

Secure, Intelligent Infrastructure for Healthcare



Executive Summary

At Allied Telesis, we know that healthcare providers must:

- ▶ Provide safe, affordable, and accessible care
- ▶ Provide faster and more thorough diagnosis and treatment
- ▶ Improve and enhance the patient experience
- ▶ Harness network technology to improve collaboration and decision making processes used by caregivers and experts
- ▶ Provide services that are both cost-effective and of the highest quality
- ▶ Maintain easy and fast access to information
- ▶ Improve caregiver efficiency by facilitating streamlined workflow
- ▶ Decrease medical errors
- ▶ Provide comfort, distraction and entertainment to minimize patient distress.

The Allied Telesis healthcare solution provides:

- ▶ *Resiliency*
Minimize the risk of downtime by using a number of different capabilities to provide total network redundancy
- ▶ *Security*
Protect your network from external or internal attack, adhere to strict privacy laws and provide total patient confidentiality
- ▶ *High performance*
Harness network technology to enhance the speed and accuracy of all your information sharing, collaboration and decision making processes.
- ▶ *Future-proofing*
Easily expand your network as your business grows
- ▶ *Value-added services*
Offer distractions and entertainment to improve the patient experience. Provide your patients with bedside Interactive TVs — email, web, satellite TV and movies, audio, surveys, patient information and third-party services.

Healthcare needs and objectives

Healthcare has come a long way in the last century. Medical science and patient treatment are advancing at an astonishing rate, and professional healthcare providers have to keep up in an environment that is growing more complex every day.

As a healthcare provider, you must supply the best possible patient care at the best possible price, harness evolving technologies, maintain an extremely high level of network security to protect confidential patient information, and sustain increasing numbers of patients and staff. Resiliency is key to avoid potentially life-threatening network downtime. High performance is essential for both your Picture Archiving and Communications System (PACS) image-management system, and for the digitizing and storing of all patient files and records as Electronic Medical Records (EMR). Then there are the usual business objectives — maintaining and improving organizational efficiency, increasing profitability, and meeting regulatory requirements.

Finding a network that meets all your needs can seem like an impossible task — but with an Allied Telesis solution that is tailored for your organization, it is both achievable and simple.

Why Allied Telesis?

Allied Telesis is an industry leader in networking solutions. With our proven history of delivering highly reliable and feature-rich advanced network solutions, more and more healthcare institutions are turning to Allied Telesis to achieve their objectives. At Allied Telesis, we are committed to providing the resiliency, security, and high performance you need for your healthcare network, both now and well into the future. Our products meet your requirements for a robust and scalable solution, whilst still working within your budget. Our healthcare solution provides you with resiliency, high-availability, security, productivity, interoperability, flexibility, plus many value-added services.

Read on to learn how Allied Telesis can provide enhanced operations for your healthcare organization.

Achieve optimal resiliency and eliminate network downtime

In today's busy healthcare environment, patient diagnosis and treatment can be extremely time-critical. Network downtime is not just an annoyance — it can be a life-threatening event.

Your healthcare business needs a resilient network, which offers optimal resiliency to minimize the risk of dangerous and costly downtime. Today's healthcare network must support any number of recent and emerging technologies, such as IP telephony for voice communication, and content networking for video distribution, as well as electronic patient records that combine medical data, handwritten notes, verbal records, and images. Any failure in your network can result in your entire network being impaired, which can in turn impede the delivery of potentially life-critical applications and data.

Allied Telesis healthcare solutions utilize a number of different sophisticated high-availability features. Our products work together to provide a robust and reliable network with maximum resiliency, ensuring traffic flow continues even during outages. The result is a resilient network, from the core to the edge — to easily deliver your video and medical imaging files as well as video, VoIP, and traditional IP traffic. This not only ensures minimum user downtime, but also allows your staff to work in collaboration to improve the efficiency and effectiveness of your patient care.

“The major reason for selecting Allied Telesis for the network upgrade was their proven experience in the market. The SwitchBlade® met all of the requirements for the core of the new LAN, such as the ability to forward high capacity graphical content, high reliability and a comprehensive feature set.”

