

Dell Networking

Product Portfolio Guide

Data center, campus LAN and wireless



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Fixed port switch comparison



Data center switching



Speed	Model	Overview	Capacity and ports		Deployment and Features																			
					Data center Core	Aggregation / Layer 3	Top-of-Rack	Campus LAN	Aggregation / Layer 3	Edge / Layer 2	Branch office	Small office	Features	PoE / PoE+	Stacking (maximum stack)	Open Automation ¹	iSCSI optimization ²	Hot-swap power	Redundant power	Airflow option ^{3, 4, 5, or 6}	Warranty ⁷			
10/40 GbE	Z9000	Revitalize the network with this small yet massively scalable switch for cloud and virtualized data centers. (OpenFlow™ compliant)	2.5 Tbps	32 ports 40 GbE QSFP+ or 128 ports 10 GbE SFP+	●	●													✓	✓	✓	*3	1 yr	
1/10/40 GbE	S4820T or S4810	High-performance top-of-rack switches designed to deliver non-blocking throughput for dense traffic environments. (S4810 is OpenFlow™ compliant)	1.28 Tbps	48 ports 10GBase-T or 48 ports SFP+ Both switches include four 40GbE QSFP+ ports which expand to 16 additional 10G ports using breakout cables.		●	●											6	✓	✓	✓	✓	*3	1 yr
1/10 GbE	S60	Deep buffer switch with 1.25Gb memory to smooth out traffic spikes and reduce packet loss associated with high-demand applications.	176 Gbps	44 ports Base-T with four SFP ports and dual slots (SFP+ or 12/24Gb stacking modules)			●											12	✓	✓	✓	✓	*3	5 yr
	S55	High-capacity, low latency, switch optimized for top-of-rack deployments.	176 Gbps	44 ports Base-T with four SFP ports and dual slots (SFP+ or 12Gb stacking modules)			●											12	✓	✓	✓	✓	*3	5 yr
	S25/50 Series	Transform your data center and deliver critical functionality and throughput to the network edge.	128/176 Gbps	24/48 ports Base-T or 24 ports SFP/Base-FX SFP and dual slots (XFP, CX4, or 12/24Gb stacking modules)			●								P	8	✓		✓			*4	5 yr	

Campus LAN switching



10/40 GbE	8100 Series	High density connectivity and efficient performance for large enterprise campus distribution and small network cores.	640 Gbps /1.28 Tbps	24/48 ports (10GBase-T or SFP+) with one module (dual QSFP+, quad 10GBase-T, or quad SFP+) 48 port models include two extra QSFP+ ports				●										6	✓	✓	✓	*5	Life
1/10 GbE	7000 Series	High density switches with energy-efficiency features and redundancy great for enterprise LANs, server aggregation, and wiring closets requiring PoE+.	176/224 Gbps	24/48 ports Base-T or 24 ports SFP, four combo ports, and dual 10G slots supporting four ports of 10GBase-T, SFP+, or CX4			●	●	●					P+	12	✓	R			R	R	*5	Life
	6200 Series	Flexible performance and value for small to medium-sized businesses and branch office wiring closets requiring entry-level routing.	136/184 Gbps	24/48 ports Base-T or 24 ports SFP, four combo ports, and dual 10G slots supporting 4 ports of 10G Base-T, SFP+, CX4, or XFP			●	●	●					P	12	✓				E		*5	Life
	5500 Series	Advanced end-user and workgroup connectivity with energy-efficiency features and simple scalability.	128/176 Gbps	24/48 ports Base-T with two SFP+ uplinks				●	●					P	8						E		*5
1 GbE	2800 Series	Quiet and simple to manage for small offices connecting PCs and peripherals using Gigabit speed.	16-96 Gbps	8-48 ports with SFP combo ports (varies by model)					●	●	●											*5 or *6	Life
100 Mb	3500 Series	Entry-level switch where full management capabilities and PoE are priority over speed.	13/18 Gbps	24/48 ports Base-T with two SFP copper or fiber uplinks					●	●	●			P	8						E	*5	Life

