Juniper Networks AI-Native Campus and Branch Solutions for Managed Service Providers

An examination of the key components and benefits of AI-Native Campus and Branch solutions for managed services business models

White Paper

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Executive Summary

This paper identifies the multiple challenges service providers face in B2B markets and how cloud and AI-Native networking technologies from Juniper can help deliver cost-efficient and profitable managed network services. Service providers will better understand how AI-based managed services help customers transition from legacy architectures to connectivity that delivers and supports cloud-based applications. Having cloud-native and AI-Native managed services is a key differentiator for service providers with customers pursuing digital transformation.

Introduction

Service providers are under pressure from all sides. Consumer services are being commodified and diversification strategies have not been successful. Mobile services are also rapidly becoming a commodity offer, making it a challenge to invest in 5G services and generating revenue. Add in the pressure from over-the-top technologies in the consumer and B2B markets and the outlook is further complicated.

Juniper has developed a progressive set of AI-Native Networking technologies that service providers can leverage to deliver highly efficient managed services. When service providers include Juniper managed services in their portfolios, they can provide enterprise customers with a modern approach to delivering customer and employee networking experiences.

As enterprises increasingly look to change the way they consume technology, managed services enable networking technology consumption through an outsourced model. Benefits can include freeing resources to focus on core elements of the business, a reduction in capital expenditures, and accelerated innovation. It's all made possible by leveraging economies of scale.

Challenges faced by service providers

The challenges faced by managed service providers are well documented. They include:

- Technology debt
- Operational complexity
- Dilution of the value proposition
- Capital investment that does not drive top-line growth

These issues are contributing to service providers' decreasing revenues and margins—making it imperative that managed service providers find new opportunities for top-line growth. At the same time, they must maximize the margins of their managed services.

Compounding this are new entrants into the connectivity and managed service market that are increasing competition and reducing margins. At the same time, over-the-top technologies such as SD-WAN and a shift in application architecture also put margins at

risk. Traditional offers like MPLS are experiencing eroding value propositions. With changes in enterprise consumption models related to cloud-delivered services, deterministic technologies like MPLS and L2 VPNs are less popular or often not required. All these signs point to the need for new solutions.

Many service providers are looking at changing their delivery model for underlay connectivity. They want to re-architect their networks to provide optimal paths to the cloud applications that are critical to a modern enterprise's business. In addition, partnerships are increasing between service providers to provide global coverage and team with newer entrants that have modernized network capabilities. Managed service providers need a new approach to remain relevant in the face of this disruption.
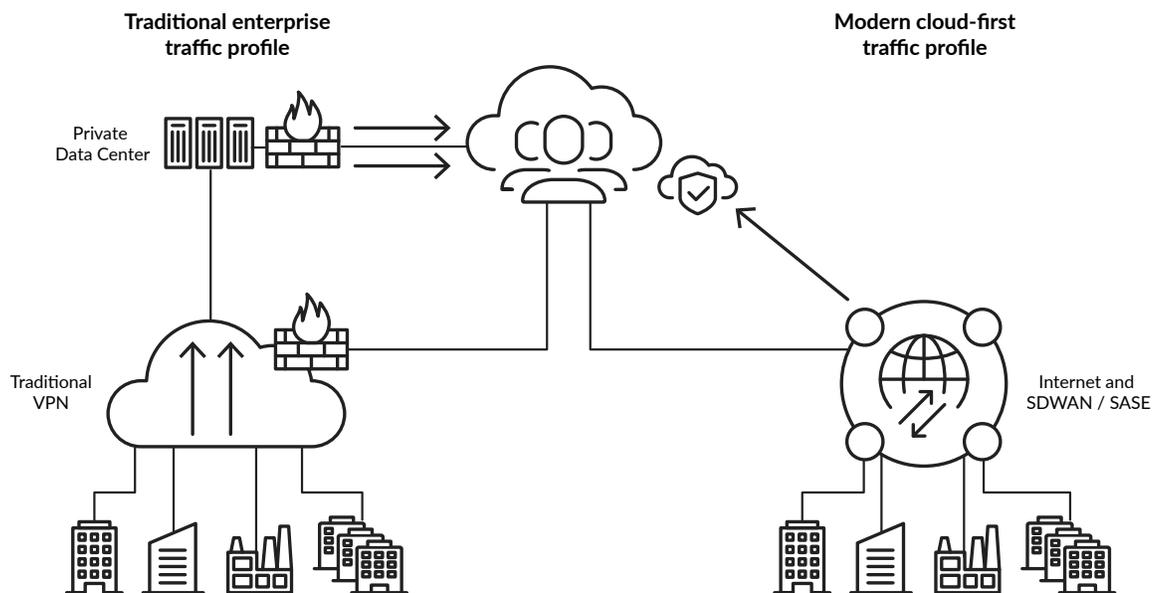

