

Network infrastructure is crucial for **modern IT organizations** as they strive to deliver superior business value by helping their organizations increase productivity, deliver services faster, and remain flexible. The use of modern applications and workloads like **virtualization, cloud, IoT, and AI** is pushing the boundaries of existing data centers, driving more traffic from the edge of the network into the cloud. To support these demands, IT organizations need a modern network infrastructure capable of handling this increased load.

SONiC stands for Software for Open Networking in the Cloud. It is an open-source, Linux-based network operating system (NOS) that runs on switches from multiple vendors. It implements standard Layer 2 and Layer 3 protocols and provides developers with a straightforward way to add new features. SONiC offers a full suite of network functionality, like **BGP** and **RDMA**, that has been production-hardened in the data centers of some of the largest cloud-service providers.

SONiC offers the flexibility to create **data center networking solutions** by leveraging the collective strength of a large ecosystem with an active developer community, while also being equipped to support high-speed data transfers required for **AI/ML** workloads through advanced features such as **RoCEv2** over VXLAN, Adaptive Routing (DLB), and ECMP enhancements—critical for modern data centers and AI/ML environments.

SONiC is designed for scalability and supports **high-performance AI/ML workloads**. The Enterprise-SONiC AI Package enhances these capabilities with advanced traffic handling features like **QPN-based ECMP hashing, RoCEv2, and DLB**, optimized for **Tomahawk4** and **Tomahawk5** platforms. It is already deployed in large-scale data center fabrics, proving its reliability and efficiency in demanding environments.

Enterprise SONiC Distribution by Broadcom is a commercially supported, ruggedized version of open-source SONiC that provides global support, advanced scalability, manageability, and other enterprise-ready features for large-scale data center network environments. These environments require high scalability, global support, and manageability.

We are prepared to provide the support to any service provider or data center operator interested in leveraging a Commercial SONiC Distribution. **Enterprise SONiC Distribution** is validated with a variety of optics and cables delivered from industry sources. This ensures that the overall system—switch hardware, firmware, NOS, and connectivity, from drivers to applications—is proven to work together, eliminating concerns about platform-level interoperability.

Why SONiC? Main use-cases

- [Data Center L3 CLOS](#)
- [Data Center Interconnect \(DCI\)](#)
- [Campus](#)
- [AI/ML Backend Fabric for GPU Clusters](#)

Main Goals of SONiC

- Allows network operators to use **best-of-breed switching** hardware for various tiers of the network.
- By using containers, it helps deploy new features without impacting end users and enables secure and reliable updates across the network in hours instead of weeks.
- SONiC enables **Software-Defined Networking (SDN)** to control all hardware elements in the network by using a unified structure, eliminating duplication and reducing failures.
- SONiC is optimized for **AI/ML** environments, offering high-speed data transfers with **RoCEv2, DLB, and ECMP** enhancements. The Enterprise-SONiC AI Package adds advanced traffic management for **GPU** clusters with QPN-based ECMP hashing.

SONiC Building Block

- **SONiC is built on the Switch Abstraction Interface (SAI)**, which defines a standardized API - network hardware vendors can use it to develop innovative hardware platforms while keeping the programming interface to ASIC consistent
- **SONiC** is the first NOS to break monolithic switch software into **multiple containerized components**, enabling it to be highly extensible and robust. Instead of replacing the entire switch image for a bug fix, you can upgrade the flawed container with new code or even plug in new components such as third-party software with minimal effort.



Overview

SONiC is an open source network operating system based on Linux that runs on merchant silicon based ODM platforms. The open source SONiC project is at <https://github.com/Azure/SONiC/wiki>.

SONiC is in production today at multiple web-scale companies for data center fabric deployments and has a healthy developer community and vendor ecosystem around it. The underlying architecture of SONiC is here: <https://github.com/Azure/SONiC/wiki/Architecture>.

The Enterprise SONiC distribution is a commercially supported offering based on open source SONiC with feature enrichment and hardening targeted at Data Center leaf and spine/super-spine use cases. The Enterprise SONiC distribution by Broadcom supports ODM and OEM platforms based on the StrataXGS® family of silicon from Broadcom.

The Enterprise SONiC distribution offers benefits such as high performance and simplicity based on industry leading merchant silicon and standards based IP CLOS architecture. It also provides agility based on a flexible management framework with programmatic APIs and an extensible, container-based architecture. Finally, an open source foundation and standardized ecosystem provide strong economic benefits for a data center fabric solution.

Starting with version 4.4.1, Enterprise SONiC introduces a specialized AI Package to simplify and enhance AI/ML deployments. Built for GPU clusters, this package delivers optimized performance with features like RoCEv2 over VXLAN, QPN-based ECMP hashing, and L3 VXLAN support on TH5 platforms, while streamlining operations by excluding unnecessary features such as xSTP, NAT, and DHCP snooping.

Enterprise SONiC is also used for campus use cases where customers have a two-layer fabric (access and aggregation) and edge devices such as POS terminals, Thin Clients, and Security Cameras can be attached to the access layer, with the aggregation layer connecting to existing Data Center deployments already running Enterprise SONiC.

Newly Introduced and Qualified Software Features

The following features have been introduced and validated in Enterprise SONiC Distribution by Broadcom, spanning version 4.4.0 up to the latest release (currently 4.5.0).

- RoCEv2 Support (PFC, ECN): Ensures lossless, high-performance data transfers essential for AI/ML workloads.
- QPN-Based & UDF-Based ECMP Hashing: Provides advanced traffic distribution optimized for GPU cluster fabrics.
- Dynamic Load Balancing (DLB) on Tomahawk4 and Tomahawk5: Enhances adaptive routing for efficient traffic flow.
- L3 VXLAN Support on TH5 Platforms: Enables scalable overlay networking to handle AI/ML traffic growth.
- Weighted ECMP (UCMP) & Partitioned ECMP Groups: Increases routing flexibility and resource utilization across platforms.
- L2/L3 MC-LAG with Split-Brain Protection: Improves redundancy and high availability for spine-leaf network topologies.
- Debian GNU/Linux 11.11 Base Update: Delivers enhanced platform stability and addresses critical security vulnerabilities.
- LDAPS & RADIUS over TLS: Secures user authentication and access control in enterprise environments.
- Syslog over TLS & Custom Password Complexity: Strengthens compliance and auditing with encrypted logging and policy control.
- Enterprise SONiC 4.5.0 is based on Azure SONiC 202012, running on Debian 11.11, with Broadcom SAI 12.4.0 and SDK 6.5.31: Provides a hardened, up-to-date foundation for modern infrastructure.
- SNMP New CLI Enhancements gNMI Dynamic Configuration in Campus Package, gNMI is available only on platforms E3248-PXE, E3248-P, and AS4630-54PE.
- Extended sFlow Support (128+128+128 sampling): Improves network visibility for telemetry and troubleshooting.

