



Cisco Catalyst 4948E and 4948E-F Ethernet Switches

At-A-Glance

The Cisco Catalyst® 4948E and 4948E-F Ethernet Switches (Figure 1) are server-rack-optimized top-of-rack (ToR) solutions for next-generation data centers. The Cisco Catalyst 4900 Series Switches offer unique features that enable critical data center architectures, and the series is the platform of choice for customers deploying large data centers—social networking, search engine sites, cloud and content providers and financial services, etc.—that need high-performance computing capabilities. The series offers the following features:

- Line-rate, full-featured Layer 2 and 3 switching, enabling congestion-free in-rack east-west traffic
- True front-to-back and back-to-front airflow for cable and cooling management
- Microburst protection through appropriate buffering with active queue management

Figure 1. Cisco Catalyst 4948E and 4948E-F Data-Center-Optimized ToR Switches



A hot-aisle and cold-aisle deployment remains the widely adopted best practice for data center cabinet layouts today. Networking switches and computing servers mounted in a single cabinet need to maintain the separation of the inlet cold air and the exhaust hot air for efficient use of cooling resources. Table 1 summarizes the deployment scenarios for the Cisco Catalyst 4948E and 4948E-F to help you decide which switch to use.

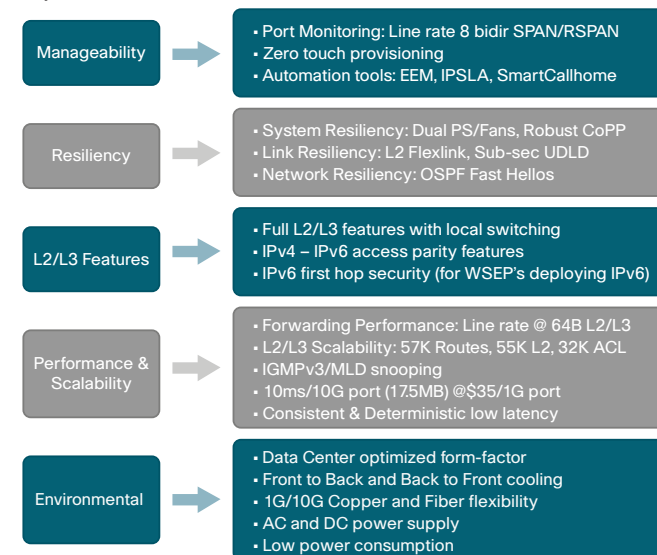
Table 1. Deployment Decision Factors and Switch Selection

Switch Choice	Decision Factors
Cisco Catalyst 4948E	• Network ports face the cold aisle • Upgrading from traditional front-connected ToR switches
Cisco Catalyst 4948E-F	• Network ports face the hot aisle • Server-to-switch connectivity does not use the patch panel

The Cisco Catalyst 4948E and 4948E-F deliver unique differentiators for each of five pillars for a successful data center design. Figure 2 summarizes these features.

In recently completed third-party testing, network device test expert David Newman deemed the Cisco Catalyst 4948E “a strong, credible choice for top-of-rack service in the data center.” Refer to test report at <http://networktest.com/cisco/4948E/4948E.pdf>.

Figure 2. Cisco Catalyst 4948E and 4948E-F Full-Featured Layer 2 and 3 Switches



Features

Table 2 summarizes the features of the Cisco Catalyst 4900 Series fixed access switches.

Table 2. Cisco Catalyst 4900 Series Comparison

Feature and Description	Cisco Catalyst 4948 Switch	Cisco Catalyst 4948 10 Gigabit Ethernet Switch	Cisco Catalyst 4900M Switch	Cisco Catalyst 4948E and 4948E-F Switches
Environmental				
Height	1 rack unit (1RU)	1RU	2RU	1RU
Dimensions (H x W x D)	1.71 x 17.3 x 16.1 in. (4.3 x 43.9 x 40.9 cm)	1.71 x 17.3 x 16.1 in. (4.3 x 43.9 x 40.9 cm)	3.5 x 17.2 x 17.9 in. (8.9 x 43.7 x 45.5 cm)	1.75 x 17.5 x 19.4 in. (4.4 x 44.4 x 49.3 cm)
Power redundancy	1+1 AC or DC	1+1 AC or DC	1+1 AC or DC	1+1 AC or DC
Unit weight	16.5 lb (7.48 kg)	16.5 lb (7.48 kg)	34.0 lb (15.4 kg)	19 lb (8.62 kg)
Hot-swappable fan	Yes	Yes	Yes	Yes
Average and maximum power consumption (in watts [W])	176W average 300W maximum	212W average 300W maximum	300W average 446W maximum	230W average 275W maximum