Mr. Horiguchi, System Sales Manager,
San Esu Management Systems (SEMS),
Kushiro City Medical Hospital

Resiliency Benefits

- Seamless traffic flow
- High performance at the core of your network
- Higher bandwidth, and optimum use of available bandwidth
- Optimal network speed
- Ensure continued delivery of essential services
- Reduced risk of network outage
- Continued service even in the event of a power supply failure

Allied Telesis Advanced Resiliency Features

■ Virtual Chassis Stacking (VCStack™)



VCStack provides uninterrupted network service, and delivers chassis-like resiliency and redundancy features without the high price tag. Combined with Link Aggregation, VCStack provides a superior network core solution.

■ Link Aggregation

Link Aggregation provides resiliency with higher performance, since it utilizes your full network bandwidth. Failover is immediate, as the switch (or Virtual Chassis) almost instantly adapts its forwarding process in the event of the loss of a link.

■ Ethernet Protection Switching Ring (EPSRing™)



EPSR allows Allied Telesis products to form a protected ring of switches with as little as 50ms failover. A multiple-ring EPSR network can provide extremely high performance throughout your network.

■ Built-in power redundancy

Built-in power redundancy guarantees the continued delivery of essential services. Many of our key products reduce the risk of network outage by allowing for two PSUs to be installed, when only one is required to power the device.

■ Hot swappable Power Supply Units (PSUs)

PSUs can be easily removed and replaced with no interruption to the network. Using two separate power sources (feed redundancy) provides even more power redundancy to the network.

"Patients used to have to wait for their accounts, due to unavailability of the accounting system caused by system troubles and/or poor bandwidth. I haven't heard any complaints since the new LAN was introduced."

Mr. Matsumoto, a general manager of Kushiro-City Medical Hospital

Security – for your network and your patients

Security is a dual issue for healthcare businesses. Not only do you need to protect your network from external or internal attack, you must also adhere to strict privacy laws and provide total patient confidentiality. A great deal of confidential personal information is stored in the healthcare system — not just details of the patient's health, but also such details as name, address, phone numbers, banking and credit card information, even Social Security numbers. As well as the increasing risk of attack from the Internet, you must protect your sensitive information from insider interference. Also, you must adhere to the Health Insurance Portability and Accountability Act (HIPAA) security and privacy rules. Any data breach can have detrimental effects on both patients and your reputation, so healthcare businesses must really step up efforts to protect electronic patient information.

Allied Telesis healthcare networks support a number of cutting edge, top-class security features, protecting your network and enhancing patient safety with protection of patient data. Advanced security features protect your patients' confidentiality, and your network — from the edge to the core. Our healthcare solution provides total network security with Network Access Control (NAC), mitigating threats to your network infrastructure, and Private Virtual LANs (VLANs) providing secure access to entertainment and services for patients.

Security Benefits

- Protect your network from external attack
- Provide total patient confidentiality.
- Maintain unprecedented control over user access to your network.
- Connect all of the different groups within your premises, such as medical examination, office work, and patients, yet separate their access to different resources.
- Increase your overall reliability and performance, and make the network easier to maintain.

Allied Telesis Advanced Security Features

- *Network Access Control (NAC)*
NAC allows you unprecedented control over user access to your network. Allied Telesis NAC uses industry standard features to provide this security optimally at the interface between the user and the network, assigning network access based on identity, access method, location and end-point security status.
- *Private VLANs*
Multiple users sharing the same VLAN can enjoy access to appropriate network resources, while communication between user ports is blocked. This provides a suitable means to securely offer your patients entertainment and network services.
- *Advanced Traffic Management*
Powerful traffic filtering capabilities can be implemented to prevent malicious LAN-based attacks.

Alongside port learning limits and hardware based denial-of-service defense, this provides a continually secure network environment.



High performance – for network speed and storage

Healthcare businesses have some unique and challenging network performance requirements. Healthcare providers are working towards digitizing and storing all patient files and records — including X-rays and diagnostic images from the PACS image-management system, admission information, and transcribed data — as EMRs. EMRs are much easier for medical personnel to manipulate and to share among colleagues, thereby increasing business efficiency and medical accuracy. However, this digitization accelerates the (already extreme) growth of necessary storage capacity, especially when you take into account the very high resolution levels of clinical images — just one CT exam can use up to 1Gb of storage space.