Our Services & Tools

Our top-rated services and tools help your business get ahead of the IT evolution and stay competitive.



Switch Services

The Switch Services are designed to help you understand Bare Metal Switch Platforms and integrate them with various Network Operating Systems (NOS). They also assist in designing topologies, configuring systems, and running tests to ensure performance and service requirements are met.



Monsoon 2.0

Monsoon 2.0 is an advanced, agentless open-source network monitoring tool designed specifically for SONiC, including an integrated AI chatbot, comprehensive metrics visualization, and available for testing via our [live demo](#).



SONiC Linux Switch

Open Networking [Switch Preloaded with SONiC Linux Network Operating System](#). Get hardware warranty and software support from a single source, with optional advanced replacement.



SmartCL_AI

SmartCL_AI - a vendor-agnostic, AI-powered Command Line Interface that translates natural language into verified CLI commands and automatically applies them across different network devices for fast, efficient setup.



Academia & Research Program

We initiated the [Academia & Research Program](#) to boost the development of Open Networking technologies as we strongly believe that the research done by students and their mentors is a key driver to accelerate new ideas and leverage the full potential of network programmability and open technologies. By joining the Academia & Research Program, universities benefit from many advantages aside from discounted products.

Packages

The Enterprise SONiC distribution by Broadcom, version 4.5.0, packages are as follows:

- **Enterprise Base Package**
 - » Includes underlay features such as eBGP, ZTP, programmatic APIs, QoS, ACLs, and related functions required for data center fabric underlay
 - » Includes overlay features such as BGP EVPN and VXLAN for fabric overlay use cases (e.g., leaf, spine, and super-spine roles)
 - » Provides enterprise features including RPVST+, IP Multicast, and enhanced diagnostics
 - » Base telemetry features include Thresholds and Snapshots (BST)
- **Enterprise Advanced Package**
 - » Includes all features of the Enterprise Base Package
 - » Adds Inband Flow Analyzer (IFA v2.0), Tail Stamping, and Drop Monitor (Available only in Enterprise Advanced and AI Packages)
 - » Includes Linux PTP (KNETSync) and the Broadcom Debug Tool for advanced visibility and troubleshooting. (Broadcom Debug Tool is not available in Base or Campus Packages)
 - » Includes Linux PTP (KNETSync) and the Broadcom Debug Tool for advanced visibility and troubleshooting
- **Campus Package**
 - » This includes the following features in addition to L2/L3 features:
 - POE, POE+, and POE-bt (POE ++)
 - Features related to Port Access Control (IEEE 802.1X, MAB, dynamic ACLs, RADIUS-assigned VLANs, RADIUS support).
 - LLDP-MED
 - gNMI Dynamic Configuration (available only on selected Campus platforms: E3248-PXE, E3248-P, and AS4630-54PE) Port Security
 - Digital Optical Monitoring and Time Domain Reflectometry.
 - VPN VXLAN
 - » Campus package is supported on campus-specific platforms only
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AI Package

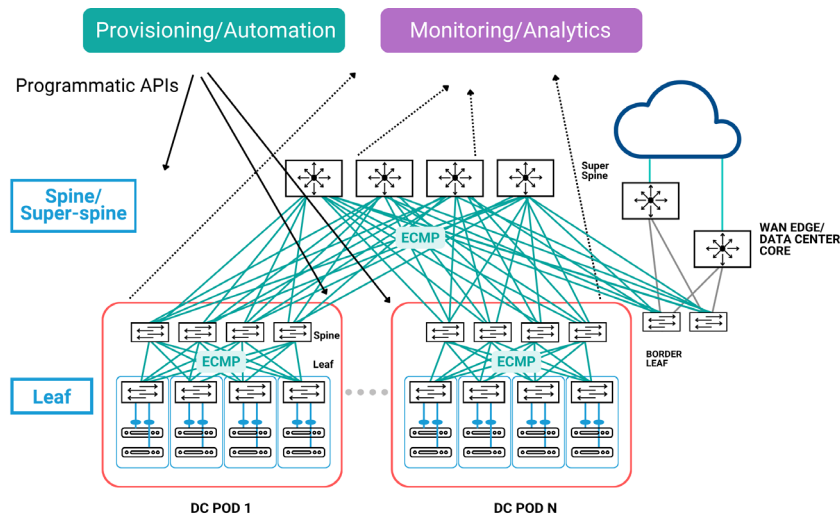
- » This package is exclusively supported on hardware platforms based on Broadcom Tomahawk4 (TH4) and Tomahawk5 (TH5) silicon. It is not available or supported on other platforms (e.g., Trident 3/4, Tomahawk 2/3).
Enabled by default:
 - RoCEv2 support (PFC, ECN)
 - QPN-based ECMP hashing
 - ECMP enhancements
 - L3 VXLAN (TH5 only)
 - Dynamic Load Balancing (DLB) on TH4 and TH5
- » The following features are deliberately excluded to streamline performance for AI/ML workloads:
 - Layer 2 protocols (xSTP, IGMP, multicast)
 - MC-LAG
 - NAT
 - DHCP relay and DHCP snooping
- » The AI Package removes features not typically used in AI environments to streamline configuration and improve performance:
 - Layer 2 features (xSTP, IGMP, IGMP snooping, multicast)
 - MC LAG
 - NAT
 - DHCP relay
 - DHCP snooping
- » The AI Package is designed to meet the demands of modern AI fabric deployments, providing high-speed, efficient solutions for GPU clusters and AI workloads

Customer Use Cases

Data Center L3 CLOS (underlay) use case

The Enterprise SONiC distribution by Broadcom Cloud editions are targeted for Data Center Fabric deployments (Public, Private, and Edge compute). The Enterprise SONiC distribution by Broadcom can be deployed at various Places-In-Network (PIN) - ToR, Leaf, Spine, Super spine, Border Leaf PINs.