● Recommended deployment

* (1) Open Automation is an integrated software suite of advanced network management tools to automate data center processes and hypervisor switch communications. See page 5 for details. Z9000 has partial Open Automation capabilities: Bare Metal Provisioning and Smart Scripting only. (2) iSCSI optimization automatically configures QoS policies for Dell storage arrays. (3) Air flow direction (front to rear or rear to front) must be selected upon ordering. (4) Side-to-side airflow. (5) Air flow moves from front ports and side towards back. Airflow for 7048R model has reversible fan. (6) Fan less models 2808 and 2816. E = External redundant power supply optional. R = 7048R model only. Power-over-Ethernet (PoE/PoE+) available on select models. (7) Details pertaining to other Limited Hardware Warranties go to dell.com/warranty Life = Lifetime Warranty (hardware repair or replacement) for as long as you own the product. Info at: dell.com/lifetimewarranty



Active Fabric

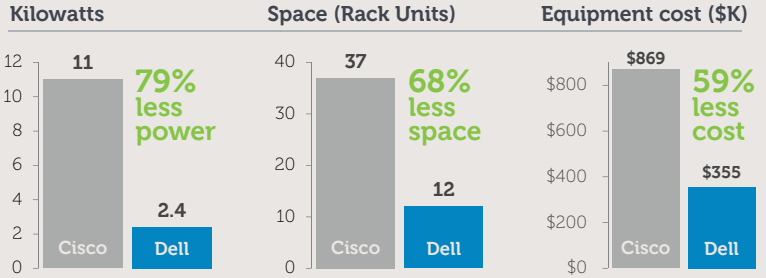
Cost-effective fabrics for cloud and virtualized data centers of any size

Active Fabric is family of high-performance, cost-effective solutions to interconnect server, storage and software elements in cloud and virtualized data centers. Active Fabric solutions comprise low-power, high-throughput 10GbE and 40GbE switching platforms equipped with fully-featured Layer 2/3 multi-path fabric technology, DCB options for SAN/LAN convergence, and software-defined networking programmability.

Active Fabric Solutions

- (Two or four node configurations combined with top-of-rack and blade I/O elements, and unified via Active Fabric Manager):
- **10G Active Fabric:** DCB-enabled configurations using S4810 systems
 - **40G Active Fabric:** configurations using Z9000 systems
 - **Active Fabric Manager:** Easy-to-use all-in-one GUI-based fabric configuration, deployment, management, monitoring.

Redefining fabric economics



Recent internal analysis demonstrated that Dell Active Fabric architectures are more cost-effective and space-saving compared to the traditional modular Cisco Nexus chassis. The Active Fabric design delivers the same throughput density, saving up to 79% less power, up to 68% less space, and up to 59% less costs overall. (Chart shows one Cisco Nexus 7010 chassis with five F248XP line cards combined with eight Nexus 5596 switches for a total of 384 ports of 10GbE compared to eight Dell S4810 switches and two Dell Z9000 switches providing the same exact throughput capacity.)

Modular core & aggregation systems

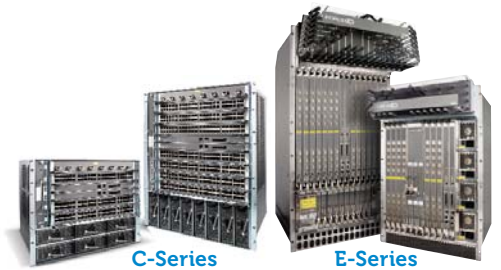
High-density one and 10 Gigabit chassis

Deployment	Capacity and ports	Model	Line cards
Data center core and aggregation	3.5 Tbps, 560 ports 10 GbE (140*), 1,260 ports GbE	E1200i	14
	1.75 Tbps, 280 ports 10 GbE (70*), 630 ports GbE	E600i	7
Campus LAN & wiring closets (PoE capable)	1.536 Tbps, 64 ports 10 GbE, 384 ports GbE	C300	8
	768 Gbps, 32 ports 10 GbE, 192 ports GbE	C150	4

All ports are full non-blocking throughput unless noted. *Maximum ports at line-rate speed.

