

# Dell Networking Quoting FAQs

Dell Networking Simplified



Spring 2024

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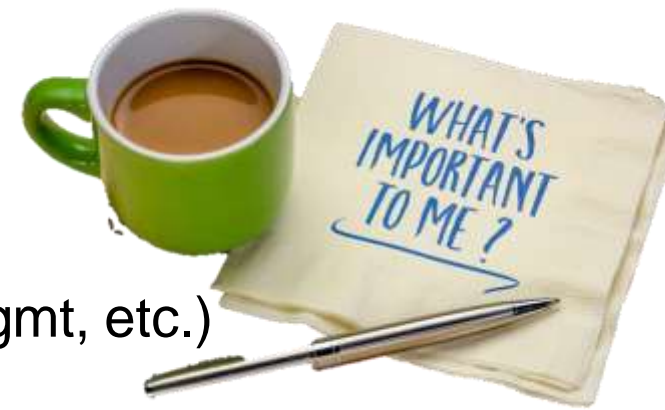
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# Why Choose Dell Networking?



- Cross LOB integration with ESXi and storage (automation, Lifecycle mgmt, etc.)
- High performance portfolio at competitive pricing
  - better costs traditional HPC (IB) and SAN (FC) switching
- Holistic Datacenter solutions with global end to end Support
- Open Networking (SONiC momentum or OS10 integration) – eliminate **vendor lock-in**
- In stock for faster deployments

## Dell benefits:

- Great Margin (assist aggressive server & storage goal requests)
- Reduce competition from networking resellers who promote competing compute & storage (by keeping the total solution in house)
- Increase share of wallet by up to 20% (IT budgets for network, edge, and security)
- Services attach for a happier customer (ProDeploy, training, consulting, etc.)



# Dell Networking Portfolio

## Datacenter Networking



S-series, Z-series,  
N3248TE-ON

## Edge Networking



VEP4600, VEP1400  
E3248P, E3248PXE,  
E3224F

## Networking Software

- Enterprise SONiC Distribution by Dell Technologies
- SmartFabric OS10 with SmartFabric Services
- SmartFabric Storage Software

## NICs, Cables and Optics

Visit [Networking Central](#) for connectivity information

Network Server Adapters and Smart DPUs are owned by Server COMMS.

#1  
Industry's

Open  
Networkin  
g Portfolio  
PowerSwitch

*Simplicity,  
Agility, Control*

DELL Technologies

# Dell PowerSwitches come with a choice of Operating System

Find more info on the product pages at [Networking Central](#)



## Enterprise SONiC Distribution by Dell Technologies

Hardened and validated commercial version of Open Source SONiC (Linux for Networking)

[www.dell.com/enterprisesonic](http://www.dell.com/enterprisesonic)

Quick Videos to share:

- [Next-Gen Networking: Redefining Datacenter Connectivity with Dell Enterprise SONiC](#)
- [Enterprise SONiC Distribution by Dell Technologies](#)

**SmartFabric OS10 with SmartFabric Services (SFS)** - a Modern, Feature-rich, DevOPS-ready Network OS shipping since 2017.

**Use SFS** (included with OS10) **with ESXi, vSAN, VxRail, PowerStore, PowerScale, Isilon, and MX7000**, to automate deployment, Moves/Adds/Changes, failure detection, auto-heal capability, and a single pane-of-glass management that is interoperable with 3rd Party OS [www.dell.com/smartfabric](http://www.dell.com/smartfabric)

Quick Videos to share:

- [SmartFabric Services for PowerEdge with ESXi](#) | [SmartFabric Services Overview](#)
- [SmartFabric Services for VxRail](#) | [SmartFabric Services for VxRail - The Toast](#)

[Fabric Design Center](#) is a free Cloud Based Fabric Design & Deployment software that simplifies and automates new fabric deployments and scale out of existing fabrics in the data center. Access Fabric Design Center at <https://fdc.dell.com>

# Lead with Enterprise SONiC



## Customers Looking for:

- **Open source innovation**

Dell has a long history of collaborating with and contributing to the open source SONiC community with new features and capabilities across the protocol stack and management apps to help customers keep up with ever-changing security and business demands.

- **Edge, Enterprise and Cloud readiness**

Tested and validated in hyper-scale environments, SONiC includes a centralized management platform for a unified NOS across the entire fabric and integrates with a growing and robust ecosystem of partner apps and tools. From edge to core to cloud.

- **Flexible Hardware Options**

Enterprise SONiC uses standards-based APIs in a containerized architecture to simplify integration and provide the flexibility to adapt applications to a specific environment — running only what's required.

- **Resilient, Modern and Flexible Fabrics**

Enables secure, feature-rich fabrics with scalability, redundancy and optimized traffic flows supporting high-bandwidth applications like GenAI.



## Use Cases:

- **Scalable L3 Spine & Leaf Architectures**

Dell Enterprise SONiC scales easily, making it the preferred choice for large, scalable fabrics like:

- Layer 3 fabric underlays for DC
- Fabric underlays for SDN deployments
- Multi-tenancy with VXLAN EVPN
- Routing to host cloud use cases
- Data Center Interconnects (DCI)

- **Generative AI Solutions**

- Design and develop large-scale Ethernet fabrics that can meet the performance needs of AI workloads

- **Edge use case**

- Creating a unified fabric with a single NOS and centralized management for retail outlets and branch offices that extend DC features, visibility and control to the edge

- **Telco Fabrics**

- Telco / provider multi-tenant bridging

- **Storage Access Fabrics**

- Cluster / Storage Fabric (BGP EVPN)
- HCI/CI solutions (VxRail, PowerFlex)
- Lossless storage / NVMe/TCP fabrics



## Needing these Features:

- **GenAI performance features**

High bandwidth PowerSwitch models can deploy low latency and high data throughput clusters with 1000s of nodes with the improved congestion monitoring, flow control and transport protocols of Enterprise SONiC

- **Advanced Edge Features**

PowerSwitch E-series provides monitoring, greater insights and more customizable options for Edge deployments. SONiC supports Streaming telemetry and user containers, Private and Voice VLANs, Port Security and POE/POE+ support, and many more common edge features

- **CloudIQ**

Capacity, Inventory, and Performance monitoring for PowerSwitches are displayed in CloudIQ's multi-switch and single-switch views

- **Bare Metal Orchestrator (BMO) support**

Enabling Communication Service Providers (CSPs) to deploy, configure, and manage network infrastructure seamlessly across multi-premises.



