



IMPLEMENTATION ROADMAP

MEDICAL-GRADE NETWORKS—WHAT YOU NEED TO IMPLEMENT RESPONSIVE HEALTHCARE SOLUTIONS FOR PHYSICIAN GROUPS AND CLINICS

Intelligent Networks. Smart Medicine.

INTRODUCTION—HEALTHCARE TRENDS AND CHALLENGES

Physician practices and clinics are being called on to do more than ever before. Today's physicians must treat more patients, document interactions more meticulously, wrangle with more complex managed care rules, keep track of an ever-expanding array of drugs, and pay rising malpractice insurance bills. In many cases, physicians must treat 20 percent more patients than they did five years ago to generate the same revenue. In the face of these burdens, some practices are struggling to remain financially viable.

For many practices, the biggest impediment to meeting these challenges is continual administrative burden, a lack of automated clinical documentation, and inefficient practice workflow systems. Despite the dramatic advances in many areas of healthcare technology over the past several years, most physician practices—especially small and midsize ones—are still using the same manual and paper-based office management systems they've used for decades.

Fortunately, a wide variety of healthcare solutions are now available that can help physicians and support staff work more efficiently and productively. The digital medical practice of the future will include wireless networking, Internet communications, and digital record-keeping systems designed to automate many manual tasks that have been proven to enhance overall quality of care. However, for any healthcare solution to succeed, it must be built upon a sound medical-grade network infrastructure.

Cisco Systems offers a suite of robust, intelligent network technologies that deliver the performance and security healthcare practices demand. Whether supporting simple broadband Internet solutions or full-scale digital medical record systems, Cisco can provide a network solution that meets your practice's unique needs. Drawing on years of experience working with the most successful healthcare organizations in the world, Cisco and its partners and resellers can deliver the technology and expertise to dramatically enhance the way you run your medical practice.

The Need for Medical-Grade Network Solutions in Healthcare

Physician practices of all sizes face many of the same demands and challenges. Practices must find new ways to:

- **Improve quality of care**—Responding to public concern about medical errors, practices are striving to reduce reliance on handwritten records and implement better systems for tracking procedures and prescriptions. For many practices, improving quality isn't just the right thing to do, it's also a business imperative. Insurers increasingly link group participation and reimbursement rates to pay-for-performance quality metrics. Many insurers are also promoting health management programs for patients with chronic problems such as diabetes or high cholesterol. To participate in these programs and better serve their patients, practices must be able to efficiently document patient interactions, automate communications, and provide clinical best practices based on clinical knowledge base systems.
- **Reduce costs and improve profitability**—The success or failure of a practice depends on the productivity of physicians and their staff. And too often, skilled caregivers spend the bulk of their time doing paperwork instead of treating patients. According to AC Group, Inc., the average practice in 2004 spends 18 percent more time on paperwork than they did in 1998. This reliance on paper-based

medical records also places a huge burden on practices, adding substantial costs for record storage and administrative support staff. Larger practices can see transcription costs alone reach more than \$1 million per year. Too often, physicians are also under-compensated for the work they perform, as many will “downcode” what should be a higher-compensated interaction just to save time and paperwork. Studies by AC Group have shown financial loss due to downcoding can reach as high as 15 percent of practice revenues.

- Enhance organizational efficiency—Practices must see more patients than ever before to remain financially viable, while the documentation required for each patient interaction is steadily increasing. Simply maintaining paper-based records can be an enormous challenge, as staff must deal with lost charts, duplicate records, and records that are out of the office for days or weeks during transcription. Practices are also searching for ways to streamline communications with insurers and pharmacies, and speed reimbursement processing.
- Guarantee information privacy and security— Government regulations, such as the U.S. Healthcare Insurance Portability and Accountability Act (HIPAA), mandate strict privacy measures and guidelines for securing healthcare information. As practices move to digitize information, a locked file cabinet or record room is no longer sufficient to protect confidential patient data. Practices that fail to adequately protect patient information can face fines, legal liability, and worst of all, loss of confidence among patients and partners.
- Provide a better patient experience—As practices see more patients, physicians are struggling to provide personal attention and ensure patients are not inconvenienced. Practices are searching for new ways to streamline the appointment-making process, reduce time spent on hold or in a waiting room, and enable administrative staff to more quickly locate information and respond when patients call with a question.

