

Harnessing the Power of IP Communications and Convergence to Improve Patient Care

**Cistera
Networks™**

www.cistera.com



■ Introduction

Healthcare providers face rising costs and stringent mandates for improving patient safety and quality of care. Changes in healthcare worldwide require access to information at the point of care and integration of the latest medical technologies and applications. Medical providers must deal with:

- Rising healthcare and insurance costs
- Aging populations
- Staffing shortages
- Demands and expectations by patients for higher quality care
- Increasing regulations and compliance requirements

To meet these challenges, improve care and control costs, healthcare administrators and their staffs must have access to the right information at the right times. Delays in response times, as well as in records and vital information retrieval, directly affect the level of patient care. Timely and appropriate access to information impacts not only patient safety and satisfaction but also the facility's reputation and the morale of medical personnel. Without cost-saving technology, healthcare organizations may face reduced employee retention and budget overruns.

Advances in the healthcare industry are inevitably linked with the progress, development and accelerated implementation of IT technologies. As part of that technological implementation, IP Communications systems can integrate communications and data systems, connecting clinicians, patients and information to improve responsiveness, efficiency and patient care.

This white paper explores the business and medical challenges faced by healthcare providers, and discusses integrated IP Communications solutions that benefit providers and patients.

Balancing Costs and Patient Care

The business challenges of the healthcare industry are daunting. The rising costs of medical equipment, drugs, advanced technology, treatments and limitations of insurance reimbursements create a difficult environment for balancing quality of care with the reality of limited financial resources. Adding to these challenges are the high expectations of patients for faster service and higher quality care, and mandates for improving safety. In addition, providers must deal with the constant obstacle of staffing shortages in an environment of evolving demographics and aging populations.

Information is Critical

Information is a critical element of patient care; accuracy and timeliness are paramount to successful treatments. Receiving the right information at the right time improves care and reduces costs. Hospital administrators and other providers need to simplify and integrate communications throughout their systems to connect healthcare professionals, patients and information to accomplish the following:

- Improve quality of patient care
- Enhance caregiver efficiency
- Provide a better patient experience

As practices see more patients, physicians struggle to provide personal attention and ensure that patients are not inconvenienced by excessive wait times. Healthcare professionals are searching for new ways to streamline the appointment-making process, reduce time spent on hold or in a waiting room, reduce waiting and downtime for operating rooms and specialized treatment facilities, and enable administrative staff to quickly locate information and respond to patients' questions.

“Installation of Cistera’s *ConvergenceServer* was non-intrusive and very efficient. Plus, the support we’ve received has been phenomenal. The system is so reliable, that it is just one more thing that I don’t have to worry about. Working with Cistera has been a very positive experience.”

ROBERT CARVER
IT Director
AirMed International

■ Improving Healthcare Through IP Communications

Healthcare is an outcomes-based industry with a constant need to improve the quality of patient care by targeting treatments, improving responsiveness and providing a better patient experience through accuracy of records, quick information retrieval and improved response times.

Advanced IP Communications built on a converged infrastructure can help support the objectives of healthcare providers to deliver quality care on budget by connecting healthcare professionals, patients and information. The communications capabilities made possible in an IP environment will improve coordination, responsiveness and efficiency—thereby enhancing the patient experience and delivering a measurable return on investment.

Successful IP Communications solutions for healthcare must offer staff the ability to capture key information and use that information to communicate with other staff members to improve the patient experience and outcome—from diagnosis to treatment to recovery and discharge. Converged solutions must offer the following healthcare provisioning features for hospitals and clinics, from the ambulance to the emergency room, and from the patient room to the front office:

■ Event Alerting and Notification Solution

- Real-time connection of practitioners in clinics, private practices and hospitals
- Voice and data links between emergency vehicles and treatment facilities
- Rapid communication with and between response team members

■ Quality Assurance and Compliance Solution

- Transportation and logistics
- Finance and administration
- Insurance administration
- Compliance (for example, Medicare)
- Information delivery systems

■ Collaboration and Productivity Solution

- Primary healthcare delivery
- Smart conferencing for practitioners
- Directory integration for campus-wide services

Converged IP solutions can improve the quality of patient care by integrating communications and data systems to improve provider responsiveness.