Timely decision making is critical in providing quality healthcare services, therefore your network must facilitate the effective and efficient transfer of large and complex files, including the ability to handle significant surges in data transfer. High bandwidth is required to send large files, such as Magnetic Resonance Imaging (MRI), ultra sound, digital radiology imaging, and Computed Tomography (CT) scans, with no delay or image degradation. The fast transfer of quality images quickens the diagnostic process, which can be a matter of life and death to a patient, as early detection and treatment can save lives. For example, a doctor treating a patient in an emergency room must be able to rapidly access that patient's medical records and history, in order to diagnose and treat the patient.


An Allied Telesis solution lets you harness network technology to enhance the speed and accuracy of all your information sharing, collaboration and decision making processes. A healthcare environment necessitates the ability to prioritize real-time traffic, like voice and video, and manage network bandwidth allocation. Our advanced products ensure your network resources and applications are always available, with superior high performance features. Products that support 10 Gigabit Ethernet (currently the fastest standard available) ensure maximum data throughput for the core of your network, allowing it to cope with large amounts of stored data, and easily handle any large surges or times of peak demand.

High Performance Benefits

- Increase the quality and safety of your patient care, with fast and accurate diagnosis and treatment.
- Optimize rapid and reliable access to complex files such as radiology images.
- Enhance the patient experience by giving medical staff access to information anywhere, any time — resulting in shorter wait times and more efficient processes.
- Enable greater staff collaboration to better utilize your staff's combined experience.
- Improve your organizational efficiency by facilitating efficient workflow.
- Save time by giving your staff the ability to communicate in real-time.
- Reduce the need for manual, paper-based systems, resulting in an increase of staff efficiency and productivity, and therefore an improved quality of patient care.
- Enjoy super-fast recovery, ensuring high-quality content delivery.

Allied Telesis Advanced High Performance Features

- *Superior Quality of Service*
Prioritize real-time data and manage bandwidth allocation to specific applications, with superior QoS features ensuring wire-speed delivery of all your critical IPv4 and IPv6 traffic.
- *10 Gigabit Ethernet*
Products that support the leading Ethernet standard of 10 gigabits per second ensure maximum data throughput to support multiple simultaneous network applications.
- *Ethernet Protection Switching Ring (EPSRing™)*
 With the ability to form a ring at up to 10 Gigabits per second, EPSRing can provide extremely high performance at the core of your network, with as little as 50 milliseconds (ms) failover, providing virtually uninterrupted access to resources and applications. EPSRing far outperforms traditional STP-based networks where failover and network re-convergence is in the order of many seconds.

- *Virtual Chassis Stacking (VCSStack™)*
 VCSStack provides uninterrupted network service, and maximizes the use of available network bandwidth to ensure access to information when you need it.

“Allied Telesis offers the experience, knowledge and technology that we were looking for. Its solutions are able to seamlessly integrate our new and existing network. This resulted in giving HSC the best Total Cost of Ownership (TCO). I’m happy that Allied Telesis met all the stringent requirements within the hospital’s budget.”
Dr. Soo Chee Siong, Medical Director, HSC Medical Center

Future-proofing – to expand your network as your business grows

Your healthcare network will need to grow and adapt in order to keep up with advances in medical science and patient treatment, as well as to allow you to sustain increasing numbers of patients and staff.

Allied Telesis products optimize your technology investments by fully integrating with existing systems and applications. And, as your business grows in size and scope, our products help you to build a more efficient and progressive healthcare network, since they are designed to fulfill all your network needs both now, and well into the future.

The inherent modularity of our latest, cutting-edge products ensures your network can grow alongside your business. To future proof your network, we provide stacking using VCStack™, and ultimate flexibility and scalability with the use of expansion modules (XEMs) in a variety of different capabilities to suit your needs. VCStack negates the need to purchase expensive chassis-based solutions that are likely to be under-utilized in the short to medium term.