Healthcare Solutions for Physician Groups and Clinics

To respond to these demands, physician practices are deploying a host of new technologies to streamline workflow, automate manual and paper-based processes, and improve overall patient care. These include:

- Mobility solutions—Wireless-enabled computer kiosks, pocket PCs, tablet PCs, and IP phones put information at caregivers’ fingertips, and bring digital records and network applications to the bedside. Remote connectivity solutions allow physicians to securely access medical records and applications from anywhere, at anytime, on almost any device, over the Internet via secured connections.
- Electronic medical record (EMR)—These solutions digitize manual, paper-based records, provide best practice clinical knowledge base information, streamline record-keeping processes, and provide a single, comprehensive view of the patient. EMR systems incorporate all aspects of patient interactions, from medical and family histories, to health maintenance reminders for chronic conditions, to drug interactions, to automatic insurance coding. Most importantly, an EMR system makes patient information universally and instantly accessible to all authorized caregivers and staff, eliminating the need to hunt for paper-based charts.
- Document imaging—Imaging applications enable practices to smoothly make the transition from paper-based system to digital. These applications can rapidly integrate paper records into a network-based system, and eliminate the huge costs of storing, maintaining, and retrieving thousands of medical charts.
- Web connectivity—Practices increasingly use the Internet to communicate with insurers, pharmacies, and even patients. The ability to securely transmit medical information online can speed claims processing and streamline communications with other facilities.

While solutions like these were once only possible for large hospitals and medical groups, technological innovations and falling prices have made them viable options for smaller practices. However, to reap the benefits of modern healthcare solutions, practices need a robust, reliable medical-grade network infrastructure to support them. Such a network must deliver the optimal performance and security that medical applications demand, but in a way that can be easily managed by a small practice with little or no IT expertise.

Cisco Systems® offers a full suite of network solutions to support a single physician office, a large clinic, and everything in between. These solutions incorporate Cisco's industry-leading technology and expertise, but in affordable, highly manageable packages designed to fit even the smallest practices. These solutions include:

- Wireless local-area networks (WLANs)—Wireless networks give caregivers greater mobility by delivering critical patient information wherever they need it, over a wide range of computing platforms. Cisco Aironet® wireless access points deliver superior performance and manageability, along with the stringent security required when sharing sensitive information in a wireless environment.
- Core network devices—Cisco offers a larger portfolio of network routers, switches, and security solutions than any other network technology provider. From small office routing and security to intelligent, high-speed switches serving hundreds of users, Cisco access routers, Catalyst® switches, and PIX® Security Appliances deliver unparalleled intelligence, scalability, and performance.
- Remote connectivity— Secure IP virtual private networks (VPNs) enable practices to safely extend healthcare applications and information to remote facilities, hospitals, medical conferences, and even physician's homes by encrypting data as it travels over the Internet. With a VPN, healthcare information cannot be compromised, intercepted, or read by anyone other than the authorized recipient. Cisco offers both hardware and software VPN solutions for end-users, and all Cisco access routers and security appliances offer built-in support for VPN connectivity.
- Network security—Cisco security solutions can protect sensitive data across the entire wired and wireless infrastructure, from the network core to the physician's home office and everywhere in between. Using Cisco secure routers and switches, firewall security appliances, intrusion detection services, and network management tools, practices can protect themselves against even the most serious security threats.

Of course, not every practice needs all of these components. Larger practices considering a full transition to a paperless office need a full-featured, end-to-end medical-grade network solution. Smaller practices may start with just a small wireless LAN or secure Internet access. In all cases, Cisco and its expert partners and resellers can provide the technology, experience, and support to help you make the right choices for your organization.

NETWORK SOLUTION BENEFITS FOR PHYSICIAN GROUPS AND CLINICS

Healthcare solutions built on a robust, secure network infrastructure can deliver a wide range of benefits to both clinical caregivers and support staff. These solutions can enable:

- Improved patient care and safety—Digital clinical applications and real-time information sharing result in a more unified, up-to-date view of the patient, and faster, more accurate care. Physicians who can update records, look up potential drug reactions, and write digital prescriptions right in the examination room can substantially reduce the errors and delays associated with handwritten, paper-based systems. Studies from AC Group have shown that average medical costs per year can decrease by as much as 13 percent with certified EMR systems.
- Enhanced profitability and reduced costs—Practices that make full use of solutions like EMR and practice management systems can usually see more patients and add more physicians to the practice without increasing support staff. When dealing with insurers, these solutions can speed insurer payments, reduce documentation, and eliminate undercoding of patient interactions. Practices that can better document patient interactions and quality can also qualify for reduced malpractice insurance rates. Moving to digital record-keeping also dramatically reduces the costs and labor of creating, managing, copying, and storing paper files. Measuring supplies and storage costs alone, some industry groups estimate EMR can save \$3 per new chart—a potential savings of thousands or tens of thousands per year. On average, AC Group has documented improved profitability of between \$12.50 and \$25 per patient visit.
- Improved efficiency—When clinical staff can access comprehensive, real-time patient records by simply clicking a mouse (instead of having to hunt down a paper file), they can much more rapidly answer questions, process claims, and prepare physicians. EMR systems

