



PTP WIRELESS CONNECTED AND PROTECTED

SECURE POINT-TO-POINT (PTP) WIRELESS NETWORKS



There are few environments where people and information are more on the move than in healthcare. Doctors make hospital rounds, see patients in their offices and catch up with paperwork at home. Nurses move from room to room caring for patients. Patients go from the doctor's office to a diagnostic lab or hospital. All the while, critical information is shared with providers, payers and patients to ensure quality healthcare. The Health Insurance Portability and Accountability Act of 1996 (HIPAA) was enacted to ensure that during all this service mobility information remains confidential. So your communication network must protect your information as it circulates it.

MOBILIZING INFORMATION

Technology has enabled healthcare organizations to transition from paper-and-pen systems to computer-enabled procedures such as electronic health records (EHR), medication administration, patient tracking, asset management and push-to-talk voice communications. The objectives of this transition have been to:

- Improve the quality of patient care
- Streamline information collection, processing and management
- Share information among providers, payers and patients

- Increase information accuracy
- Reduce operating costs

To ensure that pertinent information gets to all the people and places required at the right time, your communication network has to support a high level of mobility both indoors and outdoors. Wireless connectivity has become synonymous with mobility because it gives you the freedom to communicate as you move around. You can access information in real time from virtually any place, at any time of the day or night. That agility translates to greater productivity, quality of

Customer Profiles

- Clinics
- Diagnostic laboratories
- Home healthcare providers
- Hospice centers
- Hospitals
- Insurance companies
- Nursing homes
- Physicians' offices
- Rehabilitation centers

Typical Applications

- Building-to-building and campus connectivity
- Leased-line replacement and extensions
- High-speed Internet access
- Video surveillance backhaul
- Voice-over-IP (VoIP) backhaul
- Remote connectivity
- Network redundancy
- Disaster recovery

APPLICATION BRIEF

HIPAA

service and collaboration than are achievable with wired communications.

However, such widespread mobility also brings a risk of information being compromised. Protecting vital information as it moves from one location to another places great responsibility on your enterprise to invest in secure communication networks. As a result, many healthcare professionals rate security as their number-one information technology (IT) priority.

INDOOR-TO-OUTDOOR COVERAGE

From indoors to outdoors, our Wireless Network Solutions can provide you with a complete communications network. Based on your specific requirements, indoor WLAN (wireless local area network), outdoor point-to-point, point-to-multipoint and mesh, and voice-over-WLAN solutions can be integrated to form one solution or deployed independently. Our network design, security, management and troubleshooting software gives you an easy and efficient way to manage your complete wireless network.

In this paper, we focus on our point-to-point (PTP) solutions and how those solutions can move information from one location to another. Our family of PTP systems gives you a range of communication options that address a wide variety of applications, IT infrastructures and budgets. PTP radios can send and receive data, voice and video information efficiently, reliably and securely at Ethernet data rates up to 368 Mbps (full duplex). Your information can be transmitted across distances up to 155 miles (250 km) in virtually any environment and weather conditions. Plus, the radios operate in several radio frequency (RF) bands¹ including: 5.4, 5.8 and 5.9 GHz license-exempt bands; 4.5, 4.8 and 4.9 GHz federal, NATO and public safety defined-use licensed bands; and 6 to 38 GHz licensed microwave bands.

WORRY-FREE MOBILITY

While no system is 100 percent bullet proof, today's security technology and processes give you robust tools to ensure that your wireless network is as secure as any network. Recognizing the importance of security in healthcare environments, we have made and continue to make large investments in security. Whether deploying wireless in a large hospital, small doctor's office, diagnostic laboratory or major insurance company, you can be confident that your communications will be protected and support your HIPAA compliance initiatives.

The two primary areas of security that need to be addressed with wireless communications are your over-the-air transmissions and access to your wireless systems via the network management interface. Our PTP systems² offer the following security capabilities to secure these areas of potential risk.

Over-the-Air Confidentiality: For information that is being sent from one building to another, HIPAA requires that the data be encrypted. PTP systems support FIPS (Federal Information Processing Standard) 197 compliant AES (Advanced Encryption Standard) encryption. You may choose either 128-bit or 256-bit AES encryption as a system option for your PTP wireless links. Both of these options meet HIPAA regulatory guidelines.

Securing the Network Management Interface:

Using a standard web browser, you can manage your PTP network remotely. The following secure versions of management protocols are available for PTP systems and will meet HIPAA guidelines. The secure versions of these protocols keep persons from easily turning off the encryption.

- **HTTPS/TLS:** This secure version of HTTP protects the PTP system's management interface. PTP radios also support user-provided X.509 digital certificates.
- **SNMPv3:** Simple Network Management Protocol (SNMP), version 3, adds security and remote configuration enhancements to SNMP.

