

### VICE PRESIDENT'S CORNER

#### HOT TOPICS: SECURITY, INTERNET & ECONOMY



Thanks for your comments and appreciation of our special **Update** issue on Security. We hope it will assist you and your customers' efforts to become more secure. In this and future editions, we'll continue to feature valuable information designed to help you in this critical area. Based on your enthusiastic response and requests for additional copies, our readership grew by more than 1,000. Our goal is to continually evolve and provide you with the latest, most helpful advice on Telecom Strategies, Products & Services to enable you to become more efficient, successful and secure. Along with Security, a second "hot" topic is the Internet. Some of you probably thought www stood for "Watanabe's Wonderful World" (and it could) but most know it as the World Wide Web. The Web, celebrating its 10th Anniversary, has become an

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### SBC PACIFIC BELL - Delivering the Difference

#### People

- SBC Pacific Bell has more than 57,000 employees. Probably many live and work in your area.

#### Quality

- We're committed to meeting your communications needs and expectations and have more skilled technician teams than any other telecom company in California.

#### Network

- Our network reliability is the best in the business. We've invested more than \$2 billion in it to ensure reliability. Our Central Offices have backup generators so even when the power goes out, customers have dial tone and crucial services like the Message Center.

#### Solutions

- We offer solutions, including Internet and e-business services, to over 1 million businesses.

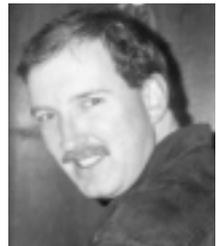
#### Stability

- We've been here for over 120 years and will always be here for you.

### SBC's Paul Bedell

#### INNOVATIVE USES OF GIGAMAN

OK, by now you've all heard of the new GigaMAN product...how cool it is (with a name like that, how can it not be cool?)...how it's the superhero of SBC's Optical Networking Portfolio...how it provides such a huge pipe for dedicated transport...how it's a product that's following a trend.



But what do the buyers do with it? Well, we've done some digging and we've found some pretty interesting information on that front.



**A major California healthcare corporation** is using (4) GigaMAN circuits to connect their metro locations together for the purposes of telemedicine. This company transfers 50 megabyte X-Ray and MRI files over their GigaMAN backbone from hospitals to data centers (and vice versa).

**A huge aerospace corporation** is using (3) GigaMAN circuits to provide connectivity between (3) facilities. The LAN traffic at these sites consists of general administrative traffic (i.e. e-mail, intranet); CAD/CAM file transfers on information related to rocket engine manufacturing and testing (those must be some huge files!!) and test and monitor data from the Space Shuttle.

**A large oil company** uses GigaMAN to link two of their locations together. They use GigaMAN to extend their client-server architecture between the two locations to support engineering project collaboration. The project team consists of UNIX users who transfer huge amounts of data over the GigaMAN link. Their Telecom Analyst is very happy with the service. In fact, he's so happy that they've ordered a second GigaMAN circuit, also to support a client-server application, to connect a large remote site to the company's data center.

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**GigaMAN**

(Continued)

**A famous movie and television studio** in the Los Angeles area has implemented GigaMAN to replace its dark fiber solution as the primary connectivity between their studios and their management facilities. Movie and animation files are transported across the GigaMAN links, along with CAD drawings related to another major project the studio is working on.

**A software development company** located in the Bay Area is using GigaMAN to carry traffic to and from its data center. Software Engineers also use the GigaMAN network to transport large development files between each other. GigaMAN also supports content distribution network (CDN) switching for this customer; along with miscellaneous corporate traffic such as e-mail, file sharing and Internet traffic.

In the First Quarter of 2002, **three major school districts** in the SBC 13-state region have concluded purchases of large amounts of GigaMAN circuits to support their entire school districts (NOTE: purchases are not official until e-rate funding is approved in June). One of these school districts will be using GigaMAN to support IP Telephony, teacher credential training and professional development management. Other applications supported will be student information management and financial management.

**GigaMAN to the Rescue.....**

In one Midwestern school district, GigaMAN circuits will be used for Internet access from all the school's (through 3 hubbing sites). But the most exciting and cost effective application for GigaMAN at this school district is going to be for video transport. This particular school district will be using GigaMAN as a means to displace the schools aging, inefficient pool of 16 millimeter tapes and VHS videotapes. Currently, a teacher who wants to show a video on a particular topic needs to reserve the movie weeks in advance through a central storage service in the school district. Then the video is shipped to the teacher that requested it, and it is shown on the scheduled date. The teacher then ships the video back to the central storage location. It should be noted that during this transaction, no other teachers can use the video, unless the school district determines that due to its popularity they need to purchase multiple copies of that particular video. In today's digital, Internet-based age, that's not only inefficient but too costly.

**Enter GigaMAN.....**

By deploying GigaMAN throughout the entire school district, the plan for 2002 is to enable each teacher to be able to download and play movies over a gigabit ethernet link that connects into a centralized array of video servers that will house and deliver the movies on request. No more waiting weeks for videos to be shipped. No competition for videos with other teachers. This is a perfect application for GigaMAN, considering the typical DVD is 1.25 gigabytes in size. Perhaps the best part of this setup is that there will no longer be a need to maintain multiple copies of popular videos either. For example, if 15 teachers wish to show an educational movie on Christopher Columbus for Columbus Day, or a movie about Martin Luther King on his birthday, they can all dial into the servers at once

and receive the transmissions via streaming multicasting. They'd all be able to view the movie simultaneously.

This school district will also use GigaMAN to support the caching (LAN storage) of videoconferences so they could be played back at a future time if necessary.

A third video-related GigaMAN application will be collaborative learning between students and teachers, initially for foreign language courses.

*Paul Bedell, Product Manager, Business Marketing, Optical Data Networks, SBC, also teaches at DePaul University. His latest book, **Wireless Crash Course**, is published by McGraw-Hill. He can be reached at [paul.a.bedell@msg.ameritech.com](mailto:paul.a.bedell@msg.ameritech.com). The opinions expressed in this and other columns in **Update** are the authors and not necessarily those of SBC Pacific Bell.*

**SBC EXECUTIVE NEWS & MOVES**

The White House has announced that President **George W. Bush** intends to appoint **Ed Whitacre, Jr.**, Chairman and CEO of SBC Communications Inc., as a member of the National Security Telecommunications Advisory Council. This Council provides advice and expertise to the President on issues related to implementing National Security and Emergency Preparedness Communications Policy.

**Fred Chang**, President and CEO of SBC Technology Resources, Inc., delivered the keynote presentation at SUPERnet 2002. He presented a historical perspective and timeline of the Internet, including the rise of broadband applications and availability. In addition to presenting several state-of-the-art broadband application demos, Chang discussed the current topics of increased bandwidth, network stability and Internet security. He contrasted the perception that we are in the middle of an Internet-induced bust with the reality that the Internet is going strong with increased demand for broadband services.

**Robin MacGillivray**, Vice President of SBC Pacific Bell Business Solutions Group, has been named Vice President of Broadband Integration. She'll be responsible for implementing process improvements regarding DSL and report to **Stan Sigman**, SBC Group President and Chief Operating Officer.

**Denita Willoughby**, Executive Director, Business Enterprise Solutions Team, has been appointed Assistant Vice President, Business Solutions Team, reporting to **Bob Ferguson**, President of SBC Pacific Bell/Nevada Bell Business Communications Services. She'll assume responsibility for Alternate Channels, the Emerging Products Center, Quality and BCS Strategic Initiatives. Reporting to Willoughby will be **Erwin Furukawa**, Sales Vice President, Alternate Channels; **Alan Kneale**, Sales Director, Emerging Products Center and Quality, and **W. Mark Leslie**, Executive Director, Business Enterprise Solutions Team and Strategic Initiatives.

**Thom Matson**, Sales Vice President, Valued and Select Accounts, also will report to **Bob Ferguson**.

**Cliff Agee**, Vice President-Operations for ASI North and Northeast, has been named Senior Vice President-DataComm. He'll be responsible for all DataComm Engineering and Operations.

**Jerry Hinek, CISSP**  
Corporate Information Security, SBC Services

## WIRELESS NETWORK SECURITY AND YOU



### Introduction

It's affordable, convenient and easy to have a wireless LAN in your home. You can buy components to connect 3 or 4 computers into a wireless LAN for less than \$500. But there's a hidden cost; it's the price of securing your home network versus the risk if you don't. In fact if you combine a wireless LAN with broadband access you really need

to develop your own security strategy to protect your personal information assets.

### Wireless Applications

Perhaps without realizing it, we see people using wireless LANs all the time. You have probably returned a rental car and gotten a receipt from someone with a wireless handheld device. You may have ordered dinner in a restaurant from a waiter with a wireless handheld device. Hospitals use wireless LANs to give medical personnel access to medical information while they move from room to room. A wireless LAN in your home could sure eliminate a lot of ugly CAT 5 wire tangles.

### Risks of Wireless Communication

This usefulness and convenience comes with additional risks. What if some wireless hacker interfered with your rental car return transaction and you missed your flight? What if someone changed your medical records so that they didn't reflect an allergy to some medication? Could someone change the blood type in your records? Could these things happen? They can if the wireless network is set up without any thought to security.

In the world of wireless networking your personal information faces greater risks to its confidentiality, integrity and availability. You may also use your computer to access the company network. If you have a wireless LAN in your home that's not adequately secured, both your personal information and the company's Proprietary Information are threatened.

When you use wireless communication you broadcast and receive radio signals that anyone with the proper equipment can intercept. Remember that \$500 cost. Someone driving down the street or hiding on your property can become a node on your wireless LAN. You might not even be aware of it. And if someone is hacking you while you're connected to your company's Intranet, then Proprietary Information may also be at risk.

