

SIMPLY CONNECTED FOR HEALTHCARE NETWORK

Juniper Networks Radically Changing the Face of Networking for Healthcare Institutions

Challenge

It's critical that healthcare organizations stay ahead of key trends in high-quality care provisioning. Unfortunately, their legacy networks are struggling to keep up with the increased demands these new care services are placing on their infrastructures.

Solution

Juniper's Simply Connected for Healthcare is an integrated portfolio of resilient switching, security and wireless products that allow simple and secure access to business critical information and collaboration.

Benefits

- Improves connectivity throughout hospital campus environments providing a consistent, secure, reliable and scalable network infrastructure
- Provides ability to roll out any new application across a single, integrated network infrastructure
- Enhances ability to provision new care models like telemedicine quickly and efficiently
- Ensures operational efficiencies and lowers operational and capital costs

Hospitals and other healthcare providers have a very clear top priority—patient care. Hospitals recognize that IT plays a critical role in enabling better overall patient care, so investments in technology are increasingly seen as a key strategic decision. The industry has focused recently on key applications that drive better patient care—electronic medical record (EMR), picture archiving communication systems (PACS) and computerized physician order entry (CPOE) systems, etc.

These applications are starting to make demonstrable improvements in hospitals' abilities to provide enhanced patient care. However, the provider community is increasingly aware that a commensurate investment in its IT infrastructure is also required so that the full benefits of these applications can be realized. A primary focus for the infrastructure investment is the hospital's IT network—healthcare technologies and user expectations are evolving so rapidly that hospital networks can't keep up. Legacy networks are incapable of satisfying new demands from users and data centers. As a result, user experiences and patient care outcomes are both suffering. Fortunately, Juniper Networks provides the Simply Connected portfolio of products that addresses the challenging requirements in healthcare. It delivers all the accessibility, security, and reliability required by the new era of healthcare services.

The Challenge

Healthcare organizations are experiencing a rapidly changing nature of care provisioning. Unfortunately, legacy networks are proving to be unsustainable and unreliable for keeping up with increasing infrastructure demands. Additionally, clinicians and physicians increasingly rely on tablets and smartphones as their primary gateway to clinical applications. Lastly, virtually all medical devices have the ability to wirelessly connect to the network, significantly increasing the data traffic on this legacy infrastructure. As a result, IT staffs within hospitals and clinics are struggling with how to cope with this rapidly changing environment and they realize their aging networks are becoming too costly, too complex and simply cannot scale.

IT organizations are trying to determine how to cost-effectively deliver the extra capacity, security and capabilities across both their wired and wireless infrastructures to help them meet the exploding demands of healthcare IT services and applications over the next 10 years. Another key challenge they are facing is how to deliver the freedom of choice of business process-enabled devices, handsets, call systems or some combination thereof for mobile caregivers and mobile medical devices both on and off premise.

The answer to these challenges is for healthcare organizations to view the network as more than just a critical infrastructure for daily patient care operations. The network should be viewed as a strategic enabler for fueling innovation that transforms the way their organization delivers unrivaled patient outcomes in a global economy.

Simply Connected Healthcare Solution

Juniper's Simply Connected for Healthcare is an integrated portfolio of resilient switching, security and wireless products that allow simple, secure access and collaboration regardless of device or location. Juniper's products are purpose-built for simple, secure automated connectivity and optimized for a high performing user experience to enable business process transformation.

We believe that the nature of healthcare network access is expected to change from wired to wireless Ethernet over the next several years. This is projected to be driven in large part by the influx of new and highly capable tablets and smartphones that do not have traditional connections. We have developed innovative network solutions for the hospital premises that we call the "Simply Connected Healthcare Network". Healthcare networks should be simple:

- Simple for hospital employees to choose and change their mobile devices.
- Simple for them to securely access healthcare applications and clinical systems.
- Simple for the IT department to provision one security policy per user that works on everything.
- Simple to manage the entire network infrastructure.

Transitioning to a Simply Connected Healthcare solution requires a network approach that we call "wired-less." This means that wireless should be the primary access method with the result of fewer wires in the wireline network to manage. For a successful transition to this wired-less environment, there are three requirements that must be met—a resilient and ubiquitous wireless infrastructure, comprehensive security for the care

provider irrespective of device and the achievement of a simpler overall network infrastructure. Juniper has a scalable and highly featured set of wireless and wired, switching, routing and security products to meet all of these requirements.

Features and Benefits

Juniper's Simply Connected Network for Healthcare provides organizations with four pillars that enable the transformation to a Simply Connected network infrastructure. Incorporation of all four pillars ensures that organizations are well prepared to overcome legacy network challenges they are facing. However, the pillars can be phased in based on unique needs and budgets. These pillars help address new healthcare applications written specifically for wireless smartphones and tablets that require 802.11n bandwidth and nonstop roaming capability. They also help create a simpler hospital network infrastructure by introducing an architecture that is based on reducing layers and complexity. Finally, the pillars ensure security is consistent between wired and wireless applications and devices.

1. Provide secure, device-agnostic connections anywhere—allowing users to choose and secure their mobile devices of choice.

The key to a Simply Connected Healthcare campus is implementing security that is based on actual users irrespective of the devices they are using to access the network. By offering a secure, device-agnostic access capability, you can allow all new devices to use the network safely. By offering one policy per user instead of per port, your IT department can scale the demand in a simple fashion. Having the security clients available as free downloadable applications for all the popular devices allows the doctors and clinicians to self-provision their devices and change them at will.