Additional Security Capabilities: In addition to the above capabilities, certain PTP models support added layers of security. Depending on your network infrastructure and applications, one or more of these capabilities can be employed to comply with HIPAA regulations:

- **Identity and Event Management:** Identity-based user accounts with configurable password rules can be enabled to control user access to the radios. Up to ten local users may be permitted access to a PTP radio, and each user can be assigned a level of access: security officer, system administrator and read only. In addition, Remote Authentication Dial In User Service (RADIUS) can be used to remotely authenticate users and their levels of access based on your network policies.
- **Auditing and Event Management:** Security and other events are logged locally and optionally can be sent to a centralized logging server using syslog. Such messages include: successful and failed log-in events and changes to security configuration.

¹ Regulatory conditions for RF bands may vary by geographic location and should be confirmed prior to system purchase.

² Certain security features and compliance certifications may not be available on all PTP systems.

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- **FIPS 140-2:** In healthcare facilities operated by the government such as VA hospitals and the CDC, you may also want to include the optional FIPS 140-2 Level 2 certification which meets regulatory requirements for cryptographic algorithms, key security and tamper evidence. PTP links equipped with FIPS 140-2 must also have 128-bit or 256-bit AES encryption. Together, AES encryption and FIPS 140-2 provide robust security to protect PTP communications from malicious incidents.

PTP AT WORK

Nurses make their rounds with laptops and handhelds. From medication levels to patient vital signs and diagnostic equipment readings, each detail is instantly uploaded to the hospital's communication network. So, your hospital can share patient status and history in real time with the physician in the next building and the oncologist 15 miles away. A nearby pathology lab emails test results, and the attending physician reviews films online with the imaging center. Simultaneously, billing information can be sent to your billing office across the street.

All the while, your PTP wireless network is seamlessly and securely communicating with each location. The system enables your staff to communicate with doctors, diagnostic centers, clinics, billing centers, insurance companies and other sites in your provider network. These always-on communications help your facility take a holistic approach to patient care, while cutting costs.

USING PTP TO YOUR BENEFIT

In addition to the scenario above, PTP solutions can supply connectivity and backhaul communications for many operations within your healthcare organization, including:

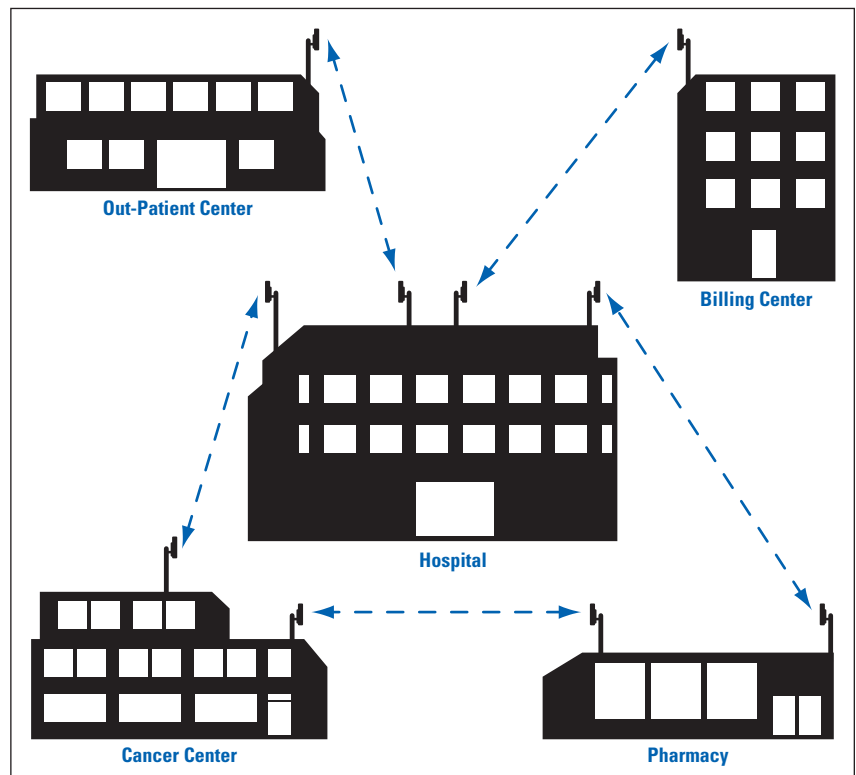
- **High-Speed Information Access:** Files such as CT scans, MRIs and PET scans place enormous demands on the communications infrastructure. A PTP system can provide added capacity and throughput to transmit these huge files efficiently in real time.
- **Building-to-Building and Campus Communications:** Whether you need to connect two buildings or connect buildings in a hospital campus setting, PTP radios are engineered to work around obstacles, overcome interference and withstand extreme weather conditions. So, you have the freedom to communicate virtually anywhere.
- **Video and Voice backhaul:** Wireless backhaul extends connectivity between two outdoor locations. As an example, you can backhaul streaming video

from surveillance cameras to a dispatch or security command center. If your backhaul system does not have adequate bandwidth and speed to transmit data, voice and video efficiently, the system can create a network bottleneck. Our PTP systems can backhaul data, voice and video very cost effectively while delivering high-speed communications with up to five-nines of reliability.