# When to quote SmartFabric OS10



## Customers Looking for:

- **Limited IT Solutions:**

Cost conscious customers with small IT staff and budget, or large storage and server pod deployments that may be interested in a solution with automated management and deployment like OS10 SmartFabric Services

- **US Fed Sales:**

Dell OS10 meets most Fed certification requirements (Roadmap for SONiC in versions 4.3 & 4.4)

- **UDS Solutions:**

OS10 is fully supported with PowerScale and ObjectScale solutions (Roadmap for SONiC in versions 4.3 & 4.4)

- **Azure Stack:**

OS10 is supported in Azure stack (Roadmap for SONiC in versions 4.3 & 4.4)



## Use Cases:

- **SmartFabric Services managed networks:**

Customers with, or looking for, automated deployment and lifecycle management with Dell Technologies Storage and Server solutions (discuss future migration to SONiC)

- **10G BaseT Data Center:**

SONiC does not support the PowerSwitch S4100 with 10GbE.

(For 10G SONiC deployments, recommend S5200 with backwards compatibility for 10Gb SFP+ or the Edge-Core Accton 48x10G (AS5835-54T) switch. 10GbaseT is supported with the E3248PXE for Edge use cases only)

- **Smaller Customers**

Smaller, SMB-type customers with Infrastructure racks that number in the 10's or less.



## Needing these Features:

- **Protocol Independent Multicast Sparse Mode (PIM SM):**

Often used in large networks when multicast sources are not known in advance and PIM SSM is not an option (uses more CPU/Memory with less latency than SM)

- **PTP/SyncE:**

Telco Open Radio Access Network (ORAN)



# Software for Open Networking in the Cloud



An open-source  
software project  
under Linux  
Foundation

Seed code  
provided  
by MSFT

Currently running  
on 45,000+  
Azure switches

An  
automated, intent-  
based, API-centric,  
and purpose-built  
containerized  
network

“By 2025, 40% of organizations that operate large data center networks (more than 200 switches) will run SONiC in production environments” ~ Gartner

# Enterprise SONiC Distribution by Dell Technologies bundles

ECOSYSTEM



augtera networks



ANSIBLE

## Datcenter bundle

## Edge bundle

Standard

- ✓ Management Plane  
TACACS, RADIUS, ZTP, gNMI, REST, OpenConfig, CLI, Telemetry, ERSPAN/Everflow, sFlow, User containers
- ✓ Control Plane  
BGP, OSPF, ECMP, WRED, COPP, BFD, VRF, LAG, LLDP, ACL, VRRP, PBR, NAT, PFC, ECN, ROCEv2, RBAC
- ✓ Cloud Image includes
  - ✓ VXLAN, EVPN, MCLAG, RPVST+, IGMP, EVPN DCI
  - ✓ Multicast, STP, MSTP, PIM-SM, MLD, EVPN Multi-homing, QinQ

- ✓ Management Plane  
Same as Cloud, except Telemetry
- ✓ Control Plane
  - ✓ BGP, OSPF, ECMP, WRED, COPP, BFD, VRF, LAG, LLDP, ACL
  - ✓ Guest/Private/Critical/Voice VLAN
  - ✓ MSTP, LLDP-MED
  - ✓ Port security 802.1X, RBAC
  - ✓ POE, POE+, UPOE
  - ✓ VXLAN, EVPN, EVPN DCI

Dell ProSupport

Premium

- ✓ Advanced Analytics, IFA, MoD, Tailstamp

Quote with S5200 & Z-series. Not supported on S4100\*

Quote with E3248P (1G), E3248PXE (10G) & N3248TE No OS (1G)

Open Hardware Options for Supported Third Party Platforms

# The Dell PowerSwitch Edge Portfolio

Dell's ISG strategy is to **Win the Edge and Multicloud**. This means shifting our focus, resources and moving from campus to edge networking and services. Moving to the edge offers an agile, open ecosystem approach to networking with reduced complexity and network congestion. We maximize customer choice, flexibility, and innovation from the **edge** to the **core** to the **cloud**.

For customers with large call centers or multiple sites quote the E-Series Edge switches which are purposely designed for the SONiC Edge Bundle.

## 1GbE and 10GbE L3 Advanced Edge Switches (with external power shelves to maximize PoE budgets)

- **E3248P-ON** – 48 x 1GbE RJ45 PoE (802.3at 30w), 4 x 25GbE SFP28, and 2 x 100GbE QSFP28 ports
- **E3248PXE-ON** – 48 x 1/2.5/5/10GbE RJ45 (802.3bt 90w), 4 x 10GbE SFP+, and 2 x 100GbE QSFP28 ports
- **N3248TE-ON No OS with SONiC Edge Bundle** – 48 x 1GbE RJ45, 4 x 10GbE SFP+, and 2 x 100GbE QSFP28 ports



## 1GbE SmartFabric OS10 fiber (SFP) for Americas only

- **E3224F-ON** – 24 x 1GbE SFP, 4 x 10GbE SFP+, and 2 x 100GbE QSFP28 ports

*Dell Networking Campus Portfolio: The Dell Networking OS6 and OS9 for campus reached End of Sale on 12/29/2023*