### Wireless LAN Protocol

The standard protocol for Wireless LANs is **IEEE 802.11b**. Security is not a required part of this standard; it's an option. Industry experts do not consider the optional security, known as **Wired Equivalent Privacy (WEP)**, to be very secure. The only way to secure wireless communication is to encrypt it. Someone can always sniff the signal but will not be able to understand

its meaning. Unfortunately WEP does not protect the encryption keys from discovery as well as is necessary.

### Solutions

Wireless LANs are the wave of the future. They are far too convenient and too adaptable not to make use of them. No matter how they are used, there are risks to the information that will go through the air. There's no bulletproof solution to the risks, but there are steps you can and should take.

### Tips for Securing Wireless LANs

1. Buy components that support **128 bit encryption**
2. **Enable WEP** on installation of the Access Point
3. **Enable 128 bit encryption.**
4. **Change the SSID** (Service Set Identifier) from the vendor installed default. Knowledge of the vendor default ID can make it easier for someone to gain access to your network and your files.
5. Buy and install a personal **firewall**, either software or hardware. This is especially true if you have a wireless DSL/Cable router on your broadband connection.
6. For more robust protection, use a suitable **VPN** product.
7. **Always remember** that once the confidentiality, integrity or availability of your information is compromised it may be very difficult or impossible to undo the damage.

– Jerry Hinek, CISSP  
Senior Business Security Manager  
Corporate Information Security  
SBC Services

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## WEB WATCH

### By Paul Bedell

Here's a cool site for you cool cats to check out:  
**[www.techguide.com](http://www.techguide.com)**.

This site contains white papers on (8) general areas of the telecom industry: Internet; Enterprise Solutions; Network Management; Networking Technology; Security; Software Applications; Convergence/CTI and Telecommunications. Each of these central headings has many sub-headings, and each subheading may also have its own layer of white papers. It's a tree structure.

The site bills itself in this manner: "As a free service to the IT community, we produce the Technology Guide Series™ of White Papers to assist technology professionals with complex technology projects. Each Technology Guide presents a focused topic in practical, objective and understandable terms, providing implementation details and real world technology solutions - all in about 6,000 words! "

You'll have to register when you go to the site, but it's a minimal process. Although each guide is "sponsored" by a particular vendor, the white papers are still vendor agnostic. They're all in Adobe Acrobat format.

My recommendation is to print them out, and then read them at your leisure: while commuting (only if you take a train!); at home after work; before bed, or on weekends.

Surf, and enjoy!

## An Update Exclusive Special Report

### SECURING YOUR ENTERPRISE

By Rene Castro of Booz Allen Hamilton

Over the past decade, Information Technology (IT) has become an integral part of doing business for governments and corporations alike. The United States has led the way in both developing and integrating computer systems into our business operations, as well as our personal lives. The level to which our society has become "wired" is so universally recognized that a long-winded discussion on the topic almost smacks of a cliché. Given this tremendous reliance on IT, it is only natural that the issues associated with Information Security have been on the minds of IT professionals for years. The exponential increase of incidents involving computer hacking, the spread of destructive computer viruses, and the ever-present threat of industrial and state espionage have lent significant weight to the issue of IT security in the past. The events of September 11th brought home the critical importance of our collective security posture, and have generated a great deal of introspection on how we can better protect ourselves from all forms of terrorism, including cyber-terrorism.



This dramatic increase of attention on security has sparked a flurry of activity from corporations and government agencies to rapidly bolster their levels of security. This includes the Information Technology that facilitates so much of our business operations. With no shortage of vendors willing to sell the latest and greatest IT Security products and services, many IT professionals are left to ponder some big questions:

- Where should I begin?
- What's right for my organization?
- How can I identify the best products?
- How can I maintain my infrastructure?
- How can I best allocate my resources?

Where to begin when addressing the security concerns of your organization is a critical question. Many IT managers have rushed to procure the latest firewalls, Intrusion Detection Systems (IDS), Virtual Private Networks (VPN), etc. While all these, and other technologies, may bolster the cyber-security of an organization, without first gaining a comprehensive understanding of your risk, the value associated with different security solutions and technologies could be minimal.

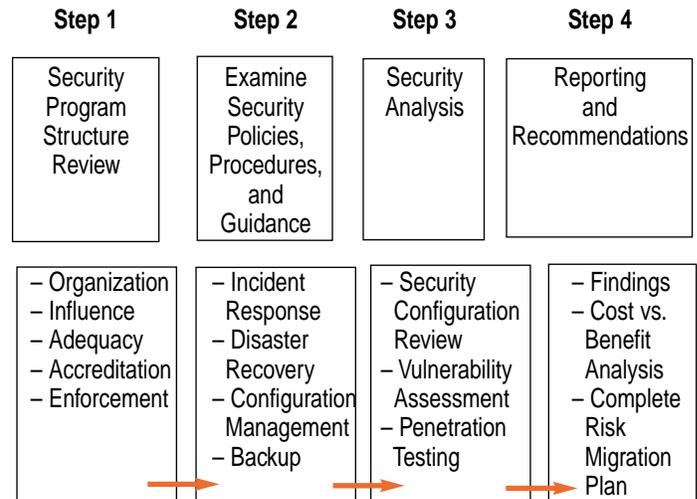
#### Embarking on the Road to Security

We cannot propose a good solution to a problem that has not been clearly defined. "One of the greatest challenges we face in dealing with new clients is helping them to understand the importance of fully identifying the security issues facing their organization before

jumping to apply the latest and greatest technologies," said Don Busson, a Vice President of Booz Allen Hamilton's National Security Team. In keeping with this idea, he continually stresses the need to perform a comprehensive Risk Assessment prior to spending potentially large amounts of time and money implementing security solutions. Further, we stress that security solutions should be implemented as parts of an overall security program, not just on individual patches that could cover a more systemic security problem. Focusing on the total security program (policy, technology, and people) assures that all security solutions are appropriate, cost-effective, and work together to provide the right balance of security and usability.



The following diagram represents a basic approach to performing a Risk Assessment:



While this process usually needs to be somewhat customized to accommodate different needs, it represents a basic roadmap to assessing an organization's current security program (if one even exists), identifying security issues, identifying the risks associated with those findings, and proposing cost effective mitigating actions.

Once you have a complete understanding of the risks facing your organization, you can begin to implement smart security solutions that are right for your organization. The approach we often take for securing our client's networks and systems involves a layered security strategy, which is a battle proven military technique for hardening an enterprise. This solution involves cryptographically securing all non-public transmissions of data, and implementing security safeguards at every layer of the IT infrastructure. This starts at the network boundary layer, with the implementation of firewalls, secure router configurations, and Intrusion Detection Systems, and trickle all the way down to a secure desktop configuration. This sort of defensive structure throws up obstacles at potential attackers every step of the way as they attempt to penetrate your network.

## Understanding and Assessing Your Risk

### Step 1 - Security Program Structure Review

Keeping ahead of the curve on security, and managing the security of a network has become a full time job. During this phase of the Risk Assessment process, the Security Program of the client organization is scrutinized to assure it is operating and organized in a fashion that provides a high level of effectiveness. For large organizations, dedicated staff members are often needed to maintain the security of an enterprise network. At the very least, roles and responsibilities should be established for everyone involved with IT systems within an organization. That includes users, system administrators, management, etc. Designated security staff, or those individuals with security-related responsibilities should have the influence within the organization to successfully meet their responsibilities. Often during this phase of a Risk Assessment, we'll discover that while security positions and responsibilities exist within an organization, their policies and efforts to secure the IT infrastructure are undermined by users and system administrators, often simply because they don't know any better.

### Step 2 - Examine Security Policies, Procedures, and Guidance

Depending on your organization, it may be necessary to have certain security procedures and guidance documents defined as part of the overall security program. The requirements to have certain policies and procedures vary tremendously from organization to organization, particularly among government agencies, but our experience shows us that the following policies/procedures should be in place:

- Disaster Recovery Plan
- System Backup Plan
- Configuration Management Plan
- Incident Response Plan
- Security Awareness Training Plan
- Internet & Computer System Acceptable Use Policy

Maintaining and implementing effective policies and procedures forms the backbone of a good security program. Failure to maintain good security policies will undermine your security program. "In some cases we've seen users, and even administrators, not bound by an acceptable use or a configuration management policy installing arbitrary software packages onto systems that undermine the security of an entire enterprise," Busson said. During this step of the process, we'll assess your policies and procedures, identify the gaps or weaknesses, and show you what you need to do to fill them.

### Step 3 - Security Analysis

After evaluating the security program, security plans and procedures, and identifying any additional security requirements or mandates that may impact the organization, it's time to evaluate the overall health of the enterprise. Depending on the policies and procedures in place, this evaluation could include many different components, but at the very least the following activities are usually conducted in order to identify

*security issues that exist within an organization:*

*Security Configuration Review* - This involves a detailed review of the network/system architecture present within the organization. Mission critical servers and workstations are exhaustively reviewed to assure they are operating in a secure fashion, have been properly configured and maintained, have had applicable security patches applied, etc. Given the intense nature of this sort of review, this level of scrutiny is generally reserved for the most sensitive systems and networks.

*Vulnerability Assessment* - In order to gain a broader understanding of the vulnerabilities that impact an organization's systems, a vulnerability assessment should be conducted on all networks and systems within an organization. A well-executed vulnerability assessment goes above and beyond the capabilities of most automated scanners currently available, and includes manual analysis of systems and networks by information security specialists.

*Penetration Testing* - The most technically challenging aspect of the security Risk Assessment process, penetration testing is intended to legitimize the findings of the security configuration review and vulnerability assessment through exploitation of discovered vulnerabilities. Some organizations prefer to have penetration testing executed prior to the commencement of the Risk Assessment process to get a more "real world" view of their enterprise. When conducting penetration testing, it is important to have signed agreements between the organization executing the test and the organization being tested to establish "Rules of Engagement" and a method to distinguish between the test team and a real attacker.