- **Network redundancy:** To avoid communication outages and support business continuity, a PTP system can supply crucial back-up communications for your virtual private network (VPN), leased-lines or fiber network.
- **Leased line replacement:** You can reduce or eliminate recurring fees by replacing or extending the reach of your T1/E1 lines.
- **Patient Collaboration:** With several professionals involved in a patient's care, a PTP network enables you to securely view and discuss diagnostic information, test results and EHR at any convenient time.
- **Remote Connectivity:** When you need to establish communications in a remote area with no T1 or fiber service, a PTP wireless solution can extend your communications reach to otherwise unreachable locations.



Nurse Verifying a Patient's Identity



PTP Connectivity in a Hospital Campus Environment

KEY ADVANTAGES

PTP solutions employ a unique combination of innovative technologies that offer you several communication advantages, including:

- **Multi-Level Security:** While our systems are engineered to be inherently secure, they support additional security capabilities and compliance certifications to support HIPAA regulations and protect your communications.
- **Anywhere Connectivity:** You can establish communications in non-line-of-sight (NLOS), long-distance line-of-sight (LOS) and high-interference locations as well as over water and open terrain. In fact, our radios often perform in locations that were previously considered un-connectable.
- **Extended Reach:** Our radios can communicate across distances of up to 155 miles (250 km) in a single hop so you can go farther at less cost.
- **Performance-Enhancing Tools:** Systems include industry-leading metrics to help you attain the best possible performance from your wireless system. Those metrics include antenna alignment information, interference and throughput measurements, measurements of signal level and quality, and troubleshooting diagnostics
- **“No Surprises” Link Planning:** Prior to purchase, our easy-to-use PTP LINKPlanner tool lets you accurately predict link performance based on geography, distance, antenna height and other factors specific to your deployment. So, you don't have to wonder if you're making the right system choice.
- **Fast Deployment:** With easy-to-follow deployment assistance features, PTP links can be deployed quickly – typically in one to two days.
- **Worry-Free Durability:** With more than two billion field hours logged, our radios are proven to withstand the rigors of outdoor use. Radios perform steadfastly in winds up to 202 mph (325 kph) and temperatures from -40° to 140° F (-40° to 60° C).
- **Flexible Network Management:** Your team can easily manage your wireless network remotely with a standard browser, your existing network management system and/or our Wireless Manager, Version 2.2 or higher.
- **Future-Proof Design:** Our systems let you start small and expand when your needs grow. In addition, PTP solutions are regularly upgraded with new features, security capabilities and certifications that you can implement without changing hardware.

END-TO-END PATIENT CARE

At Motorola, we offer a broad array of solutions to give you secure, end-to-end wireless connectivity across your entire patient-provider-payer network. These wireless broadband point-to-point (PTP), point-to-multipoint (PMP) and mesh solutions along with our Wireless LAN (WLAN) are designed to work together to form one wireless network. Our One Point Wireless offers powerful, easy-to-use software tools that help you design, deploy, manage and secure your wireless network. Plus, our AirDefense solution gives you advanced wireless security and compliance monitoring to help you meet HIPAA requirements.

Our Enterprise WLAN solution is the core platform for complete healthcare mobility, enabling you to improve patient care, increase staff productivity and accurately track people and equipment. In addition to EHR, the system supports applications that help improve admissions and billing, workforce scheduling, inventory management, test results and blood-type verification, medical equipment access and real-time information mobility. When the Enterprise WLAN solution is combined with our PTP, PMP and Mesh solutions, you can achieve complete mobility both inside and outside your facility, regardless of distance, infrastructure, applications and environmental issues.

Our AirDefense solution is designed to secure your wireless airspace by eliminating rogue wireless devices, preventing wireless intrusions and facilitating compliance with HIPAA policies. The security configuration management capability monitors access points to provide real-time equipment inventory and verify that additions or changes to the network do not violate configuration policy. Incident reporting procedures immediately detect intruders and alert security managers of malicious acts such as NetStumbler scans, spoofed MAC addresses and “man-in-the-middle” hacking attempts. Alarms can be routed to an email address, pager or cell phone, and responses to events are logged to track timeliness and outcomes.

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SUMMARY

At Motorola, we have more than 80 years experience working with wireless communications. So, you can rely on our expertise and experience to help you plan, configure, deploy and manage your wireless network. We can help you achieve the wireless agility you need to improve patient care, increase productivity, share information in real time, increase accuracy and reduce operating costs. Our security capabilities give you the reassurance to know that your wireless communications will be secure and meet HIPAA requirements.

HIPAA regulators aren't standing still. Initiatives like the "EHR Incentive Program," which offers payments to eligible hospitals for the adoption or use of EHR technology, are being pushed through legislative review on a regular basis.

So, tell us about your mobility goals and let us show you how our wireless solutions can help you achieve them while maintaining HIPAA compliance.

WIRELESS NETWORK SOLUTIONS

PTP solutions are included in our Wireless Network Solutions portfolio. The portfolio delivers seamless connectivity that puts real-time information in the hands of users, giving you the agility you need to better serve the public. Our unrivalled wireless network solutions include indoor WLAN, outdoor wireless mesh, point-to-multipoint and point-to-point networks as well as voice over WLAN solutions. Combined with powerful software for wireless network design, security, management and troubleshooting, our solutions deliver trusted networking and anywhere access to organizations across the globe.

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