The Enterprise SONiC distribution by Broadcom-based data center fabrics can be deployed in an underlay use case for webscale data center architectures, or for data center PODs in Enterprises or Service Providers for select workloads such as Hadoop which require an underlay network. The Enterprise SONiC distribution by Broadcom can also be used in Enterprises and Service Providers as an underlay data center fabric for VMware based PODs deploying VMware ESX, NSX, vSAN and other VMware solutions.

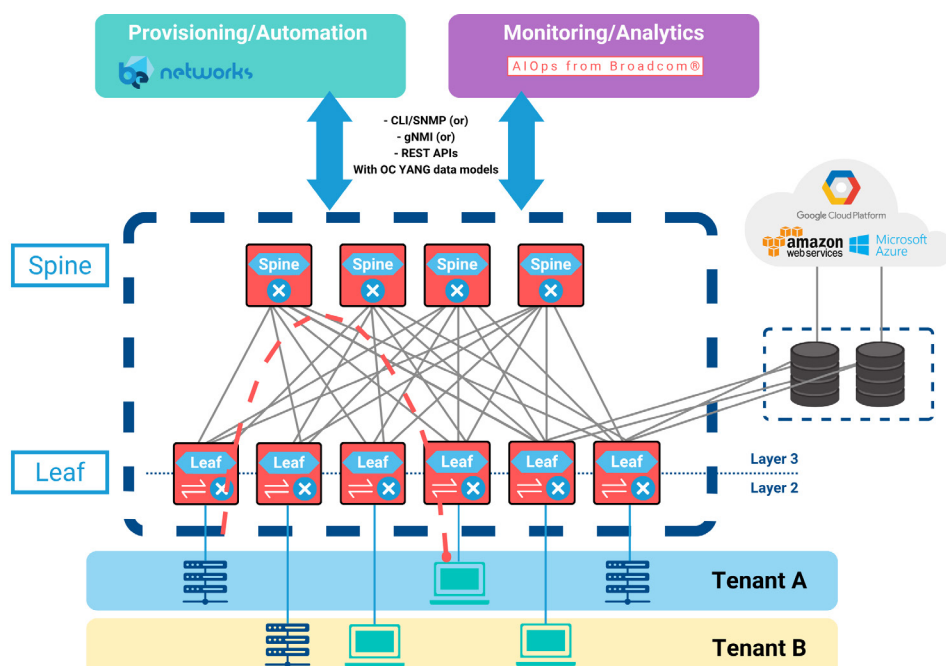


Data Center L3 CLOS Overlay Use case (with VXLAN and BGP-EVPN) and DCI

The Enterprise SONiC distribution by Broadcom can also be deployed in Enterprises or Service Providers for select workloads such as Hadoop, which require an overlay in order to support multi-tenancy.

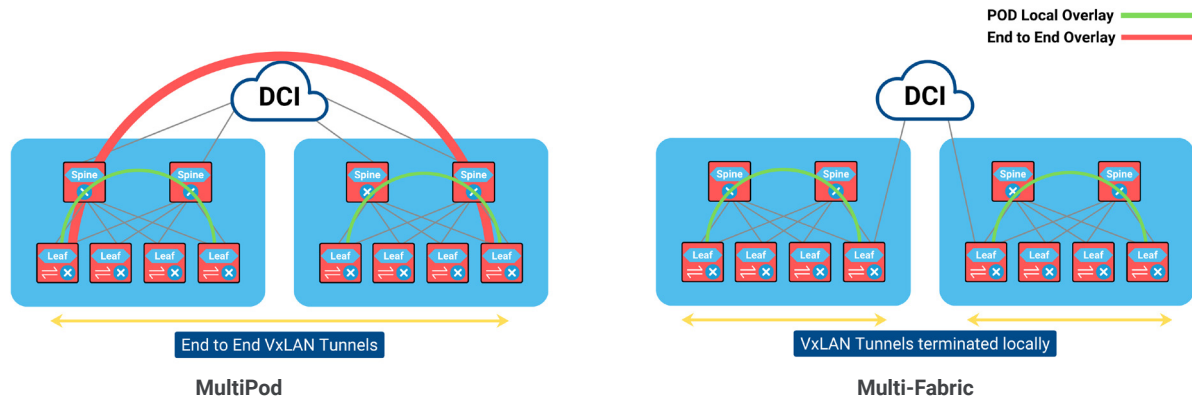
Using an overlay architecture in the data center allows end users (network admins) to place endpoints (servers or virtual machines) anywhere in the network and remain connected to the same logical Layer 2 (or Layer 3) network, enabling the virtual topology to be decoupled from the physical topology. This decoupling allows the data center network to be programmatically provisioned at a per-tenant level.

Overlay networking generally supports both Layer 2 and Layer 3 transport between servers or VMs. It also supports a much larger scale. SONiC overlay networks use a control-plane protocol (BGP-EVPN) to facilitate learning and sharing of endpoint information, and use VXLAN tunneling protocol to create the data plane for the overlay layer.