The level of penetration testing varies tremendously. Some request only basic Internet based attacks in an attempt to circumvent network firewalls, while others want exhaustive testing, which can include social engineering attacks. Penetration testing is normally executed from both an "outsider" and an "insider" perspective. Outsider testing models threats perpetrated from outside your organization, while insider testing examines potential exploitation by a malicious insider, such as a disgruntled employee. The physical security of the organization may also be scrutinized, since once an educated attacker can physically access a computer system, "hacking" that system is usually trivial.

### Step 4 - Reporting and Recommendations

When all is said and done, the final risk assessment report serves as a roadmap for improving the security health of your organization. All relevant findings should be outlined for review, with any necessary raw data to back up the findings presented in a clear and concise manner. Vulnerabilities should be presented with a clear indication of the risk each vulnerability poses to the enterprise, and how those risks vary depending upon the threat agent executing the attack. When reviewing the final report of a Risk Assessment, it is important to bear in mind that, according to most statistics available on the subject, anywhere from 75% to 90% of network incidents

are caused by insiders. Given this chilling statistic, it is extremely dangerous to discount the possibility of an insider attacking your networks or systems!

### Applying Technology to Defend Your Enterprise

Once you are armed with an understanding of the specific security weaknesses present in your enterprise, you have the information needed to take corrective action. Our clients, particularly government clients with the responsibility to protect highly classified data, want to ensure that they leverage the best defensive technologies available. Our usual approach for clients responsible for protecting highly sensitive, or even classified information, is to recommend a defense in depth or layered protection strategy that builds in security mechanisms from the boundary points of your enterprise down to the individual user workstation. Below is a brief description of some of the basic defensive technologies that can collectively be used to secure your enterprise.

- **Firewalls** – A good boundary defense is a key component to maintaining a secure enterprise, and firewalls still provide the best boundary protection for your networks. However, it is important to have your firewalls properly configured, so that they do not permit potentially dangerous network traffic to enter your enterprise.
- **Virtual Private Networks (VPN)** - Some organizations transmit potentially sensitive information over the Internet, where it is in constant danger of being intercepted, redirected, or monitored for sensitive content. VPN technology encrypts data before transmission across an insecure network, such as the Internet. For our government clients that need to protect classified data, more robust encryption technology is needed.
- **Intrusion Detection Systems (IDS)** - Monitoring potentially malicious activity can be extremely difficult on a large network with a large number of systems. Some types of IDSs are stand-alone computer systems, which continually monitor large amounts of network traffic for abnormal and potentially malicious activity. Others monitor system logs and system activity on designated computer systems, and other devices on a network. These are frequently referred to as "host based" IDSs. Depending on the IT infrastructure, a combination of these two technologies is usually sufficient to monitor an enterprise for possible intrusions.
- **Public Key Infrastructure (PKI)** - Building a PKI, or using an existing PKI, is a method of enabling beneficial cryptographic functions for network and system users. For example, when you receive an e-mail from a colleague asking for sensitive information, how do you REALLY know that e-mail came from your colleague? The return e-mail address? The e-mail message headers? All those items can be forged by a knowledgeable attacker! A well-implemented PKI can permit users to validate that electronic correspondence, such as e-mail, actually originated

with the sender and was not modified in transit. A well designed PKI can also enable you to encrypt the data, so only your intended recipient can access the information. There are many other potential benefits of PKI that go far beyond the scope of this article.

- **Biometrics** - Usernames and passwords are no longer accepted as a secure means to protect extremely sensitive information. Passwords are easy to crack, and organizations with extremely sensitive information are looking for better ways to identify network and system users prior to granting them access. Biometric technology relies on a physical part of the user's body to positively identify them, prior to granting them access. Some systems identify users based upon fingerprint, iris/retina, facial recognition, voice recognition, or any combination. Properly implemented, biometric technology can greatly assist with the identification of users permitted to access information.
- **Information Security Training** – All the technology in the world will be insufficient if your users and operators are not properly trained. Training is an important, and often overlooked, component of an organization's security posture. Training can help to provide the critical education that could permit a user or system administrator to identify malicious attempts to gain access to information, or disrupt system operations, prior to an attack being successful. Your workforce should be security enabled, with the scope and depth of training dependent on the individual role or job each member fills.

Once you've applied the right mix of defensive technologies, followed appropriate security policies and procedures, and have a security aware workforce, your organization is well on the way to enterprise security. Of course, with the incredible pace of change in our IT world, vigilance is the key to maintaining your security wellness. Periodic risk assessments (once every 12-24 months) coupled with careful technology insertion planning must be part of your overall IT game plan.

### Common Pitfalls to Consider

As with most competitive markets, the IT Security field is crowded with companies offering services. Here are some things to consider when obtaining security services:

- Well-established and respected companies generally provide the most reliable and highest quality level of service. Make sure you consider only an organization you can trust with your sensitive information. This is particularly true when you are inviting individuals external to your organization to actively attempt to gain access to possibly sensitive information!
- Many companies maintain profit motivated vendor relationships. They profit by reselling specific products to clients. This is almost never in your best

interest. You want customized solutions that meet your specific needs, and not necessarily the product that a company's partner offers.

- There is no specific "tool" that will automatically run on your network and perform an adequate Risk Assessment. Many vulnerability scanners do exist that can be useful, but only when used as part of a structured and well-designed Risk Assessment process. Be wary of risk assessment processes that rely almost exclusively on automated tools.

#### A Final Note

In an increasingly dangerous cyber-world, knowledge is power. Attempts to secure an enterprise without first gaining a complete understanding of your current security posture can actually degrade the security of your organization by diverting critically needed resources away from areas where they can have the largest impact. With a clear understanding of your weaknesses, you can take productive steps to bolster your enterprise's security posture.

*Rene Castro is a Principal with Booz Allen Hamilton's National Security Team.*

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## STERLING COMMERCE IMAGESOFT ALLIANCE

SBC through its Sterling Commerce subsidiary's Banking Systems Division, a worldwide leading provider of business-to-business banking applications, and ImageSoft Technologies, an industry-leading provider of document imaging solutions to the financial industry, announced a marketing alliance to provide image-based core item processing and image archive and delivery solutions to the banking industry.

The strategic combination of the companies' image-based solutions and technology platforms will assist banks in improving system performance while reducing expenses by eliminating the need to perform tasks related to microfilm research, manual filing and physical document handling.

"Imaging during prime pass provides tremendous back-office efficiency for our customers," said Ron Thompson, president of ImageSoft. "We are confident that the combination of the new ImageSoft Titan e2 Web-based image archive suite with Sterling's prime-pass capture expertise will result in viable gains in productivity for the marketplace."

The joint offering provides a complementary workflow and architecture that enable banks to cost-effectively capture check images in a single pass. Check images then can be retrieved from anywhere in the banking organization through the document image archive. Combining the Sterling Commerce VECTOR prime pass technology and ImageSoft archiving capabilities gives banks the flexibility to choose the appropriate image capture hardware without changes to their check capture system.

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## VICE PRESIDENT'S CORNER

(Continued)

integral part of our everyday lives, as much a part of us as the telephone or microwave. SBC Internet Services commissioned a survey to gauge Americans' attitudes about the technology. The survey showed the majority want faster downloads and uninterrupted connections. The findings support the demand for broadband Internet access to deliver the true value of the Web. In the next 50 years, survey respondents believe the Internet could replace retail stores (63%), postal services (62%), business offices (69%) and even television (59%). More than half rank the Internet as the best learning and information source today. It is changing the way we all do business and we'll be providing further findings and trends in each issue of **Update**. A third major topic on everybody's mind is the Economy. Recently SBC Chairman & CEO Ed Whitacre said the telecom industry can pull the US Economy out of the doldrums by creating jobs and generating billions of dollars in growth annually if policymakers develop a coherent, symmetrical national policy on broadband. He cited an estimate by the Brookings Institute that accelerated broadband deployment could generate half a trillion dollars annually in economic growth without increased government spending or taxes if the market were allowed to work fairly. Today, less than 10% of Americans have broadband service—too few to attract the investment needed to deliver on the promise of the technology. One reason for the slow pace of broadband deployment, Whitacre said, is that only one of the competing broadband technologies—telephone company-provided DSL—is regulated. In contrast, cable providers control 70% of the broadband market and operate unburdened by regulation. "For us to seize the opportunity to keep American consumers at the vanguard of the broadband revolution, policymakers must seize this moment and let the free market work freely," he said. "The only threat is in not taking action."

*Kari*

– **Kari Watanabe**  
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## SBC & 3COM

SBC Datacomm's Premise Solutions Marketing Team has announced 3COM as a CPE Solutions Provider for the Small and Medium Enterprise. The Premise Solutions Team is working with 3COM to design bundled network solutions that will include Network Transport, Network Integration Services and CPE. These solutions will provide 3COM's "Best of Breed" portfolio for the Small Medium Enterprise, offering attractive price points and margins. Contact your Liaison Manager for further details.

**Michael Brennan**

## HOMELAND SECURITY

*An ounce of prevention is worth a pound of cure*

From schools across the country, to commercial enterprises, to U.S. ships sailing through potentially precarious waters, the millennial version of "candid camera" is keeping an eye on many Americans. This is no old-fashioned videotaped or broadcast surveillance carried out for very serious security purposes, using cutting edge technologies like the Internet.



It's the product of a California company, cVideo, an offspring of Cubic Corporation – a 50 year old, nearly a billion-dollar publicly traded defense contractor. The history of cVideo's patented technology dates back to 1995, when it competitively won a multi-million dollar Research and Development grant from the National Institute of Standards and Technology's (NIST) Advanced Technology Program (ATP), U.S. Department of Commerce, and the office of Strategic Technology, California Trade and Commerce Agency.