Figure 1: Juniper Networks Simply Connected Healthcare solution.

Juniper Networks® Junos® Pulse provides a unique solution to the smartphone/tablet security problem. Junos Pulse helps to enforce policies across all devices attached to the healthcare network. It combines security and access in a single client. It also provides IT organizations with the ability to wipe data and access rights from lost or stolen devices remotely. Finally, it helps to reduce IT overhead by better managing complexity.

2. Build one general-purpose, application-agnostic network that delivers unrivaled performance, and complete protection.

Application agnostic means that the network is ready for all current and future applications with a standards-based infrastructure that supports all manner of voice, video and data irrespective of endpoint or application vendor.

For healthcare organizations this involves using modern WLAN technology that is able to offer a wired experience for WLAN end users. Yesterday's notion of poor wireless LAN access is behind us. Ethernet switches providing wireless access points should now be PoE equipped to provide both network connectivity and electric power. We're only going to see more and more medical devices on the WLAN so PoE access is essential.

It's also very important that you build a network architecture where you are reducing the number of switching tiers and multiple types of managed devices. This simplification of the aggregation layer allows your network to be able to scale for tomorrow's applications.

The standards-based Junos operating system integrates routing, switching, security and network services in one OS to help reduce network complexity and decrease network operation costs considerably. Junos Pulse allows IT to manage security without having to control the device, while Juniper Networks MAG Series Junos Pulse Gateways and SRX Series Services Gateways deliver end-to-end security across the healthcare enterprise. Both Junos Pulse and MAG Series are standards-based using Trusted Network Connect (TNC) specifications.

3. Assume that the primary means of connection is wireless and requires nonstop mobility services and seamless roaming.

Healthcare employees expect the same experience on wireless as they have experienced with wired Ethernet. As more devices and applications rely on this network, the expectations and need for the wireless network to perform in order to deliver a solid application experience continue to rise.

Juniper Networks WLA Series Wireless LAN Access Points provide indoor or outdoor 802.11a/b/g/n connectivity for a variety of healthcare situations and installation sizes. All WLA Series products provide the bandwidth controls and performance to service-demanding healthcare mobility applications, such as voice and video over wireless:

- **Reliable**—It is available when you need it.
- **Scalable**—You can add more capability easily.
- **Seamless roaming**—Service is continuous; no need to reconnect as you move about the campus.

4. Simplify the wired network with multifunctional platforms and use of leading-edge virtualization and aggregation technologies.

As you migrate to a mostly wireless healthcare network, you continue to use the wired network infrastructure, where the bulk of both capital and operating costs reside. The best way to ensure that this wired portion of your network is future proofed for reliability, performance and security is by simplifying the architecture and software stack of the network. This migration combines an appropriate mix of wireless and wired access with a reduction in the complexity and footprint of the wired network to improve performance and reduce operational cost and risk.

Juniper Networks offers dramatically simplified wired network architecture for a campus data center that lowers operational, capital and environmental costs, while improving efficiencies. Juniper Networks EX Series Ethernet Switches with unique Virtual Chassis technology simplify the network by creating a single managed entity. At each layer of the network, Juniper can streamline and consolidate the legacy wired network architecture into a simpler form.

Solution Components

SOLUTION FEATURE	PRODUCT CATEGORY	PRODUCT FAMILY
Secure, Device-Agnostic Connections Anywhere	Mobile Devices	Junos Pulse
One General Purpose, Application Agnostic Network	One Operating System	Junos OS
	Secure Access and Application Acceleration	MAG Series Junos Pulse Gateways
	Security	SRX Series Services Gateways
Wireless Services and Seamless Roaming	Wireless	WLC Series Wireless LAN Controllers WLA Series and AX Series Wireless LAN Access Points
Simplified Wired Network	Routing	MX Series 3D Universal Edge Routers
		M Series Multiservice Edge Routers
		J Series Services Routers
		SRX Series Services Gateways
	Switching	QFX3500 Switch EX Series Ethernet Switches
	Virtualization	EX Series Ethernet Switches vGW Series Virtual Gateway

Summary—Juniper Is Changing the Face of Healthcare Networks

The nature of healthcare network access is expected to change from traditional “wired” to “wireless” Ethernet over the next few years. This is projected to be driven in large part by the influx of new and highly capable tablets and smartphones. Juniper’s “wired-less” solution recognizes this changing network dynamic within the hospital infrastructure and offers a clear and comprehensive strategy for building a network that meets the wired and wireless needs of the entire hospital, today and tomorrow.

The new healthcare network is here, and it is Simply Connected. Juniper Networks’ vision for the new healthcare network is the only comprehensive network architecture that provides all of the accessibility, security and simplicity required by the new era of mobility in one open and scalable package.

It should be simple for your doctors and clinicians to choose and change their devices. It should be simple for them to securely access medical systems and healthcare applications. It should be simple for the IT department to provision one policy per user that works on everything—and the whole network should be simpler to manage.

Next Steps

For more information on Juniper Networks’ healthcare solutions, please refer to the Juniper Networks website at www.juniper.net, and please contact your authorized Juniper Networks representative.

About Juniper Networks

Juniper Networks is in the business of network innovation. From devices to data centers, from consumers to cloud providers, Juniper Networks delivers the software, silicon and systems that transform the experience and economics of networking. The company serves customers and partners worldwide. Additional information can be found at www.juniper.net.

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