can dynamically integrate with insurers, for instance, notifying caregivers which drugs are covered each time they write a prescription. The increased mobility afforded by wireless devices and remote connectivity allows physicians to work effectively wherever and whenever they choose. Most importantly, networked solutions and automated systems allow caregivers to spend more of their time seeing patients, instead of doing paperwork. On average, AC Group estimates that physicians can save about four hours per week, nurses save six hours per week per physician, and staff save an average of eight hours per week per physician.

- Better patient experience—Network-enabled healthcare solutions can provide noticeable improvements at all stages of patient interaction. Secure Web-based services can speed the pre-registration and check-in process. Instant access to patient medical records can help clinicians better stay on schedule, reduce wait times, and enable fast, often instantaneous responses when patients call with questions. With a secure network, practices can even extend Web-based services and information to patient waiting rooms. According to AC Group, physicians with enhanced digital technology have reported a 32 percent improvement in patient satisfaction.
- Prevention of a damaging security breach—The costs of even a single security breach can be substantial, including lost data, lost productivity, diminished patient confidence, and large fines and penalties. By building solutions upon a highly secure, intelligent network infrastructure, healthcare practices can avoid all of these pitfalls and use new solutions with confidence.

STRATEGIC CONSIDERATIONS FOR PHYSICIAN GROUPS AND CLINICS

Could your practice benefit from modern healthcare systems and technologies? Consider the following strategic questions to assess your requirements for network-enabled solutions:

- Quality of care—Does your practice occasionally face errors or duplicated procedures as a result of illegible or incomplete paper records? Would physicians benefit from having real-time patient, insurer, and drug information available in the examination room via pocket or tablet PCs? Do your record-keeping systems allow you to identify patients with chronic conditions and stay in communication with them to ensure they keep up with their treatment?
- Efficiency of workflow systems—Can clinicians and support staff locate patient records quickly and easily throughout the workday? Does your practice frequently deal with lost, incomplete, or duplicated records? How much time do skilled caregivers spend documenting interactions? How much time could be saved if they could document interactions digitally, in real time during the patient visit?
- Practice profitability—Are physicians spending the bulk of their time seeing patients, or performing administrative tasks? Are physicians being fully compensated for the work they perform, or are they undercoding to cut down on paperwork? Do you require several full-time employees just to maintain paper-based medical records?
- Working with insurers—Are you relying on phone and mail to communicate with insurers? Do you currently have to wait weeks or months before receiving payment? Would you qualify for different provider groups or higher reimbursement rates if you could better document quality?
- Information security—Are your current or planned information systems in compliance with privacy regulations? Can you protect patient data at every point within your network?
- Technology expertise—Do you have the internal expertise to effectively deploy and manage network-enabled healthcare solutions? Or would you benefit from working with a technology partner with extensive experience deploying and supporting healthcare systems?

DEPLOYMENT CONSIDERATIONS AND QUESTIONS

While large practices may have an experienced IT staff to manage deployment, smaller practices should strongly consider working with a technology partner. Cisco certified resellers and partners have a wealth of experience, both with Cisco network technologies and healthcare processes and systems. These partners can manage all aspects of planning and deploying network solutions, allowing practices to focus on medicine.

Practices should consider the following five areas before deploying a network security solution:

- **Strategy**—Understand your healthcare solution needs and objectives, and make sure you have the support of senior clinical and administrative staff. Identify and quantify the benefits you expect to gain from the solution ahead of time, so you can measure the effectiveness of the deployment.
- **Process**—Work with a technology partner to clearly define the methods and practice for implementing a network-enabled solution. What network solutions does your practice currently have in place? How will these systems, as well as current workflow processes, integrate with the new solution?
- **People**—Practice structure and culture must support your strategy and goals. Proper training of everyone who will interact with the system is critical, as is working with both clinical and support staff in the early planning stages to ensure that the system will meet everyone’s needs.
- **Technology**—Reliable, scalable, and manageable computer networks, applications, and tools are essential to an effective healthcare solution implementation, as is interoperability with your existing IT environment. Will you need to upgrade your network to support the solutions you want to deploy now and in the future?
- **Service and support**—Do you have an experienced office IT staff, and if so, do they have the skills, equipment, and access to implement and support the solution? Will you need to use outside services to plan, design, deploy, and support your network solution?