Broadcast solutions offer comprehensive options for communicating. Information can be broadcast throughout a facility or to designated groups via any communications device that receives real-time information including IP, wireless handsets, analog and cell phones, overhead speakers, computers, PDAs and two-way radios.

Recording solutions enhance caregiver efficiency by offering staff the ability to capture key information and use that information to complement patient records and to communicate with other staff members; thereby improving efficiency and quality of patient care and the overall patient experience. Additionally, busy physicians can dictate patient notes via wireless handsets while on the go without the need to go to a specific dictation station.

A reliable and comprehensive integrated IP Communications solution gives healthcare organizations the ability to build out a converged infrastructure that not only improves communications but, most importantly, enhances the timely and optimal response to patients’ needs.

■ Cistera Converged Solutions for Healthcare

In response to the needs of healthcare organizations, Cistera Networks has developed comprehensive IP Communications solutions for a fully integrated environment.

Cistera provides support for core applications on the Cistera **ConvergenceServer™**, offering an unsurpassed set of features ranging from integration of traditional zone paging systems to advanced buffered recording solutions for call recording.

A Cistera converged IP Communications solution, built on an enterprise-level application platform for reliability and network security, offers benefits to healthcare providers ranging from hospitals and satellite clinics, to emergency clinics, ambulances and private practices.

Cistera provides unparalleled functionality and flexibility to meet the needs of medical professionals, allowing providers to leverage their IP Communications investment to improve communications throughout their systems. Cistera's converged solutions offer advanced features and functionality that ensure optimum patient care.

Cistera Networks' IP Communications solutions:

- Integrate data and voice on a single network, improving responsiveness and patient care
- Integrate any number of devices, including IP, analog and cell phones, wireless handsets, two-way radios, overhead speakers, computers and PDAs
- Link data and voice with any device
- Increase reliability with dependable hardware and software support
- Provide multiple ways to send messages quickly and easily
- Instantly transmit text or voice messages, live or prerecorded, to a select group—or to an entire organization
- Broadcast live or recorded pages to overhead speakers in specific locations for targeted alerts and notifications
- Enhance the quality of patient care and caregiver efficiency, improving patient satisfaction
- Reduce management complexity through easy web-based management tools
- Cut the costs and complexity of delivering services
- Improve facility and public safety by creating greater environmental control and quickly delivering actionable information
- Increase return on investment
- Help organizations to meet compliance requirements

Cistera's comprehensive solution sets enhance an IP Communications deployment by providing key application engines and features to support a fully converged healthcare environment.

EMERGENCY ALERTING AND NOTIFICATION

Cistera's Event Alerting and Notification (EAN) solution enhances the ability of healthcare organizations to deliver actionable information quickly and reliably. Cistera's unique multi-modal solution simultaneously delivers information to IP, mobile and analog phones, overhead speakers, computers, and two-way radios. Cistera's EAN solution provides a powerful toolset to enhance responsiveness and productivity throughout the healthcare environment—from the emergency room to the patient's bedside.

RapidBroadcast™ Enhanced

RapidBroadcast Enhanced is the preeminent broadcasting solution for IP telephony. It is an advanced, full-featured messaging service that links data and voice with communication devices and allows IP phones to be grouped together for broadcasting and notification.

RapidBroadcast Enhanced can instantly transmit text or voice messages or schedule pre-recorded broadcasts to an entire organization through IP phones or external overhead speakers if enabled with **ZoneController**, and to analog and cell phones if used with **QuickConnect**. Easy to configure and administer, **RapidBroadcast Enhanced**, and the entire suite of Cistera Networks applications, is managed via a web-based interface. Features include *whisper*, intercom, paging, text messaging, text-to-speech, and numerous others.