# Dell Networking Data Center Portfolio

[Data center switching Quick Reference Guide](#) on [dell.com](#)

## S-series for Top of Rack, leaf, smaller Datacenter cores, or closet aggregation

### 48 port 1GbE family: management, 1 GbE server connect

- **S3048-ON** customer load OS10 IO/PSU with 4 x 10GbE SFP+ ports
- **N3248TE-ON** OS10 or SONiC with 4 x 10G SFP+ & 2 x 100GbE Q28 ports

### S-series 10Gb family : Top of Rack, small / med core, or leaf, OS10

- **S4112(T|F)-ON** 12 x 10GbE SFP+ or 10GBaseT & 3 x 100GbE Q28 ports
- **S4128(T|F)-ON** 28 x 10GbE SFP+ or 10GBaseT & 3 x 100GbE Q28 ports
- **S4148(T|F)-ON** 48 x 10GbE SFP+ or 10GBaseT & 4 x 100GbE Q28 ports

### S-series 25GbE family: Top of Rack, small / med core, or leaf, OS10, SONiC

- **S5212F-ON** 12 x 25GbE SFP28 & 3 x 100GbE QSFP28 ports
- **S5224F-ON** 24 x 25GbE SFP28 & 4 x 100GbE QSFP28 ports
- **S5248F-ON** 48 x 25GbE SFP28 & 4 x 100GbE QSFP28 ports
- **S5296F-ON** 96 x 25GbE SFP28 & 8 x 100GbE QSFP28 ports

### S-series 100GbE family: Core, Spine, or Leaf, OS10, SONiC

- **S5232F-ON** 32 x 100GbE QSFP28
- **S5448F-ON** 48 x 100GbE SFP56-DD 8 x 400GbE QSFP56-DD ports

## Z-series for high performance

### Z-series family: 400 GbE for Core, Spine, Leaf with OS10 or SONiC

- **Z9432F-ON** Broadcom Tomahawk2 – 32 x 400GbE QSFP56-DD ports breakout up to 128 ports of 100GbE. Up to 144 ports of 10/25G (or 128 of 10/25GbE & 16 ports of 400GbE)

### OS10, SONiC 4.1

- **Z9664F-ON** Broadcom Tomahawk4 - 64 x 400GbE QSFP56-DD ports breakout up to 256 ports of 10/25/50/100GbE (RTS Q4FY23)

## Modular switches for MX7000

### Ethernet Switches

- **MX5108n** – 25GbE
- **MX9116n** – Scalable Fabric Engine
- **MX7116n** – Fabric expansion for MX9116n
- **MX8116n** – 100GbE Fabric Expansion for Z9432F-ON

### Fiber Channel Switches

- **MXG610s** – 32Gb FC with Enterprise Software option

Leverage the [PowerEdge MX I/O Guide](#) on the Sales Portal for connectivity options

[www.dell.com/networking](http://www.dell.com/networking) or [www.dell.com/PowerSwitch](http://www.dell.com/PowerSwitch)

# Dell Networking Edge: Virtual Edge Platform

[www.delltechnologies.com/VEP](http://www.delltechnologies.com/VEP)

## Virtual Edge Platforms (VEP) Ready Node for Service Providers & large enterprises

**Position for customers wanting to install Universal Customer Premise Equipment (uCPE) with bare metal Versa SD-WAN software or Adva or ESXi hypervisors.**

- **VEP4600** – 4 core, 8 core, & 16 core bases with No OS (Versa or ESXi image preloaded on all models)
- **VEP1405** - 4 core, 8 core, & 16 core bases with No OS (Versa or ADVA image preloaded on all models)
- **VEP1405N** – Non-Wireless version of Versa VEP1405s
- RTS Q1/Q2 FY25 – VEP1420N, VEP1420, VEP1420LTE

**NOTE:** Additional software purchase is required. ESXi is available as OEM. All other titles, including Versa & ADVA, are available through ET

[Sales Portal](#) landing page = *Products, Solutions, & Services / Networking / [Virtual Edge Platform \(uCPE device\)](#)*

*Find more internal and external resources in the Virtual Edge Platform link on [Networking Central](#)*

## SD-WAN Edge Solution

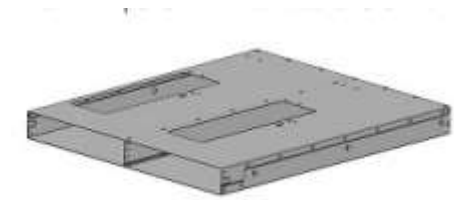
**Beginning 5 April 2022 all SD-WAN Edge Solutions are fulfilled through the ET VMware team**

Register all opportunities to receive the highest discount tier and prevent channel competition. [SD-WAN Registration Steps](#). Additional cost discount requests for large & strategic opportunities will be managed through ET.



