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Supercharging Business Agility with AI-Native Networking

AI-native networking enables operational agility, increases IT productivity, and accelerates troubleshooting

Optimize resources and enhance agility with intelligent automation

Learn how →

Industry

Technology

Region

Americas

Agile, assured data centers are the foundation of innovation

Juniper wanted to expand its data center capacity to expand the use of AI in internal IT, improve efficiency and productivity, and gain end-to-end visibility across data centers and the entire enterprise.

Juniper IT strategically embraced our own cutting-edge innovations: Apstra Data Center Director for fabric management and full lifecycle automation, Juniper Data Center Assurance for proactive AIOps, and the revolutionary Marvis® AI Assistant to intelligently streamline tasks through natural language interaction.

Overview

Challenge

"Business agility and AI are fundamental requirements for staying competitive in today's rapidly evolving market," said Sharon Mandell, Senior Vice President and CIO of Juniper Networks. "Our data centers—the very heart of our operations—need to scale seamlessly, operate efficiently, and provide a robust foundation for our operations."

Juniper IT faced familiar data center evolution hurdles. Crucial for business agility and AI innovation, capacity expansion was slowed by manual configurations and fragmented processes, impacting IT productivity. Limited visibility and lack of network context led to lengthy root cause identification and reactive problem resolution. Automating IT workflows and gaining a single pane of glass for enterprise-wide visibility and troubleshooting were critical to boost efficiency and business agility.

Transformation

"The result has been nothing short of transformative, fueling business agility, accelerating AI initiatives, and improving IT productivity," said Mandell. "Transformation of Juniper's IT data center network is a testament to the power of AI-native solutions. By leveraging our own solutions, we've not only addressed critical challenges related to data center capacity, efficiency, and visibility, but we have laid a foundation for an agile and ultimately more valuable IT organization."

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> **Sharon Mandell**
> Senior Vice President and CIO, Juniper Networks

Solution and implementation

Outcomes

Accelerated agility and efficiency	AI-native insights and automation	End-to-end visibility
~90% reduction	**Faster troubleshooting**	**100%**
Deployed new data center in 2 weeks compared to 3-4 months	Proactively pinpoint and address anomalies with precision	Visibility across entire enterprise, from network to applications
Apstra Data Center Director	Juniper Data Center Assurance	Juniper Data Center Assurance Impact Analysis
Marvis AI Assistant	Marvis AI Assistant for Data Center	Juniper QFX5120 Switch
Juniper QFX5130 Switch	Juniper EX4400 Switch	

AI-native networking enables operational agility, increases IT productivity, and accelerates troubleshooting

With Data Center Director, our IT team deployed a new data center in just two weeks—rather than the typical three to four months. Data Center Director helped identify and address anomalies from Day 0, further streamlining the deployment process and ensuring a smooth transition to the new data center.

We successfully migrated services from a legacy Centrally Routed Bridging (CRB) fabric to a new Edge-Routing Bridging (ERB) fabric managed by Data Center Director. The ERB fabric allows for routing at the access layer, improving east-west traffic reliability, enabling better bandwidth distribution, and enhancing scalability for modern applications, such as AI/ML clusters and microservices. Optimizing the spine bandwidth also enhanced performance for network file system (NFS) server traffic. Capacity can be delivered with precision and faster to support complex applications.

AIOps has empowered IT to be proactive and productive

Integration between Marvis AI Assistant and Data Center Assurance enables end-to-end troubleshooting from campus to data center. With visibility into the network, applications, and services, the IT team gained the ability to quickly and precisely correlate anomalies to impacted services. For example, if a service is affected, we can identify down to the specific NFS filer and the number of clients impacted. We have been able to quickly pinpoint anomalies from the application or network layer as well as physical issues, such as bad optics and hot or cold interfaces.

Integration with VMware vCenter provides visibility into virtual machines, alongside network data, providing a comprehensive view of the network and better management and troubleshooting across the enterprise.

Data Center Assurance also delivers robust impact analysis, empowering IT to improve planning and maintenance, including visibility into affected services and clients.

End-to-end visibility speeds troubleshooting and improves network reliability

IT now has a unified view that extends across our wired and wireless campus networks, through the wide area network (WAN), and all our data centers and pods. Marvis AI Assistant enables proactive monitoring, allowing the IT team to identify and address issues across multiple data centers and pods, improving overall network performance and reliability. IT teams can rapidly trace and resolve problems.

Key takeaways and outcomes

Connect with your local specialist to learn how your organization can benefit.

AI reshapes data center operations

"AI is fundamentally reshaping our data center operations, presenting unparalleled opportunities to amplify productivity, enhance operational visibility, and proactively mitigate potential disruptions," said Mandell. "Juniper IT's previous challenges, including a lack of contextual awareness and a reliance on time-consuming, reactive measures, underscore the value of AI-native solutions for data center."

Drive operational agility and efficiency

Juniper's IT team deployed a new data center in just two weeks—rather than three to four months—with Data Center Director. The data center transformation has significantly improved efficiency and resource utilization, enabling scale and agility.

Leverage AI for proactive operations and to maximize productivity

Juniper Data Center Assurance provides continuous oversight of network integrity for optimal performance and stability. With clear visibility into applications and services, IT can quickly correlate anomalies across network and application layer and understand the impact to affected services and clients.

Achieve end-to-end visibility and faster troubleshooting

Marvis AI Assistant gives our IT team a holistic view, from the users in our offices to the applications in the data center. Marvis AI Assistant has fundamentally transformed our understanding of the service delivery pathway and enables IT to resolve incidents with game-changing efficiency and insights into our overall network performance.

We can proactively manage performance, optimize troubleshooting workflows, and ultimately ensure a consistent and reliable service experience to empower the entire organization to innovate.

More information

Apstra Data Center Director

To learn more about Juniper's AI-native data center solutions, visit: https://www.juniper.net/us/en/solutions/data-center.html

For more on designing, deploying and operating networks for AI, visit Juniper AI Data Center Networking: https://www.juniper.net/us/en/solutions/data-center/ai-infrastructure.html

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