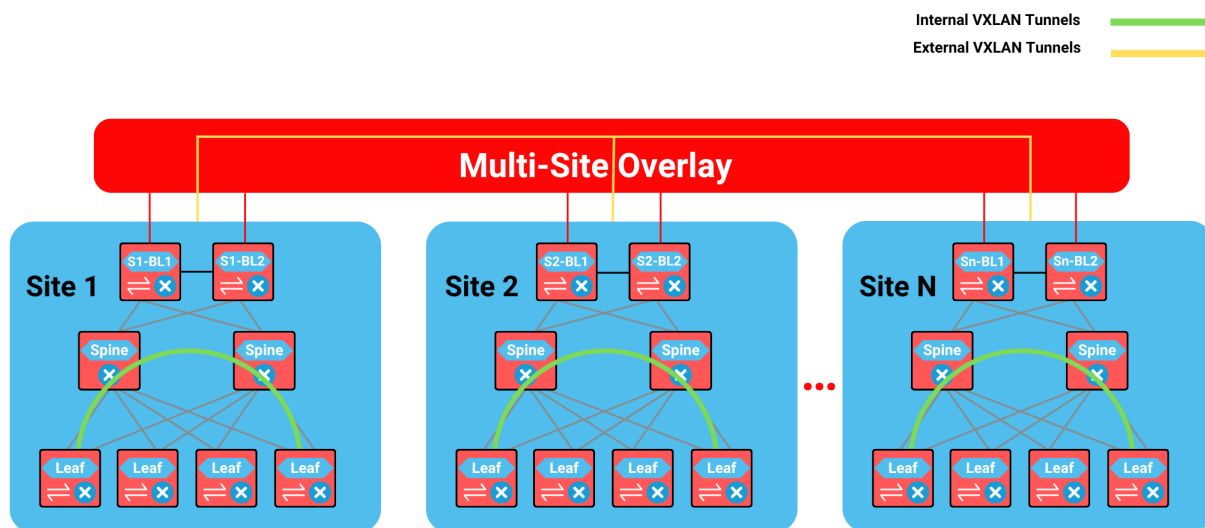


Use Case: Data Center Interconnect (DCI)

- SONiC provides options to cater for two distinct Enterprise DCI usecases



- Allows VXLAN tunnels stretched across multiple PODs within same or different geographic locations
- Provides flexible workload mobility across any pod
- VXLAN EVPN control plane is stretched across PODs
- Allows sharing of L4/L7 services across PODs
- Recommended for Active/Active Data Center usecase
- VxLAN tunnels are terminated locally in each pod
- Each POD is a distinct Availability Zone, providing failure domain isolation
- Each pod runs a distinct IGP and BGP-EVPN instance
- Optionally, L2 domain can be extended across PODs
- Recommended for Active/Backup Data Center usecase



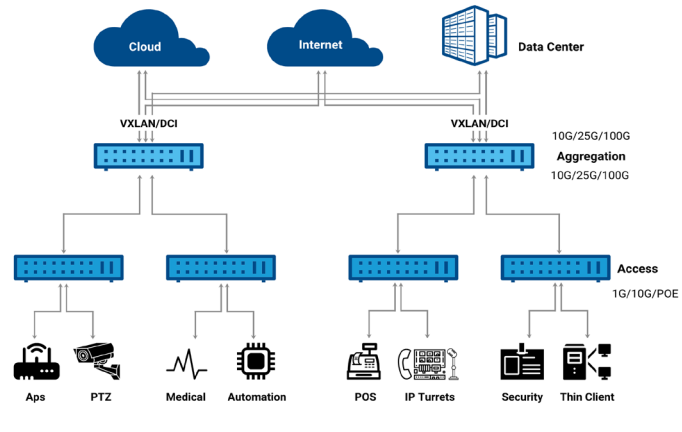
Multi-Site

- Multi-site provides a scalable and controlled way of stretching L2/L3 services across DCI, while maintaining failure domain isolation between sites
- Each site remains a distinct Availability Zone, without data plane normalization to Ethernet (End-to-End VXLAN)
- Complete control plane isolation ensures there is no "Fate-sharing" between sites
- Multi-site architecture facilitates Hierarchical Overlay domains with seamless integration
- This hierarchy removes the need of full mesh of end-to-end tunnels across all Leaf switches, resulting in highly scalable deployments

Campus Use case with Access/Aggregation layers that can be connected to existing DCs

Enterprise SONiC can serve as the unified Network Operating System (NOS) that you use to connect edge devices (Campus devices such as POS, thin Clients, Security Cameras, etc as shown in diagram below) and a data center. The Campus bundle extends a DC fabric to remote locations using the same DC NOS. Additionally the Campus package caters to the traditional 3 Tier architecture of Access-Aggregation-Core.

- A two-layer fabric is implemented in which there is an aggregation and an access layer. Customers can use VXLANs to stretch the fabric
- The CLOS network Leaf/Spine architecture allows for future scaling. Each leaf-layer access switch is connected to each spine-layer aggregation switch in a full-mesh topology
- In the aggregation layer, VXLAN EVPN supports multi-tenancy and multi-site data center interconnection (DCI)
- Customers can leverage the automation and management tools in the data center to configure and maintain edge switches



AI-Fabric for Backend GPU-Cluster AI Training and Inference use case

SOLUTION:

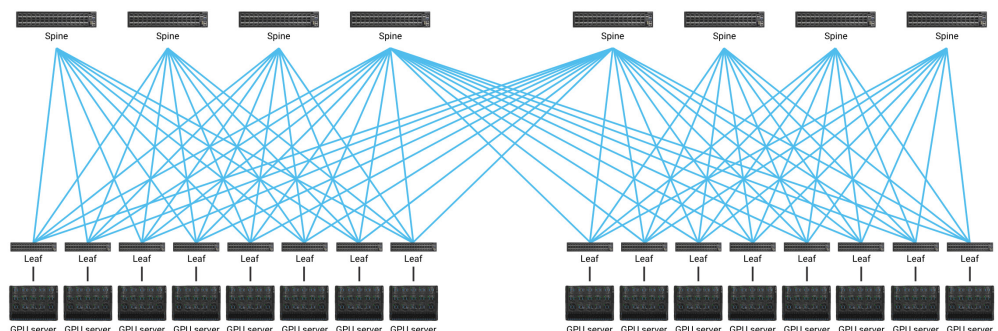
- AI training GPU clusters using TH4 or TH5 for scale-out fabrics

Features:

- ROCEv2
- ECMP Enhancements (various hashing mechanisms, CLI configurability)
- Dynamic Load Balancing (DLB)

Simple and Cost-Effective:

- Simple 2 stage fabrics
- Supports Multi-rail architecture
- No proprietary technology, all Ethernet
- High radix Merchant silicon switches
- ODM/ODM hardware
- No vendor lock-in