Best selling line cards (E-Series)		Best selling line cards (C-Series)	
10 GbE SFP+ or XFP (10 ports)		10 GbE XFP (4 or 8 ports)	
1 GbE SFP (50 ports)		10/100/1000 Base-T with PoE (48 ports)	
10/100/1000 Base-T (90 ports)		FlexMedia card - 10/100/1000 Base-T with PoE (36 ports), 1 GbE (8 ports), & 10 GbE (2 ports)	

More line card options for both E and C Series chassis available.



The Dell C-Series and E-Series chassis systems provide flexible, high-density 1/10GbE connectivity for data centers and enterprise LANs. The E-Series is ideal for cost-effective, collapsed-core designs and large-scale aggregation deployments. The C-Series is best suited for end-user aggregation and campus LAN wiring closet environments. The C-Series also supports Power-over-Ethernet for VoIP phones, IP security cameras, and other campus applications.

Blade Interconnects

Transforming your Dell M1000e blade server enclosure



Capacity and ports	Model
1/10/40 GbE with iSCSI / FCoE transit (56 ports with two FlexIO modules)	MXL
1/10 GbE with iSCSI / FCoE transit (48 ports with two FlexIO modules)	PowerEdge M I/O aggregator
1/10 GbE with iSCSI / FCoE transit (24 ports with one FlexIO module)	M8024-k
10 GbE (24 ports) and 8 Gbps FC (4 ports)	M8428-k
1/10 GbE (48 ports)	M6348
1/10 GbE (20 ports & two FlexIO modules)	M6220
16 Gbps Fibre Channel (12 or 24 ports)	M6505

Find more blade interconnects, HBAs, and NICs on dell.com

Fibre Channel

Leading connectivity options for your SAN



Capacity and ports	Model
16 Gbps, (24, 36, or 48 ports)	Brocade 6510
16 Gbps, (12 or 24 ports)	Brocade 6505
8 Gbps, (48, 64 or 80 ports)	Brocade 5300
8 Gbps, (8, 16, or 24 ports)	Brocade 300
Modular, 8 Gbps, (192 ports)(supports DCB/FCoE)	DCX 4S
Modular, 16 Gbps, (192 or 384 ports)	DCX 8510

- Represents converged networking capability with iSCSI or FCoE.



Wireless Controller-based Platforms

The Dell W-Series controller-based network is ideal for organizations that seek maximum security, functionality and centralized management features. This architecture can enforce policies and security from one console and meets stringent government and military encryption certifications. Controller-based platforms can also serve as a termination point for your Virtual Private Network.

Access Points

Overview	Models	MIMO antennas (Multiple Input/Multiple Output)
High-performance, 900 Mbps, Dual radio, Dual band (450Mbps per radio)	W-AP135	6 internal (3x3, 3 streams)
	W-AP134	3 external (3x3, 3 streams)
Mainstream, 600 Mbps, Dual radio, Dual band (300 Mbps per radio) Outdoor model →	W-AP105	4 internal (2x2, 2 streams)
	W-AP104	4 external (2x2, 2 streams)
	W-AP175 (PoE, AC, DC)	4 external (2x2, 2 streams)
Entry-level, 300 Mbps, Single radio, Dual band Wired+Wireless →	W-AP93	2 internal (2x2, 2 streams)
	W-AP92	2 external (2x2, 2 streams)
	W-AP93H	2 internal (2x2, 2 streams)

Wired+Wireless model W-AP93H is a commercial grade AP that mounts to an Ethernet wall plate and adds four Fast Ethernet ports - ideal for hotels, offices, classrooms, dormitories, and hospitals that require multiple connections in one device.



