SECURE, AFFORDABLE, AND EASY-TO-ADMINISTER HEALTHCARE NETWORKS

Solution brief

HP
Growing healthcare technology opportunities and challenges

Healthcare organizations often have a combination of legacy and new applications running on disparate proprietary networks, which can create interoperability, visibility, and security issues. Such chaos can challenge an organization’s ability to securely access and exchange patient information. As a result, providers, hospitals, and other members of the healthcare ecosystem can find it difficult to deploy innovative real-time and resource-intensive solutions such as digital imaging and electronic healthcare records (EHRs) at the point of care, as well as to provide telemedicine and other productivity-enhancing technologies that can help improve patient care and address the chronic shortage of healthcare professionals. The disjointed nature of legacy systems also inhibits cost-saving measures such as digitizing and streamlining billing and claims processes.

Yet, as healthcare organizations around the world continue the push toward using technology to improve health outcomes, eliminate fraud, and reduce costs, they are rethinking their legacy—and, in many cases, proprietary—approaches. Healthcare organizations are moving toward open, standards-based architectures that enhance interoperability, security, performance, reliability, and affordability. They are seeking a secure, end-to-end enterprise architecture that can speed application deployment by eliminating technology silos, manual processes, and diverse management systems.

This new network architecture must support unified wired and wireless communications, patient monitoring systems, real-time collaboration, automated self-service, and on-demand Internet access to critical patient medical and billing information. At the same time, it must reduce the complexity and cost burden on IT by using integrated network and systems management, as well as automate data privacy and security.

The HP solution

To be able to rapidly provision and manage infrastructure and applications in a highly secure and affordable manner may seem like a pipe dream, but it’s not.

While some vendors lock healthcare organizations into costly and complex proprietary networks, HP provides a modular strategy, the HP FlexNetwork architecture, which enables IT managers to expand their networking environments as needed and economically foster innovation.

With the HP FlexNetwork architecture, healthcare organizations can segment their networks into four interrelated modular building blocks: HP FlexManagement, HP FlexFabric, HP FlexCampus, and HP FlexBranch. FlexManagement converges network management and orchestration; FlexFabric converges and secures the data center network with compute and storage; FlexCampus converges wired and wireless networks to deliver caregiver collaboration, care-critical communications, and secure information transfer; and FlexBranch converges network functionality and services by delivering simplicity to remote clinics and satellite campuses.

With the HP FlexNetwork architecture, healthcare organizations can roll out new applications and network services without jeopardizing performance, compliance, and security. The FlexNetwork architecture is designed to ease management, eliminate bottlenecks, and interoperate with third-party solutions. By streamlining network designs and centralizing management, healthcare providers can lower their total cost of ownership for IT while improving operational agility with secure and high-performance connectivity, smooth scalability, resource-stretching provisioning, and reduced energy consumption.
The HP FlexNetwork architecture enables healthcare organizations to design and build best-in-class networks that align with their patient care and cost objectives—even as their priorities evolve. The HP FlexNetwork architecture is designed to scale on three dimensions—functionality, connectivity, and capacity—so that healthcare organizations can adapt their network services easily as their needs change. FlexNetwork is also secure, providing a consistent approach to securing networks across the data center, campus, and branch office.

The FlexNetwork architecture also delivers agility. Healthcare organizations can simplify their data center and campus networks from three-tier legacy architectures to enhanced, one- and two-tier architectures, which increases performance, scale, and functionality while reducing latency and cost. The FlexNetwork architecture also delivers a consistent operating experience, so IT departments can put an end to swivel-chair management.

With the HP FlexNetwork architecture as a cornerstone, the HP Converged Infrastructure delivers an architectural blueprint that integrates servers, storage, and networking, eliminating technology silos and freeing up resources to focus more on business innovation. Built on open, standards-based technologies, HP solutions integrate with existing infrastructure to make the most of current investments. Healthcare organizations can deploy HP products in a “pay-as-you-grow,” intelligent, and cost-aware manner that protects investments.
Converged network and compute infrastructure

HP FlexFabric, a building block of the FlexNetwork architecture, allows healthcare organizations to converge and secure their data center network with compute and storage, and enables the HP Converged Infrastructure with shared pools of interoperable resources.

FlexFabric’s advanced architecture delivers enhanced one- and two-tier networks—as well as integration with legacy three-tier networks—for superior investment protection. This results in simplified and scalable switching, network security, and network services. With HP mission-critical networks, applications have the resources they need, and deploying new applications won’t negatively impact existing applications and services. Should a data-intensive analytics application be brought online, it won’t disrupt another mission-critical healthcare application.

HP Intelligent Resilient Framework (IRF) technology enables flatter network designs and easier-to-manage infrastructure. It helps healthcare organizations create a virtual switching fabric that delivers geographic independence, distributed high availability, and resiliency. With IRF-based solutions, IT teams at healthcare organizations can pool switching resources to create a lower-cost, stable, and fault-tolerant environment that is simpler to provision and maintain. Plus, HP Virtual Connect Flex-10 technology can be used to easily and flexibly connect more servers to the networks, accommodating the needs of high-density data centers.

HP networking solutions are designed to avoid downtime, keeping members of the healthcare ecosystem—including patients, providers, and payers—connected to life-critical applications and each other. HP solutions are ideal for healthcare organizations that must reliably and consistently support existing applications, as well as deploy innovative new ones, such as portable patient monitoring and predictive modeling.
Flexible, secure networking

The healthcare industry is under considerable pressure to provide new patient services and improve patient outcomes, and healthcare organizations must simultaneously increase data protection and decrease costs. HP enables healthcare organizations to achieve their goals by providing an alternative to low-performance, multi-tier network designs that are built on legacy platforms and are hampered by high cost and complexity.

