site	Remote Access	11b	11g	11n	GHz	Power
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
RV082	n/a	2	-	-	8	-	97 Mbps	100	50	-	-	-	-	Internal
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
RV130W-x-K9-xx	RV120W-x-xx RV180W-x-K9-xx	-	1	1*1	-	4	50 Mbps	10	10	•	•	•	•	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
RV325-K9-xx	n/a	-	2	1*1	-	14	100 Mbps	25	25	-	-	-	-	External

^{*1 3}G/4G modem is required.

Cisco Low-end Product Series Comparison

Switches

Catalyst 2960-X Series Switches

- 24- & 48-port GE, 24- & 48-port GE with 10 GE models and PoE options Enable scalable, secure and energy-efficient business operations
- with intelligent services and a range of advanced Cisco IOS software features
- Ocisco FlexStack Plus for stacking of up to 8 switches with 80 Gbps of stack throughput (optional)



500/550X Series Stackable Managed Switches

- © 24- & 48-port FE, 28- & 52-port GE, 24- & 48-port GE with 10 GE, 16- to 48-port 10 GE models and PoE+ options
- Advanced QoS, security, EEE, IPv6 support, and L3 switching
- True stacking of up to 8 switches
- Recommended models: SF500-24, SG500-28, SG500-28P

300/350X Series Managed/Stackable Managed Switches

- 8- to 48-port FE, 10- to 52-port GE,
- 12- to 48-port 10 GE models and PoE+ options • Enhanced QoS, security, EEE, IPv6 support, and L3 switching
- True stacking of up to 4 switches
- © Recommended models: SG300-10, SG300-10MPP, SG300-28



- 24- & 48-port FE and 8- to 50-port GE models with PoE+ options
- Basic QoS, security, EEE and IPv6 support
- Recommended models: SF200-24, SG200-08, SG200-26



95/110 Series Unmanaged Switches

- 5- to 24-port FE and GE models with PoE+ options
- No configuration or management required
- QoS and Energy Efficient Ethernet (EEE) on all models and energy-efficient design on GE models
- Recommended models: SF95-24, SG95D-08, SG95-24

Wireless Access Points

Aironet Access Points

- IEEE 802.11 a/b/g/n/ac (Aironet 1700/2700/3700)
- 2.4 and 5 Ghz

Small Business

- The fourth antenna provides exceptional performance compared to other IEEE 802.11ac solutions (Aironet 2700/3700)
- Available in highly secure, enterprise-scale Controller-based mode, or Standalone mode

500 Series Wireless Access Points

- IEEE 802.11 a/b/g/n
- 2.4 or 5 Ghz (WAP551), 2.4 and 5 Ghz (WAP561),
- Up to 450 Mbps with 3 x 3 MIMO
- Manage up to 16 APs in a cluster

300 Series Wireless Access Points

- IEEE 802.11 a/b/g/n (WAP321/WAP351), IEEE 802.11 a/b/g/n/ac (WAP371)
- o 2.4 or 5 Ghz (WAP321), 2.4 and 5 Ghz (WAP351/WAP371),
- Up to 300 Mbps with 2 x 3 MIMO (WAP321/WAP351*1), Up to **1.3 Gbps** with 3 x 3 MIMO (WAP371*1)
- Manage up to 8 APs in a cluster

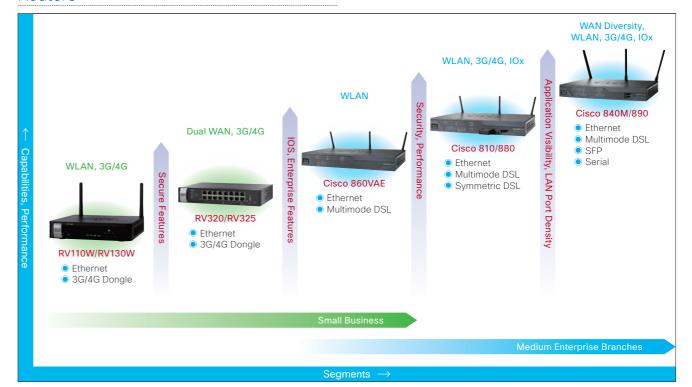
100 Series Wireless Access Points

- IEEE 802.11 b/g/n
- 2.4 Ghz (WAP121), 2.4 and 5 Ghz (WAP131)
- Oup to 300 Mbps with 2 x 2 MIMO
- Manage up to 4 APs in a cluster



*1 2 x 2 MIMO (2.4 Ghz) and 2 x 3 MIMO (5 Ghz).