# Dell Networking Rail and Tray Offering Guide is on the Sales Portal

- **1U switches** ship with Dell Standard 1RU Ready Rails **S4128, S4148, S5224, S5248, S5232, S5448, Z9332 (EOS), Z9432, S4048 (EOS), S4048T (EOS), S4200 (EOS), Z9100 (EOS)**
  - Optional Ready Rails for 1U (check customer kit list for compatibility)
    - › 770-BCFQ Ready Rails BDIE kit, 2 or 4 post racks, for select Dell Networking switches, Customer Kit
    - › 770-BBGY Ready Rails, Full set, 2x outer and 2x inner rail, 2 or 4 post racks, for select Dell Networking 1U switches, Cust Kit
  - Optional 2 & 4 post brackets for 1U (check customer kit list for compatibility)
    - › 2U switches ship with Dell Stan770-BCGP Adjustable 4 post mounting bracket for select 1U networking switches, Customer Kit
    - › 770-BCGL 2 Post Rack mount kit for select 1RU Dell Networking switches
- **2U switches** ship with Standard Ready Rails **S5296, Z9664, Z9264 (EOS)**
- **Half width** switches have no rails and utilize a side-by-side dual-tray (additional option) **S4112, S5112**
  - › 1 Tandem tray holds 2 switches. These trays are not interchangeable between S4112 & S5112 (each has their own discrete tray option)
- **VEP1405, SD-WAN Edge 6xx (EOS):** Desktop design, wall mount (included).
  - Use customer kit SKU 770-BCZE for Rack mount (1.5 RU, dual unit tray)
- **VEP4600, SD-WAN Edge 3xxx (EOS):** Rack rails included in the packing
- **N3248TE & E3248s** ship with two-post L-brackets by default. You can rotate the L-bracket piece 180 degrees to allow for flush mounting or off-set mounting. Standard ReadyRails option can be ordered with cust kit SKU 770-BCFQ.
- **N1108EP (EOS)**, has no rails, choose tandem tray or rail option if required
- **N1500 (EOS), N2000 (EOS)**, 1U switches ship with Two-post L-brackets – brackets vary slightly in length and width, depending on how narrow the switch is and how heavy it is (how far along the side they need to mount to lessen sag/droop of the chassis rear)
- **N3200** ship with two-post L-brackets by default. You can rotate the L-bracket piece 180 degrees to allow for flush mounting or off-set mounting.
  - Standard ReadyRails option can be ordered with cust kit SKU 770-BCFQ. 24-port switches also support wall/ceiling mount brackets as Customer kits
- **N3208PX (EOS)**, compact switch ships with wall/ceiling mount bracket by default.
  - Customer kits: DIN rail mounting kit for wall mounting or inside wall/pole mount cabinets & 2-post/4-post rack mount kit
- **N3132PX-ON (EOS)** - Dell Standard 1RU Ready Rails



Dual Tray



Ready Rails



Brackets



# Power

## **Datacenter switches have redundant power supply options**

- S4128, S4148, S5224, S5248, S5296, S5232, S5448, Z9264, Z9332, Z9432, Z9664 and VEP4600 16 core all ship with redundant AC power supplies
  - Note: S4112 & S5112 have fixed power supplies & fans (airflow cannot be converted). DC models are available
- S3048, N3248TE, S3100 and VEP4600 4 & 8 core all ship with single PS and have optional hot swap Redundant PS
- Datacenter switches, except 12 port, have DC (Direct Current) power kits at POS with (2) DC power supplies – both AC power supplies that ship in the switch have to be replaced with DC. Fan and PSU airflow must match.
- **E-series with Power-over-Ethernet (PoE+)** allows these Edge switches to transmit power over Ethernet cables to PoE enabled devices. This eliminates the need for power outlets where access points, cameras, etc. are located.
  - E3248P supports 802.3at (30W) PoE on all ports
  - E3248PXE supports 802.3bt (390W) PoE on all ports = external 1050W/1600W/2000W AC PSUs mounted from MPS-1S or MPS-3S external power shelves

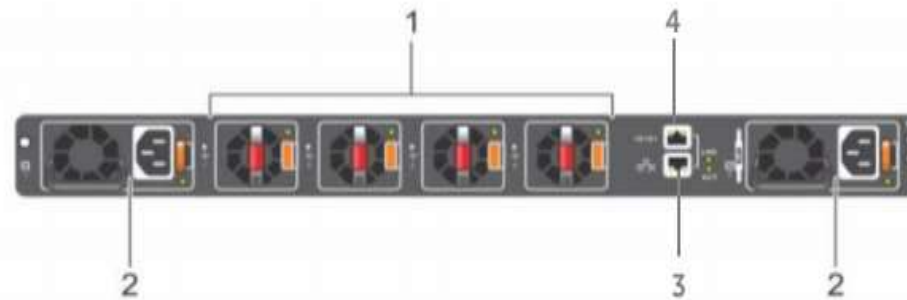
EOS Campus switch models that end in a “P” are PoE+ enabled

- **N1108EP-ON (EOS)** – External power adapter. 802.3at (30W) PoE on all ports
- **N1500 (EOS)** has an external PSU option / For Non-PoE = RPS720, For PoE = MPS1000 with tray that holds up to 3 PS. 802.3at (30W) PoE on all ports
- **N2200-ON (EOS) /N3200-ON (EOS)** 1U switches have an optional 2<sup>nd</sup> hot swap power supply and specific PoE models support external PSUs (mounted in external power shelves) to extend PoE budget and/or add redundancy
  - N2224X/ N2248X/ N3224T/ N3224F/ N3248TE/ N3248X = 550W AC PSU, N2224PX/ N3224P/ N3248P = 1050W AC PSU
  - N2248PX/ N3224PX/ N3248PXE = 1600W AC PSU, N2224PX/ N2248PX/ N3248P/ N3224PX/ N3248PXE = external 1050W/1600W/2000W AC PSUs mounted from MPS-1S or MPS-3S external power shelves
  - N2200 and N3200 1U models also support 550W DC PSUs for Non-PoE and 1300W DC PSUs for PoE (all PSUs pluggable into switch or MPS shelves). budget When DC power supplies are available, an AC power supply ships in the switch and has to be replaced with DC PSUs
  - N3208PX = up to two optional 320W AC external power adapters to extend the PoE. 802.3bt Type-4 (90W) PoE on all ports
  - N3224P, N3248P support 802.3at (30W) PoE on all ports
  - N2224PX , N2248PX support 802.3bt Type-3 (60W) PoE on 50% of ports and 802.3at (30W) PoE on the rest.
  - N3224PX, N3248PXE support 802.3bt Type-4 (90W) PoE on all ports