With the HP FlexNetwork architecture, healthcare organizations can create campus and branch networks as functional building blocks that meet the specific requirements of their applications and services while integrating seamlessly with the overall network. This allows organizations to create best-in-class solutions for each network segment, rather than being locked into a one-size-fits-all solution.

Healthcare organizations can flatten their networks from a legacy three-tier architecture to an enhanced single-tier network using the FlexNetwork architecture. By eliminating the need for an aggregation or distribution layer, organizations can free up stranded capital and reduce network elements by up to 85 percent. In addition to saving on capital expenses and improving performance, a flatter network means that there are fewer devices to power, cool, and manage.

With HP FlexCampus, hospitals and other healthcare providers can converge and secure wired and wireless LANs to deliver consistent, identity-based network access. Utilizing 1- and 2-tier network designs, HP FlexCampus is based on an advanced architecture that reduces latency and improves performance, which, in turn, enables collaboration and telemedicine.

HP FlexBranch, another building block of the FlexNetwork architecture, offers similar simplicity and functionality advantages for physicians and administrators working in clinics and other medical offices. Healthcare organizations can converge and secure their wired and wireless LAN services in physicians’ offices, clinics, and labs, and FlexBranch provides all of the necessary services to connect remote locations to the main campus, giving a headquarters-like experience while simplifying management of the remote sites.

Orchestrated management

As many healthcare organizations consider how best to consolidate their infrastructure, they are challenged by the need to manage and secure disparate systems. Addressing these issues is critical because lapses in management can lead to security breaches and network outages that can have serious repercussions such as public disclosure of patient information, failure of clinical applications used during sensitive procedures, an inability to access patient data, a potential disruption to critical healthcare applications, delayed billing cycles, or worse.
HP’s unified features and integrated networking components enable IT departments to consolidate and centralize network management while maintaining a clear view and control of the network environment. IT teams can easily monitor the network devices that are running and verify that they are up to date with proper patches and security.

In addition, HP management tools allow only authorized users to access network data and resources. These tools can be used to set and enforce global policies for both network and security devices, apply authentication and encryption parameters, as well as enforce network access quarantine at the network, device, and user levels. Integrated and centralized tools also improve traffic management so that real-time applications such as electronic medical records (EMRs) or remote monitoring tools such as eICU systems can receive the high priority and low latency they require.

To combat security threats and breaches, including increasingly sophisticated hackers who use bots, zombies, and popular peer-to-peer applications to bypass peripheral security devices, HP solutions deliver comprehensive security featuring industry-leading HP TippingPoint vulnerability detection capabilities and intrusion prevention solutions backed by global HP Digital Vaccine Labs (DVLabs).

HP networking security solutions effectively secure wired and wireless networks as well as physical, virtual, and cloud environments. HP’s Network Access Control (NAC) functionality in the Intelligent Management Center (IMC) platform can quarantine endpoints that don’t meet a user-defined security profile.

This unprecedented level of network-wide protection provides IT departments with critical visibility and control, and helps address increased compliance requirements, including government mandates such as the Health Insurance Portability and Accountability Act (HIPAA) or Payment Card Industry Data Security Standard.
Future-proofed networking to meet tomorrow’s needs

Built on industry-leading technologies and platforms, HP networking solutions enable healthcare organizations to meet today’s and tomorrow’s enterprise challenges. HP switches, security, and management are all designed to enable new technologies, including support for emerging healthcare technologies. Server virtualization, I/O virtualization, and desktop virtualization present other opportunities for healthcare organizations to experience new levels of efficiency. With the HP FlexNetwork architecture, healthcare organizations can take advantage of these technological advances while preserving their technology investments.

Additionally, the HP FlexNetwork architecture is designed to scale easily so that healthcare organizations can consolidate their network, server, and storage architectures. HP network switches can automatically be recognized, configured, deployed, and added to a virtual resource pool by using centralized management tools with single-pane-of-glass infrastructure visibility.

There is increasing pressure on healthcare organizations to be more energy efficient. HP’s technologies are geared toward reducing power consumption through I/O consolidation and energy-efficient engineering. Energy-wise performance and fewer network devices reduce power and cooling, rack space, cabling, and overall real estate requirements.

As technology continues to drive information sharing and data storage, there will be continued demand for business continuity and disaster recovery. IRF technology, which enables automatic failover between switches that is transparent to users, can play a key role in protecting healthcare provider operations during disasters.

Why HP?

Healthcare organizations need a network infrastructure that will promote agility and boost productivity without sacrificing performance, raising costs, or impacting security. They can neither depend on their legacy networks nor rely on maintaining a status quo approach to service delivery to meet these requirements.

IT teams that want to consolidate while also taking advantage of technological efficiencies such as server and desktop virtualization, video collaboration, and cloud computing need to rethink how they build their networks.

The HP FlexNetwork architecture drives simplicity by segmenting network designs into functional building blocks and streamlined management; enhances agility with high performance, security, and accelerated provisioning; and saves money through a unique architecture and lower overall TCO.

Every day HP demonstrates its exceptional commitment to innovation, savvy product development, expert implementation, and responsive service—all of which are essential elements to running mission-critical networks. High-quality global sales, delivery, and support services are backed by a 30-year record of successful networking experience, as well as the talent and expertise of certified professionals and networking partners around the world. Additionally, HP’s R&D engineering teams and Technical Services team are available to work side by side with customers, establishing a level of intimacy unmatched in the networking industry. For more information about how HP delivers secure, affordable, and easy-to-administer networking solutions, visit www.hp.com/networking.