

the

IPC Integrator



Summer 2007



Sound Advice

Which IP telephony system is best? Just ask the techies at Medical Automation Systems.

When the IT team at Medical Automation Systems began evaluating IP telephony systems, they were already well acquainted with the business benefits of the technology. They were looking for a solution that was technically superior and best suited to their IT infrastructure and administrative needs.

After looking at several systems, they chose ShoreTel.

“There are a number of systems out there, but some are more proprietary — the manufacturers really recommend that you use specific network gear. With ShoreTel we could bring in the phone system and just lay it on top of our existing infrastructure,” said J.W. Gentry,

director of Technology Infrastructure for Medical Automation Systems. “We really like the redundancy — if you did happen to lose one of your switch boxes it will automatically failover to the other box. We also found the ShoreTel system to be much more user-friendly than other solutions as far as maintenance and administration are concerned.

“The ShoreTel system clearly was designed from the ground up as a pure voice over IP system. They’re not trying to leverage legacy equipment or retrofit an older design and just glue on voice over IP components. There are a lot of benefits that all voice over IP systems have, but these things set ShoreTel apart.”

The Right Partner

Once Medical Automation Systems had decided upon ShoreTel, the selection of IPC Technologies for the phone system implementation was easy. Just an hour’s drive away in Richmond, Va., IPC had the local presence and ShoreTel expertise Medical Automation Systems needed. The implementation took place during the holidays, between Thanksgiving and

IPC Technologies

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Christmas of 2005, and IPC was able to complete the job on schedule.

“We were trying to squeeze it in around the holidays — which is always a difficult time for scheduling. But IPC was able to accommodate that and get us cut over on a weekend. That worked out well,” Gentry said.

IPC was also able to accommodate special requests from the Medical Automation Systems IT team. Because it’s a technology firm, Medical Automation Systems wanted to take a very hands-on approach.

“We probably did things a bit differently than other companies since we’re a technical crowd here. We wanted to maintain the system ourselves and even do most of our own training,” Gentry said. “IPC developed a ‘train-the-trainer’ approach for us. Instead of training all of our end-users, they trained a group of people here in house who then trained the end-users.

“IPC was very supportive of doing it that way. In fact, they stayed with us for our first training session to make sure we had a program we could continue as new staff come on board.”

Business Benefits

Although Medical Automation Systems was focused on the technical aspects of the ShoreTel solution, the firm has certainly enjoyed the system’s business benefits. The Charlottesville, Va.-based company is actually three separate entities — Medical Automation Systems, Medical Decisions Network and The Epsilon Group — and the ShoreTel system enables them to utilize a single phone system for their distinct communications needs.

“That’s one of the other features we really liked with ShoreTel,” Gentry said. “We wanted one phone system that could span all three companies and handle extension dialing, transfers and everything else seamlessly but allow the three companies to operate independently. Each company has its own greeting, call handling,

etc., yet we can manage it all through one system.”

The 100+ end-users within the three companies also like the system. A key feature is the PC-based interface for call management functions.

“Our software developers love the call manager integration with their PCs,” Gentry said. “It’s a Windows application. You don’t have to learn which buttons to press on the phone set itself. Nobody likes a learning curve — not even technical people — so it was nice to see how well our users accepted the new phone system.”

Expert Help

Medical Automation Systems knew for some time it wanted an IP telephony system to replace its aging Comdial key system. In fact, the organization built out the network infrastructure in its headquarters facility to support the technology. That made implementation fairly straightforward.

“After IPC installed the new system, we were able to rip out every one of the old phones and switches in one shot,” Gentry said.

But straightforward doesn’t equate to easy. Gentry said he relied on IPC’s expertise to ensure the success of the project.

“They have the experience with it we don’t have. And so while we could understand some of the technology behind it, we wouldn’t have attempted to do it all ourselves,” he said. “IPC’s ShoreTel expertise was a great benefit to us.”

IP telephony can help reduce telecommunications costs, simplify administration, improve flexibility and increase end-user productivity. But while these business benefits are very compelling, the technical details can get a little confusing. Not all systems are created equal, so it’s good to know that a technology firm like Medical Automation Systems is sold on ShoreTel and IPC Technologies.

