

ACCELERATING NETWORK TRANSFORMATION FOR DIGITAL HEALTHCARE

Overview

As hospitals and healthcare systems migrate IT systems and applications to the cloud, they are introducing digital healthcare solutions to improve quality of care, boost patient outcomes, and improve business performance. The cloud offers many advantages but also fundamentally reshapes network traffic flows, introducing a variety of security, availability, and service quality challenges for healthcare network planners and system architects to resolve.

Digital Healthcare Applications

- **Cloud applications and services**—on-demand clinical, financial, scheduling, registration, billing, and office productivity solutions
- **Electronic records and digital healthcare solutions**—EHR/EMR, PACS/VNA, EPCS, care provider kiosks, and mobile devices
- **IoT systems**—remote patient monitoring, equipment tracking, pharmacy inventory control, hygiene monitoring
- **Telehealth**—remote consultations, team video collaboration, telemedicine
- **Smart facilities**—automated HVAC, lighting, alarms, video surveillance and security, digital signage, wayfinding apps, and public kiosks

Business Challenges

Security and Compliance

In the digital era, healthcare applications are often hosted on public clouds, and protected health information (PHI) often flows over public internet connections over which the IT organization has little visibility and control. Bad actors can exploit public data networks to steal electronic health records or disrupt critical IT systems and services. By implementing cloud-centric network security solutions, healthcare organizations can protect data in transit, defend infrastructure against denial-of-service (DoS) attacks, and ensure compliance with HIPAA and other data privacy regulations across the globe

Network Availability

Cloud applications and digital solutions are the lifeblood of today's healthcare organizations. Network connectivity failures can disrupt care, hinder clinician productivity and tarnish a hospital's reputation. Healthcare systems can avoid disruptions and improve patient satisfaction by ensuring continuous access to critical applications in the event of WAN link failures or ISP outages.

Quality of Experience

Today's healthcare organizations leverage a variety of clinician-facing and patient-facing applications with distinct service characteristics and quality-of-service (QoS)

requirements. Poor service quality can degrade user experiences and stall digital transformation initiatives. By intelligently managing and controlling traffic—ensuring the right service-level agreement (SLA) for the right application at the right time—healthcare systems can optimize patient and clinician experiences and accelerate the adoption of new technology.

Expansion and Consolidation

Keeping pace with change is a significant challenge for healthcare network planners. Hospitals and healthcare systems are continuously extending services to new locations and merging with other hospital systems to improve business results.

Turning up new sites and integrating disparate networks can be a manually intensive, error-prone, time-consuming proposition using conventional networking solutions. Healthcare organizations can increase business agility by eliminating outmoded routing protocols and avoiding inefficient network configuration and provisioning methodologies that hinder the pace of transformation.

Cost Containment

Healthcare IT executives are under constant pressure to cut costs in today's hypercompetitive market. By migrating services to the cloud and eliminating networking expense and complexity, healthcare organizations can reduce TCO, improve business performance, and free up IT budget and staff to focus on innovation and differentiation.

Juniper Session Smart SD-WAN Solution

The Juniper Session Smart™ SD-WAN solution, powered by the Juniper Session Smart™ Router, is an advanced, service-centric networking solution that takes the software-defined WAN to a whole new level. Ideal for next-generation healthcare networks, the solution intelligently polices and manages traffic at the edge for ultimate performance, economics, and control. The solution leverages a tunnel-free architecture that eliminates the inherent inefficiencies and cost constraints of traditional wide-area networking products and legacy SD-WAN solutions and meets stringent healthcare industry security, availability, and performance requirements. Session Smart SD-WAN helps healthcare organizations accelerate cloud migration initiatives and gain a competitive edge, while minimizing disruption and risk.

Safeguard Protected Health Information and Improve Regulatory Compliance

Juniper's pioneering Secure Vector Routing provides strong security and hypersegmentation without the overhead of traditional encryption protocols like IPsec. Deny-all (zero trust) routing, L3/L4 denial-of-service (DoS)/distributed DoS

(DDoS) protection, payload encryption, and Network Address Translation (NAT) and VPN functionality protect applications and infrastructure against data loss and malicious attacks, mitigating risk, while ensuring compliance with data privacy mandates like HIPAA, HITECH, and GDPR.

Streamline Cloud Migration Initiatives and M&A Projects

Specifically designed for contemporary decentralized IT architectures, the Session Smart SD-WAN solution supports a variety of traffic steering and quality-of-service (QoS) functions, as well as session-aware routing capabilities at the network edge to avoid backhauling, minimize latency, and ensure high performance and service quality for cloud apps and services. The solution provides continuous connectivity for critical healthcare applications without requiring expensive hot-standby tunnels like conventional wide-area networking products or legacy SD-WAN solutions. In the event of a link failure or ISP outage, the solution seamlessly redirects traffic over an alternative path without disrupting sessions or impairing application performance. And Session Smart SD-WAN's service-centric routing allows healthcare organizations to migrate workloads to the cloud or integrate networks after mergers and acquisitions without disrupting services or making complicated router configuration changes.

Increase Patient and Clinician Satisfaction with Quality Experiences

The Session Smart SD-WAN solution ensures high service quality and superior user experiences for telemedicine applications, interactive kiosks, mobile clinician apps, and other digital solutions. Administrators can prioritize and route traffic based on application requirements to optimize quality of experience and improve user satisfaction (for example, to prioritize delay-sensitive data flows to minimize latency and packet loss). And unlike competitive solutions that encapsulate all data flows into a single overlay tunnel, the solution's tunnel-free architecture gives administrators full visibility into individual data flows, so they can efficiently monitor end-to-end sessions, track KPIs, and troubleshoot problems.