In the two-year ATP project, which ended in 1997, the company came up with a new concept and wrote and tested algorithms and network-management techniques to implement it. The concept is based on wavelets, a basic research result that promised superior compression capabilities. The algorithms were written to withstand common network anomalies, such as "packets" of data (the mode of transmission in the Internet) being lost or misplaced, thereby ensuring that image frames would not be missing or out of order.

Although cVideo's technology is not the only one to use wavelets, their compression algorithm is three times faster than any other, which reduces cost, and the image quality is the best available through software, says Bill Guetz, chief technical officer. The codec also is highly flexible, able to adapt from slow telephone modem speeds to fast fiber-optic cable links. The technology would not have been developed at all without ATP funding, he says.

Compared to analog videotape, the digital system offers many advantages, Guetz says, including a better image, the option of much longer storage (on hard drive instead of tape), location and playback of selected sequences in seconds instead of hours, and no need for special hardware. The technology was successfully demonstrated in the New York subways and is now being sold by about 100 dealers, including Pacific Bell.

The cutting edge nature of the technology is evidenced by the imprimatur offered by Genuity, the present day firm of Bolt, Baranek and Newman – the company that,

some 30 years ago, won the government contract to design the network that became the Internet. Now an Internet service company, Genuity chose the cVideo system to watch over the electronic commerce infrastructure it provides for clients such as large banks. Using a laptop computer hooked up to the Internet, "I can sit in a hotel room anywhere and pan, tilt, and zoom in on a location in, say, Tampa, Florida," says Craig McQuate, director of corporate security and safety. Genuity currently uses the cVideo technology at 12 sites nationwide, from Palo Alto, California to Chicago to New York, and growing rapidly, McQuate says. Although the Genuity setup costs more than video security, he says, "the benefits far outweigh the costs."

The cVideo technology is used at dozens of K12 schools, colleges and universities to monitor vandalism, fighting, smoking, bullying, and other misbehavior in hallways and parking lots. Some of the schools previously had videotaped surveillance, whereas others had no security systems at all. "It's a big jump over video cassette recorder technology in terms of quality of image, ease of access to images, and archiving," says Dave Conley, a security consultant. "It's as much a deterrent as a tool for actually catching students in the act."

Among transportation applications, the cVideo system is used to monitor vessels passing through the Panama Canal. "The digital technology is installed at six locations, including one that can be accessed by the Internet so that military and other customers can watch the transit of their ships from remote locations," says Fermin Caballero, a security specialist with the Division of Proteccion del Canal. "With this kind of service, our select customers are more confident with their high-value assets transiting the canal," he says.

As I see it every major company, organization and public service agency needs Homeland security such as that provided by cVideo. Here is a case where an ounce of prevention is truly worth a pound of cure.

*Michael Brennan began his telecommunications career in 1974. He was a fiber optic engineer in the 80's; a technologist in the 90's and now frequently speaks as a subject matter expert on Visual Communications, Voice/Video over IP and Streaming Media. He can be reached at [mtbalboa@pacbell.net](mailto:mtbalboa@pacbell.net).*

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***"Your mind is like  
a parachute, it works best  
when it's open."***

**Christine Hertzog**  
**Call Center Solutions, SBC Pacific Bell**

## **SPEECH RECOGNITION IN CONTACT CENTERS ADDRESSES SELF SERVICE TRENDS**

Best Practices in contact centers deliver strategic and tactical goals for managers in the quest to improve and enhance their operations. For example, the customer contact strategy is focused around customer acquisition, retention, or increasing the revenue value of customers.



This strategy dictates the design of processes and the choice of technologies to maintain alignment to the corporation's customer contact objectives. (Note: Please see the article "The Strategic Shift of Call Centers" in the October 2001 issue of *Update* for a discussion of Call Center strategies.)

Trends in process design and technologies point to an increased reliance on self-service applications as an important part of the overall contact strategy. A recent Customer Interface magazine survey revealed that 55% of respondents are implementing self-service applications. This trend is especially apparent in the drive to automate high volume, low value contacts.

Every contact center manager wants their expensive resources (agents) to be occupied with high value contacts rather than routine or repetitive requests. IVR technology has been a tremendous asset in the advance to automate the high volume, low value contacts. Many companies have spent considerable time and resources developing carefully worded scripts and user-friendly menus to respond to caller requests in an effective and efficient manner. Unfortunately, we've all suffered in the systems of those companies that failed to devote sufficient time and energy to effective IVR design.

Good or bad design aside, IVR technology has limitations. It is not possible to automate every high volume and/or low value call because some information transactions cannot be accommodated with Dualtone Multi Frequency (DTMF) signals. For example, it is difficult to input an alphanumeric password using a touchtone dialpad.

The limitations of DTMF signaling are eliminated with Speech Recognition technology. Introduced in the 1980s, speech recognition has evolved, dramatically increasing in word recognition and adaptations to dialects and pronunciation variations while experiencing equally dramatic reductions in price. It is a technology whose time has come for contact centers. Speech recognition offers two primary benefits to contact centers:

1. It automates high volume, low value requests that could not be addressed by DTMF signals
2. It improves existing IVR applications by eliminating menu layers and that often frustratingly slow process of elimination that we go through to finally hear the option that we want.

Speech recognition allows contact centers to offload even more routine calls from their agents and reduce overall call handling times as callers spend less time navigating through a traditional IVR menu to reach their desired destination. The end results are reduced network costs, improved productivity, and increased customer satisfaction. Here's an interesting factoid – many people using speech recognition technology for self service prefer these systems to web-based systems or traditional IVR systems. Why? Because both web-based and traditional IVR systems are designed to look for specific responses to specific prompts, not the natural conversational language supported by speech recognition.

SBC Pacific Bell Call Center Solutions deploy Periphonics IVR and speech recognition technology from Nuance and SpeechWorks to create powerful solutions that improve customer responsiveness and the competitive differentiation of customer service. Speech recognition today includes the following capabilities:

- **Speaker independence** – any voice is understood, not just specific voices that a system is "trained" to understand.
- **Continuous speech** – today's systems allow speakers to converse naturally, using full sentences or long phrases to provide information. You can even "barge" in, or interrupt a machine prompt without confusing the system.
- **Vocabularies** of over 50,000 words.
- **Multi-lingual capabilities.**

If your client's contact center has a traditional IVR, let them know that the technology Best Practices for contact centers include adoption of speech recognition for all the reasons described in this article. Or give the Call Center Solutions team a call and together we'll discuss the advantages of speech recognition for improved customer service and reduced costs!

*Christine Hertzog, a Regional Sales Director, has over 15 years experience in Call Centers & Computer Telephone Integration Technologies. She has worked in sales, marketing, product management and as a consultant. Her email is [ch7912@msg.pacbell.com](mailto:ch7912@msg.pacbell.com)*

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***"The future belongs to those who believe in their dreams."***

## SELLING SBC PACIFIC BELL SHARED WEB HOSTING

**By Nalesh Chandra**  
Associate Director, SBC E-Services

### A Quick Refresher on Web Hosting

Your customers have several platform choices for web hosting services. Hosting Service Providers (HSPs) such as SBC Pacific Bell offer: (1) Shared or Virtual Web Hosting – where many customer sites are hosted on a single server. These sites share the server hardware and software. This type of hosting is attractive because of its low price point and ease of use and is best suited for smaller, non-complex web sites, (2) Basic Dedicated Hosting – where each customer site is hosted on a single, non-shared server. These sites require a level of predictable performance, which prevents them from sharing server resources with other websites. In addition, these services tend to cost between five to ten times as much as Shared Web Hosting, (3) Complex/Managed Hosting – which is Dedicated Hosting with multiple servers and value added services such as firewalls, databases, etc. As businesses grow, they find it almost impossible to not grow to a complex/managed hosting solution. These solutions easily cost more than 100X what Shared Web Hosting costs and finally (4) Co-location – where hosting service providers offer space in their data centers and companies can locate their web servers in that space. These solutions are best suited for companies that must have hands on experience with their hosting solution and cost more than 100X a typical Shared Web Hosting package.

No matter what type of hosting your customer needs, from low cost Shared Web Hosting to full scale Co-location, SBC Pacific Bell offers a solution for them.

And in case you were wondering what happened to Web Hosting during the dotcom boom and bust, here is the evolution of the web hosting market as told by IDC Research.

Evolution of the U.S. Web Hosting Market					
Stage	Emergence	Boon	Bust	Adjustment	Renewal
Time	Mid-1990s	Late 1990s	2000-2001	2001-2002	2002+
Description	Web hosting emerged as a sideline for ISPs focused on providing internet access services	Websites become more complex and mission-critical as dot-coms seek to discriminate traditional bricks-and-mortars and bricks-and-mortars play catch-up. The resulting land grab fuels massive data center investment	The dot-com crash exposes the "field of dreams" business models of many HSPs and their customers. Enterprises retrench, cut back on IT investments, and rethink their Web strategies	"Flight to quality" on the part of customers and investors. Repositioning of hosting value proposition to support a holistic vision of "business-on-the-internet" as opposed to the standalone notion of "Internet-as-the-business"	Hosting sector consolidation gives major brands the resources and market credibility to manage business-critical infrastructure platforms.
HSP focus	Basic Web presence, brochureware sites	Power, pipes, and ping: time-to-market advantages of outsourced hosting	Managed hosting services and return-on-investment advantages of hosting	Complex managed hosting solutions as opposed to "piece-part" services	Distributed computing, Web services-enablement
Success factors	Basic competence	Investor relationship, skill, market visibility	Financial viability, solid business models	Cost-efficient, scalable service delivery processes	Size, positioning, brand, integration expertise