Figure 1: Cloud-based applications are creating a shift in traffic profiles

The opportunity for managed service providers

Juniper can partner with service providers to build a contemporary underlay architecture that supports the needs of a modern enterprise. Juniper AI-Native Campus and Branch solutions create a programmable high-performance and power-efficient infrastructure that expedites traffic delivery to the critical cloud applications that are essential to today's businesses.

Juniper AI-Native Campus and Branch solutions provide a comprehensive, full-stack LAN and SD-WAN solution powered by Mist AI™. The portfolio delivers a cost-efficient, high-quality infrastructure that underpins the high level of customer experience that managed service providers require.

Juniper's approach challenges the traditional operational model used by managed service providers, which often erodes much of the value-add provided by new technology by forcing conformity to existing provisioning processes. For example, AI-based fault remediation may be viewed by a service provider as a challenge to their value proposition.

Moreover, in the high-tech industry, there is a history of companies being reluctant to adopt and disrupt the status quo. Voice over IP and MPLS, for example, posed significant challenges to existing models. Yet, while they were initially seen as adjacent solutions, they quickly evolved to become the industry standard for connectivity and voice services.

Managed service providers that are willing to challenge and disrupt the status quo have realized benefits in the short and long term. AI-based cloud networking offers similar opportunities. By adopting this new approach, a service provider can move up the enterprise value stack.

Service providers have delivered managed services for many years, but the old architectures aren't serving modern needs. For example, enterprises were forced to compromise and choose a traditional on-prem offer for large, complex environments or cloud-based networking for distributed branch environments. Often, a managed service provider offered a combined solution to its enterprise customers. This option was great for the enterprise but complicated the network for the service provider. It required a complex technology stack that demanded multiple skill sets to design and operate its infrastructure. This impacted many aspects of the service negatively.

The cost of operating two solutions plus the interworking required to deliver a seamless service impacts profitability for the service provider. Service Level Agreements (SLAs) become harder to meet due to extended restoration times associated with fault finding in the different domains. None of the traditional solutions feature proven AI capabilities that can correlate data across multiple networking domains and recommend steps for fault remediation. In an environment featuring a dual estate, AI is almost impossible to employ given the on-premises and siloed nature of some solutions and the capabilities of first-generation cloud-based networks.

Juniper helps mitigate the need to support two architectures. AI-Native Campus and Branch solutions are designed and proven to work in both centralized and distributed environments. The portfolio scales to deliver the feature set of a large campus alongside the requirements of distributed branch networks. Many of the world's leading enterprises have achieved a modern scalable infrastructure with Juniper.

Juniper AI-Native Campus and Branch solutions provide a common interface through which service providers can manage the entire estate of an enterprise customer, including wireless, wired, and WAN networking that scales to thousands of branches in a single instance. Juniper's **AI-Driven SD-WAN**, an efficient bandwidth and processing solution, delivers an SD-WAN service that utilizes up to 50% less underlay connectivity by eliminating inefficient encryption and tunnel techniques.

Customers have realized significant benefits from the AI-Native Campus and Branch portfolio. For example, they have:

- Reduced trouble tickets by up to 90%
- Decreased network errors by up to 90%
- Reduced truck rolls by up to 85%
- Reduced OpEx by up to 85%
- Experienced an up to 50% reduction in Wi-Fi installation times
- Realized savings of up to 50% in underlay connectivity utilization

Juniper enables innovative managed services

ACG Research projects that the managed network services market is to be worth an estimated $88B by 2027. Juniper AI-Native Campus and Branch solutions for managed services provide full stack capabilities that deliver cost-effective, high-quality support for managed services based on:

- AIOps
- Wi-Fi
- Location services
- Switching
- WAN
- Security

Juniper's AI-Native Campus and Branch portfolio is built using a modern microservices cloud for rapid zero-touch deployment and zero downtime during upgrades, client-level visibility, and AIOps. Plus, it is underpinned by a 100% open API architecture. Figure 2 provides an overview of the individual components of the portfolio.
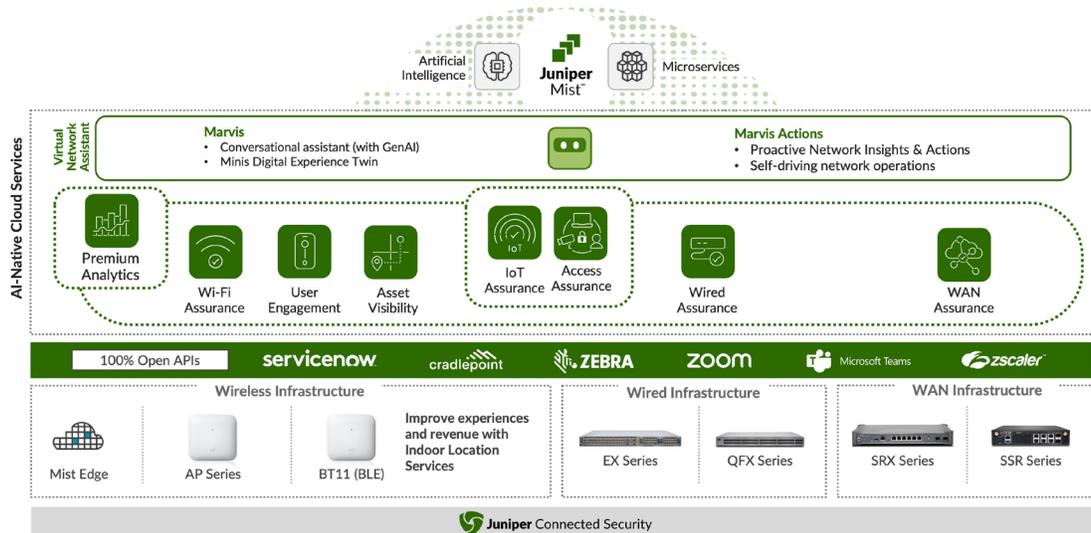

Figure 2: The AI-Native Campus and Branch portfolio

AIOps with Marvis Virtual Network Assistant

Marvis™ Virtual Network Assistant is a digital network expert that supports network operations staff by simplifying fault analysis and delivering corelated information on events and issues in the network. Marvis is the first network assistant in the industry to bring conversational AI to networking. Marvis can transform the way managed service operations teams interact and engage with enterprise customers' networks. In the era of AIOps, Marvis delivers streamlined operations, simplified troubleshooting, and remarkable user experiences. Since 2016, the Mist AI engine has applied data science tools to continually learn and improve, expanding its knowledge base as it becomes an invaluable component of the managed service providers management suite.

Marvis enables service providers to offer different types of SLAs with less overhead on operations staff. The AI engine detects and correlates faults across all domains of the network and into popular enterprise applications so that operations staff gain a triaged view of issues in the network.
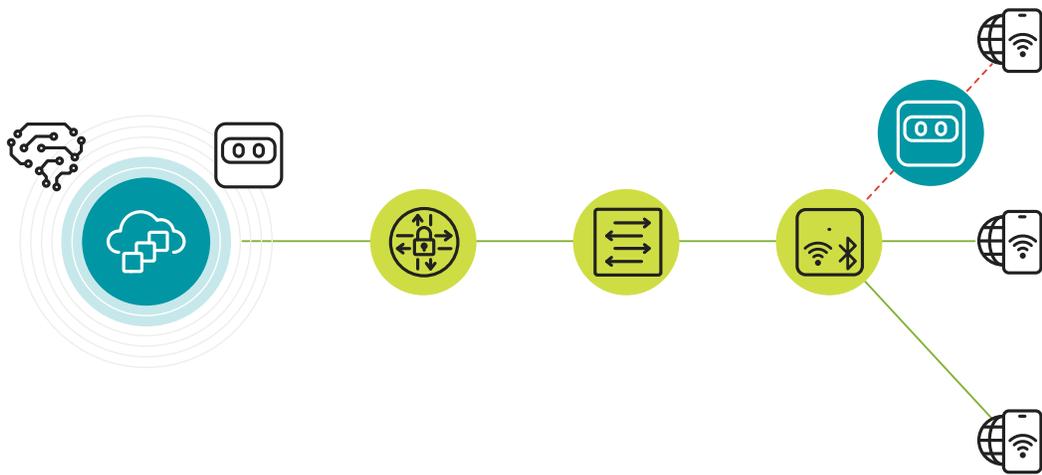
Figure 3: Marvis correlates telemetry data across the wired, wireless, and WAN to deliver immediate root-cause discovery