The latest version of the already proven **RapidBroadcast™** application engine, **RapidBroadcast Enhanced** includes advanced PSTN Paging and Panic capabilities. PSTN Paging allows remote users to access the **RapidBroadcast Enhanced** engine by dialing into the IP phone network, selecting a group and broadcasting a page to the selected group. Paging options include sending the page live or recording the page for preview purposes and then sending it (the PSTN page must be sent immediately; it cannot be stored for later delivery). The PSTN Panic capability of **RapidBroadcast Enhanced** allows messages to be sent until all users have acknowledged receipt, ensuring automated delivery of the message to all intended recipients.

Key features and benefits of **RapidBroadcast Enhanced** include:

- Integrated overhead paging
- One-button panic delivery, allowing identification of where the broadcast was initiated
- Intuitive, web-based template manager for creating messages
- Forced code authorization for secure access
- Flexible group administration
- Configurable forced acknowledgement receipt
- Send and receipt record logging
- Integration with **CallCenterRecord™** or **QuickRecord™** for automatic 911 recording
- Soft key configurations for one-button paging
- One-button intercom capabilities
- PSTN Paging allows remote access for broadcasting pages
- Emergency call (E911) alerting with automatic recording
- PSTN Panic capability ensures automated delivery of messages until all recipients have acknowledged receipt

QuickConnect™

QuickConnect is the premier engine for the delivery of event alerting and notification for cellular and analog phones. As part of Cistera's EAN solution, **QuickConnect** extends the popular **RapidBroadcast** to launch notifications beyond IP phones, overhead paging systems and two-way radios to include all communication devices. As an outbound dialing engine, **QuickConnect** can manage communications in a variety of scenarios, mixing IP phones and analog phones together quickly in multicast conferences. When combined with **QuickConference™**, key personnel can quickly build *meet-me* and conference bridges to solve collaboration issues.

Key features and benefits of **QuickConnect** include:

- Manage calls based on the organization's needs
- Eliminate manual dialing and improve efficiency with automated redialing
- Generate mass emergency messages, saving time and improving facility and public safety

LMRConnect™

Two-way radios are a communications cornerstone for public agencies, emergency operations and businesses around the world; however, until now, proprietary technology confined push-to-talk radios to their own networks—keeping them well-separated from convergence with IP telephony. Recognizing the need for integration, Cistera Networks has created **LMRConnect**—bringing land mobile radios (LMR) into the IP telephone network. **LMRConnect** allows instantaneous connectivity from IP phones and analog phones to multiple disparate two-way radio systems. Using the latest radio over IP (RoIP) technology, multiple communications devices can be both instantly alerted or bound together in a **QuickConference** bridge for IP telephone/push-to-talk radio conferences.

Key personnel can quickly build both *meet-me* and conference bridges to solve collaboration issues. These conferences can then be shared through podcasting with other staff members.

Key features and benefits of **LMRConnect** include:

- Multi-frequency bridging
- Predefined bridging groups
- Bridging IP phones with push-to-talk radios
- Multicast recording capability over wide area networks (WAN)

ZoneController™

The **ZoneController** is a hardware appliance that allows digital and analog convergence—linking IP telephony applications with overhead speakers. The **ZoneController** uses the Cistera **ConvergenceServer** and the **RapidBroadcast** application engine to configure zones, just like configuring IP paging groups—with the ability to create groups that include both overhead speakers and IP phones.

The **ZoneController** is a significant addition to any healthcare environment that relies on overhead paging systems and is implementing, or has already deployed, an IP phone system. The integration of phones and overhead speakers

maximizes the return on investment for an IPT deployment by centralizing administration and eliminating costly paging systems. Overhead paging systems, combined with LMR systems, allow staff to respond quickly to potential problems and provide better patient care.