# Airflow Direction

- S-series & Z-series datacenter switches have two airflow options – it is critical to find out which airflow the customer prefers to prevent customer sat issues upon delivery. Customers will choose between IO to PSU airflow and PSU to IO depending on how their datacenter is set up
- **IO to PSU** airflow puts the cable ports in the front of the rack (or cold aisle) and the power supplies in the back of the rack (hot aisle) – common use cases are if cabling patch panels are installed, or all the power strips are in the back of the rack
- **PSU to IO** airflow puts the cable ports in the back of the rack (hot aisle) and the power supplies in front of the rack (or cold aisle) – common use cases are if customer is **not** using patch panels in the rack and want the ports on the same side as the server ports and power strips are available in the front of the rack
- The fans and power supplies must all be replaced to change the airflow so most datacenter switches have airflow conversion kits (S4112 & S5112 have fixed fans & power supplies and airflow cannot be converted)

Example IO/PSU  
(PSU side)



1. Four hot swappable fan units (N+1 redundancy)
2. Two hot swappable PSUs with integrated fans (1+1 redundancy)
3. 100M/ 1Gigabit Ethernet – RJ45 Management port
4. RS232 – Serial console port

Check the sourcebooks on the [Sales Portal](#) for fan & PSU information

# Visit Networking Central / Knowledge Nuggets/ [Cables and Optics](#) for information on Server Adapter connectivity

Network Connection decoder			
Speed	Port Type	Cable type	Use Case
1GbaseT	RJ45	<a href="#">CAT5e or better (order from C2G) C2G CAT5e PNs</a>	Predominately client connections
1GbE	SFP	1Gb SFP DAC or optics and OM4 LC/LC cable	Rarely used for longer 1G runs
10GbaseT	RJ45	<a href="#">CAT6a or better C2G CAT6a PNs</a>	Datacenters with copper wiring and lower bandwidth needs
10GbE	SFP+	10Gb SFP+ DAC or optics and OM4 LC/LC cable	Datacenters with lower bandwidth needs
25GbE	SFP28	25Gb SFP28 or 10Gb SFP+ DAC or optics and OM4 LC/LC cable	Datacenters with a lot of virtualization and heavier server & storage traffic
100GbE	SFP56-DD	100Gb SFP56-DD>QSFP28 DAC or FR/LR optics and Single Mode Fiber	S5448F-ON for high density Top of Rack for high value 100G Servers (no SFP56 breakout)
40GbE	QSFP+	40Gb QSFP+ DAC or optics and OM4 MPO cable (breakout to 1/10G)	Legacy switches since 100G arrived
100GbE	QSFP28	100Gb QSFP28 DAC or optics and OM4 MPO cable (breakout to 1/10/25G)	Top of Rack for high traffic or high-density servers and storage. Spine for smaller networks
2x100GbE	QSFP28-DD	2x100Gb QSFP28-DD DAC or optics and OM4 MPO12 cable (breakout to 10/25/40G)	Top of Rack for high traffic servers and storage. Spine for smaller networks
400GbE	QSFP56-DD	400Gb QSFP56-DD, DAC, AOC, ACC (Active DAC) (breakout to 10/25/40/50/100/200G)	Spine switches for high performance networks
50GbE & 200GbE		There are no native 50GbE or 200GbE PowerSwitch ports - please refer to Cables & Optics matrix for connectivity	Connecting to NICs and other vendor's switch ports

[Dell Networking Optics and Cables Interop Matrix](#)

link broken? search '**Optics Interop**' on Sales portal

# Direct Attach Cables (DACs) are the most cost effective & lowest latency ways to connect to PowerSwitch

**Lead with DACs (Direct Attach Cables) as they can be as much as 75% less than the same cables & optics solution.**  
If Optics are not required, quoting them will put you out of price point and can lose the deal. Lead with DACs!

For server, storage, and switch to switch connectivity use the correct length DAC or Active Optical Cable (AOC) for rack placement

- DACs are copper based and are available up to 7 meters (21 feet)
- AOCs are fiber based and available in lengths up to 30 meters
- Breakout DACs & AOCs are available for 40G, 100G & 400G switch ports (1 port to 2, 4, or 8 ports of 10G, 25G, 50G, 100G or 200G)



*DACs & AOCs have embedded transceivers (SFP or QSFP form factor) so only 1 SKU needed per connection*

**To separate cables and optics from switch orders at POS use the OBVC (Optics Base Virtual Chassis) order code. This will allow the switch to ship if there are cable and optic shortages and will ship fewer boxes than Customer Kits.**



# Optic cable connections depend on technology of optic. Optic type must match on both ends of a cable

1/10GbaseT connections use CAT cables with RJ45 connectors

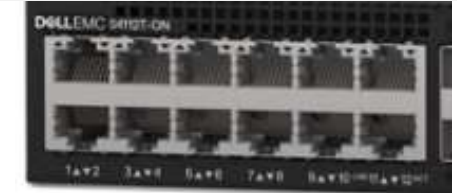


BaseT RJ45  
optic



RJ45 CAT  
cables

CAT5e or CAT6 & up  
cables recommended



MultiMode Fiber is used for shorter distances in a datacenter. SFP, SFP+, & SFP28 optics use LC connectors. QSFP+, QSFP28, QSFP56 for factor optics can use LC or MPO connectors



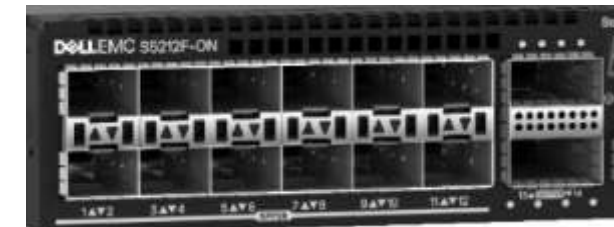
SFP LC



OM4 is recommended  
for longer connectivity &  
is usually Aqua color



QSFP MPO



SFP

QSFP

SingleMode Fiber is used for long distance up to 40 km and has LC connectors and is usually yellow in color. Optics can be SFP\* or QSFP\* form factors



SFP/QSFP  
LC



SMF



MMF

**\*Check the [Cables & Optics Matrix](#) for connectivity**

NOTE: Many of the smaller SFP optics can fit into the larger QSFP ports with the Q28 adapter

# Cables and Optics Support - Why Dell branded?

Dell branded optics (transceivers) are supported with the level of focus and severity warranted as a key part of the Dell solution, and Dell makes no guarantee of any support for non-Dell cable and optical solutions.