AI-Native Campus and Branch solutions also feature Marvis Minis, the industry's first AI-Native Digital Experience Twins. Marvis Minis proactively simulate user experience on the network to instantly validate configurations and detect and find problems without users being present on the network. They help minimize mistakes during the deployment and upgrade process and reduce mean time to repair (MTTR) with automated packet capture and proactive recommended actions for resolution, assuring optimal customer experiences.

APIs for robust integrations

Juniper AI-Native Campus and Branch solutions are built with **APIs** that allow service providers to integrate all elements of the Juniper portfolio seamlessly into their provisioning, management, and ordering tools. Juniper has extended these APIs to interface to applications such as **Zoom** and **Microsoft Teams**. For instance, our Zoom integration with the Juniper

Mist cloud enables Mist AI to gather information about Zoom calls from the Zoom cloud. This information contains Zoom's observed packet loss, latency, and jitter data for a client. Using this information, Juniper Mist cloud can identify Zoom calls where problems—such as dropped calls and bad audio or video—occur, resulting in a poor user experiences.

Juniper Mist Cloud correlates the information that it obtains from the Zoom cloud with the wired, wireless, and wide area network (WAN) insights to determine the root cause for the Zoom call issues. Leveraging this correlated information, a managed service provider can provide proactive remediation for faults in the management domain or demonstrate to a customer that an SLA has not been breached.

Another significant benefit of Juniper's API-first approach is through a partnership with ServiceNow. As a customer, ServiceNow has adopted the full stack of Juniper AI-Native Campus and Branch technology. To maximize the impact of the investment, Juniper and ServiceNow have jointly developed a suite of pre-integrated apps that are presented within the ServiceNow store. These apps provide out-of-the-box integration between the Juniper Mist cloud and the ServiceNow platform.

Figure 4 shows the provisioning and management model proposed by Juniper using ServiceNow.
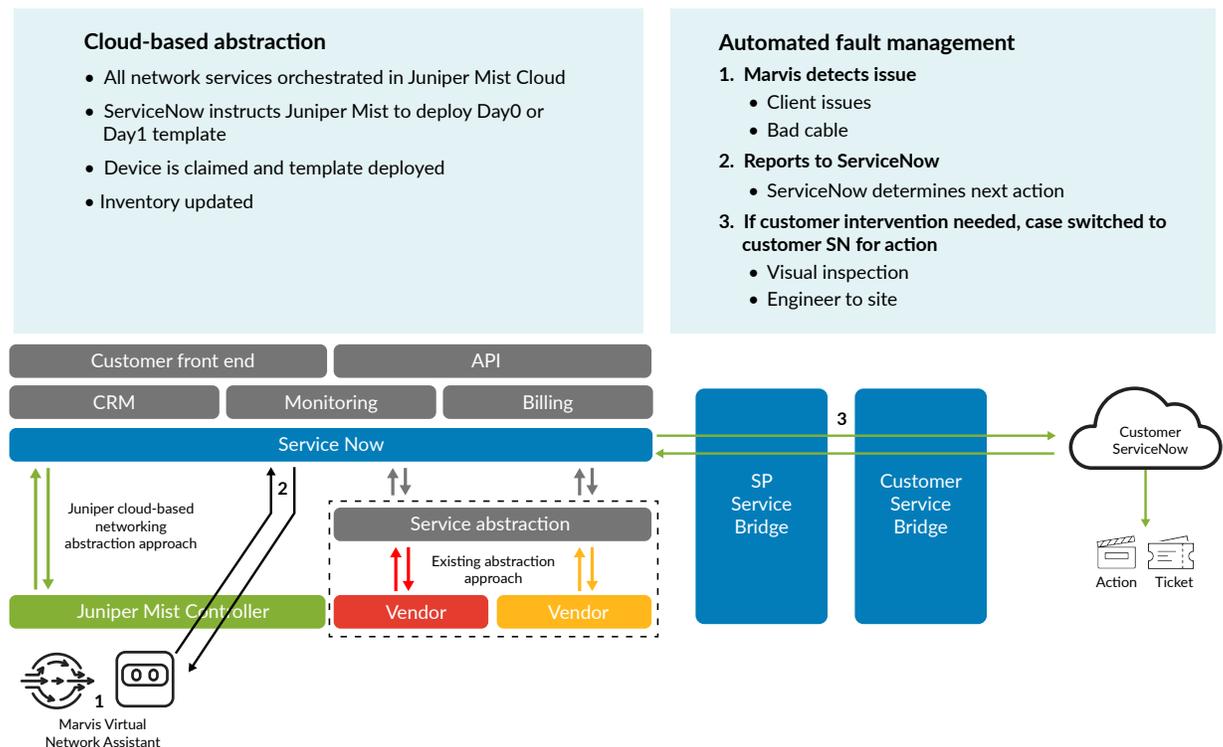