Supported Platforms

Speed	Brand	Model	Switch Silicon	Ports
1G	Alpha Networks	BES2348T	Broadcom Trident3-X2	48 × 1G RJ45, 4 × 25G SFP28
1G	Alpha Networks	SCG60D0-484T	Broadcom Trident3-X2	48 × 1G RJ45, 4 × 25G SFP28
400G	Alpha Networks	SNJ61D0-320F	Broadcom Trident4-X11	32 × 400G QSFP-DD
1G	Celestica	DS1000	Broadcom Trident3-X2	48 × 1G RJ45, 8 × 10G SFP+
25G	Celestica	DS2000	Broadcom Trident3-X5	48 × 25G SFP28, 8 × 100G QSFP28
100G	Celestica	DS3000	Broadcom Trident3-X7	32 × 100G QSFP28
400G	Celestica	DS4000	Broadcom Tomahawk3	32 × 400G QSFP-DD
800G	Celestica	DS4101	Broadcom Tomahawk5	32 × 800G QSFP800
800G	Celestica	DS5000	Broadcom Tomahawk5	64 × 800G QSFP800

Enterprise SONiC Distribution by Broadcom



Speed	Brand	Model	Switch Silicon	Ports
1G	Edgecore Networks	AS4625-54T	Broadcom Trident3-X2	48 × 1G RJ45, 6 × 10G SFP+
1G	Edgecore Networks	AS4625-54P	Broadcom Trident3-X2	48 × 1G RJ45 PoE, 6 × 10G SFP+
1G	Edgecore Networks	AS4630-54TE	Broadcom Trident3-X3	48 × 1G RJ45, 4 × 25G SFP28, 2 × 100G QSFP28
1G	Edgecore Networks	AS4630-54PE	Broadcom Trident3-X3	48 × 1G RJ45 PoE, 4 × 25G SFP28, 2 × 100G QSFP28
Multi-Gigabit	Edgecore Networks	AS4630-54NPE	Broadcom Trident3-X3	36 × 1G / 2.5G RJ45 PoE, 12 × 1G / 2.5G / 5G / 10G RJ45 PoE, 4 × 25G SFP28, 2 × 100G QSFP28
10G	Edgecore Networks	AS5835-54T	Broadcom Trident3-X5	48 × 10G RJ45, 6 × 100G QSFP28
10G	Edgecore Networks	AS5835-54X	Broadcom Trident3-X5	48 × 10G SFP+, 6 × 100G QSFP28
25G	Edgecore Networks	AS7326-56X	Broadcom Trident3-X7	48 × 25G SFP28, 8 × 100G QSFP28
100G	Edgecore Networks	AS7726-32X	Broadcom Trident3-X7	32 × 100G QSFP28
100G	Edgecore Networks	AS7712-32X	Broadcom Tomahawk	32 × 100G QSFP28
100G	Edgecore Networks	AS7816-64X	Broadcom Tomahawk2	64 × 100G QSFP28
400G	Edgecore Networks	AS9716-32D	Broadcom Tomahawk3	32 × 400G QSFP-DD
400G	Edgecore Networks	AS9736-64D	Broadcom Tomahawk4	64 × 400G QSFP-DD
400G	Edgecore Networks	AS9726-32DB	Broadcom Trident4-X11	32 × 400G QSFP-DD
800G	Edgecore Networks	AS800-64D	Broadcom Tomahawk5	64 × 800G QSFP-DD800
800G	Edgecore Networks	AS800-64O	Broadcom Tomahawk5	64 × 800G OSFP800
25G	Extreme Networks	SLX 9150-48Y	Broadcom Trident3-X7	48 × 25G SFP28, 6 × 100G QSFP28
100G	Extreme Networks	SLX 9250-32C	Broadcom Trident3-X7	32 × 100G QSFP28
400G	Huaqin Technology	NS8420-128QA-4RU	Broadcom Tomahawk5	128 × 400G QSFP-DD
400G	Micas Networks	M2-W6920-32QC2X	Broadcom Tomahawk3	32 × 400G QSFP-DD
400G	Micas Networks	M2-W6930-64QC	Broadcom Tomahawk4	64 × 400G QSFP-DD
1G	Micas Networks	M2-W6510-48GT4V	Broadcom Trident3-X2	48 × 1G RJ45, 4 × 25G SFP28
25G	Micas Networks	M2-W6510-48V8C	Broadcom Trident3-X7	48 × 25G SFP28, 8 × 100G QSFP28
100G	Micas Networks	M2-W6510-32C	Broadcom Trident3-X7	32 × 100G QSFP28
200G	Micas Networks	M2-W6520-24DC8QC	Broadcom Trident4-X11	24 × 200G QSFP56, 8 × 400G QSFP-DD
400G	Micas Networks	M2-W6940-128QC	Broadcom Tomahawk5	128 × 400G QSFP112
800G	Micas Networks	M2-W6940-64OC	Broadcom Tomahawk5	64 × 800G OSFP800
25G	QCT	T4048-IX8	Broadcom Trident3-X5	48 × 25G SFP28, 8 × 100G QSFP28
100G	QCT	T7064-IX4	Broadcom Tomahawk2	64 × 100G QSFP28
100G	QCT	T7032-IX7	Broadcom Trident3-X7	32 × 100G QSFP28
400G	QCT	T9032-IX9	Broadcom Tomahawk3	32 × 400G QSFP-DD
800G	Supermicro	SSE-T8164S	Broadcom Tomahawk5	64 × 800G OSFP800
800G	Supermicro	SSE-T8196S	Broadcom Tomahawk5	64 × 400G QSFP112, 32 × 800G OSFP800, 2 × 25G SFP28
800G	UfiSpace	S9321-64E	Broadcom Tomahawk5	64 × 800G QSFP-DD
1G	UfiSpace	S6301-56ST	Broadcom Trident3-X2	48 × 1G RJ45, 8 × 10G SFP+
25G	UfiSpace	S8901-54XC	Broadcom Trident3-X5	48 × 25G SFP28, 6 × 100G QSFP28
100G	UfiSpace	S9100-32X	Broadcom Trident3-X7	32 × 100G QSFP28
400G	UfiSpace	S9300-32D	Broadcom Trident4-X11	32 × 400G QSFP-DD
1G	Wistron	SO-BI48B-4E	Broadcom Trident3-X2	48 × 1G RJ45, 4 × 25G SFP28