Dell Networking Cables and Optics undergo a rigorous test, qualification, and screening process with all qualified switches and each optic is further tested with every platform on each firmware release.

In some cases, a best attempt is made to enable connectivity, but without further Dell cable/optic encoding this is deemed our best effort based on the standard. Any deviation from the standard by the manufacturer cannot be anticipated or accounted for. RMAs and troubleshooting is another support call to the 3<sup>rd</sup> party optics vendor

3<sup>rd</sup> Party OS partners such as Pluribus, Big Switch (Arista), & Cumulus (nVidia) for the optics and cables that are currently supported on the Dell Open Networking switches. While they may qualify other vendor's products those are not recommended as they are not covered by Dell Hardware support and will not be RMA'd through Dell.

Best practice when connecting to other vendor switches is to use the vendor branded optics in each side and connect via fiber patch cables

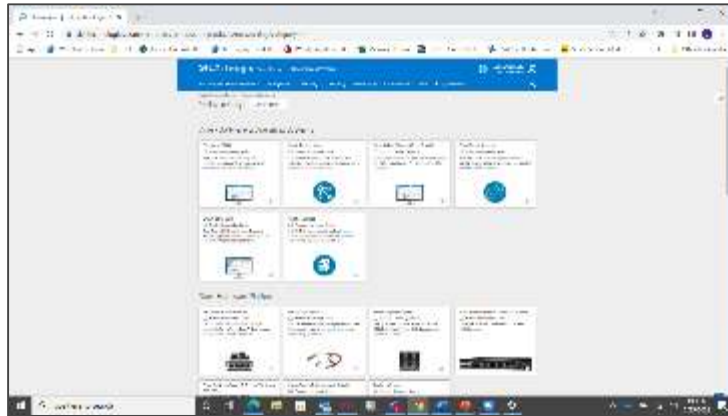
All port speeds in excess of 10GbE will not enable non-Dell transceivers as new higher speed optics represent risk to both Dell switches and connected devices alike. Copper Direct Attach and Active Optical Cables will not lock out.

**Best practice when connecting to other vendor switches is to use the vendor branded optics in each side and connect via fiber patch cables**





## Networking Sales Portal



<https://www.delltechnologies.com/sales/en-us/auth/index.htm>

- Click “Product, Solutions & Services
- Then click on “Networking”

## Networking Central *Products/Solutions* pages



- Find Networking Central on [inside.dell.com](https://www.inside.dell.com) to find product info, trainings, seeds, regional marketing and more.
- From the [Networking Central](#) main page, select “Products & Solutions” drop down to find solution resources

## Customer Facing Network Landing pages



[www.dell.com/Networking](https://www.dell.com/Networking)  
[www.dell.com/EnterpriseSONiC](https://www.dell.com/EnterpriseSONiC)  
[www.dell.com/Smartfabric](https://www.dell.com/Smartfabric)  
[www.dell.com/PowerSwitch](https://www.dell.com/PowerSwitch)  
[www.dell.com/VEP](https://www.dell.com/VEP)  
[www.dell.com/AI](https://www.dell.com/AI)

- Whitepapers, videos, solution briefs, spec sheets and blogs

Visit our YouTube playlist - <https://www.youtube.com/playlist?list=PL2nlzNk2-VMEdadOmZylGNnNeJx-xyX8J>

# Networking Labs @ New Dell Demo Center

## Employee and Partners:

<https://democenter.delltechnologies.com>

## Customers:

<https://www.delltechnologies.com>

**Demo Center**  
CUSTOMER SOLUTION CENTERS

HOME  
DEMO CATALOG  
Client Solutions  
Cloud Computing  
Converged Infrastructure  
Data Protection  
Data Storage  
**Networking**  
Server  
Services  
Solutions  
MY FAVORITES

sonic

Networking

OS10

SMARTFABRIC

SONIC

**HANDS ON LAB**  
Enterprise SONIC - Introduction to Enterprise SONiC  
HOL-5709-01  
EXPLORE  
Released 17 Mar 2021

**HANDS ON LAB**  
Enterprise SONIC - Building a Layer 3 fabric with BGP  
HOL-5709-02  
EXPLORE  
Released 22 Mar 2021

**HANDS ON LAB**  
Enterprise SONIC - Building a L2 VXLAN BGP EVPN fabric  
HOL-5709-03  
EXPLORE  
Released 22 Mar 2021

**HANDS ON LAB**  
Enterprise SONIC - Building a L3 BGP EVPN fabric  
HOL-5709-04  
EXPLORE  
Released 22 Mar 2021

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# Services

# Network Consulting Capabilities

Size	✓ Small	✓ Medium	✓ Large	✓ X-Large
Region	✓ Americas	✓ EMEA	✓ APJC	✓ LATAM
Sales Support	✓ Pre-Sales Calls			
	✓ RFP Support			
	✓ Scoping Assistance			
	✓ Rapid ROM / Proposal Summary Support			
Capabilities	✓ <b>Network Architect / Project Oversight</b> ✓ <b>Network Assessment, Design and Planning</b> <ul style="list-style-type: none"> <li>- Network Device Upgrades / Re-Platforming</li> <li>- Datacenter Migration &amp; Workload Migration</li> <li>- Software Defined Networking (Cisco ACI, NSX)</li> <li>- SD-WAN (Viptela, CloudGenix, SilverPeak)</li> <li>- Business Resiliency / DR</li> <li>- Business Resiliency / Cyber Recovery Vault (Firewall/VPN/Switch)</li> <li>- 0365 (Skype / SharePoint / MS Teams / Exchange Online)</li> <li>- Extend to Azure, Google (GCP) or AWS</li> <li>- Global Site Traffic Management / Local Site Traffic Management (F5, NetScaler)</li> <li>- Virtual Private Networks (VPNs)</li> <li>- Security (Palo Alto, Fortinet, Checkpoint, Cisco, zScaler, Juniper, ForeScout, Cisco ISE, BlueCoat)</li> </ul>			
	✓ <b>Network Implementation</b>			