Paging to specific zones, targeting selected groups of speakers or IP phones, reduces unnecessary noise and minimizes disruptions to patients, visitors and medical staff. Zones can be configured according to needs, incorporating overhead speakers in common areas and excluding patient rooms or other areas where quiet must be enforced. For example, paging can be configured to overhead speakers in time critical environments, such as an emergency room, while paging to other areas can be limited to IP phones. The **ZoneController** is compatible with most powered and non-powered overhead speakers.

Key features and benefits of the **ZoneController** include:

- Significantly reduced cost to integrate existing overhead speakers with IP telephony deployment
- Easy integration with existing and newly installed overhead speakers
- Reduced administration
- Highly scalable
- Zone within zone control
- Zone2Phone™ control
- Works in tandem with other Cistera applications
- Built for Cisco IP telephony environments
- Provides a cost-competitive alternative to existing paging solutions

QUALITY ASSURANCE AND COMPLIANCE

Cistera offers both continuous and *ad hoc* call recording to satisfy increasing security demands. These features allow the recording of all calls into designated phones, or *ad hoc* recording of specific calls. With *ad hoc* recording, users get the flexibility to initiate call recording with the simple push of a button and capture the entire call, as long as the record button is pressed before the termination of the call. Recording and personal recorder solutions offer hospital and clinic staff the ability to capture key information and to complement patient records and improve communication.

QuickRecord™

QuickRecord, the premier solution for *ad hoc* and personal recording, is a robust IP telephony voice recorder and media management service designed to support those environments requiring reliable call recording functionality on an *ad hoc* basis. Healthcare staff can use **QuickRecord** to efficiently perform such functions as recording patient notes, dictation and other tasks, which benefit providers and patients alike.

Regardless of when the record button is pressed, **QuickRecord** records from the beginning of a phone conversation. Playback is enabled from the phone or from a web browser, and can be secured by PIN code to meet patient confidentiality requirements. The solution can be configured to automatically email audio files to users or administrators.

QuickRecord benefits include:

- Record doctors' instructions and attach to a patient's file to ensure compliance.
- Capture threatening phone calls: QuickRecord enhances security and maintains an audio record that can be helpful in resolving disputes or assisting law enforcement.
- Secure important account information: Easily store information on new or current accounts.
- Document patient feedback.
- Dictate important notes or to do items, reminders and ideas. Audio files can be emailed as required.
- Recordings are easily accessed via IP phones or web browser.
- Inherent security safeguards require PINs to access recordings.

CallCenterRecord[™]

Dynamic call recording and playback features for the IP telephone network through *CallCenterRecord* provide high-quality, continuous call recording capabilities that will become integral to a healthcare organization's operations. Digitized recordings can be attached to patients' files or doctors' records to minimize potential liability to the organization.

CallCenterRecord benefits include:

- Attach files to a problem ticket or save them with patient or account information.
- Control supervisor access with role and security definitions.
- Pull random calls for supervisors to grade.
- Manage users via browser-based tools.
- Scalable to grow with the organization's requirements.
- Comprehensive back-up and archival capabilities.
- Advanced storage options, such as a Storage Area Network Recording can be configured to meet the organization's needs and policies.

CASE STUDY

Alabama-based AirMed International is a leading air ambulance company with state-of-the-art medical jets and highly experienced personnel who have completed more than 12,000 transport missions all over the world. In order to deliver critical medical services anywhere in the world to members in need of emergency care 24x7, AirMed depends on its IP Communications network for interaction with insurance companies, healthcare facilities, government agencies, businesses and private individuals.

When AirMed expanded operations to Hawaii, and was selected as the state's inter-island air ambulance provider, it had to meet state requirements to record and catalog all calls. It needed a reliable recording solution that could operate over its installed Cisco Unified Communications Manager environment. Cistera's Quality Assurance and Compliance (QAC) solution fit the bill.