Turn Up Hospitals, Clinics, and Medical Offices—Quickly and Cost-Effectively

The Session Smart SD-WAN solution is a fully software-based solution that runs on commercial off-the-shelf (COTS) servers and popular hypervisors for ultimate economics, simplicity, and choice. Zero-touch provisioning enables plug-and-play installation at remote sites, allowing IT organizations to turn up hundreds of locations per day. Single-pane-of-glass, centralized management simplifies ongoing administration at unstaffed sites, and makes it easy to institute uniform policies across clouds and locations.

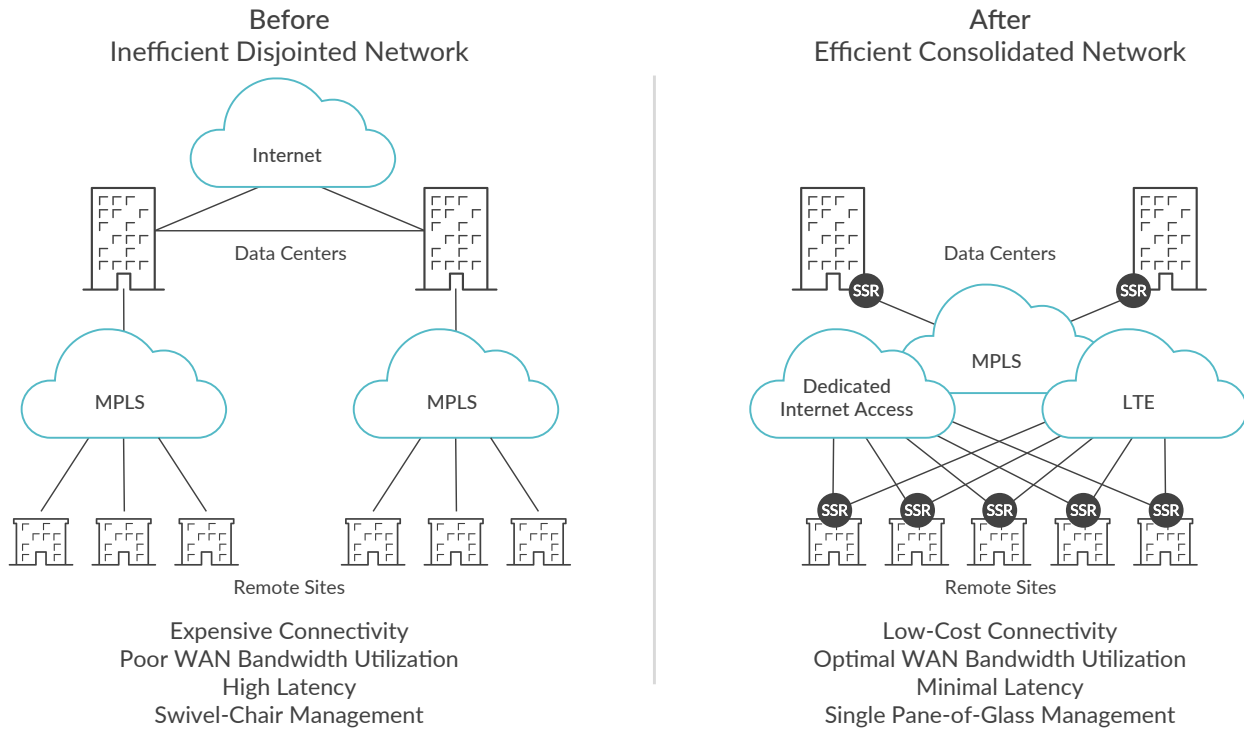


Figure 1: Hospital Network before and after implementing Session Smart SD-WAN

Nationwide Healthcare System Slashes Network Cost and Complexity with Smart Session SD-WAN

A major U.S. hospital operator with 15,000+ licensed beds uses the Session Smart SD-WAN solution as the foundation for its next-generation nationwide network. Session Smart SD-WAN eliminates cost and complexity, helping this healthcare system efficiently consolidate and manage several distinct networks that had been cobbled together through mergers and acquisitions.

The Session Smart SD-WAN solution intelligently manages and controls traffic at the edge, providing agile, secure, and reliable connectivity for more than 700 remote sites over cost-effective dedicated Internet access and LTE links.

Redundant uplinks and fast failover capabilities ensure continuous availability in the event of ISP or link failures. A tunnel-free architecture minimizes protocol overhead and bandwidth consumption, and enables detailed visibility into end-to-end traffic flows. Granular QoS controls and application-aware routing ensure high service quality for delay-sensitive, bandwidth-intensive data flows like unified communications and collaboration traffic. Tight integration with a cloud-based security offering provides secure access to external applications and services. And unified administration, auto-device discovery, and zero-touch provisioning (ZTP) streamline remote site deployment and management.

For More Information

To find out more about how Juniper Session Smart SD-WAN can benefit your business, contact your Juniper representative and visit www.juniper.net.

About Juniper Networks

Juniper Networks brings simplicity to networking with products, solutions and services that connect the world. Through engineering innovation, we remove the constraints and complexities of networking in the cloud era to solve the toughest challenges our customers and partners face daily. At Juniper Networks, we believe that the network is a resource for sharing knowledge and human advancement that changes the world. We are committed to imagining groundbreaking ways to deliver automated, scalable and secure networks to move at the speed of business.

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