Future-proofing benefits

- Enjoy a low initial cost of ownership
- Utilize our simple and cost-effective upgrades as your network needs evolve. Grow your network with your business, without incurring major costs
- Add port density and performance to your network as and where required.
- Optimize your technology investments with products that fully integrate with other systems and applications.
- Enjoy a scalable and versatile solution – our modular architecture allows configuration possibilities limited only by the imagination.

Allied Telesis Advanced Future-Proofing Features

■ VCStack™



Add more devices to a VCStack to increase port density and resiliency without increasing management complexity. You can add or remove individual stacked units as bandwidth and feature requirements in your network evolve. A highly resilient VCStack solution prevents traffic bottlenecks by utilizing the stack's full bandwidth, and removing network failure points.

■ Expandability

Allied Telesis premium switches are flexible, with a number of expansion modules (XEMs) you can add as your network grows. Our high speed XEMs provide both copper and fiber expansion options right up to 10 Gigabit Ethernet, delivering the ultimate in flexibility.

■ Standards-Based

Allied Telesis' leading modular software, AlliedWare Plus™, is standards-based, so you can be assured of a solution that will fully integrate with your systems and maximize your investment well into the future. Adhering to industry standards guarantees interoperability with the existing and future network equipment that is part of your healthcare solution.

■ IPv6

Hardware support for the next generation Internet Protocol (IPv6) allows your network to take advantage of our superior inbuilt security and traffic control features, and be at the forefront of the global move to greater Internet addressing and communication abilities. The ability to simultaneously manage IPv4 and IPv6 traffic, and even tunnel IPv6 traffic across an IPv4 network and the Internet ensures an easy transition to next generation networking with Allied Telesis products.

Value-added services

Time in the hospital can be traumatic and painful, and at times it can also be just plain boring. There is a growing expectation that healthcare providers will provide not only top quality medical care, but also distractions and entertainment to minimize patient distress and relieve boredom. Allied Telesis products are designed to provide not just top quality network functionality to run your business smoothly, but also to provide numerous value-added services to further enhance your business.

With Allied Telesis products, you can offer your patients state-of-the-art entertainment, right at their bedside — with interactive TVs providing email, web, satellite TV and movies, audio, and surveys, as well as patient information and third-party services.