TIMELINE

Deployment timing can vary greatly depending on the type of solution you intend to implement. A small wireless LAN can be fully deployed in hours or days. A full-featured solution incorporating wireless, EMR, document imaging, and comprehensive security will naturally take longer.

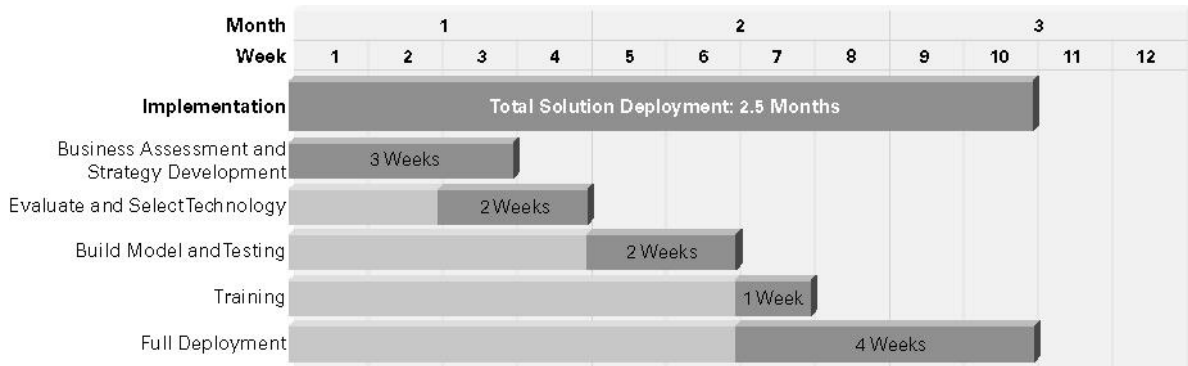
One of the benefits of Cisco network technologies is that you don’t need to deploy the full solution all at once. Practices can start with a limited deployment, and incrementally expand the solution later as needs change. Cisco network technologies are flexible enough to scale with a practice as it grows.

Regardless of the size of the implementation, a typical deployment timeline should include the following basic elements:

- **Organizational assessment and strategy development**—Work with your technology partner to determine the current state of your practice’s network infrastructure, obtain the support of senior stakeholders, and develop a strategic vision for your healthcare solutions.
- **Evaluate and select technology**—Let your partner help you determine the best software and hardware to support your needs and strategic vision. Prioritize your criteria: interoperability, scalability, performance, etc.
- **Build model and test**—Your technology partner and your staff will connect organizational processes to technology features (a process known as “mapping”), customize configurations, and conduct testing.
- **Train**—Familiarize users with new technology, tools, processes, and operating activities.
- **Full deployment**—Implement the full solution to the entire practice and network.

Figure 1 illustrates a sample implementation timeline for a healthcare practice with up to 50 physicians.

Figure 1



SUCCESS MEASUREMENTS

The most important benefit of a healthcare network solution is the ability to better serve your patients. But Cisco network solutions for physician practices and clinics can deliver other measurable benefits, including:

- Improved patient care through greater access to information
- Increased flexibility as to where and how clinicians work
- Reduced errors by eliminating paper-based systems
- Reduced costs through streamlining manual processes and eliminating paper files
- Faster claims processing and higher reimbursement rates
- Ability to see more patients with a smaller support staff
- Ability to locate information and answer questions more quickly
- Reduced patient wait times
- Faster, easier pre-registration
- Compliance with privacy regulations

SUMMARY

With mounting pressure from insurers, government agencies, and patients, physician practices need to reexamine the ways they work and interact. As physicians see more patients and insurers demand more documentation, the manual healthcare systems that were adequate in the past will become less and less able to meet new demands. Cisco can help you build a network foundation that will optimize your workflow systems and grow with your practice—even if you don’t have a large IT staff.

Cisco solutions are not just for large organizations. Cisco offers the widest range of technologies in the networking industry, and offers solutions for single-physician practices, large, multi-site clinics, and everything in between. By working with Cisco and Cisco partners today, you can begin to implement the solutions that will transform the way you operate your practice, and lay a foundation for new levels of quality, efficiency, and profitability.

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