Enterprise SONiC Distribution by Dell Technologies

Accelerating the evolution of software-defined networking for the cloud with the next stage of open networking

IT organizations around the globe strive to deliver superior business value by helping their organizations increase productivity, deliver services faster and remain flexible by incorporating the latest technology innovations like automation, containers and cloud. In addition, the use of modern applications and workloads like virtualization, cloud, IoT and AI are pushing the boundaries of existing data centers as more and more traffic moves from the edge of the network to the core into the cloud. These organizations need a modern network infrastructure that can support these demands.

Software for Open Networking in the Cloud (SONiC) represents open source innovation at its finest, and as it evolves and matures, it is expanding beyond the public cloud, into large-scale enterprises, private clouds and service providers, empowering them to modernize their networks, easily address emerging IT scenarios, and overcome evolving business challenges.

Enterprise SONiC Distribution by Dell Technologies helps IT organizations to run their business with the innovation, automation and reliability that comes from a commercial offering of SONiC with production-ready enterprise feature enhancements, hardening and global support targeted for demanding data center leaf and spine fabrics.

- Open source innovation based on SONiC, Enterprise SONiC Distribution by Dell Technologies builds on Dell Technologies long history of collaborating with and contributing to the open source SONiC community with new features and capabilities ranging across the protocol stack and management applications.
- Enterprise and cloud data center ready —
 Enterprise SONiC Distribution by Dell Technologies
 is enterprise-class tested and validated across
 hardware and software, field-tested in hyper-scale
 environments, includes a centralized management
 platform, and is integrated with a growing ecosystem
 of partner automation/orchestration applications.



Open source networking made real

Runs on Dell EMC PowerSwitch platforms – offering
the broadest selection of Open Networking switching
platforms from a trusted leader backed by our world
class supply chain industry-leading support and
services options that align with the unique needs of
your data center environment.

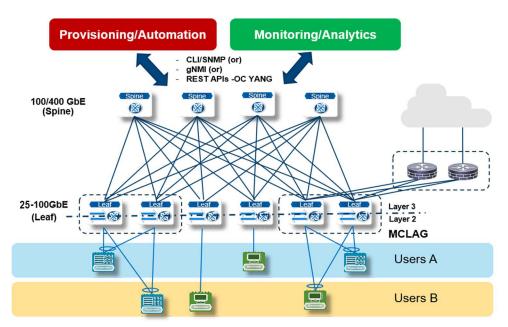
Key features and functions

- Based on Open Source SONiC: Enterprise SONiC
 Distribution by Dell Technologies is based on SONiC,
 an open source network operating system built on
 Debian Linux around a containerized architecture.
 SONiC is in production today at multiple web-scale
 companies for data center fabric deployments and
 has a thriving developer community and vendor
 ecosystem.
- Enterprise and cloud data center features:
 Enterprise SONiC Distribution by Dell Technologies integrates a host of enterprise-ready features including select Layer 2 and Layer 3 protocols, Quality of Service capabilities, and key management protocols.

Enterprise SONiC Distribution by Dell Technologies © 2021 Dell Inc. or its subsidiaries.

- Centralized management: Enterprise SONiC
 Distribution by Dell Technologies Management
 Framework is designed to improve agility
 and visibility by adopting open and industry
 standards such as OpenConfig, DevOps friendly
 programmatic Northbound interfaces gNMI
 and REST, and streaming telemetry to enable
 advanced analytics. For operational simplification,
 the Management Framework includes a
 centralized, intuitive and holistic command line
 interface (CLI) that will help integration with existing
 practices.
- Integration with Dell EMC PowerSwitch platforms:
 Enterprise SONiC Distribution by Dell Technologies
 has been fully qualified on select Dell EMC
 PowerSwitch Z series and S series platforms for
 full hardware support including LEDs, power, PHYs,
 environmentals, documentation, etc.
- Testing and validation: Enterprise SONiC
 Distribution by Dell Technologies is system tested and
 validated across the PowerSwitch hardware platforms
 and the full set of software features including Layer 2
 and Layer 3 functionality, congestion control, power
 consumption, address capacities, convergence times,
 scalability, etc. Enterprise SONiC Distribution by Dell
 Technologies is also field tested in several hyper-scale
 environments.

- Dell Technologies global support & services: Enterprise SONiC Distribution by Dell Technologies is backed by a world-class supply chain and industry leading support and services spanning 165 countries and 60K+ partner professionals to help ease the transition to open source.
- Enterprise SONiC Distribution by Dell Technologies 3.4 is supported on the following PowerSwitch switches:
 - PowerSwitch Z series: Z9432F-ON, Z9332F-ON, Z9264F-ON
 - PowerSwitch S series: S5296F-ON, S5232F-ON, S5248F-ON, S5224F-ON, S5212F-ON
 - PowerSwitch N series: N3248TE-ON
- Enterprise SONiC Distribution by Dell Technologies 3.4 is based on 201911 Azure Sonic version and SAI version 3.8.