The Dell Consulting team can assist you with sales support and scoping assistance for all size deals requiring network design, assessments and implementation.

These services are delivered by a mix of Dell-badged employees and partners depending on each unique customer scenario. Professional consultants will even help you with the actual sales process to include pre-sales calls, scoping and proposal development.

To request Dell Consulting assistance, submit a [custom service request](#) through SFDC or contact your sales team.

**Find all artifacts here:**  
[Networking Sales Artifacts](#)

# ProSupport Suite for Networking | Enhanced value, same price

	Warranties LLW, ELW, RTD	Basic Support	ProSupport	ProSupport Plus	New updates August 2023
Technical support availability and response objective	9/5, immediate	9/5, immediate	24/7, immediate	24/7, immediate	
Covered products	Hardware	Hardware	Hardware & Software	Hardware & Software	
Onsite response service level	NBD parts only or 10-day Return to Depot <sup>1</sup>	NBD onsite	NBD or 4-hour	4-hour with Mission Critical support	PSP NBD retired
Installation of replacement unit <sup>2</sup>		•	•	•	
ProSupport AIOps Platforms		•	•	•	MyService360 and TechDirect (all offers); CloudIQ (PS & PSP)
Dell Security Advisories <sup>3</sup>		•	•	•	Added to more products
<i>Proactive</i> issue detection with automated case creation		•	•	•	New to Basic
<i>Predictive</i> hardware anomaly detection			•	•	New to ProSupport
Access to software updates			•	•	
CloudIQ health and cybersecurity monitoring & analytics			•	•	Enhanced features
Incident Manager assigned for Severity 1 cases			•	•	
Mission Critical support				•	Enhanced features
Priority access to remote senior support engineers <sup>3</sup>				•	
Service Account Manager				•	
Proactive system maintenance				•	
Limited 3 <sup>rd</sup> party software support <sup>4</sup>				•	

<sup>1</sup> Next Business Day (NBD) applies to N-Series or S3100 series devices with Lifetime Warranty and E-Series with Extended Lifetime Warranty. All other S & Z Series switches use 10-day Return to Depot (RTD) and RMA process

<sup>2</sup> Whole unit exchange (entire switch) is reinstalled/replaced by Dell. Installation of parts designated as Customer Replaceable Unit (CRU) is the responsibility of the Customer.

<sup>3</sup> Based on availability

<sup>4</sup> Software license can be purchased through Dell or BYOL – see service Description for details

Warranty & End of Sale dates at [www.dell.com/networkingwarranty](http://www.dell.com/networkingwarranty)



# ProDeploy Infrastructure Suite | Field services for Networking

Deployment offers for OS10 or SONiC Networking

		Basic Deployment	ProDeploy	ProDeploy Plus
Pre-deployment	Single point of contact for project management	-	●	In region
	Site readiness review and implementation planning	-	●	●
Deployment	Deployment service hours	Business hours	24/7	24/7
	Hardware installation options	Onsite	Onsite or guided <sup>1</sup>	Onsite
	System software installation and configuration options	-	Remote	Onsite
	Install connectivity software based on Secure Connect Gateway technology <sup>2</sup>	-	●	●
	Implement CloudIQ Cyber Security best practices and policies	-	-	●
	Multivendor integration testing, Rip & Replace & Cutover <sup>3</sup>	-	-	●
Post-deployment	Deployment verification, documentation and knowledge transfer	-	●	●
	Configuration data transfer to Dell technical support	-	●	●
Online collaboration	Online collaborative platform in TechDirect for planning, managing and tracking delivery	-	●	●

**Unique to PDP**

<sup>1</sup> Choose from onsite hardware installation or a guided option including project specific instructions, documentation and live expert guidance

<sup>2</sup> Post deployment use for intelligent, automated support & insights

<sup>3</sup> Supported 3rd Party switches include Cisco & HPE for Ethernet devices and Cisco & Broadcom (Brocade) for Fibre Channel devices

Both PD & PDP include full Layer 2 & Layer 3 config as well as SmartFabric services.  
Note: PDP for SONiC also includes BGP eVPN config.



# Additional Deployment Time (ADT)

ProDeploy > ADT

ProDeploy Plus > ADT

- Expand the scope of PD/PDP
- Sold with or without PD/PDP
- Request using scoping request [ADT Request Form.](#)

## Examples of ADT sales motions for Ethernet:

- ADT tasks on switches with PDP
  - Extended knowledge transfer
  - Non-standard documentation efforts
  - Re-organization, cleanup or labeling of existing cables
  - Holiday deployment coverage
- ADT tasks not on the switches being deployed with PDP but instead on related downstream devices
  - VLAN additions on existing Dell PowerSwitch devices
  - Switch port config/reconfig for end devices such as workstations, servers, storage arrays, etc. (i.e. not to other networking devices)
  - Basic hardware add (Install NIC in server)
  - Change NIC settings on existing servers (for new VLANs)
  - Host attach to existing Dell Storage Devices (with current support contracts)
  - Upgrade firmware of other Dell Networking devices (with current support contacts) to align to latest firmware being deployed
- **Things that we explicitly do not want ADT to cover**
  - ☒ PBR (Policy based routing)
  - ☒ Multiphase/visit
  - ☒ EVPN
  - ☒ Design workshop
  - ☒ Network assessment
  - ☒ Non like-for-like switch replacements
  - ☒ Non-Dell devices