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IP VIDEO SURVEILLANCE UPGRADE PATH

How to get to IP from the old DVR-CCTV. For Financial Services Firms: Banks, Credit Unions, Loan & Insurance Companies, Manufacturing, Distribution, Wholesale, Retail, Technology & Service Companies. Also Special Segments for Education: K-12 Public & Private, Community Colleges, Colleges, Universities, Hospitals & Courtrooms.

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A Unifying Force

Unified communications improves collaboration and productivity.

In the beginning there was an inbox, and it was good. Soon, there were multiple e-mail inboxes, multiple voice mail inboxes, cellular phone inboxes, pagers, PDAs with both e-mail and voice mail — not to mention the old-fashioned, cubby-hole-style inboxes next to fax machines. Not so good.

Today, however, the concept of voice, video and data as distinct elements of business communications is rapidly fading. The emerging trend toward unified communications is fundamentally changing workplace interactions by seamlessly blending a host of formerly independent communication applications.

“The rising popularity of collaborative social networking sites such as MySpace, video content sites including YouTube, and IM and VoIP clients from Microsoft, Yahoo!, Google and Skype, shows that the way people interact with one another in their personal lives is changing,” said Matthew Ball of Canallys, a tech convergence consulting firm. “We will see more and more employees having expectations of similar rich-media collaborative applications, offered by unified communications solutions, for day-to-day working.”

Beyond Messaging

The idea of unified communications is not all that new — for years, major technology and telecom companies have been eyeing ways to integrate faxes, e-mails and voice mails into a single inbox. But with the growing popularity of converged voice and data networks, unified communications is emerging as a key application for taking advantage of convergence.



Beyond merely integrating messaging applications, unified communications adds features such as real-time call control, collaboration, media handling and further integration of voice and data applications. The newest unified communications systems provide opportunities to integrate instant messaging (IM), presence awareness, features such as click-to-call, click-to-conference, Web and voice conferencing, Web or multimedia chat, and document collaboration. By integrating these various technologies, unified communications systems can do more intelligent routing based on what’s on the user’s calendar, their presence status, and personal rules.

“Over the last five years, we have seen the rate of converged voice and data network deployment increase significantly, especially in medium-sized and large businesses. These businesses want to build on their investments and start looking at the way employees communicate within teams, and with customers and suppliers, to make them more efficient and productive,” said Ball. “Telephony will be increasingly integrated with user presence and identification, as

well as other modes of communication, including e-mail, instant messaging, video and Web conferencing — all of which are accessible through a multitude of software clients, business applications and end-user devices.”

‘Voice over Everything’

One feature of unified communications is the ability to embed voice capabilities in all sorts of applications — a concept often referred to as “Voice over Everything.” The idea is to incorporate everything from voice-activated documents to voice mails in e-mail inboxes. At the click of a button, users will be able to speak to people who are working on a jointly written document to make amendments, reply verbally to e-mails, or check a person’s availability. VoE will increase productivity by reducing the length of time it currently takes to make phone calls. Users will simply click on links within IT applications without dialing, looking up numbers in a directory or having to organize conference calls. Analysts say VoE will also save businesses anywhere from 15 percent to 30 percent on telephone costs.

“Today we dial; tomorrow we click,” said Geoff Johnson, research vice president at Gartner. “Voice will be embedded in everything and mobility will be crucial. Calls will be made by clicking through a document or an e-mail rather than dialing a number.”

The Session Initiation Protocol (SIP) has been a key to rapid rise of unified communications applications. SIP is a signaling-type protocol that enables different types of devices such as computers, handheld gadgets and telephones to “talk” with each other seamlessly in an IP network.

Although SIP is used to enable IP telephony, it is not merely a software-based telephony switch — it is capable of much more than that. SIP treats voice as just another medium, albeit a very important one. It can also be used to send files such as video images between two points, opening the door for a variety of multimedia applications. It is quickly becoming the backbone protocol for numerous personal and enterprise communications such as rich-media conferencing, push-to-talk and location-based services.

Present and Accounted For

Presence technology is another key element of unified communications platforms. Voice-embedded applications leverage presence just as IM uses the technology to allow users to see whether someone is available, busy, away from their computer or offline. Because presence-based applications leverage real-time information about user, system or device availability, they can determine an intended recipient's location and route information to the appropriate computer or device, guaranteeing that the user receives critical information in a timely manner.

Presence technology not only supports communication between users, but application-to-application integration in which the presence infrastructure announces which applications are up, what their functions are and what types of protocols they accept.