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Feature and Description	Cisco Catalyst 4948 Switch	Cisco Catalyst 4948 10 Gigabit Ethernet Switch	Cisco Catalyst 4900M Switch	Cisco Catalyst 4948E and 4948E-F Switches
Airflow	Side to back	Side to back	Side to back	Front to back (Cisco Catalyst 4948E) Back to front (Cisco Catalyst 4948E-F)
Rack-mounting options	Front and rear mount	Front and rear mount High-performance rear mount	Four-post rack-side rail mount High-performance mount	Front and rear mount High-performance rear mount
Uplink optic types	Four Small Form-Factor Pluggable (SFP) optics	Two X2 (10 Gigabit Ethernet) optics	Eight X2 (10 Gigabit Ethernet) optics	SFP and Enhanced SFP (SFP+)
Cisco® TwinGig Converter Module support	No	No	Yes (WS-X4908-10GE only)	No
Cisco OneX Converter Module support (X2 to SFP+)	No	No	Yes	No
Optics	LH, SX, ZX, and coarse wavelength-division multiplexing (CWDM)	LR, CX4, LX4, SR, ER, LRM, ZR, and dense wavelength-division multiplexing (DWDM)	X2: LR, CX4, LX4, SR, ER, LRM, ZR, and DWDM SFP+: SR	CWDM, DWDM, SR, LR, LRM, and CX4
Modular half-card slots	0	0	2	0
Ports				
Maximum 10/100/1000-Gbps ports	48	48	40	48
Maximum Gigabit Ethernet (fiber) ports	4	0	32 (Cisco TwinGig Converter Module)	4
Maximum 10 Gigabit Ethernet (10GBASE-T) ports	0	0	16	0
Maximum 10 Gigabit Ethernet (fiber) ports	0	2 (X2)	24 (X2)*	4 (SFP+)
Performance and Scalability				
Switching capacity	96 Gbps	136 Gbps	320 Gbps	176 Gbps
Throughput	72 million packets per second (mpps)	102 mpps	250 mpps for IPv4 125 mpps for IPv6	131 mpps for IPv4 110 mpps for IPv6
Routes supported	32,000	32,000	200,000	57,000
MAC addresses	32,000	55,000	55,000	55,000
Per-VLAN Spanning Tree (PVST) Protocol and VLAN IDs	4094	4094	4094	4094
Spanning Tree Protocol instances	4094	4094	4094	4094
Switched virtual interfaces (SVIs)	2000	2000	4094	4094
Active VLANs	4094	4094	4094	4094
Multicast routes	28,000	28,000	28,000	28,000
Security and quality-of-service (QoS) hardware entries	32,000	32,000	128,000	32,000
Switched Port Analyzer (SPAN)	2 ingress and 4 egress	2 ingress and 4 egress	8 ingress and 8 egress	8 ingress and 8 egress
Shared buffer	16 MB	16 MB	175 MB	175 MB
CPU	266 MHz	666 MHz	1.3 GHz	1 GHz



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Feature and Description	Cisco Catalyst 4948 Switch	Cisco Catalyst 4948 10 Gigabit Ethernet Switch	Cisco Catalyst 4900M Switch	Cisco Catalyst 4948E and 4948E-F Switches
Synchronous dynamic RAM (SDRAM)	256 MB	256 MB	512 MB	1 GB
Multilayer switching	LAN Base, IP Base, and Enterprise Services options	LAN Base, IP Base, and Enterprise Services options	LAN Base, IP Base, and Enterprise Services options	LAN Base, IP Base, and Enterprise Services options
IPv6 support	Software switched	Software switched	Hardware switched	Hardware switched
USB port	No	No	Yes	No
Compact flash memory support	No	No	Yes	No
System reset button	No	No	Yes	Yes
Minimum software requirements	Cisco IOS® Software Release 12.2(20)EWA or later	Cisco IOS Software Release 12.2(25)EWA or later	Cisco IOS Software Release 12.2(46)SG or later	Cisco IOS Software Release 12.2(54)SG or later (Cisco Catalyst 4948E) Cisco IOS Software Release 12.2(54)WO or later (Cisco Catalyst 4948E-F)

* X2 can be converted to SFP+ using the Cisco OneX Converter Module.

Ordering Information

Table 3 provides ordering information for the Cisco Catalyst 4948E and 4948E-F switches.

Table 3. Ordering Information

Part Number		Description
Front-to-Back Airflow	Back-to-Front Airflow	
WS-C4948E	WS-C4948E-F	Catalyst 4948E LAN Base
WS-4948E-S	WS-4948E-F-S	Catalyst 4948E IP Base, One AC Power Supply
WS-C4948E-E	WS-C4948E-F-E	Catalyst 4948E Enterprise Services, One AC Power Supply
WS-C4948E-BDL	WS-C4948E-F-BDL	Green Bundle 10x WS-C4948E Lan Base IOS

Conclusion

With more than 10 million Cisco Catalyst 4900 Series ports deployed, the Cisco Catalyst 4948E and 4948E-F Ethernet Switches will enhance your data center with innovation and operational simplicity.

For More Information

Visit <http://www.cisco.com/go/4900>