Figure 4: Integration with ServiceNow facilities Day 0 and Day 1 operations

These apps make the provisioning, ongoing lifecycle, and inventory management of a managed services based on Juniper AI-Native Campus and Branch solutions simpler, faster, and more cost effective.

This integration facilitates Day 0, Day 1, and Day 2 operations. Juniper Mist cloud acts as the service orchestrator and configuration is automated based on customer-provided data. Day 2 operations are also made easier by this integration, covering moves, adds, and changes of in-life services. Inventory accuracy is massively improved by linking the inventory database within Juniper Mist to the service provider's consolidated inventory. This helps to ensure that assets are tracked and linked to field service activities supporting simpler and more cost-effective contract management.

In Day 2+ operations, Marvis will signal the automatic creation of a ServiceNow ticket when identifying a network fault requiring provider attention. This enhancement results in faster problem resolution and automated documentation that ensures more accurate revenue identification.

Unlike the current model of service orchestration designed for mature and well-defined static VPN environments, this approach is predicated and optimized around cloud-based network offerings.

When combined with a managed service provider's capabilities to deliver connectivity, management, and global logistics, Juniper and ServiceNow's integration provides a cost-effective means to offer high-value services to enterprise customers. These integrations simplify onboarding of customers, sites, and devices; shorten the lead-to-cash cycle; and improve the economics of provisioning while ensuring the accuracy of managed service inventory.

For providers looking to integrate 5G Wireless WAN (WWAN) into a managed offering, the Juniper Mist cloud provides visibility into Cradlepoint 5G WWAN devices. Integrating 5G WWAN into a managed service offering comes with many provider benefits, such as diversification of WAN connections, faster time to service, and enhanced application performance. Juniper AI-Native Campus and Branch solutions facilitate this service with streamlined monitoring of connectivity status, IP address information, and device events, resulting in greater visibility and reduced management tool sprawl for operators.

Figure 5: Visibility into Cradlepoint 5G WWAN devices in the Juniper Mist cloud

Location services for asset visibility, intelligent services, and operational efficiency

Indoor location services are critical to revolutionizing the user experience. Increasingly, enterprises require real-time cloud location services that combine personalization, data analytics, and operational simplicity to deliver turn-by-turn navigation and comprehensive visibility while reducing operational costs through intelligent automation.

With Juniper indoor location services, service providers can expand their revenue opportunity with enterprise customers. Data gathered by Juniper Mist cloud can be shared with the customer's analytics tools or third-party providers. Additionally, the service provider can develop their own suite of managed location services that provide customers with insights to optimize their business while adding stickiness and revenue from the managed service contract.

Driven by Mist AI, the Juniper Mist cloud architecture converges Wi-Fi and Juniper-patented virtual Bluetooth® LE (vBLE) technology to enable indoor location services that deliver optimum location accuracy and unparalleled user experiences.