# ProDeploy Flex | Modular features to customize deployment services

Pre -deployment	Single point of contact for project management	●			
	Enhanced end-to-end project management	Selectable			
	Site readiness review and implementation planning	●			
Deployment	Deployment service hours	24x7			
	Onsite Deployment in remote locations	Selectable			
	Onsite Deployment in challenging environments	Selectable			
	Onsite Deployment with special site-based protocols or requirements	Selectable			
		FACTORY BASED		FIELD BASED	
	Hardware installation options <sup>1</sup>	-	Rack integration <sup>2</sup>	Remote <sup>3</sup>	Onsite
	System software installation and configuration options <sup>1</sup>	Configuration <sup>6</sup>	Rack integration <sup>2</sup>	Remote	Onsite
	Install connectivity software based on Secure Connect Gateway technology	●			
	Dell NativeEdge deployment	Selectable			
	Multivendor software applications and workload installation <sup>4</sup>	Selectable			
	Multi-vendor networking deployment <sup>4</sup>	Selectable			
Post -deployment	Deployment verification, documentation, and knowledge transfer	●			
	Configuration data transfer to Dell support	●			
Online collaboration	Online collaborative environment - Planning, managing and tracking delivery process <sup>5</sup>	●			

<sup>1</sup> Hardware and Software delivery methods can be independently chosen; select Hardware/Software delivery options to select other ProDeploy Flex features.

<sup>2</sup> Factory Rack Integration for server and VxRail is US only, includes associated Dell network switches or selectable multivendor switches; final onsite rack installation available; selecting Rack integration for software requires hardware Rack integration to also be selected.

<sup>3</sup> Remote hardware option includes project specific instructions, documentation and live expert guidance for hardware installation.

<sup>4</sup> Select multivendor networking and software applications (Cisco, Arista, Juniper).

<sup>5</sup> Not available for Factory Based Configuration Services.

<sup>6</sup> Pair with Field Based Remote or Onsite Hardware service for final installation.

# When to book “Custom” for networking services

Select “Custom Service Engagement” in your SFDC opportunity and fill out the CSE form.

## Out of Scope/ Not Included with ProDeploy Enterprise Suite:

- **Advanced SONiC Deployments**

Implementations requiring Ansible playbooks, Zero-Touch Provisioning or advanced VLAN / VXLAN configurations

- **Additional Cabling & Labeling**

- Add new cable runs or untangle/organize existing cables (apart from those purchased)

- **Ethernet or Wireless Assessments**

- Any assessment for topology views, traffic analysis, optimization, app performance, VoIP, or security
- Quote using Custom – these are delivered by partners
- Note: Fibre Channel assessment is available (called FC Infrastructure Assessment)

- **VEP SD-WAN** (Versa or Adva – use 3<sup>rd</sup> party ET catalog)

- **Complex or Multi-vendor Deployment**

- Network redesign and reconfiguration of VLANs, servers or storage
- Migrate network environment from OS9 to OS10
- UAT (User Availability Test)
- HAT (High-Availability Test)
- Multi-rack SmartFabric Services (Brownfield)
- BGP eVPN configuration

### Custom Service Request (CSE)

To learn more about how to open up a CSE go to:

[CSE Inside Dell page](#) | [CSE Job Aid](#) | [CSE SABA Training](#)

# Resources Networking Services

## **HOME PAGE:** [Services Central Portal](#)

All Networking LOB sales tools and resources

### **Dell Networking Services**

[Sales Training: Networking Services](#)

[ProDeploy for Dell Networking](#)

[ProDeploy Plus for Dell Networking](#)

[Data Sheet: ProDeploy Add-on STIG Security Hardening](#)

[Video: ProDeploy Add-on STIG Security Hardening](#)

### **SONiC Services**

[Sales Training: SONiC Services](#)

[ProDeploy for SONiC](#)

[ProDeploy Plus for SONiC](#)

[SONiC Wiki \(For Custom Deploy Guidance\)](#)

### **Connectrix Services**

[Sales Portal for Connectrix Services](#)

[Sales Training: Connectrix Services](#)

[ProDeploy for Connectrix](#)

[ProDeploy Plus for Connectrix](#)

[ProDeploy for SAN Mgmt Software and Optimization](#)

[ProDeploy IPSAN Extension](#)

[ProDeploy Plus IPSAN Extension](#)

[Data Sheet: Fibre Channel Infrastructure Assessment](#)

### **VEP Services**

[VEP Battlecard](#)

[VEP4600 Ordering Guide](#)

[VEP Knowledge Center](#)

### **ProSupport Service Descriptions**

- [ProSupport for Enterprise](#)
- [ProSupport Plus for Enterprise](#)
- [Basic Hardware Service](#)  
(Basic is the N-Series “Lifetime” Warranty.  
Choose PS/PSP for improved service experience.)
- [All other service contracts](#)
- Other regions / languages [here](#)

[Managed Services](#) - Enterprise team [email](#) for quote

### **Education Services**

- [Course Catalog PDF](#)
- [Networking Certifications](#)
- [How to redeem training credits](#)

**All Deployment Resources** - [Service Offering Index \(SOI\)](#)

**How to create a** [Custom service request](#) - SFDC

**Network Warranty Page** – (two vanity links)

- [www.dell.com/lifetimewarranty](http://www.dell.com/lifetimewarranty)
- [www.dell.com/networkingwarranty](http://www.dell.com/networkingwarranty)