

Easy, risk-free adoption of SONiC open networking to optimize data center efficiency with automation and scale across large data centers

Industries

- > Finance
- > Banking
- > Insurance
- > Retail
- > Telecommunications

Challenges

- > SONiC does not come with support services, making it hard to troubleshoot, configure, manage, and orchestrate at scale.
- > Commodity SONiC-based switches in the market lack the performance and telemetry features for high-performance infrastructure.

Products Used

- > NVIDIA® Mellanox Spectrum® switches
- > Axellant network engineering support

SONIC ONE-STOP SHOP WITH NVIDIA AND AXELLANT

“Axellant Networking competence together with NVIDIA high-performance switches enable customers’ smooth transition to open networking like SONiC tailored to their needs.”

— Yoram Zarfaty, CEO, Axellant

Background

Data centers are rapidly evolving to an architecture that is accelerated, disaggregated, software-defined and open to meet exponential growth in data scale and high-performance computing. SONiC (Software for Open Networking in the Cloud) an open-source network operating system, based on Linux, provides hyperscale data centers with vendor-neutral networking. The open nature of SONiC and its standardized API lets customers choose the best switch silicon and switch systems for their networking needs. Optimized for automation and scale across large data centers, SONiC is supported by a growing community of vendors and customers. Its modular, extensible, container-based design allows rapid feature updates, accelerating innovation and reducing cost.

NVIDIA offers best-in-class hardware for SONiC, with in-service software upgrades and a fully programmable pipeline, while Axellant provides the network engineering services and support to cover all of a customer’s new network implementation and operational needs.

The Challenge

Network operators are adopting open-source software such as SONiC to achieve operational and cost efficiencies. However, open source does not come with support services, making it hard to troubleshoot, configure, manage, and orchestrate at scale. Additionally, the commodity SONiC-based switches in the market lack the performance and telemetry features needed to support scale-out high-performance infrastructure.

Results

- > NVIDIA offers 100% pure community-based master branch SONiC on all its Ethernet Switch platforms.
- > More than 1 million ports of SONiC over NVIDIA switches are deployed in production networks.
- > NVIDIA has an experienced R&D and QA team that has been developing and contributing code since 2016, when SONiC was first initiated.
- > NVIDIA Mellanox® What Just Happened® (WJH) technology offers world-class telemetry—community, commercial, and home-grown telemetry solutions running over SONiC.
- > Comprehensive support includes ASIC-to-Protocol (A2P) support, training programs, access to SONiC experts worldwide, and co-development and support by Axellent.



The Solution

The solution consists of NVIDIA Mellanox Spectrum Ethernet switches running SONiC, with support from Axellent. NVIDIA Mellanox has been pioneering the Open Ethernet® approach to network disaggregation for several years, with the industry-leading Spectrum Ethernet switch family. Today, the Spectrum switches support the widest range of open network operating systems, including SONiC. Customers have the choice to upgrade to the “fit-for-purpose” operating system while retaining the same underlying hardware. Unlike other vendors who use off-the-shelf switch silicon, NVIDIA Mellanox Ethernet switch platforms are based on differentiating Spectrum silicon technology. Spectrum Ethernet switches are ideal for building wire-speed and cloud-scale layer-2 and layer-3 networks and feature a robust high-bandwidth and low-latency RoCE data path. Spectrum platforms deliver high performance and consistent low latency, along with support for advanced software-defined networking features, making them the ideal choice for web-scale IT, cloud, hyperconverged storage and data analytics applications. Spectrum Ethernet switches also support What Just Happened (WJH), the advanced streaming telemetry technology that goes beyond conventional telemetry solutions by providing actionable details on abnormal network behavior.

Axellent Network Engineering Services and Support

Axellent is the SONiC one-stop shop that enables customers to have a robust open network solution over NVIDIA Mellanox hardware.

Axellent provides the networking engineering competence that end customers need to migrate or adopt a new network solution based on open network operating systems like SONiC over any open switching platform such as NVIDIA Spectrum switches.

Axellent Networking engineering services and support are essential for customers using open source to accelerate the integration, testing, customization, and launch of the new solution in their network. Axellent is working closely with NVIDIA and end customers to make sure that the solution fits each customer’s needs, including proof of concept (POC), new features development, integration, testing and automation, benchmarking, and support packages for deployment and operation.

The NVIDIA and Axellant solution allows customers to focus on their network architecture deployment, using NVIDIA Mellanox Spectrum switches and open networking, while Axellant supports their SONiC-specific requests, bug fixes, new feature development, testing, automation, and operation.

Conclusion

Network operators can achieve significant operational and cost efficiencies by adopting open-source operating systems like SONiC. These open networking platforms enable customers to choose best-of-breed components that optimize and automate their data centers and meet their business needs. The fully integrated and tested combination of NVIDIA Mellanox Spectrum switches, SONiC network operating system, and Axellant network engineering support is the ideal way to achieve this agility and improve the pace of innovation, efficiency, and automation of data center infrastructure.

About Axellant www.axellant.com

Axellant has a long list of accomplishments across a broad spectrum of networking technology platforms. Their network engineering initiatives have included customizing SONiC and Switch Abstraction Interface (SAI) sources to meet unique customer requirements, evaluating performance of applications on different hardware platforms using SONiC/SAI with immediate platform support from top hardware vendors, implementing new components using SONiC micro-services architecture (traffic filtering, aggregation, multiplexing), providing new user interface support (rest APIs) and customizing command-line interfaces (CLI), and building automated continuous-integration-and-deployment (CI/CD) infrastructure covered by automated regression tests, bug fixes, and ongoing support services for customers' networks and products.

Axellant provides the most experienced networking resources and services to enable their customers to focus on what they do best.

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