“Our vision for unified communications breaks down today's silos of communication and brings them together into an intuitive experience that puts people at the center,” said Zig Serafin, general manager of Microsoft's Unified Communications Group. “By ensuring interoperability with business-grade communications capabilities from leading providers, we can extend the power and flexibility of software to improve phone-based communications.”

Rocky Marrin Joins IPC

Rocky Marrin recently joined IPC Technologies as director of business development. In this key role, Marrin will focus on expanding relationships with customers in the Richmond area.

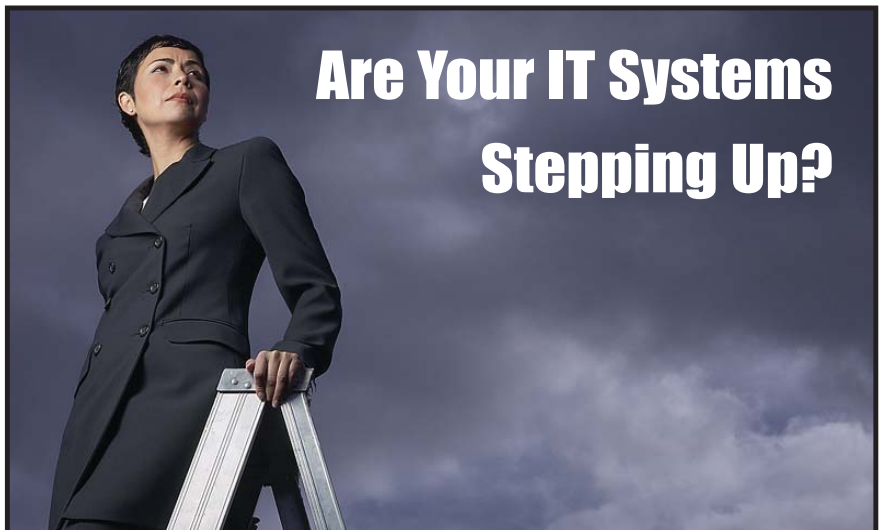


A native of Richmond, Marrin comes to IPC with more than 25 years of telecom and technology sales experience. He started selling business telephone systems in the

early 1980s and from there helped launch the cellular industry in Virginia in 1985.

After 11 years in key leadership roles with Contel Cellular, BellSouth CellularOne and Nextel, Marrin moved into leadership positions with technology, DSL and SEO/SEM companies. He also owned a promotional products company.

Marrin has been active in coaching his children's sports teams, and enjoys golf, weightlifting, and Notre Dame and Virginia Tech football games. He and his wife, Leslie, have four daughters ages 21, 19, 15 and 14, and one son age 11.



A driving question for CIOs is how to maximize the value of their IT investments. IPC Technologies' TechFirst Group helps CIOs accomplish this goal through comprehensive outsourced IT services that can help organizations reduce costs by up to 50% over conventional support. But even more important, proactive systems maintenance by highly trained and certified engineers helps organizations maximize the efficiency of their hardware, applications and networks. We help you take advantage of the under-utilized features and functions in your systems which can make your infrastructure even more efficient. Faster systems mean more effective employees...which leads to higher overall corporate value.

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Voicing Concerns

Organizations must address security risks to gain maximum benefit from IP telephony.

Because Voice over IP (VoIP) technologies offer compelling new opportunities to integrate voice, data and multimedia, more and more organizations are implementing — or at least considering — IP telephony systems. However, apprehension about security remains a significant sticking point for some.

A survey of 350 small to midsize businesses (SMBs) commissioned by the Computing Technology Industry Association (CompTIA) found that just 50 percent of the businesses trust the security offered today by IP telephony product and solution vendors. That's a slight improvement over a year ago, when 48 percent said they trusted IP telephony security. But SMBs still have less confidence in the security of IP telephony than in traditional telephony systems (82 percent), Ethernet data networks (72 percent) and wireless LANs (60 percent), according to the survey.

"People are much more sensitized to disruptions in voice communications than they are with data communications," said John Venator, president and chief executive officer, CompTIA. "If the delivery of an e-mail is delayed by 30 seconds, neither the message sender nor the receiver is likely to notice. But a 30-second gap in the middle of a phone call is another story entirely.

"Even a brief interruption in voice service can have disastrous consequences for an organization, in lost business, downtime, customer dissatisfaction, or negative publicity," Venator added. "That's why it is incumbent on IP telephony vendors and solution providers to place security at the forefront of their offerings, and not leave it as an afterthought."