Enterprise SONiC Distribution by Broadcom



Full List of Features

System and Platform Infrastructure Features

- Enterprise-SONiC AI (Artificial Intelligence) Package
- Qualified a number of hardware platforms
- Support for low-power optics (LPO) on Tomahawk5 platforms.
- Enhanced MAC handling with Sticky MAC and MAC aging tuning.
- Support for host route import into the local address family for flexible route propagation.
- Dynamic Port Breakout
- DOM Information Display
- System Locator LED Support (Beacon)
- CMIS 4.0 Optics Support
- Hardware Watchdog
- 1G/10G BASE-T copper BASE-T Support (On select platforms)
- Multirate support for 3248 series platforms, and 100 Mb/s and 10 Mb/s support on N3248-TE and E3248-P platforms
- CoPP (Control Plane Policing)
- Transceiver Parameter Tuning
- Third-Party Container Management
- PDDF and PDK Framework
- Interface Aliasing (IS-Standard and IS-Standard-Extended Interface Naming)
- Kdump Support
- Maintenance Mode
 - LACP Graceful Shut
 - BGP Graceful Shut
 - OSPFv2 Maximum Metrics
- Multi-Instance Redis DB
- Hardware Resource Allocation and Reservation
- Zero Touch Provisioning (ZTP)
- Auto Negotiation and Link Training
- Link Statistics Enhancements
- Link-Down Reason Codes
- Link Flap Error-Disable
- Forwarding Plane Drop Counters
- Time Zone Command Support
- 2 x 50G Speed Support
- Broadcom Debug Tool (Enterprise Advanced Only)
- Memory Histogram
- System Ready for Services and Applications
- Secure Boot Process and Reference Implementation
- Syslog High Threshold notifications and clear for CPU/Temperature
- Per Platform CoPP
- Interface Beacon LED
- ZTP Provisioning using a USB Drive
- Flexible DPB
- Support Option to Bind the Third Party Container to the Management VRF
- Limiting CPU/Memory/Disk Usage for Third Party Containers
- Patching Support in SONiC (Patch Host/Containers)
- Option to Send Audit Log Messages to Syslog Server
- Ability to Filter Logs based on Facility and Severity
- I2C Error Statistics for Accton AS7326 and AS7816 Platforms
- Half Duplex Support for TD3-X5 - N3248/E3248 Platforms
- Media AutoFEC for FEC Type automation
- System alarm support for AS4630-54PE and AS4630-54NPE
- Linux Kernel upgrade to 5.10.162
- Adaptive Routing (DLB) support on TH4, TH5 platforms
- ECMP Enhancements for TH4, TH5, TD4-X11 platforms
 - Ingress port
 - Flexible hashing functions
 - Hash offset selection
 - QPN based hashing (UDF hashing)
 - Flow-based hashing
- Linux Buster to Bullseye migration
- Debian Package Updates for security vulnerabilities
- Port auto-breakout and auto-detect for port speed support
- Breakout support on 100G QSPF28 ports of the Campus/Edge platforms
- SSHD Configurability
- Warm boot support for TD4 (X9, X11) platforms
- Dynamic configuration of rest server and gNMI server
- Interface Events (Notify Interface Oper Up/Down in show event)
- Default Auto-negotiation configuration
- Ifindex support for physical interfaces in show interface output

L2 Features:

- VLAN Auto-state
- Interface Hold-Down
- LACP Graceful Shutdown
- Uplink Tracking
- L2 MC-LAG; L2 VXLAN; L2 LVTEP
- LACP Fast Rate and LACP Fallback
- Static LAG
- LLDP
- UDLD
- MC-LAG Fallback; MC-LAG Graceful Shutdown
- xSTP over MC-LAG
- PVST and RPVST+
- PVST and RPVST+ over MC-LAG
- DHCP snooping
- VLAN stacking (QinQ) on TD3 and TD4 platforms
- VLAN stacking (QinQ) enhancements on TD3 platform
- Port Channel Min-Links configuration enhancement
- Enhancement in showing the MSTP configuration to display the default region name
- Enhancement to configuring the MST region name as an empty string to interoperate with OS10/Arista/Cisco
- LACP Individual for VxRail
- LLDP TLV Subtype (VLAN name, link aggregation, MFS) Support

L3 features:

- DHCP Relay over VXLAN Overlay Interfaces
- DHCP Relay Enhancements
- DHCP Relay Source Interface Selection (e.g. loopback)
- DHCP Relay over IPv6 Link-Local Interfaces with RFC5549 Routes
- DHCP Relay Hop Count Configuration
- DHCP Relay Over IPv4 Unnumbered Interfaces
- DHCP Relay Option 82, Sub Option 151 VRF Name/ID Option
- DHCP Relay Option 82, Sub Option 5 Link-Selection Option RFC3527
- Support for Circuit-Id Formats
- DHCP Relay Circuit-Id Option
- DHCP Relay and DHCP snooping support on the same VLAN
- Support for 4K L3 VLAN Interfaces
- Dynamic BGP Neighbor
- IP Fabric over IPv6 underlay RFC5549
- IP Helper
- L3 MC-LAG; L3 VXLAN; L3 LVTEP
- Routing Subinterface (on TD3-X5, TD3-X7, TD4-X11 platforms)
- Advertise PIP for both ACT-ACT and ACT-STBY on the Same Leaf Pair
- Route Leaking across VRFs including Management VRF
- BGP Docker Warm Restart
- Avoid Netlink for Handling IPv6 Link-Local Address
- BFD Optimizations to Support 5x10msec Aggressive Timers in SW
- IP SLA (ICMP and TCP tracker)
- IPv4 Unnumbered Interfaces
- RPVST+ over MC-LAG
- RPVST+ Scaling to 3500 VLAN Ports
- Symmetric Hashing
- VXLAN over SVI Interface
- BGP for EVPN (with MLAG)
- BFD IS-CLIs; BFD with VRF
- VRF support for syslog
- VRF support for SSH.in
- VRRPv3, VRRP/VRRPv3 over VRF
- Management VRF Hardening
- NAT
- OSPFv2
- Multi Site Data Center Interconnect (DCI)
- RIB/FIB Consistency Checker
- Next Hop Group (NHG) Support
- RIF Counters for L3 Interfaces
- BFD Profile
- 4K L3 VLAN Interface Scale for SAG and Unique-IP Cases
- Nexthop resolution using default route
- MC-LAG Peer Gateway
- 1 Million Route Scale
- Route Updates Performance Improvements
- Drop Neighbor Entry to Protect CPU from Unknown IP Packets Hitting the CPU
- CPU Offload for Neighbor Suppression
- CPU Offload for Slowpath ARP Flooding
- OSPFv2 GRRouter Advertisement KLISH/REST/gNMI Support
- CLI Commands for RA Retransmission Interval, RADv Disable
- RFE-8106
- Standards-based ESI based EVPN Multihoming support on TD3-X7, TD3-X5, TD3-X3, TD-X11 and TD4-X9 platforms
- L3 VXLAN support for TH5 platforms
- RoCEv2 over VXLAN on TD4-X11, TD3-X7, and TH5 platforms
- VxLAN creation to non /32 prefixes
- Higher route scale in TD3-X7
- Static route pointing to unnumbered interface
- Smart DHCP Relay (DHCPv4 only)
- DHCP relay configuration to support 16 DHCP servers
- BGP Route Filtering representation
- ASDot and ASDot+ notation for 4 byte BGP ASNs

