USER STORY

Evaluating SONiC at Scale: Rakuten's Journey Toward Open Networking

Organization

Rakuten is a Japanese technology conglomerate founded in 1997 and based in Tokyo. It has several divisions focusing on online retail, financial services, digital content and communications services, carrier technology platforms (Rakuten Symphony), and is Japan's fourth largest mobile carrier will approximately 10 million subscribers. Rakuten has more than 28,000 employees worldwide, operating in 30 countries and regions.

With its scale and increased demand for agility, Rakuten looked for Open Networking to improve its business resiliency and lessen vendor dependency, go deeper on its network virtualization strategy; and lastly, reduce its CapEx and OpEx to deliver greater shareholder value.

Overview

Rakuten launched a Proof of Value (PoV) to evaluate open networking architectures with SONiC. The primary drivers for selecting SONiC were its large open source community support, rich feature set, and established adoption in production-scale environments.

The PoV tested SONiC across two distinct but parallel switch fabrics in geographically separated data centers. Through structured test cases, this evaluation revealed how open networking enables multi-vendor flexibility, operational consistency, deep observability, and greater agility compared to closed, proprietary alternatives.

Deployment

The PoV environment consisted of two fabrics, each leveraging different hardware platforms to validate vendor-neutral operations:

- **Fabric A: Edgecore OCP switch models:**
  - Spines: AS-7726-32X, 400G x 32
  - Leafs: AS-4625-54T, 48 x 25G SFP28 + 8 x 100G
  - Out-of-band (OOB) Management: AS-4625-54T
- **Fabric B: Dell switch models:**
  - Spines: Z9864F, 800G x 64
  - Leafs: Z9432F, 400G x 32
  - OOB Management: S3248T

Both fabrics were orchestrated and observed using a centralized management platform (BE Networks Verity v6.4). This enabled evaluation of workflows, compliance, and telemetry across heterogeneous environments, further demonstrating that SONiC can integrate

effectively with third-party tooling.

This dual-fabric PoV validated that SONiC could support Rakuten's goals for vendor-neutral networking, providing flexibility while reducing operational complexity.

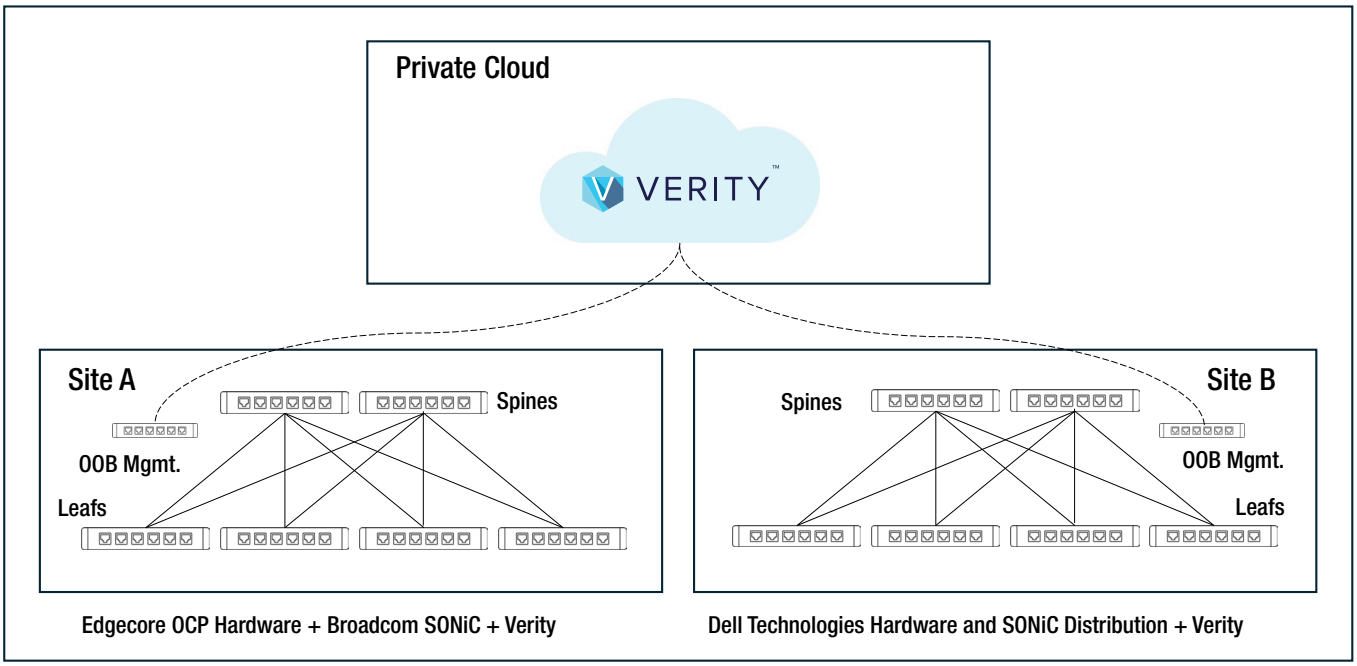

Figure 1: Multisite Topology.