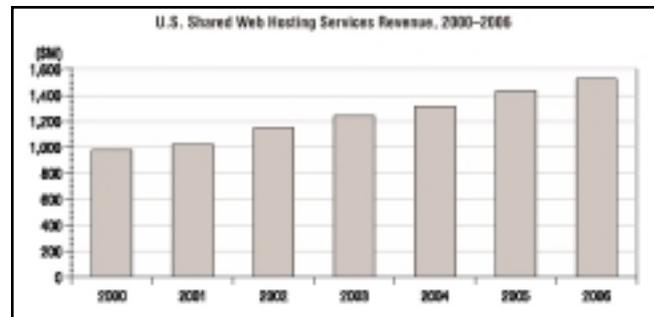
Source: IDC, 2001

### Shared Web Hosting – Is There a Market for it?

In previous articles we focused on the benefits of high-end web hosting applications such as Dedicated Hosting or Co-location. Why the focus on these products? According to IDC research, these two hosting categories accounted for 78.8% of the web hosting market (measured by revenue) in 2001 and will account

for 92.6% of the web hosting market by the year 2006 (measured by revenue). Forecasts like this might encourage one to focus their attention on selling Dedicated Hosting and Co-location in order to take advantage of the revenue potential. In addition, it would appear that Shared Web Hosting is losing favor or is on its way out. Nothing could be farther from the truth. Although Shared Web Hosting does not enjoy the revenue-rich market share of the higher end hosting applications, it is by far the market leader when measured in terms of customers in service. What does this mean? This means that there are many more, thousands more, Shared Web Hosting customers who currently have Shared Web Hosting or need a hosting solution than both Dedicated and Co-location hosting combined. Couple that with the fact that less than half of all hosting customers are satisfied with their current provider, and you suddenly have a huge potential to sell Shared Web Hosting.

According to IDC Research, the Shared Web Hosting market is still alive and thriving (see table below). In fact, by the year 2006, Shared Web Hosting will be a \$1.6 billion industry.



Hopefully you see that that Shared Web Hosting is a great product to offer to your customers. The rest of this article is focused on the SBC Pacific Bell Shared Web Hosting product and what you can tell your customers about this effective and cost efficient way of enabling or improving their web presence. Read on and find out more about what SBC Pacific Bell Shared Web Hosting can do.

### Put your Company on the Web without a Capital Investment

SBC Pacific Bell understands the need to serve customer Web pages quickly. We know that downtime is not acceptable. Businesses need a provider they can trust, a partner with the expertise and the resources to keep the business on-line. Look no further than SBC Pacific Bell!

Shared Web hosting services from SBC Pacific Bell provide the complete operating environment businesses need to establish and maintain a Web site. The business supplies the application and we make it happen by providing all the hardware and software required—with no capital expenditure. Shared Web Hosting services from SBC Pacific Bell enable a business to reserve a domain name, brand all of their Internet communication through custom eMail

([sales@yourbusiness.com](mailto:sales@yourbusiness.com)) and open their business to an untapped audience. SBC Pacific Bell customers have the option of billing their services either to a major credit card or to their SBC Pacific Bell business or residential telephone line.

### What will it do for Customers?

Companies will see many benefits from Shared Web Hosting services from SBC Pacific Bell including:

- **Custom Domain Name** – 60,000 domain names disappear every day – reserve [www.yourbusiness.com](http://www.yourbusiness.com) today!
- **Personalized eMail** – [sales@yourbusiness.com](mailto:sales@yourbusiness.com) vs. [sales-yourbusiness@pacbell.net](mailto:sales-yourbusiness@pacbell.net).
- **Generous Disk Space** – Plans start at 100MB – ample space for a feature-rich site.
- **No Capital Expenditures for Hardware and Software** – Lessens the financial burden and provides the flexibility to allocate capital to other projects
- **7 x 24 Maintenance and System Support** – Alleviates the need to maintain in-house technical expertise to support the hosting platform. The technical staff can focus on running the business rather than the website.
- **Incrementally Increasing Capacity Options** – Add system resources as the Web site usage increases
- **A Customized Web Presence** – A place where thousands of customers can find your business for less than \$1 per day!

The optional eCommerce packages include:

- **Storefront** – Online template & tools to quickly, simply create a storefront as well as add/delete items and departments in real time.
- **Virtual Shopping carts** – Provide shipping and tax calculators.
- **Security** – Full Secure Socket Layer (SSL) security encryption for order entry.
- **Payment options** – Three methods of payment depending on package: on-line credit card authorization and processing in real-time, off-line credit card processing, COD.

### How Does it Work?

Shared Web Hosting from SBC Pacific Bell offers a Web server platform, system setup, redundant communications networks, multi-host support capability, and 24 x 7 support services. Customers have their choice of four Web Hosting plans: Bronze, Silver, Gold, and Platinum. Enhanced hosting service options are also available, including options for greater disk space capacity and increased traffic bandwidth, eMail accounts, domain registration, and Virtual Domain Environment (VDE) resource units. Virtually everything needed to build and maintain a website is included, including:

- Complete control of the Web site and Internet services via Web-based administration
- Disk, traffic & resource unit upgrades online and in real-time to optimize resource utilization
- Online logs and statistics to monitor hits and usage

- Microsoft FrontPage 2000 extensions
- Virtual Domain Environment (VDE) to provide security and performance for custom CGIs
- Online tutorial displays how to manage the account, set up eMail, etc...
- 2 free CGI scripts, including hit counter, message board, form-to-eMail, search, and random line display
- Optional eCommerce packages that allow the creation of a store that includes multiple catalogs and products, a shopping cart/checkout system, and a back office to manage the on line store

SBC Pacific Bell's expert staff will help customers choose the hosting plan that best fits their needs. Then SBC will install it in a few short hours, monitor it and keep the Web site content secure, all for one low monthly fee. Each plan includes the benefits of high-performance servers, high-bandwidth connectivity that grows seamlessly with customer needs, pre-installed software, guaranteed reliability and 24-hour technical support – all at a fraction of the cost of doing it in house. We also offer affordable eCommerce plans to enable a business to sell products directly on line. With eCommerce hosting a customer can transform their local business into a global marketplace player.

### Plans and Pricing

As your customers business grows, SBC Pacific Bell grows with them. We offer a wide array of hosting plans and features so your customers, suppliers and business partners will get the best Web experience. When you choose SBC Pacific Bell you can rest assured that you can concentrate on your business while we concentrate on your Web site. We make it quick and easy to order a hosting plan so you can begin creating your Web site immediately. No matter which plan you choose, you'll be up and running in a matter of hours.

### SBC Pacific Bell – Shared Web Hosting Plans

Hosting Plan	Bronze	Silver	Gold	Platinum
Monthly Fee	\$24.95	\$49.95	\$95.95	\$375.95
Setup Fee	\$50.00	\$50.00	\$50.00	\$100.00
eMail Accounts	20	30	40	100
Disk Space (MB)	100MB	200MB	300MB	500MB
Traffic (100MB)	5,000MB	8,000MB	10,000MB	15,000MB
SSL	\$10/mo	Yes	Yes	Yes
VDE/CGI 25,000 (RU/Month)		7500	10,000	15,000

New Domain names are registered with Network Solutions, Inc. A Domain Name Registration fee of \$70 for the first two years of registration is not included in the plan price. Customers will be billed separately by NSI for this fee. SBC will submit the registration application to Network Solutions on the customer's behalf.

### Add On Features (monthly pricing)

eMail account or eMail alias (each)	\$2
Additional traffic (per 100 MB)	\$10
VDE Resource Units (per 500 run-time units/month)	\$2

Additional disk space (per 10 MB)	\$10
Domain affiliation per yourbusiness.net, yourbusiness.com & yourbusiness.org extension (each)	\$10

A Shared Web Hosting account is a great way to establish a web presence, but convince your customers to convert browsers into buyers by adding any of the SBC Pacific Bell eCommerce packages to a Shared Web Hosting Plan

**SBC Pacific Bell – ECommerce Plans**

E-Commerce Add-On Plan	C-1	C-2
Monthly Fee	\$20	\$30
Setup Fee	\$0	\$0
# Products	25	100
# Departments	3	10
Payment Processing	Manual	Manual

We understand that your customers may not yet be ready for a Web site or virtual store, so SBC makes it easy for them to get on the Web one step at a time. They can start by (1) reserving a domain name, (2) getting personalized eMail accounts, (3) building a Web site, and then (4) selling your product/services online! Whatever they are ready for, SBC Pacific Bell has a solution for them. So, if the customer is not ready for a full-scale web presence, offer them products such as Domain parking, where they can register a domain name in preparation of a future web business. You can also offer them personalized email, so they can make their small business appear like a big business. Personalized email will let your customers brand their email accounts with sales@yourbusiness.com vs. sales-yourbusiness@pacbell.net.

**SBC Pacific Bell – Domain Parking and Personalized eMail Plans**

Plans	Domain Parking	Personalized eMail5	Personalized eMail 25	Personalized eMail 50
Monthly Fee	\$29.95/yr	\$9.95	\$29.95	\$45.95
Setup Fee	\$0.00	\$20.00	\$20.00	\$20.00
eMail Accounts	1	5	25	50
Disk Space (MB)	1MB	5MB	5MB	5MB
Traffic (100MB)	100MB	100MB	100MB	100MB

**Why SBC Pacific Bell for Shared Web Hosting?**

- SBC Pacific Bell offers a one-stop shop for your customers’ business data and hosting needs
- We offer the flexibility of two convenient billing options
  - Credit Card (American Express, Visa and MasterCard)
  - Billed to your SBC Pacific Bell residential or business line

- Support for your growth – start with Shared Web
- We make it Easy with four packages - can easily upgrade without rebuilding the website
  - eCommerce can be added affordably and quickly
  - Add-on options for storage, traffic and eMail allow you to customize your solution
- SBC Pacific Bell is a trusted partner and industry leader
- Service commitment – SLA and uptime guarantee
- State-of-the-art Data Centers
- Competitive pricing – its hard to beat the SBC Pacific Bell value for Shared Web Hosting

For More Information and Details

<http://public.pacbell.net:8001/web/basic/index.html>

– *Nalesh Chandra*  
Associate Director  
SBC E-Services/DSL Product Marketing

**THE VCSC’S MARYJANE SIMMONS**



In November 2001, MaryJane Simmons joined the Vendor Consultant Service Center (VCSC) Sales Support Team as a Sales Support Manager (SSM) based in San Francisco. MaryJane, along with Wendy Grimes and Toni Gilbert, provide support and provisioning of complex orders for consultants and

vendors.