Understanding the Risks

When IP telephony and related technologies were in their infancy with relatively few deployments, hackers and criminals had little interest in attacking these networks. As the technology has gained broader acceptance in both the business and consumer markets, new and ever-more-sophisticated security threats have arisen.

The same types of attacks that plague the data environment — viruses, worms and Trojan horses are a few examples — can impact an IP-based communications environment. And because voice and data communications are running on the same infrastructure, the entire availability of the IP network could be compromised, putting at risk an organization's ability to communicate via either voice or data.

Espionage is also a risk. With an ordinary telephone, someone has to physically attach a wiretap to a telephone circuit to eavesdrop on a call. In theory, everyone on the Internet already has a potential tap on a VoIP phone. Using a widely available software tool, someone could download VoIP packets and play them back.

Theft of services — or "phreaking" — can be accomplished using spoofing

or a "man-in-the-middle" attack. Spoofing is manipulating header data in packets to make them appear to be coming from someone other than the sender. In a man-in-the-middle attack, a hacker intercepts traffic from both parties in a VoIP call, and then records and changes data.

A New Approach

These kinds of attacks are possible because IP networks are essentially open systems — there's really nothing to stop anyone from trying to connect. That's why Web servers, e-mail systems and other applications on the network are constantly being attacked, and why VoIP needs protection.

Over time, most organizations have assembled a collection of security solutions that thwart these attacks, including firewalls, intrusion prevention solutions, anti-virus software and others. These measures form the basis of VoIP security. Encrypting voice traffic, running it over a VPN and making sure firewalls are properly configured can help

However, these techniques alone can't prevent deliberate attacks against voice applications, such as denial of service (DOS) attacks. Some organizations use a separate Virtual Local Area Network (VLAN) to isolate the VoIP infrastructure but this does not allow them to realize the full benefits of voice/data convergence. The ideal approach is to combine the best of data network security with sophisticated VoIP-specific techniques designed to handle feature-rich voice protocols in real time.

Endpoint security is also important. IP phones and computers running softphones are often the source of unau-

thorized access and DOS attacks. Because VoIP uses peer-to-peer rather than client-server communications, hackers can utilize endpoints to bypass perimeter security.

Awareness Is Key

Perhaps the biggest security concern surrounding IP telephony is lack of awareness. Few organizations implementing VoIP solutions have an adequate understanding of the risks involved. More attention has been focused on issues such as voice quality, latency and interoperability — fundamental quality-of-service considerations that companies must resolve before they can even begin to justify the move to IP telephony.

However, security is equally important, and key to the continued success of the technology. If security considerations make the quality

of IP telephony unacceptable, it becomes a barrier to conducting business. The organization's IT department must be vigilant and aware of new and changing threats to IP-based communications systems.

IT security is a major concern for organizations of all sizes, and the growing convergence of voice and data networks only serves to exacerbate and magnify security risks. Successful attacks against a combined voice and data network could cripple an enterprise, halt communications required for productivity, and result in irate customers and lost revenue.

Luckily, many of the lessons learned in protecting data networks can be applied to VoIP systems. A comprehensive approach to security can help organizations maximize the benefits of IP telephony.

IPC Launches Web First

IPC Technologies is now offering Web development and marketing through a new service offering called Web First. Offered through a strategic partnership with WSI-WebStrategies, Web First services include Web site design and development, and search engine marketing and optimization services.

Web First takes a business-oriented approach to developing Internet business and market-

The logo for Web First, featuring the word "Web" in a blue script font above the word "first" in a white sans-serif font inside a yellow rounded rectangle.

Web Development Service,
a division of IPC Technologies, Inc.

ing plans focused on generating a return from the Internet for businesses small and large. Clients can get creative designs, customized features and effective Web marketing solutions while working through the same trustworthy and reliable group of people at IPC.

If you don't think your company is getting the most from the Internet or you are seeking a better Internet marketing plan, find out more about Web First services by calling 804-200-4545.



Network-based digital video surveillance

On-Net Surveillance Systems, Inc. (OnSSI) provides a range of network-based video surveillance solutions. You can control, record and play back video from cameras connected to your LAN or the Internet. Unlike traditional closed-circuit systems, OnSSI's solutions give you the freedom and flexibility to access your surveillance system from wherever you are in the world, 24 hours a day. All you need is a standard Web browser.