Routers



■ Low End Routers Specification Comparison

	RV110W/215W	RV130/130W	RV320/325	Cisco 860VAE	Cisco 810	Cisco 880	Cisco 840M	Cisco 890
Multiple Active WAN Interfaces	1 FE + 4G Dongle	1 GE + 4G Dongle	2 GE + 4G Dongle	-	GE + 4G	FE/xDSL + 4G	GE/GE	GE/SFP + GE + xDSL + 4G
FE/GE WAN	1 FE	1 GE	2 GE	1 GE	1 GE	1 FE	2 GE	1 FE (891F), 1 GE (892FSP)
GE SFP	-	-	-	-	-	-	-	1
Switch Ports	4	4	4/14	5 (4 + 1)	4	4	4 or 8	8 or 24
POE	-	-	-	1	-	2	-	4 or 8
VDSL2/ADSL2	-	-	-	Yes	-	886VA, 887VA	-	896VA, 897VA
G.SHDSL (ATM/EFM)	-	-	-	-	-	888	-	898EA
WWAN	4G Dongle (RV215W)	4G Dongle	4G Dongle	-	HSPA, EVDO, HSPA+, 4G LTE	HSPA, EVDO, HSPA+, 4G LTE	EVDO, HSPA	4G LTE
IEEE 802.11n	2.4 GHz	2.4 GHz (RV130W)	-	2.4 GHz	2.4 GHz/5 GHz	2.4 GHz/5 GHz	-	2.4 GHz/5 GHz
WLAN Deployment Modes	Standalone	Standalone	Standalone	Standalone	Standalone, Controller- based	Standalone, Controller- based	-	Standalone, Controller- based
Serial	-	-	-	-	-	-	Optional	-
T1, ISDN, V.92	-	-	-	-	-	ISDN	-	ISDN &V.92
Compute	-	-	-	-	-	IOx	IOx	IOx
Voice Interfaces	-	-	-	-	-	Select Models	-	-
Warranty	LLW	LLW	LLW	1 Year	1 Year	1 Year	1 Year	1 Year
Typical Lifecycle	3 Years	3 Years	3 Years	5 Years	5 Years	5 Years	5 Years	5 Years
OS	Linux	Linux	Linux	IOS	IOS	IOS	IOS	IOS
Routing Features	Static, RIP	Static, RIP	Static, RIP	Static, RIP, BGP	Static, RIP, BGP, OSPF, EIGRP	Static, RIP, BGP, OSPF, EIGRP	Static, RIP, BGP, OSPF, EIGRP	Static, RIP, BGP OSPF, EIGRP
PPPoX	PPPoE	PPPoE	PPPoE	•	•	•	•	•
Firewall	Layer 4 FW	Layer 4 FW	Layer 4 FW	Layer 4 FW	Layer 4 FW	Layer 4 FW	Layer 4 FW	Layer 4 FW
VPN	Site to Site (IPsec), Remote Access (PPTP)	Site to Site (IPsec), Remote Access (IPsec, PPTP)	Site to Site (IPsec), Remote Access (IPsec, SSL, PPTP)	Site to Site (IPSec), Remote Access (Easy VPN, Flex VPN)	Site to Site, Hub-Spoke, Remote Access, Any to Any (IPSec VPN, DMVPN, GETVPN, Flex VPN, SSL)	Site to Site, Hub-Spoke, Remote Access, Any to Any (IPSec VPN, DMVPN, GETVPN, Flex VPN, SSL)	Site to Site, Hub-Spoke, Remote Access, Any to Any (IPSec VPN, DMVPN, GETVPN, Flex VPN, SSL)	Site to Site, Hub-Spoke, Remote Access Any to Any (IPSec VPN, DMVPN, GETVPN, Flex VPN, SSL)
Content Filtering	-	•1	• *1	CWS	CWS	CWS	CWS	CWS
NAT/PAT QoS	Priority queuing (5-tuple)	Priority queuing (5-tuple)	Rate limiting or Priority queuing (5-tuple)	QoS	HQoS	HQoS	HQoS	HQoS
AVC	-	-	-	-	•	•	•	•
CLI	-	-	•	IOS	IOS	IOS	IOS	IOS
IPSLA	-	-	-	•	•	•	•	•
EEM	-	-	-		•			

^{*1} To be supported in future software release

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 hardwar in as little as two hours



tomated diagnostic and support capabilities

Improve Risk Management



Visibility into covered and uncovered device - comply with corporate policies



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



nsure that Cisco products are running current, supported software

Increase Operational Efficiency







he time and staff Improve planning with in t management and renewal and support contracts v Pinpoint and manage product and security alert - 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

Advance maraware replacement octyles 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.