Controllers

Deployment	Controller	Model	Max users	Max APs	Firewall throughput
Headquarters or large campus		W-6000 (4 slot chassis)	32,768 (8,192 per module)	2,048 (512 per module)	80 Gbps (20 Gbps per module)
Medium to large enterprise		W-3600	8,192	128	4 Gbps
		W-3400	4,096	64	4 Gbps
		W-3200	2,048	32	3 Gbps
Small office or Branch office		W-650	512	16	2 Gbps
		W-620	256	8	800 Mbps

Embedded Controller Functionality

License and activate these modules or try them free for 90 days

Wireless Intrusion Protection (WIP) - Safeguard against wireless security threats, provide visibility into sources of RF interference, and eliminate the need for separate RF sensors and security appliances.

Policy Enforcement Firewall (PEF) - Provide identity-based controls to enforce application-layer security, prioritization, traffic forwarding, and network performance policies for wired and wireless networks.

Policy Enforcement Firewall with VPN (PEF-V) - Create a secure tunnel and allow your VPN (Virtual Private Network) traffic to enter the controller.

Advanced Cryptography (ACR) - Deliver military-grade cryptography and enable secure access to networks that handle controlled unclassified, confidential and classified information.

Instant Wireless Networks



Dell W-Series Instant Access Points (IAPs) combine enterprise capabilities with entry-level simplicity. These intelligent 802.11n devices have a built-in virtual controller and firewall, so they require no additional hardware or software. IAPs can be setup in about five minutes. Simply configure the first device and the other IAPs automatically form a unified cluster. You can add more capacity by simply plugging in more IAPs. The devices can even migrate to a controller-based ecosystem if you ever decide to expand to a centralized wireless network. Easily deploy, configure and grow your network with Dell.

Overview	Instant Models	MIMO antennas (Multiple Input/Multiple Output)
High-performance, 900 Mbps, Dual radio, Dual band (450Mbps per radio)	W-IAP135	6 internal (3x3, 3 streams)
	W-IAP134	3 external (3x3, 3 streams)
Mainstream, 600 Mbps, Dual radio, Dual band (300 Mbps per radio) Outdoor model →	W-IAP105	4 internal (2x2, 2 streams)
	W-IAP104	4 external (2x2, 2 streams)
	W-IAP175 (PoE or AC)	4 external (2x2, 2 streams)
Entry-level, 300 Mbps, Single radio, Dual band Wired+Wireless →	W-IAP93	2 internal (2x2, 2 streams)
	W-IAP92	2 external (2x2, 2 streams)
	W-IAP3WN (PoE option avail.)	2 internal (2x2, 2 streams)

The W-IAP3WN is ideal for remote offices, teleworkers, and road warriors. It is a portable device with two extra Ethernet ports to create a small network, one USB port to connect a cellular modem, and also incorporates VPN termination capability when connecting to a W-Series controller. The PoE version, W-IAP3WNP, allows you to power PoE enabled devices.

Flexible mounting kits, external antennas & AC adapters purchased separately. Models with external antennas work best for special deployment scenarios.

Guest Access & BYOD - ClearPass

The Dell ClearPass solution is a Visitor Management and BYOD (Bring Your Own Device) system that connects to your existing network. Now you can connect any tablet, smartphone or laptop to the corporate network without the tedious manual intervention required by IT staff. Users simply connect to the Wi-Fi hotspot and gain access based on their guest or corporate profile. You can push security certificates to employee-owned devices and advertising to guests. BYOD has never been so easy, innovative & effective.

