

Open source SONiC network software adapts to address enterprise requirements and use cases.

How Networking Software Supports Digital Infrastructure Resilience

October 2022

Questions posed by: Dell Technologies

Answers by: Brad Casemore, Research Vice President, Datacenter and Multicloud Networks

Q. As enterprises place greater emphasis on digital resiliency, how should their approach to network architectures, infrastructure, and procurement change?

A. From a networking perspective, we are seeing enterprises think more about how they can make networking investments that provide resilience through technology choice and flexibility.

Even before the damage that COVID-19 wrought and all that has happened subsequently, IDC found that enterprises were moving toward a software-driven approach to their network refreshes, where the software, which provides for agility and accelerated innovation cycles, was accorded greater prominence in architecture and infrastructure decisions. In that respect, software-defined networking (SDN) software, network virtualization software, and open source network software — including open source network operating systems — have grown in stature.

More recently, in the wake of the persistent supply-chain complications, which will likely remain with us into the foreseeable future, we are also seeing a greater enterprise focus on decoupling network software from network hardware. What that means, for example, is that Software for Open Networking in the Cloud (SONiC), an open source and cloud-native network operating system, is gaining greater enterprise interest and adoption, not only because of its feature set and its ability to address a growing array of use cases but also because it can run on a range of multivendor network hardware, which can be multisourced for choice and flexibility.

Q. Let's expand on SONiC's use cases. What are they?

A. SONiC was initially deployed on top-of-rack Ethernet switches in cloud-scale datacenters, but it has gradually extended its reach to leaf-spine datacenter networks and to converged networks, telco cloud, various edge environments, and other routing use cases such as datacenter interconnect (DCI).

Enterprises can now use SONiC both in their datacenters and in the enterprise edge, and IDC expects the SONiC community to identify additional enterprise use cases as community-based innovation advances. In fact, earlier this year, SONiC was transferred from the Open Compute Project (OCP) to the Linux Foundation, where it will benefit from a robust and

expanding community and a larger pool of contributors. Existing use cases will benefit from the enlarged community, and new use cases will emerge through the increased scope of development.

Further, SONiC also supports streaming network telemetry and works with configuration automation tools such as Ansible, Puppet, and Chef, which align well with enterprises that are seeking to automate all their digital infrastructure to gain agility and flexibility.

Q. What are the benefits that enterprises can derive from SONiC?

A. An enterprise SONiC distribution can deliver the following wide range of business and operational benefits:

- » Reduced cost of datacenter networks (Capex and opex IT cost reductions are possible with SONiC, which provides choice and flexibility in selection and procurement of datacenter network infrastructure and allows for a greater degree of programmability and API management than traditional network operating systems. An additional benefit, in the current context of supply-chain disruptions, is that SONiC's inherent openness allows for choice and flexibility in sourcing hardware, meaning that enterprises can mitigate long wait times for network hardware.)
- » Greater operational efficiencies, deriving from SONiC feature standardization and consistency across multivendor network environments
- » Consolidation of tooling, which saves time and money, given that SONiC, as a microservices-based Linux network operating system, works well with popular Linux tooling and processes
- » Support for DevOps workflows and continuous integration and continuous development (CI/CD), which allows the network and NetOps to gain agility and to mirror and support the needs of applications and developers
- » Accelerated network provisioning, through SONiC's cloud-native programmability, and support for self-service for known repetitive processes associated with developer and DevOps pipelines
- » Continuous innovations and contributions from the open source SONiC community that improve operational efficiency, performance, and productivity of the software and datacenter networking (This ongoing activity also provides long-term investment protection.)

Q. SONiC began in the realm of hyperscale cloud datacenters. How is it being adapted for enterprise requirements?

A. Although SONiC originated in the cloud-scale datacenter networks of hyperscalers, its evolution has dovetailed with market dynamics to make it increasingly applicable to enterprise customers. Enterprises aren't hyperscalers, but digital transformation compels datacenter network modernization that is driven by needs like those that first emerged at hyperscalers.

As a result of skills shortages and resource constraints, however, enterprises need the technology to be adapted, simplified, and fully supported to align with their requirements. Therefore, it's incumbent on vendors to take hyperscale

innovations, such as SONiC, and repackage them for enterprise consumption, deployment, use cases, and day-to-day network operations. Vendor adaptation of SONiC, given enterprise requirements and resource constraints, must focus on making the complex simple, enabling enterprises to scale their networks easily and flexibly and to run operations with greater agility and efficiency.

Q. For SONiC to become even more attractive to enterprise users, what needs to happen next?

A. The SONiC community, and perhaps especially the vendor ecosystem, will play an expanding role in ensuring that SONiC continues to find favor with enterprises. Some of that push will be through the ongoing proliferation of SONiC use cases, which is already happening, but there's another element that must be addressed.

A key factor will be how the supply chain and vendor community work to ensure that SONiC responds to the need for greater digital resilience. That benefit can result from SONiC's continually enhanced openness and flexibility — which deliver hardware and tooling choice — and from the creation of complete solutions, which include integrations with both open source and vendor tooling, orchestration, and full network life-cycle automation.

About the Analyst



Brad Casemore, Research Vice President, Datacenter and Multicloud Networks

Brad Casemore is IDC's Research Vice President, Datacenter and Multicloud Networks. He covers datacenter network hardware, software, IaaS cloud-delivered network services, and related technologies, including hybrid and multicloud networking software, services, and transit networks. Mr. Casemore also works closely with IDC's Enterprise Networking, Server, Storage, Cloud, and Security research analysts to assess the impact of emerging IT and converged and hyperconverged infrastructure.

MESSAGE FROM THE SPONSOR

About Dell Technologies

Streamline operations and reduce the risk of performance issues with a modernized network architecture running a unified NOS that supports common toolsets for deployment, management, and monitoring of the entire fabric, from the Datacenter to the Edge, with Enterprise SONiC Distribution by Dell Technologies, the first commercial version of SONiC to provide enterprise-ready features, a dedicated roadmap, and global support for large-scale environments. Hardened with extensive real-world testing and validation across the Dell PowerSwitch portfolio, Enterprise SONiC builds on Dell Technologies' long history of collaborating with and contributing to the open source SONiC community with new features and capabilities, including a centralized management platform and a growing ecosystem of partner automation and orchestration applications. Learn more at <http://dell.com/EnterpriseSONiC>



IDC Research, Inc.
140 Kendrick Street
Building B
Needham, MA 02494
T 508.872.8200
F 508.935.4015
Twitter @IDC
idc-insights-community.com
www.idc.com

This publication was produced by IDC Custom Solutions. The opinion, analysis, and research results presented herein are drawn from more detailed research and analysis independently conducted and published by IDC, unless specific vendor sponsorship is noted. IDC Custom Solutions makes IDC content available in a wide range of formats for distribution by various companies. A license to distribute IDC content does not imply endorsement of or opinion about the licensee.

External Publication of IDC Information and Data — Any IDC information that is to be used in advertising, press releases, or promotional materials requires prior written approval from the appropriate IDC Vice President or Country Manager. A draft of the proposed document should accompany any such request. IDC reserves the right to deny approval of external usage for any reason.

Copyright 2022 IDC. Reproduction without written permission is completely forbidden.