



## USE CASE

# Case Study: Strategic Network Upgrade for a Global E-commerce Leader

## *Achieving Scalable, Cost-Effective Network Modernization with SONiC*

### Organization

A major global e-commerce company, serving millions of daily users across retail, logistics, and digital marketplaces, faced mounting pressure to modernize its core network infrastructure. With growing data volumes, increasing customer expectations, and a need for greater supply chain flexibility, the organization sought a next-generation network architecture that prioritized openness, scalability, and operational control.

### Overview

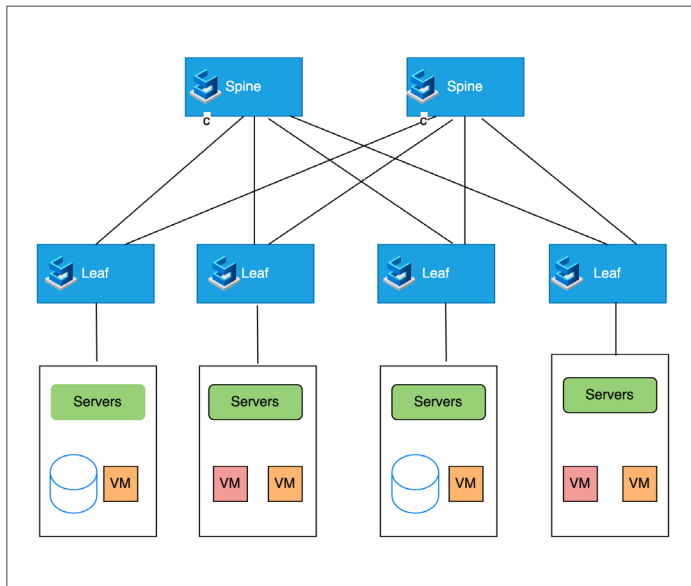
The organization's infrastructure had historically been built around vertically integrated, proprietary networking systems. While functional, these legacy models introduced long-term challenges: limited flexibility in hardware procurement, high licensing and refresh costs, and slower innovation cycles due to dependency on specific vendors.

The company's goal was to build a unified, modern network fabric that:

- Supported a transition from 100GbE to 400GbE;
- Reduced total cost of ownership (TCO);
- Removed vendor lock-in;
- Provided hardware choice and operational resilience;
- Maintained enterprise-grade uptime and performance.

After assessing traditional options—including proprietary operating systems and commercial SONiC distributions—the organization selected **community SONiC** as the core of its new architecture, due to its open source governance, ASIC and vendor neutrality, and vibrant development ecosystem.

# Deployment Details



## Multi-Vendor SONiC Integration

To avoid supply chain bottlenecks and achieve procurement flexibility, the company deployed SONiC on switches from **six different hardware vendors**. Each platform was qualified for compatibility and reliability via pre-deployment validation processes.

## Pre-Deployment Testing and Qualification

- SONiC versions were evaluated across use cases (spine, leaf, edge) using a custom test suite.
- Hardware SKUs were selected based on compatibility and performance benchmarking.
- Dedicated lab testing addressed multi-vendor interoperability concerns.
- SONiC system qualification was conducted to ensure stable deployment at scale.

## CI/CD Automation and Lifecycle Management

A SONiC-specific **CI/CD pipeline** was established to:

- Validate upstream SONiC updates and patches;
- Integrate new hardware into production cycles;
- Automate regression testing and functional validation;
- Reduce upgrade risks and manual operational overhead.

## Operational Tooling and Observability

Post-deployment, the organization built a telemetry pipeline for real-time network health monitoring:

- SONiC switch data was normalized across platforms for consistent analytics;
- Alerts and anomalies could be traced to specific ASICs, ports, or system processes;
- Troubleshooting time was significantly reduced with programmable workflows;
- SLA monitoring ensured compliance with performance and reliability targets.

# Benefits

## 1. Network Performance & Capacity

- Upgraded from **100GbE to 400GbE**, supporting future-proof throughput demands.
- High-performance forwarding achieved across multiple ASIC families without vendor bias.



## 2. Total Cost of Ownership (TCO)

- Achieved a **30% reduction in TCO**, attributed to:
  - Elimination of licensing fees;
  - Standardization of network components;
  - Use of commodity optics and cables;
  - Reduced support and refresh costs.

## 3. Supply Chain Resilience

- Avoided single-vendor dependencies;
- Enabled dynamic sourcing of hardware based on availability and pricing;
- Prevented delays experienced during COVID-era disruptions.

## 4. Operational Flexibility

- SONiC lifecycle (build, deploy, upgrade) is fully controlled in-house;
- Ability to test and deploy features or bug fixes independently of vendor release cycles;
- Unified OS environment simplifies training, documentation, and runbooks.

## 5. Future Readiness

- The SONiC-based architecture provides a neutral foundation for integration with AI workloads, security tools, and future network enhancements.

operational practices—can outperform closed, proprietary solutions in flexibility, cost efficiency, and innovation velocity.

### Key insights include:

- A multi-vendor approach can be streamlined with standardized testing and CI/CD tooling;
- SONiC's modularity allows organizations to influence feature development;
- Vendor-neutral support models create leverage and choice in long-term planning.

Looking forward, the company plans to:

- Extend SONiC to its edge locations and international sites;
- Collaborate with the open networking community to contribute new telemetry and NetDevOps features;
- Explore SONiC integrations with AI/ML observability and automation frameworks.

## Conclusion

This case highlights how open networking—rooted in SONiC—can provide a clear path toward infrastructure modernization without compromise. Through strategic disaggregation and open source innovation, the e-commerce leader was able to build a high-performance, future-ready network that is resilient by design.

## Lessons Learned and Future Plans

The project validated the belief that open source networking software—if supported with the right

## Acknowledgments

Special thanks to members of the SONiC community, including contributors from [Aviz Networks](#), for providing input on deployment practices and validation tooling referenced in this study.



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