With 22 years of SBC Pacific Bell service, MaryJane brings an extensive background and experience of staff and executive support to the VCSC. In 1979, MaryJane attended a job fair and applied for several positions with Pacific Telephone Company. She was offered a position as a Central Office Clerk and Supervisor’s Assistant and after six months, transferred to the Long Distance Forecasting group in AT&T. With Divestiture in 1983, MaryJane chose to work for Pacific Bell and joined the Operator Services Forecasting group as a group manager. Due to her excellent performance, she was loaned out to a pilot program in the Regulatory Department providing support in the Human Resources and Administrative Group. In 1985, she coordinated all the SB271 filing packages in the Regulatory Department for the CPUC. Shortly thereafter, she was promoted to executive assistant in the John Gueldner (VP of Regulatory for Pacific Telesis) organization. In 1998, MaryJane became the executive assistant to John Doolittle, VP of Shared Service Providers and provided support to him until he retired in 1999. When the Shared Service Providers group moved to Chicago, MaryJane opted to stay in San Francisco and joined the Alternate Channels organization. She became a SSM in the CLEC group under Larry Tumbleson and later moved to the Special Markets Group to support the Affiliates team. She has extensive experience with Voice Mail products and orders due to her support of Pacific Bell Information Services (PBIS).

Now as a SSM in the VCSC, MaryJane feels she can use her administrative and communications skills to provide

## DATA WITH DAVID

### The SBC eServices Managed Storage Solution

In a little over 20 years, since the introduction of the PC or workstation, we have become dependent on computers for data creation, manipulation and storage. Computers have significantly impacted how we live and how business is conducted. The advancement of this technology combined with modern business requirements has created a major need for information storage.



Peripheral devices like the hard drive and servers may not always meet the need for data-intensive applications due to data volume, size and complexity. Basic storage applications for accounting in the early 1980's have changed to enterprise and e-commerce applications in the new millennium. As the generation of more data has grown, the concept for Storage Area Networks (SANs) to aggregate data and store it in a single repository was born. Dataquest projects that storage requirements are expected to double every year and will exceed 600,000 TB by 2003. SBC eServices Internet Data Centers now provide customers with shared SAN storage services and is prepared to deliver the next generation e-business storage solutions for all our customers' data needs.

#### Storage Area Network Defined

The Storage Area Network is a dedicated, high-performance, reliable network that interconnects servers and storage devices much like a traditional data network. The sole function of the SAN is to aggregate data storage resources to a single repository and through that centralization provide more reliable and scalable storage than through distributed systems. Moving the storage of data from individual servers to a SAN allows for greater accessibility over wider geographic areas. The results from this design are flexibility, manageability and scalability of storage and reduced overall costs.

#### Why the Need?

Business customers rely upon data to conduct business and data back-up strategies must be of foremost concern. The cost to a business to recover lost data can be significant. According to the National Computer Security Association, without adequate backup it takes:

- 19 days and \$17,000 to recreate 20 MB of lost sales and marketing data
- 21 days and \$19,000 to recreate 20 MB of lost accounting data
- 42 days and \$98,000 to recreate 20 MB of lost engineering data

They further estimate the downtime cost per hour for several industries:

Brokerage Operations	\$6,500,000
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Credit-card Operations	\$2,600,000
Catalog Sales	\$90,000
Airline Reservations	\$89,500
Tele-ticket Sales	\$69,000

The point is that the cost and time to recover data can be significant without adequate backup of information.

#### The SBC SAN Solution

SBC offers a robust data storage solution that offers far better protection and higher availability than standard server storage. SAN can be used in conjunction with a dedicated server, managed server or managed server platform to lower the customer's total cost of ownership and to simplify data management.

Customers today may use Direct Attached Storage (DAS) devices connected to their servers for fast data restoral services via disk storage directly connected to their servers. Tape back-up service also offers a reliable disaster recovery option to dedicated and co-location customers within Internet Data Centers. Introduction of a SAN solution complements the storage portfolio by providing more functionality, flexibility and storage capacity than DAS or tape back-up. Customers concerned with the hassles of purchasing and managing hardware can use our SAN solution to perform live data replication services. Additionally, a SAN infrastructure provides the benefits of a geographically diverse storage solution.

SBC's new portfolio of data infrastructure services includes disk-on-demand and backup and restore functionality.

#### Disk-on-Demand

This service offers limitless scalability and provides high-availability disk storage through the use of redundant access paths from a customer's server over an optical fiber grid assuring virtual infinite gigabytes of secure storage.

#### Key features of the service include:

##### Security

- Private, secure disk storage
- Private, dedicated point-to-point storage area network within the IDC
- Password encrypted, firewall protected local area network for availability monitoring

##### Reliability

- World class 24x7x365 proactive monitoring via global network operations center
- Real-time event reporting over a secure Extranet
- Tested and audited operation procedures

##### Availability

- A minimum of 99.99% contracted availability in Service Level Agreement
- 2n redundancy in all disk-on-demand components
- Optional redundant paths to customer servers
- Dedicated direct fiber for all data transfers
- RAID 5 storage
- Non-disruptive upgrades

**DATA WITH DAVID**

(continued)

**Scalability**

- 100GB to 40+ TB disk-on-demand capability per customer
- Customer capacity growth can be accommodated in just days

**Performance**

- 100 GB/s per Fibre Channel data path
- Dual active connections when redundancy capacity installed
- Single hop to storage from customer server
- Self-tuning, large cache storage subsystem

**Backup and Restore**

Data is automatically backed up per a customized schedule and restored on demand, giving the customer the maximum flexibility to meet their specific needs. The same features described for Disk-on-Demand are offered for Backup and Restore providing for private and secure tape storage. Data may also be stored indefinitely by subscribing to the vaulting service, a fully managed off-site tape storage archiving service.

**Applications**

Companies that need more effective means of:

- Managing the on-rush of critical corporate data,
- Providing access to users, customers and partners,
- Needing more reliable method to move, protect, share and manage critical resources should consider the SBC SAN solution.

These companies may be in the financial, retail, health care, media and insurance industries to name several. Typical customers require database transaction storage with high availability such as Internet banking and on-line trading businesses. Accounting and legal practices value remote storage since they need data access and storage for many years. By outsourcing, storage management is removed from the server, freeing up CPU resources for running business applications and data availability is no longer tied to the availability of a single server.

**Summary**

Customers requiring their data to be stored across a network that is available on demand and more cost effective than a tape or DAS solution will find that SBC's SAN solution offers operational efficiencies for data administration, improved performance, higher availability and less obtrusive data back-up and recovery. By outsourcing storage needs to SBC, businesses are also eliminating the need to recruit and train storage specialists in addition to IT specialists, saving cost and increasing the ROI on a storage solution. SBC offers scalable, reliable architectures that meet expanding needs of customers now and for the future.

– **Tom David**  
Consultant Liaison Manager  
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**Cassandra Jessie-Johnson,  
Data Solutions, SBC Pacific Bell**

**DSL DATA NEWS**

**Price Changes**

During last year's price restructuring, the monthly rate for Basic DSL Internet service was set at \$49.95 per month. Previously, some of your customers accepted the Basic DSL Internet service at an introductory rate of \$39.95 per month for a one-year term. Since the term agreements have expired for the introductory offers, the customers are now on month-to-month service. In January 2002, the monthly rate for those Basic DSL Internet customers was migrated to the \$49.95 per month price point. This began with the January 2002 bill rounds and occurred in phases throughout early March 2002. Again, this only affected customers whose existing \$39.95 per month term agreement had expired. Your customers will continue to reap the great benefits of having the service.



In February the full installation charge (truck roll) for Enhanced DSL Internet service was increased from \$200 to \$250. The installation charge for Basic DSL Internet service was not changed. The really good news is that customers who already have their CPE and upgrade their DSL Internet service from Basic to Enhanced will not incur the full installation charge. They will only pay a \$50 order-processing fee.

**Pronto**

As of mid-February, there were nearly 1,500 Remote Terminals (RTs) with over 8,500 Distribution Areas (DAs) ready for service, in ASI West and SBC Pacific Bell.

Pronto RTs are designed to serve multiple DAs. These DAs serve on average 200-400 customer addresses. At the close of 2001, SBC Pacific Bell experienced a high volume of RT/DA's that were at capacity or exhausted. ASI West worked diligently to acquire the necessary hardware to stem this critical concern. As a result, the number of exhausted RT/DA's in SBC Pacific Bell has dropped significantly. ASI West went from 104 exhausted DA's in 29 RTs, back in December to just one DA, at capacity.

Previously, SBC would exhaust a DA when the RT was at capacity. The process was to "grow the RT", which could take anywhere from 60 - 90 days to complete. Today, if a DA is near exhaustion and at risk of being at full capacity, within seven business days SBC can have the necessary software upgrade and the quad card deployment completed. This reduces the risk of a complete exhaust status for any RT/DA and provides a quick turnaround for relieving those sites that are already at capacity.