Enterprise SONiC Distribution by Dell Technologies Example Topology

2

Technical specifications

Ethernet

- IEEE 802.1Q Virtual LAN (VLAN)
- IEEE 802.1p Class-of-ServicePrioritization and
- IEEE 802.1v VLAN Classification byProtocol
- IÉEE 802.1AB Link Layer DiscoveryProtocol (LLDP)
- IEEE 802.3x Flow Control (Pause Frames)
- IEEE 802.3z 1000BASE-X

Layer 2 and Layer 3 Protocols

- Border Gateway Protocol (BGP) (v4, v6)
- iBĞP
- eBGP
- BGP unnumbered
- BGP-Allow Autonomous System (AS)
- BGP Peer Auto-shutdown
- OSPFv2
- Route Reflector
- Route policies
- Static routes
- BGP EVPN Control Plane (Type 2, 3,
- L2 and L3 VxLAN Symmetric and Asymmetric
- Anycast gateways
- Layer 3 Access Control Lists (ACL)
- IPv4 ACL
- **Bidirectional Forwarding** Detection (BFD)
- Unidirectional Link Detection (UDLD)
- 64-Way Equal-cost Multi-path (ECMP)
- Virtual Routing and Forwarding (VRF) Lite
- Virtual Router Redundancy Protocol (VRRP) (IPv4/IPv6) IPv4/IPv6 Dual Stack
- Internet Control Message Protocol (ICMP) v6 Route-Advertisement
- IPv6 routing
- Wire-speed routing for IPv4 and IPv6
- IGMP Snooping (v1, v2, v3)
- IPv4 PIM-SSM
- Multi-chassis LAG (MCLAG)
- **PVST**
- RPVST+
- Network Address Translation (NAT)
- CoPP (Control Plane Policing)
- Policy Based Routing for IPv4 and IPv6
- Routed subinterfaces
- IPv4 unnumbered interfaces

Quality of Service

- Class of Service (CoS) IEEE 802.1p
- Differentiated Services to Code Point(DSCP) to Traffic Class Mapping
- VxLAN-aware DSCP
- Random Early Discard
- Scheduling: Strict Priority (SP), DeficitWeighted Round-Robin (DWRR)
- Priority Flow Control (PFC)
- Explicit Congestion Notification (ECN)

Manageability, Automation andMonitoring

- Zero-touch Provisioning (ZTP)
- IPv4/IPv6 management
- Management Framework CommandLine Interface (CLI)
- Programmatic Interfaces: REST and gNMI
- OpenConfig data models Dynamic Port Breakout

- Secure Socket Shell (SSH)/SSHv2 Role-based Access Control (RBAC)
- Link Layer Discovery Protocol (LLDP) IEEE 802.1AB
- Management Information Base (MIB) II RFC 1213
- Syslog SNMPv2/v3
- Out-of-band management
- Network Time Protocol (NTP) Client and Server
- Management Access Control Lists (ACL)
- Dynamic Host Configuration Protocol _ (ĎHCP) Relay
- ÌP helper
- TACACS+
- Radius
- sFlow
- Everflow/ERSPAN
- Inband Flow Analyzer* (IFA 2.0)
- **Drop Monitor***

Ordering information

Enterprise SONiC Distribution by Dell Technologies is available in two basic bundles, Enterprise or Cloud, with corresponding sub-categories:

Cloud Standard or Premium

- Standard includes features (such as eBGP, ZTP, Programmatic API's, QoS,etc.) needed for cloud scale fabric underlay deployments and telemetry functionality (such as thresholds and queue monitoring)
- Premium includes the Cloud Standard features plus advanced features, such as Inband Flow Analyzer (IFA) and **Drop Monitor**
- 1GbE, 25/100GbE, or 400GbE platform speeds
- 1 year, 3 year or 5 year subscriptions

Enterprise Standard or Premium

- Standard includes Cloud Standard plus features needed for data center fabric overlay deployments (such VxLAN EVPN, MCLAG, PVST, and IGMP)
- Premium includes the Enterprise Standard features plus advanced features, such as Inband Flow Analyzer (IFA), Tailstamping, and Drop Monitor • 1GbE, 25/100GbE, or 400GbE
- platform speeds
- 1 year, 3 year or 5 year subscriptions

For ordering information please contact your local Dell Technologies sales office.

*Premium feature Learn more at DellTechnologies.com/Networking



Technologies Services

Plan, deploy, manage and support your IT transformation with our top-rated services

Consulting

Dell Technologies Consulting Services provides industry professionals with a wide range of tools and the experience your need to design and execute plans to transform your business.

Deployment

Accelerate technology adoption with ProDeploy Enterprise Suite. Trust our experts to lead deployments through planning, configuration and complex integrations.

Management

Regain control of operations with flexible IT management options. Our Residency Services help you adopt and optimize new technologies and our Managed Services allow you to outsource portions of your environment to us.

Support

Increase productivity and reduce downtime with ProSupport Enterprise Suite. Expert support backed by proactive and predictive artificial intelligence tools.

Education

Dell Technologies Education Services help you develop the IT skills required to lead and execute transformational strategies. Get certified today.

Learn more at DellTechnologies.com/Services