Model	Details
CPGC 100	Dell server loaded with 100 licenses, expandable to 5,000
CPGC 2500	Dell server loaded with 2,500 licenses, expandable to 25,000
CPGC SW 100	Software only (Virtual machine for VMware™)

AirWave Network Management



Multi-vendor network management software that delivers a consolidated view of: the RF environment, controllers, APs, and the wired infrastructure, with an intuitive user interface. AirWave can manage all Dell W-Series wireless products and provide visibility and troubleshooting for your existing vendor networks.

Virtual Internet Access (VIA) Client



Create a secure Virtual Private Network for remote users that intelligently configures connection settings for their mobile devices and laptops then transparently authenticates without complicated logins.



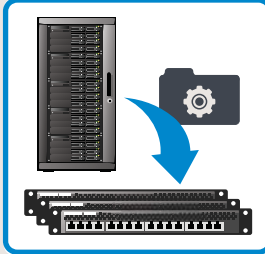
Data center network automation



Open Automation
Embedded tools in the Dell Networking Operating System add intelligence and programmability

 Dell Networking Open Automation framework provides an open standards-based automation solution for data center operations. The Open Automation Framework is an integrated software suite of network management tools that can be used together or independently. These tools provide data center managers with a complete set of capabilities required in today's dynamic, virtual data center environments. (Functionality of Software OS v9.x)

Bare Metal Provisioning

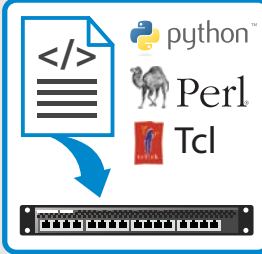


Automatically configure network switches

Switches automatically configure themselves by loading the configuration file & operating system

- Reduce installation time
- Enforce standard configurations
- Eliminate manual errors
- Simplify OS upgrades

Smart Scripting



Customize switches with familiar languages

Perl, Python or Tcl scripting environments for custom monitoring and management

- Increased network uptime
- Reduce time for problem resolution
- Improve configuration management & auditing

Virtual Server Networking

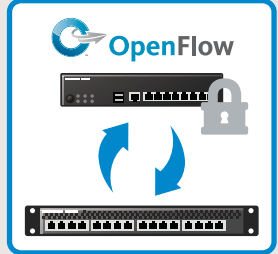


Automate VM and VLAN migration and provisioning

Hypervisor switch communications to ease Virtual Machine & Virtual LAN management

- Increase data center flexibility
- Maintain network connectivity & security with VM migration

Programmatic Management



Gain the ability to manage switches with 3rd party tools

Seamless integration with programmatic interfaces & system management tools

- Simplify network management
- Minimize number of management tools
- Reduce OpEx



Network Management



Simplify the complex

As your infrastructure gets larger and more complex, it can be a real headache to keep track of every device in your network. You need to know the status of those devices, how they are performing, and have the ability to manage their configuration for optimal performance. With Dell you are able to regain control of the network with **OpenManage Network Manager**. View complete physical and logical inventories of your network, get detailed connectivity information of each device, and automate network functions.

Try it for free. Information at dell.com/networkmanager.

Network Services

Whether you are seeking product support or complete IT outsourcing, Dell can deliver services based on your need. Get a free business consultation at dell.com/networkconsulting



Workshop



Assessment



Design



Implementation



Manage / Support

Consulting services

Achieve improved business outcomes with professional guidance pertaining to your network. Improve network performance, add functionality, and leverage existing infrastructure to maximize your investment.

Deployment services

Let us install and correctly optimize your network with a comprehensive set of remote and onsite deployment services.

Managed services

Free yourself to focus on your business and allow Dell to fully manage and monitor your multi-vendor network with triage, resolution, and tier 2 and 3 engineering support.

Support Services*

Gain access to networking professionals 24 hours a day who help you configure, troubleshoot, and diagnose your network. Dell ProSupport™ experts also help resolve complex issues related to third-party connectivity to Cisco, Brocade, Juniper, HP, and Aruba.

*Availability and terms of Dell Services vary by region. For more information, visit Dell.com/servicedescriptions

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