With sophisticated capabilities that can manage complex call documentation demands, Cistera's QAC solution enhances enterprise-wide collaboration by converting recorded calls to audio files which can be archived, emailed and shared

as needed. By deploying Cistera's *CallCenterRecord Enhanced* and *QuickRecord*, AirMed completed its expansion and met all requirements. In fact, AirMed management was so impressed with the Cistera solution, and the capability it delivered to archive and retrieve communications at a moment's notice, they capitalized on the scalability of the Cistera *ConvergenceServer* and increased their return on investment by extending the Cistera features and functionality to their bases in Birmingham, Ala., and Rochester, Minn. Cistera's solution is now installed company-wide, and it will scale to accommodate additional users and sites as the company expands both domestically and internationally.

Conclusion

Healthcare providers face a number of business and professional challenges as costs rise and demands for more services, better patient care and more efficient information processing proliferate. Aging populations, tight budgets and staffing shortages add to an already complex environment, whether care is being provided in a hospital, emergency clinic or private practice.

Efficient record retrieval, information sharing, insurance administration and other processes require innovative technology-based solutions to meet the challenges of this unique marketplace, to keep pace with medical advances and provide quality services.

Converged IP telephony solutions can integrate communications and data systems, connecting clinicians, patients and information to improve responsiveness, efficiency and patient care. IP Communications solutions can improve the quality of patient care by unifying communications and data systems and improving provider responsiveness. Converged solutions integrate data and voice technologies, offer quick access to vital records and directories, and improve facility, public and patient safety.

A Cistera Networks converged solution for healthcare, delivered on the Cistera *ConvergenceServer* can help support the objectives of healthcare providers to deliver quality care within budget by connecting clinicians, patients and information, improving communications and coordination, providing the ability to quickly and accurately respond to patients' needs. Cistera's comprehensive solutions cut costs through integrated technologies, reduce management complexity and provide critical quality assurance and compliance, emergency alerting and notification and productivity and collaboration capabilities through a set of proven application engines. Cistera's solutions enhance the timely and reliable delivery of actionable information by linking IP, mobile and analog phones, overhead speakers and two-way radios.

**Cistera
Networks™**

www.cistera.com



6509 Windcrest Drive, Suite 160
Plano, TX 75024
Phone: 972.381.4699
Toll Free: 1.866.965.8646
Facsimile: 972.381.4635

About Cistera Networks

Cistera Networks is a leading provider of enterprise communications platforms and services. The company blends powerful application infrastructure with industry-specific business processes, to deliver the benefits of voice and data convergence to the user. Cistera's industry-leading platform delivers the most reliable, scalable and secure application services for IP-based network environments. Its broad portfolio of application services enables users to improve customer service and satisfaction, increase productivity and collaboration, improve responsiveness to critical incidents and to provide a safer environment.

Based on open standards and a proven server technology foundation, the award-winning Cistera **ConvergenceServer** has a single unified administration which delivers the lowest total cost of ownership in the industry. It enables customers to create robust and scalable environments that are flexible enough to adapt to their changing needs, by scaling up to support from fewer than one hundred to thousands of users, and scaling out to support multiple sites, making it ideal for a broad range of organizations.

Glossary

Cistera Networks describes its core platform as an Enterprise Application Platform for IP Communications. On that platform it supplies a number of tools and engines that provide application services—both fixed-function and individual configurations for clients.

- **Application Platform for IP Communications**—provides core underlying components that allow application services to exist, including Security, Provisioning, Fault and Performance Management and Billing (OSS & BSS services)
- **Application Services**—Feature function that manifests itself in the hands of the user
- **Application Engine**—Function specific software component that reside on the application platform
- **Application Services Layer**—Software and hardware layer where application services are provisioned within the overall network

Learn More

To learn more about Cistera Networks and Enterprise Application Platforms and Engines for IP Communications please visit us online at www.cistera.com, call us at 1-866-965-8646 or send an email to info@cistera.com.