Juniper's smart Wi-Fi and patented vBLE solutions deliver location services accurate to between one and three meters. Managed service providers can develop services that customers can use to quickly find equipment and other assets. With a managed location service offer based on Juniper, service providers can offer services where enterprises can engage in new ways with customers, patients, and guests through their mobile phones with promotions, greetings, and step-by-step directions.

More secure from start to finish

Juniper has developed a new approach to delivering network access control (NAC) that is part of the Juniper AI-Native Campus and Branch portfolio. Juniper Mist Access Assurance is a cloud-based NAC service that enables enterprises to easily enforce secure network authentication and authorization without the challenges associated with on-premises NAC.

Aligned with Juniper's cloud-based networking philosophy, Juniper's NAC solution provides a streamlined client-to-cloud user experience, inherent high-availability services, and greater resilience, as well as automatic feature updates and bug fixes. It's simple, secure, and scalable with no downtime for upgrades and tackles the complexity and poor scalability of legacy solutions.

Access Assurance offers a full suite of access control functionality with a flexible, simple authorization policy framework for onboarding guests, IoT, BYOD, and corporate devices.

Access Assurance was designed to enable a secure and reliable user connection experience on the network. By integrating NAC with network connection visibility, it continuously validates the end-user experience, pinpointing issues whether they're caused by client configuration, network services, or NAC policies. All client events are captured by Juniper Mist cloud, simplifying day-to-day operations, and quickly identifying end user issues.

In addition to the Juniper <u>Connected Security</u> portfolio, Juniper also supports native integration with third-party Security Services Edge (SSE) providers like Zscaler to architect a complete Secure Access Services Edge (SASE) solution with Juniper SD-WAN. The solution automates the configuration and set up of tunnels within the Zscaler domain, simplifying deployment.

A single pane of glass offers end-to-end visibility for all parts of the network. Access control is not a bolt-on feature; it's purposefully built into the Juniper Mist cloud to provide scalability and simplicity that complements the full-stack management and day-to-day operations of an enterprise's Wi-Fi access points, wired switches, and SD-WAN. The Marvis AI engine adds additional security by leveraging access data for anomaly detection to provide actionable metrics that help prevent unapproved access to the network.

Conclusion

The Juniper AI-Native Campus and Branch portfolio provides service providers with an automated, full-stack, AI-based, cloud networking offer. With this portfolio, service providers can build a managed service offering that can fundamentally change the economics associated with managed services. Juniper will work with service providers to analyze the potential benefits and develop a business case for Juniper-based managed services.

The scalable full-stack solution allows service providers to address all connectivity requirements, from client to cloud. Unlike other vendors, Juniper's single solution covers multiple use cases and removes the need for costly and inflexible onsite controllers. It supports the rapid delivery of new customers, sites, and devices across the WAN, Wi-Fi, LAN, and security environments.

Coupling this with our integrations with Zoom, Zscaler, and ServiceNow highlights the flexibility of the Juniper Mist APIs. Specifically, ServiceNow provides a 360° capability that supports the automation of the entire workflow from order to delivery without human intervention, closed loop remediation of issues, and simple integration to the higher order systems within the service provider's OSS stack.

Juniper has a deep portfolio that helps service providers adapt to changes in enterprise application and network demands. Juniper technology provides a full stack technology offer that is abstracted via modern APIs and powered by AI to deliver the next generation of connectivity and security in the managed services market. Service providers have a full set of offerings to create a next-generation portfolio of customer-centric, revenue-generating, experience-first services.

Learn more

Watch the **Juniper AI-Native Campus and Branch Solutions for Managed Services Demo** to see how our full-stack solutions deliver the most predictable, reliable, and measurable user experiences with the lowest TCO and OPEX.

About Juniper Networks

Juniper is the only vendor with a fully integrated AI-native portfolio of campus and branch solutions. By uniquely bringing wireless access, wired access, SD-WAN, indoor location, NAC, and firewalling under a common Mist AI engine and microservices cloud infrastructure, Juniper's full-stack campus and branch solution is the quickest to deploy and easiest to operate, resulting in the lowest TCO. Only Juniper has a tunnel-free architecture, with real-time client-level insight correlated across the full stack to proactively resolve issues and ensure exceptional end user experiences. With Juniper, you can streamline deployments, reduce the need for onsite visits, and lower OPEX.

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