ACL and Flow-Based Services:

- PBR Enhancements for Service Chaining
- ACL-based CoPP
- ACL DSCP Map/Remarking
- ACL Rate Limiting
- Control Plane ACL
- Policy-based Routing (IPv4 and IPv6)
- ACL-based Packet Replication
- ACL Consistency Checker
- Separate authentication methods for local and remote access
- AuditD
- Security Features:**
- RADIUS and TACACS
- RADIUS/TACACS Password Obfuscation
- NTP Server and NTP Authentication
- NTP Prefer Option
- LDAP Integration
- Map LDAP groups to SONiC (RBAC) roles
- AAA Authorization support with TACACS+
- Custom password complexity
- Syslog over TCP
- Syslog over TLS
- Session timeout configuration
- SONiC: Separate Channel for audit logs

Manageability Features:

- Industry Standard CLI (IS-CLI)
- REST and gNMI Interfaces via OpenConfig YANG (OC-YANG)
- Role-Based Access Control (RBAC)
- RBAC and HAMd Enhancements

- SNMP Configuration Traps and OIDs
- Configuration Services – Chef for EVPN
- gNMI Subscription Support for Limited YANG Paths (OnChange, Interval, Once, Poll, Target defined)
- Bulking support in both REST(YANG patch) and gNMI
- Query parameter for REST and filtering support for gNMI
- Scalar encoding support for gNMI
- Support to Read Service Tag via SNMP
- SNMP Trap Enablement on Interface Instead of Global
- TEC certification – SNMP set command for sysName
- Wildcard support for OC-YANG interface's Ethernet counters and individual counters
- LDAP multiple role mapping
- Application bring up for Events and Alarms
- SNMP new CLIs for enabling or disabling individual traps
- Transformer Infrastructure: Sonic Yang Singleton Container Support
- Syslog over TLS

Multicast Features and Enhancements:

- L3 Multicast with PIM operates on L3 interfaces only
- IGMP
- IGMP Snooping (v1, v2, v3) (with MLAG)
- IPv4 PIM-SSM Support

Debuggability and Serviceability features:

- In-memory Debug Logging
- Audit Logging and Syslogs
- Command to Return Interfaces to the Default Configuration
- Port Mirroring on Port Channel and VLAN Scalability improvements
- L3 VLAN Scale to 4K (for TD3-X7 based Platforms)
- Host Table Resource Reservation for Local Hosts

QoS:

- RoCEv2 support for TD4-X11 and TH4 platforms
- RoCEv2 with Cut Through mode support for TD3-X7, TD4-X11, TH3 and TH4 platforms
- RoCEv2 UDF-based Hashing support for TH4 platform
- DSCP Marking Preservation for VXLAN
- QoS Map Support for Remarking and SVI
- BUM Storm Control
- Port and Priority Shaping
- Programmable PFC priority-to-queue mapping on TH4
- RoCEv2 support for TH5 platforms
- RoCEv2 with Cut Through mode support for TH5 platforms
- PFC lossless queue priority mapping on TH5 platforms

Telemetry and Instrumentation Features:

- sFlow on Management VRF
- Inband Flow Analyzer (Enterprise Advanced Only)
- Drop Monitor
- Tail Stamping (Enterprise Advanced Only)
- BST – Watermarks,
- Thresholds, and Snapshots
- Linux PTP (KNETSync)

SONiC readiness for Campus use case:

- Infrastructure level changes have been made extensively to make sure SONiC can run in Campus platforms (with lower memory 8G)
- POE, POE+ and POE-bt (POE ++)
- Port Access Contro
 - 802.1X
 - MAC Authentication Bypass (MAB)
 - RADIUS Support
- Multiple RADIUS Servers
- RFC 2865 – RADIUS Client
- RFC 2868 – RADIUS Attributes for Tunnel Protocol Support
- RFC 3579 – RADIUS Support for EAP
 - Authentication Tiering
 - Downloadable ACLs
 - Dynamic ACL
- Named ACLs
- Per-session ACLs
- Filter-Id
 - Posture Assessment (Redirect ACL/URL, COA Using DAS)
 - Guest VLAN
 - Unauth VLAN
 - Open VLAN
 - Monitor Mode
 - STP
 - Port Default to Access VLAN
 - Aruba Clearpass, Cisco ISE, FreeRadius Interoperability
 - Support PAC clients on L3 (routing) VLAN
 - Dynamic port breakout support for PAC
- MSTP
- Port MAC Security
- LLDP-MED
- Digital Optical Monitoring (DOM)
- Time Domain Reflectometry (TDR)
- EVPN VXLAN (scale is different for VXLAN on Campus platforms)
- Campus use case support on TD3.X2 platforms

Security Features:

- LDAPS (LDAP over TLS) for secure directory services.
- RADIUS over TLS and RSA-based multi-factor authentication (MFA) for enhanced user authentication.
- Custom password complexity enforcement to meet compliance policies.
- Syslog over TLS to ensure secure log transmission.