**Prodigy to Yahoo!**

SBC Communications recently acquired Prodigy Internet, and Prodigy is now a subsidiary. In November 2001, SBC and Yahoo! announced an alliance to provide premium

Internet experience for SBC and Prodigy Internet service customers. Today customers can:

- E-mail from home or from the Web
  - Instant message with friends on other instant messengers
  - Organize with their calendar and contact list
  - Personalize their home page and create their own Web page
- Secure their PC and control their kids' online time

Our current customers will continue to receive the Prodigy portal until the new co-branded SBC Yahoo! service is available in the fall of 2002. Once it is available, customers will be alerted via e-mail, portal postings and letters. They will need only to install software to begin to enjoy the SBC Yahoo! experience.

### Promotions

The Get Up To Speed 2002 campaign started with a red-hot sizzle in February. The three most popular offers from last year, Get Up To Speed II, Low speed Enhanced DSL with discounted router, and Speedracer (High speed), were revamped. New targeted offers were launched with and without term commitments, reduced monthly rates, with a little something for everyone. Discounts on CPE, monthly rates, and processing fees will continue throughout the campaign. Look for direct mail drops and listen for radio ads announcing an offer in your specific area code!

### Get Your DSL Now

SBC is delivering the difference in 2002 with continued rapid deployment of DSL technology. We are tailoring our offers to meet your customers in the marketplace! For more information, to qualify your customers for DSL Internet Service, as well as to order DSL Internet service for your clients, contact the Emerging Products Center Consultant Queue at 1-866-234-4DSL (4375).

– **Cassandra Jessie-Johnson**  
Associate Director  
Data Solutions, SBC Pacific & Nevada Bell

**Michael Behr, SBC Pacific Bell**

## CALTRANS INNOVATIONS

*Ted Hunter recently sold a large video integration application to Caltrans for their Orange County Traffic Management Center or "OCTMC". Here's the unique Challenge and Solution:*

### Challenge

Like all videoconferencing solutions we start with the challenge: Caltrans identified their major challenge as requiring a more robust and substantial video deployment to allow for better and faster emergency response while enhancing visual communications with other internal entities. Additionally, Caltrans was moving into a new facility and wanted to build a video command and control center that would serve their needs today while allowing the growth and flexibility to expand as their requirements change.

Caltrans' OCTMC - command and control center receives a series of video signals from cameras strategically located at various freeways and freeway interchanges. This allows for fast emergency response, traffic management and an overall visual snapshot of the Orange County freeway system at a given time. The old system has some cameras going to monitors on the operation floor while others went to individuals with no ability to see and coordinate the various sources.

They wanted to have better command and control over all video sources and destinations at their disposal that were necessary to route "mission critical" information in the event of a major disaster or terrorist attack. Another challenge was to have the ability to "visually" communicate to the Senior Caltrans officials and Governor, a real time view of all the strategic or key bridges, freeways and critical junctions throughout the Orange County freeway system in a hurry, in the event the situation should arise.

Flexibility, capability and response were identified as the key success factors as well as easy access to the many video sources including: Traffic information, critical news sources like TV, radio and Internet and access to archived visual information that was not located in one central repository. In addition, virtually all this information needed to be available for training purposes to improve readiness and response, as well as improve overall operating efficiency.

This visual information needed to route easily between various locations within the building such as the Emergency Operations Center, Operations Floor, CHP, 911 Center, VideoConferencing center and Training Rooms. The system needed to be simple and easy-to-use while requiring a minimum amount of training so mission critical personnel could realize the benefits as soon as possible. This was a very different scenario from the old system whereby individuals had to be specially trained to use very sophisticated and cumbersome equipment using a multitude of interfaces.

If all of this was not enough of a challenge, one last issue that needed to be addressed was tours and how best to conduct them. Visiting dignitaries and other groups regularly tour the facility and the requirement was to allow the tour director to move about the operational areas and demonstrate all the key functionality of the system without being tethered to any user interface via a wire.

### Solution

The SBC Pacific Bell Team of Jeremy Glen and Ted Hunter began working with some of its key subcontractors, primarily MCSi to design this highly complex yet easy to operate system that included the following:

- A 20-foot high video wall that included 9 large monitors that could show any camera at anytime on the Caltrans network.
- Crestron touch panels for every terminal in the operation floor that emulate the video wall along with various other video sources such as VCR, DVD, traffic, radio, etc.
- Picture Tel 970 VideoConferencing system installed in the conference center.
- Various video and audio switching devices to allow for all of the routing of the many sources.

## Helpful Hints From The Vendor Consultant Sales Center

### 1. Update on Letters of Authorization/Agency (LOA)

#### Why Are There Letters of Authorization/Agency (LOA)?

- LOAs are created to protect the customer and meet regulatory requirements.
- Please do not ask any Pacific Bell employee to give you any Proprietary Information without first providing them with an LOA.

#### Length of LOAs

- One calendar year or less from date of issue

#### What's Permissible?

- If the main billed telephone number (BTN) is indicated on the LOA and the company specifically authorizes access to all accounts, then we can provide information as indicated without requiring the customer to list every telephone number at every location. This applies to all the company's California locations. Please indicate on the LOA that this is the "LEAD LOA". It is very important that the consultant/vendor be able to identify the LEAD LOA/BTN.

#### Helpful Hint

- Keep the customer's phone number you listed on the LOA because that's the number you'll need to reference each time you ask for information on this customer's account.

#### Requirement for Separate LOAs

It is a requirement that the consultants/vendors provide a separate LOA for each business for which they are requesting information. Even if the businesses are owned by the same people/person, they are considered separate entities and each requires a separate LOA.

#### Helpful Hint

- For your convenience, call your Liaison Manager to complete the LOA with individual business names before getting authorization from your customer.
- If the business is listed under a different name(s), then a separate LOA is required.

#### LOAs Must Always Contain:

- The date that the LOA document was signed.
- The duration of the authorization (1 calendar year or less from date of issue)
- Even though some LOAs say "until cancelled in writing", per our Legal department, we MUST have one dated within the current calendar year.
- The customer's name and account(s) billing telephone number (BTN)
- Customer name and address must be complete.
- Billing name and customer name are one and the same.
- Phone numbers (including area codes) MUST be on the LOA itself. The cover page is not considered part of the LOA document. If there are attachments of more phone numbers, it should be noted on the LOA.
- The business name of the consultant/vendor/agent.

- The scope of the agency authorization. (general or limited)
- What information the customer has granted us to give (e.g numbers, location, usage, orders, etc.)
- The signature of the customer or a person in the customer's company with the authority to act for the customer.
- The authorized signature must be both signed and printed.
- You must also give the Title of the authorized person signing.

#### Helpful Hint

- It is easier for us to process an LOA when it is legible and easy to read.
- The entire document needs to be valid, with no apparent alterations.
- The most common omissions seen on LOAs received by the VCSC are 1) they're not dated and 2) they don't say what level of information they need.

If you have any questions or would like to see a generic LOA, please call or email the VCSC. (800-773-3318 or email [vcsc@msg.pacbell.com](mailto:vcsc@msg.pacbell.com))

### 2. New Positive Identification Procedure

Now, when a customer applies for new service at Pacific Bell and has not already established credit with Pacific Bell, the customer may be asked to provide identification prior to connecting service. The positive identification consists of a photo identification or other acceptable ID. The customer will be asked to fax the information over to the National Credit Verification Center (NCVC) for processing. Once the fax is received at the NCVC, they have 48 hours to respond. Once we get a positive identification, we can then place the order and assign a due date.

– Bree Ma

Consultant/Vendor Liaison Manager  
SBC Pacific Bell

### CALTRANS INNOVATIONS

(continued)

Most of the important work on a project of this scale is done in the up front engineering design that is required to allow for the many video sources and destinations to be managed in a highly functional and easy-to-use interface.

The result is that the Caltrans OCTMC now has a fully functional visual communications environment that provides them with a leading-edge response mechanism to address the challenges of a post-September 11th world, while optimizing the challenges of keeping Orange County traffic moving as smoothly as possible.

– Michael Behr

ISS/Video Specialist  
Visual Communications Solutions  
SBC Pacific Bell

## Jagdish Kohli, Ph.D

### 511-INTELLIGENT TRAVEL INFORMATION SERVICE

Utah's 511 system came online just in time for the 2002 Winter Olympics. The Salt Lake Organizing Committee was one of the participants in the 511 service. This service was designed to offer the visitors games-related information, such as event location, driving directions, public transit instructions and tips for avoiding traffic snarls.



Utah was one of six states selected to launch a 511 service after the Federal Communications Commission (FCC) in July 2000 officially designated 511 as a nationwide number for Travel Information. Other states that will offer the 511 service include Kentucky, Nebraska, Minnesota, California and Arizona.

In this article we explore the following:

- 511 Service Features
- The N11 Family of Services
- How Does it Work?
- 511 Case Study Overview
- Looking Ahead

#### 511 Service Features

In addition to the services provided to Winter Olympics visitors, 511 service has a number of other options for the users. These include:

- Traffic, which will present information on collisions, congestion, construction and closures.
- Winter road conditions, which will advise on icy or snowy roads and whether snow tires or chains are required.
- Public transit, which offers hours of operation and general fares for buses and light-rail lines.

511 is an evolving service with the goal of including all travel related information in a unified database. This would include information on Airports, Greyhound Bus Lines and transit agencies throughout each state. The availability of up-to-date traffic information is expected to provide a number of benefits to the travelers such as:

- Avoid congested highways
- Save on pressure travel time
- Lower chances of road accidents
- Help corporations to stagger work hours based on traffic volumes on certain routes
- Enhance driving experience

Every year more than 6 million crashes occur on U.S. highways. These crashes kill more than 41,000 people and injure nearly 3.4 million others.

#### The N11 Family of Services

Although standard 7-digit and 10-digit numbers exist for many services, the 3-digit numbers known as "N11s" are easier to remember and easier to use. The complete family of N11 numbers is shown in Figure 1.