Benefits

Figure 2 below provides a high-level comparison of the advantages and disadvantages identified in Rakuten's PoV when evaluating open networking versus proprietary networking solutions.

The PoV demonstrated that open networking, when paired with a powerful vendor-agnostic orchestration and observability solution, can meet or exceed the capabilities of traditional, vertically integrated solutions. It also confirmed that standardized operations are achievable across multiple hardware vendors.

Key benefits observed in the PoV include:

- **Cost Efficiency:** Decoupling the network operating system (NOS) from the hardware allows enterprises to leverage competitively priced OCP switches while avoiding vendor lock-in. By diversifying hardware, simplifying licensing, and using more flexible support models, Rakuten validated that open networking with **SONiC can reduce costs by more than 50% compared to proprietary solutions**.
- **Vendor Flexibility:** The combination of SONiC, OCP switches, and vendor-agnostic orchestration allows enterprises to adopt best-of-breed technologies across multiple vendors without being locked into a single ecosystem.
- **Operational Consistency:** The evaluation confirmed that workflows, automation, and compliance could be applied consistently across multi-vendor environments.

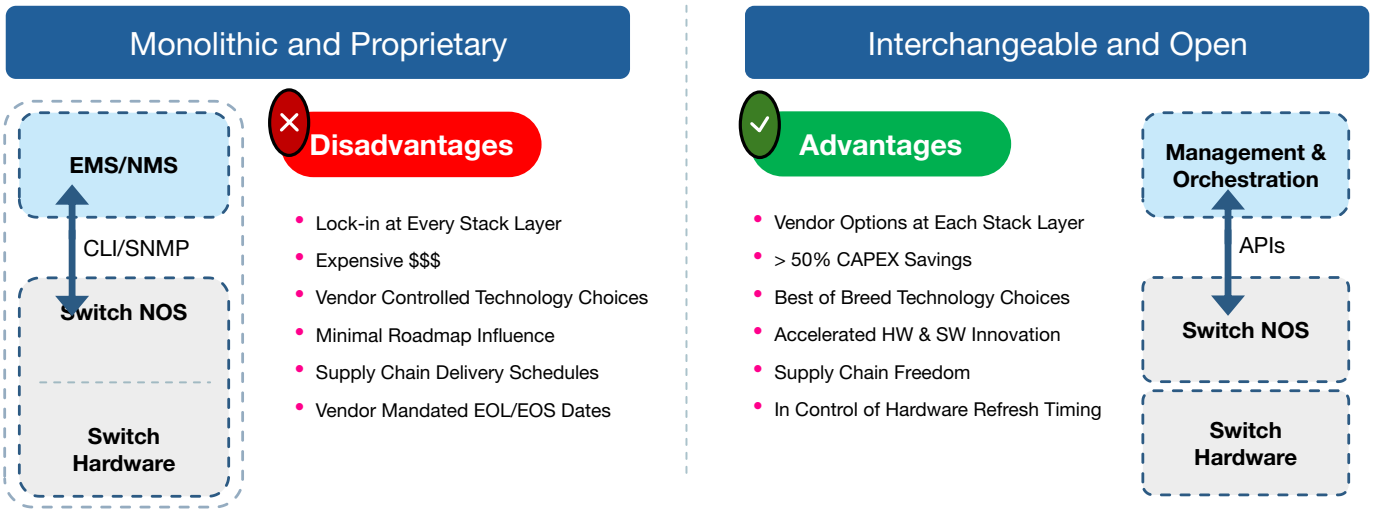

Figure 2: Open Networking Advantages

- **Future-Proofing:** Open standards and a strong community ecosystem help align with evolving roadmaps and reduce the risk of technology lock-in or obsolescence.

For enterprises seeking agility, control, and cost efficiency, Rakuten's PoV shows that open networking with SONiC should not be viewed as experimental, but as a viable foundation for production-scale infrastructure.

Lessons Learned and Future Plans

Rakuten's PoV showed that transitioning to SONiC-powered open networking requires an incremental journey, but the long-term benefits of flexibility, cost efficiency, and innovation outweigh the initial ramp-up.

Building on this evaluation, Rakuten continues to explore how SONiC could scale across broader production environments. Future considerations include:

- Expanding SONiC adoption beyond data center fabrics.
- Increasing automation for operations and compliance.
- Aligning with industry best practices and contributing insights back to the open networking community.

Rakuten will share its findings with the broader ecosystem to help accelerate open networking adoption worldwide.

Join SONiC

Become a SONiC member to collaborate, learn and shape the future of the Open Network Operating System.

sonicfoundation.dev/join-sonic