SONiC Distribution by Broadcom Campus Package

Part Number	Support Description
SmartCare 9x5 CE(S)T	
1G	
S-SONIC-CAMB-1G-1	Enterprise SONiC Distribution by Broadcom, Campus Package, 1G Platform, SmartCare 9x5 CE(S)T Support, 1-Year Subscription
S-SONIC-CAMB-1G-3	Enterprise SONiC Distribution by Broadcom, Campus Package, 1G Platform, SmartCare 9x5 CE(S)T Support, 3-Year Subscription
S-SONIC-CAMB-1G-5	Enterprise SONiC Distribution by Broadcom, Campus Package, 1G Platform, SmartCare 9x5 CE(S)T Support, 5-Year Subscription
Multi-Gig	
S-SONIC-CAMB-10G-1	Enterprise SONiC Distribution by Broadcom, Campus Package, Multi-Gig Platform, SmartCare 9x5 CE(S)T Support, 1-Year Subscription
S-SONIC-CAMB-10G-3	Enterprise SONiC Distribution by Broadcom, Campus Package, Multi-Gig Platform, SmartCare 9x5 CE(S)T Support, 3-Year Subscription
S-SONIC-CAMB-10G-5	Enterprise SONiC Distribution by Broadcom, Campus Package, Multi-Gig Platform, SmartCare 9x5 CE(S)T Support, 5-Year Subscription

PremiumCare 24x7x365	
1G	
P-SONIC-CAMB-1G-1	Enterprise SONiC Distribution by Broadcom, Campus Package, 1G Platform, PremiumCare 24x7x365 Support, 1-Year Subscription
P-SONIC-CAMB-1G-3	Enterprise SONiC Distribution by Broadcom, Campus Package, 1G Platform, PremiumCare 24x7x365 Support, 3-Year Subscription
P-SONIC-CAMB-1G-5	Enterprise SONiC Distribution by Broadcom, Campus Package, 1G Platform, PremiumCare 24x7x365 Support, 5-Year Subscription
Multi-Gig	
P-SONIC-CAMB-10G-1	Enterprise SONiC Distribution by Broadcom, Campus Package, Multi-Gig Platform, PremiumCare 24x7x365 Support, 1-Year Subscription
P-SONIC-CAMB-10G-3	Enterprise SONiC Distribution by Broadcom, Campus Package, Multi-Gig Platform, PremiumCare 24x7x365 Support, 3-Year Subscription
P-SONIC-CAMB-10G-5	Enterprise SONiC Distribution by Broadcom, Campus Package, Multi-Gig Platform, SmartCare 9x5 CE(S)T Support, 5-Year Subscription

SONiC Distribution by Broadcom AI Package

Part Number	Support Description
SmartCare 9x5 CE(S)T	
≤25.6 Tbps Platforms, Broadcom TH4/TH5	
S-SONIC-AI-T1-1	Enterprise SONiC Distribution by Broadcom, AI Package (≤25.6 Tbps Platforms, Broadcom TH4/TH5), SmartCare 9x5 CE(S)T Support, 1-Year Subscription
S-SONIC-AI-T1-3	Enterprise SONiC Distribution by Broadcom, AI Package (≤25.6 Tbps Platforms, Broadcom TH4/TH5), SmartCare 9x5 CE(S)T Support, 3-Year Subscription
S-SONIC-AI-T1-5	Enterprise SONiC Distribution by Broadcom, AI Package (≤25.6 Tbps Platforms, Broadcom TH4/TH5), SmartCare 9x5 CE(S)T Support, 5-Year Subscription
>25.6 Tbps Platforms, Broadcom TH5	
S-SONIC-AI-T2-1	Enterprise SONiC Distribution by Broadcom, AI Package (>25.6 Tbps Platforms, Broadcom TH5), SmartCare 9x5 CE(S)T Support, 1-Year Subscription
S-SONIC-AI-T2-3	Enterprise SONiC Distribution by Broadcom, AI Package (>25.6 Tbps Platforms, Broadcom TH5), SmartCare 9x5 CE(S)T Support, 3-Year Subscription
S-SONIC-AI-T2-5	Enterprise SONiC Distribution by Broadcom, AI Package (>25.6 Tbps Platforms, Broadcom TH5), SmartCare 9x5 CE(S)T Support, 5-Year Subscription

PremiumCare 24x7x365	
≤25.6 Tbps Platforms, Broadcom TH4/TH5	
P-SONIC-AI-T1-1	Enterprise SONiC Distribution by Broadcom, AI Package (≤25.6 Tbps Platforms, Broadcom TH4/TH5), PremiumCare 24x7x365 Support, 1-Year Subscription
P-SONIC-AI-T1-3	Enterprise SONiC Distribution by Broadcom, AI Package (≤25.6 Tbps Platforms, Broadcom TH4/TH5), PremiumCare 24x7x365 Support, 3-Year Subscription
P-SONIC-AI-T1-5	Enterprise SONiC Distribution by Broadcom, AI Package (≤25.6 Tbps Platforms, Broadcom TH4/TH5), PremiumCare 24x7x365 Support, 5-Year Subscription
>25.6 Tbps Platforms, Broadcom TH5	
P-SONIC-AI-T2-1	Enterprise SONiC Distribution by Broadcom, AI Package (>25.6 Tbps Platforms, Broadcom TH5), PremiumCare 24x7x365 Support, 1-Year Subscription
P-SONIC-AI-T2-3	Enterprise SONiC Distribution by Broadcom, AI Package (>25.6 Tbps Platforms, Broadcom TH5), PremiumCare 24x7x365 Support, 3-Year Subscription
P-SONIC-AI-T2-5	Enterprise SONiC Distribution by Broadcom, AI Package (>25.6 Tbps Platforms, Broadcom TH5), PremiumCare 24x7x365 Support, 5-Year Subscription