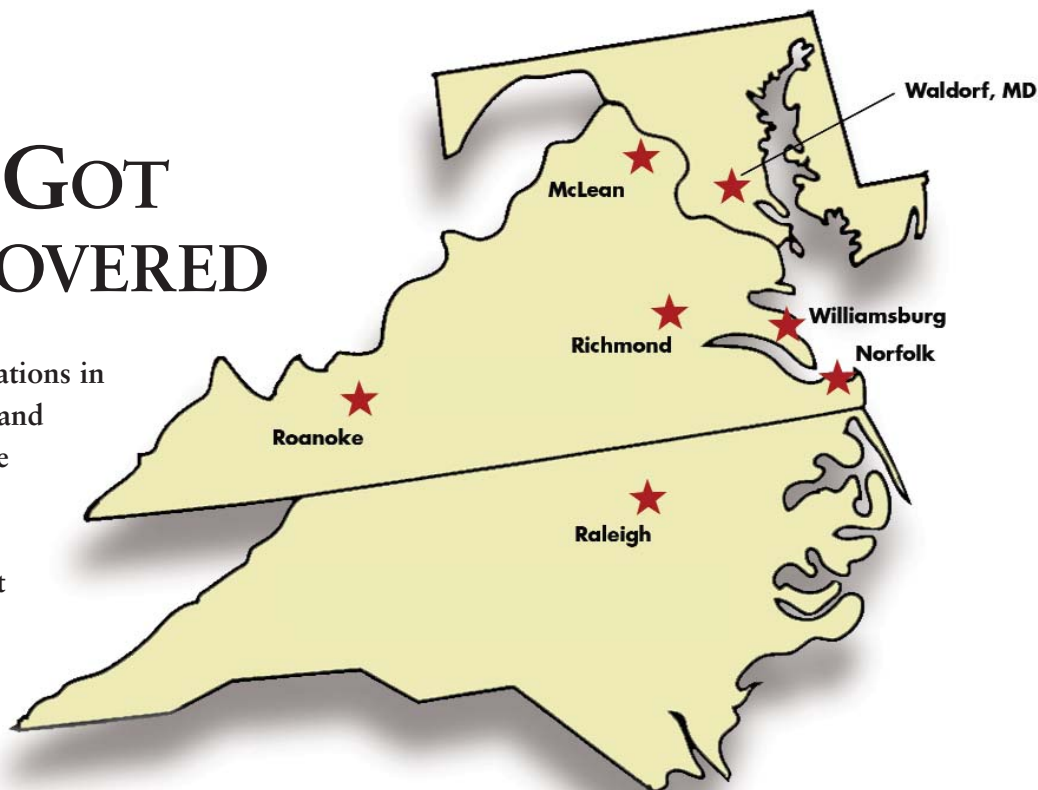
On-Net Surveillance Systems Inc.

The IPC Technologies logo, featuring the letters "IPC" in a large, bold, blue font above the word "TECHNOLOGIES" in a smaller, blue, sans-serif font.

[www.ipctech.com/
services_ipvideo.asp](http://www.ipctech.com/services_ipvideo.asp)

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Since 1981, organizations in Virginia, Maryland and North Carolina have depended on IPC Technologies to provide the broadest range of IT solutions for the widest variety of industries.



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IPC provides monitoring and management through our TechFirst program. By proactively handling day-to-day network concerns, IPC minimizes downtime and unnecessary diversion from core business activities. Our services include:

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Our large pool of quality IT professionals with diverse business domain expertise available give IT managers the flexibility to adapt to changing IT needs and business initiatives. Through Flexibility, Value and Quality, IPC has established itself as a leading consulting presence. Our employee and candidate base provide a wide range of technical expertise, including:

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IPC can turn your phone system into a production application that will enhance your customer service while providing management with the tools required to excel in a dynamic marketplace. Our IP communications systems deliver proven cost savings and can solve problems that no one ever thought a phone system could. IP communications can help you:

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- Support mobility and telecommuting
- Boost productivity with advanced call applications
- Grow and change without downtime

Pure IP Video

IPC Technologies has partnered with On-Net Surveillance Systems Inc. (OnSSI) to bring the benefits of video surveillance and conferencing technologies to the marketplace. OnSSI is the market leader in non-proprietary, open architecture IP-based video surveillance technology.

OnSSI's platforms deliver:

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