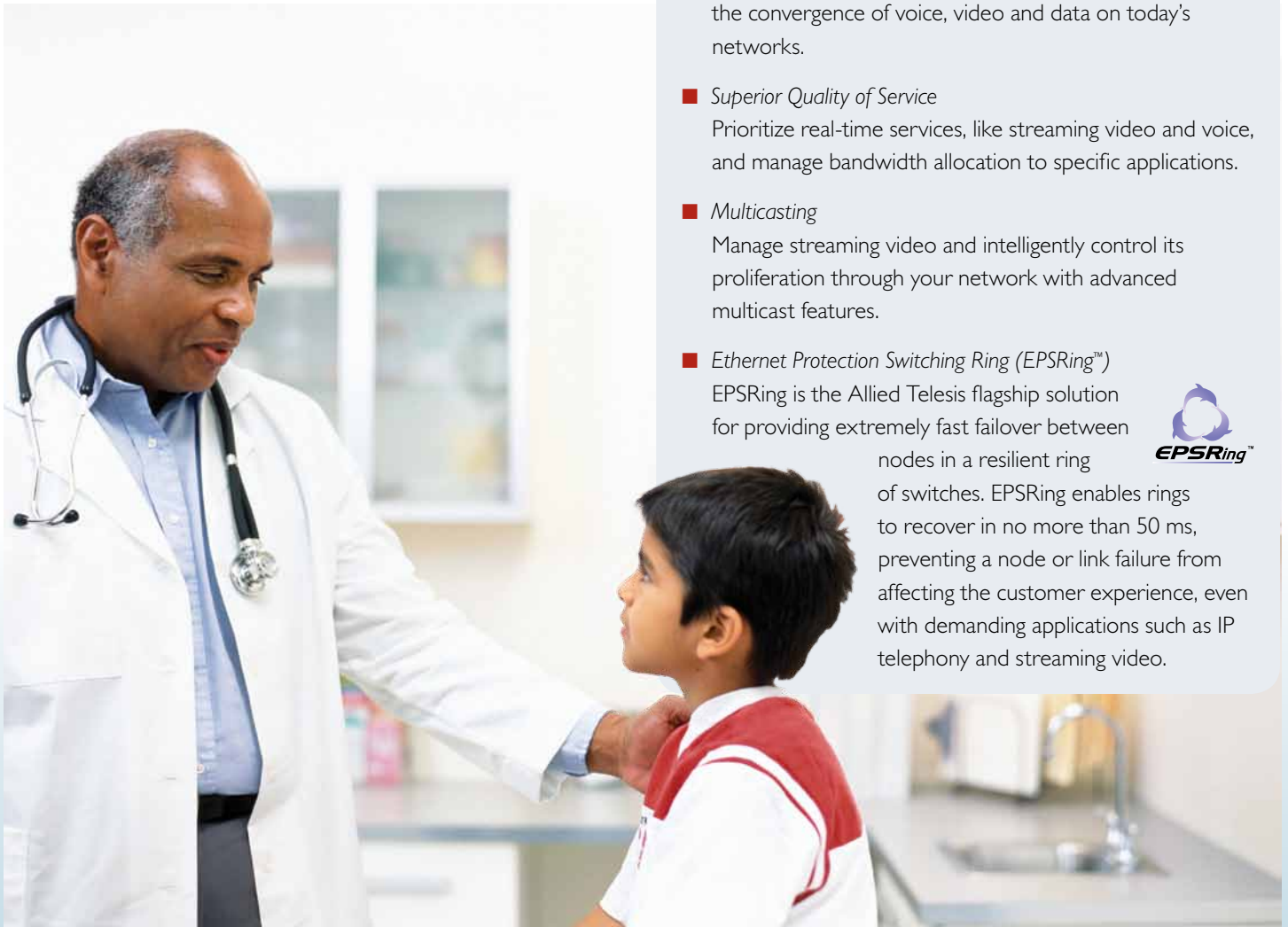
Benefits of value-added services

- Offer distractions and entertainment to minimize patient distress.
- Enhance the patient experience, and ensure maximum customer satisfaction
- Gain the edge on your competitors with state-of-the-art entertainment capabilities
- Maximize your productivity by keeping patients occupied.

Allied Telesis Value-Added Features

- *Triple Play*
Our products form an end-to-end solution for managing the convergence of voice, video and data on today's networks.
- *Superior Quality of Service*
Prioritize real-time services, like streaming video and voice, and manage bandwidth allocation to specific applications.
- *Multicasting*
Manage streaming video and intelligently control its proliferation through your network with advanced multicast features.
- *Ethernet Protection Switching Ring (EPSRing™)*
EPSRing is the Allied Telesis flagship solution for providing extremely fast failover between

nodes in a resilient ring of switches. EPSRing enables rings to recover in no more than 50 ms, preventing a node or link failure from affecting the customer experience, even with demanding applications such as IP telephony and streaming video.





About Allied Telesis, Inc.

Allied Telesis is a world class leader in delivering IP/Ethernet network solutions to the global marketplace. We create innovative, standards-based IP networks that seamlessly connect you with voice, video and data services.

Enterprise customers can build complete end-to-end networking solutions through a single vendor, with core to edge technologies ranging from powerful 10 Gigabit Layer 3 switches to media converters.

Allied Telesis also offers a wide range of access, aggregation and backbone solutions for Service Providers. Our products range from industry leading media gateways which allow voice, video and data services to be delivered to the home and business, to high-end chassis-based platforms providing significant network infrastructure.

Allied Telesis flexible service and support programs are tailored to meet a wide range of needs, and are designed to protect your Allied Telesis investment well into the future.

Visit us online at www.alliedtelesis.com.

Americas Headquarters | 19800 North Creek Parkway | Suite 100 | Bothell | WA 98011 | USA | T: +1 800 424 4284 | F: +1 425 481 3895
European Headquarters | Via Motta 24 | 6830 Chiasso | Switzerland | T: +41 91 69769.00 | F: +41 91 69769.11
Asia-Pacific Headquarters | 11 Tai Seng Link | Singapore | 534182 | T: +65 6383 3832 | F: +65 6383 3830

www.alliedtelesis.com

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