N11 Family of Services



Figure 1

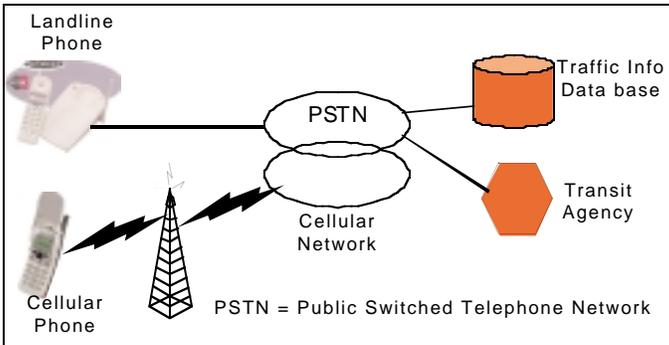
- 211 – Assigned for community information and referral services.
- 311 – Assigned nationwide non-emergency police and other government services.
- 411 – Unassigned, but used virtually nationwide by carriers for directory assistance.
- 511 – Assigned for traffic and transportation information.
- 611 – Unassigned, but used broadly by Local Exchange Carriers (LECs) for repair service.
- 711 – Assigned nationwide for access to Telecom Relay Services (TRS) for individuals who are deaf, hard of hearing, or have speech disabilities and voice users.
- 811 – Unassigned, but used broadly by LECs for business office use.
- 911 – Assigned as the universal emergency telephone number.

Since N11 are a scarce resource, the FCC has been reluctant to assign them. Already, 911 and 411 are used nationwide. The FCC hasn't officially assigned 611, but carriers for phone repair service use it broadly. In 1997, 311 was assigned nationwide for non-emergency police and other government services, and 711 was assigned for access to Telecom Relay Services for the hard of hearing. The FCC recently assigned 211 for health and human services and 511 for traffic and transportation services.

#### How Does it Work?

511 three-digit services are designed with efficiency and reliability as basic requirements. A 511 caller can call from a landline phone before taking a planned trip or from a cellular car phone for obtaining real-time traffic information. The 511 caller can get information from an interactive voice response system or may be routed to an appropriate transit agency based on need. A system view of an evolving 511 network is shown in Figure 2.

**Evolving 511 Telephone Network**



**Figure 2**

**Here's how the service works:**

- A three-digit 511 code is assigned for use to a "subscriber" in a specific local calling area.
- The subscriber obtains/secures/designates a 7 or 10 digit Routing Telephone Number (RTN) to route calls made to the 511 number.
- All telephone company switches within the basic calling area are programmed to translate the 511 code to the designated point-to number.
- A caller dials the 511 code associated with a subscriber's traffic information service and/or customer service transit agency.
- The switch recognizes the 511 code as an abbreviated dialing string, deletes the 511 digits from the dialing string and translates them into 7 or 10 digit "point-to" number.
- The switch routes the call to the 7 or 10 digit point-to number.
- The 511 subscriber pays for the calls that are routed to the "point-to" number.

The initial phase of 511 services is focussed on landline based telephone access with an evolution to provide services to cellular phone callers.

**511 Case Study Overview**

Currently there are at least 300 telephone numbers across the country that are being used to provide traveler information. It is a nightmare for cross-country travelers and truckers to get timely road closures and traffic information in a convenient fashion. In the state of Arizona, five government sponsored phone-based traveler information systems have been identified. A summary of these five systems is shown in Table 1.

*"You are a part of all that you have met."*

**Table 1:**

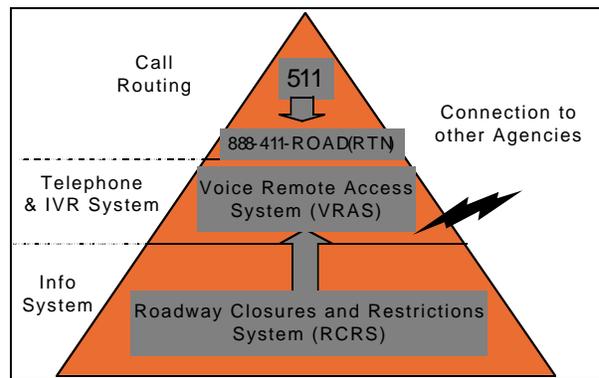
**Current Transportation Phone Services in Arizona**

Phone #	Managed By	Service/Information Available	Area Covered
888-411-ROAD	Arizona DOT	Road Construction 7 Closures	Statewide
602-253-5000	Valley Metro	Dial-A-Ride Services, Bus Routes & Schedule Information	Metro Phoenix
602-262-7433	Valley Metro	Ride Share & Ride Matching	Metro Phoenix
602-372-9832	Maricopa County	AZTech Project Information & ITS Service	Metro phoenix
520-792-9222	SunTran	Schedules; Routes; Location of Stops; Bike Lockers and Park & Ride Lots	Tucson and parts of Pima County

Source: <http://www.its.dot.gov/511/Arizona.pdf>

The 888-411-ROAD toll free phone system, Voice Remote Access System (VRAS), operated by Arizona Department of Transportation (ADOT) is the most relevant in terms of near-term 511 services. The VRAS is an automated interactive voice response (IVR) system that handled over 100,000 phone calls in 2000, more than 100% increase from 1999. The VRAS often becomes overloaded with demand during inclement weather or holiday weekends. Various components of ADOT system are shown in Figure 3.

**ADOT System Components**



**Figure 3**

The Roadway Closures and Restrictions System (RCRS) provides this information to the VRAS. The RCRS collects information about construction locations, traffic-related maintenance activities, weather-related road closures and traffic incidents and accidents. This information is collected from authorized agencies for both local arterial streets and urban/rural highways statewide. Presently, data is inserted from 89 locations ranging from ADOT Districts, several cities, the Highway Patrol, National Forest and Weather Services, Grand Canyon National Park as well as neighboring states.

At least in the near-to-mid-term, Arizona DOT will continue to operate the VRAS as the gateway to traveler information in the state. An Arizona 511 Task Force coordinates the conversion of current travel-related phone systems and facilitates their expansion. The Task Force has identified a number of issues for further study:

- Multi-agency coordination
- System capacity expansion
- Roadside signage to "advertise" 511
- Call forwarding option to reach the appropriate transit agency
- Standards or guidelines for interactive menu tree design
- System pricing
- 511 service by cellular phones
- Commitment of financial resources

### Looking Ahead

The FCC and US Department of Transportation (USDOT) has taken a progressive step by facilitating the development of 511 services. Ease-of-access to vital information is the prime impetus behind this and other N11 services in the fast evolving information age. A number of State and Local agencies as well as wireline and wireless telephone companies are major stakeholders in bringing the full 511 vision to reality. The following is a summary of some of the key challenges that lie ahead to provide a comprehensive portfolio of 511 services:

- The traveling public often relies upon pay phones. Competitive local exchange carriers largely operate pay phone networks. Negotiations with these carriers, especially those that operate pay phones located in rest areas, should illustrate the benefits of supporting 511. The number of pay phone operators and how they would be compensated is a real issue for 511 call routing.
- When 511 calls are placed that require routing outside of the caller's local calling area, the associated long distance charges must be borne by the "511 subscribers" if the calls are free to the callers. Calls forwarded to another transit agency will incur additional charges. These charges should be considered in planning the roll out of 511 service.
- Costs for establishing the necessary information gathering and packaging will vary widely by state and region, with the extent of existing infrastructure being a key factor. 511 services may not bear the entire cost of information gathering and packaging as this information can be used for transportation system management and long-range planning.
- The typical wireless user will be less likely to utilize 511 service if they incur additional cost of making the call while roaming. Studies have shown that information service calls from wireless callers often result in one or two follow on calls. Wireless providers may wave airtime and roaming charges associated with 511 if they realize the potential for additional calls.
- Another Enhanced 911 (E911) federal initiative is under development to pinpoint the location of the wireless caller for responding to emergency situations. Global Positioning System (GPS) or

other location-based technologies will be deployed for this purpose. Integration of 511 caller's location information from E911 systems will add another level of intelligence to provide additional value-added transportation services.

As our "Information Age" matures, the need for more intelligent 511 and other N11 services will be uncovered and new services created for the benefit of our society.

Stay tuned for more information on other N11 services in future issues of **UPDATE**.

*Jagdish Kohli is an IT industry consultant. He has over 22 years of telecommunication industry experience working at Bell Labs, Bellcore, Pacific Bell and Telecompetition, Inc. Jagdish holds BS, MS and Ph.D. degrees in Electrical Engineering. He is a Senior Member of the Institute of Electrical and Electronics, Inc. (IEEE), USA.*

*Jagdish recently completed the UMTS Forum's "3G Portal Study" – A Reference Handbook for Portal Operators, Developers and the Mobile Industry. This study has been published as UMTS Forum Report No. 16 in January 2002.*

*Jagdish can be reached at [jkohli@attbi.com](mailto:jkohli@attbi.com).*

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### THE VCSC'S MARYJANE SIMMONS

(Continued)

excellent support and service to vendors and consultants and their clients. She enjoys the interaction with external customers and particularly likes her role in helping customers buy the right products to meet their telecommunications needs. She offers this advice to consultants and vendors: "Send an email with complete information of your client's request and provide enough time and advance notice to process the complex orders so the installation will be done quickly and on time and with no mistakes." One of the main goals of a SSM is to provision complex orders with no errors. Maryjane achieves this by always communicating and establishing a good relationship with her customers.

Maryjane finds the SSM job challenging but highly rewarding. She is quickly learning the complex products (such as PRI, Super Trunk, Frame Relay) that vendors and consultants order for their clients. Her learning curve is very steep now because the VCSC SSM must learn about many complex order procedures and systems and be able to refer to other departments to coordinate the successful provisioning of the complex products. Maryjane is gaining the job skills and knowledge by working closely with the experienced SSMs, Wendy and Toni in Anaheim. With her strong determination and dedication and excellent support background, Maryjane is fast becoming a Super SSM. SSMs have to be Superstars because they take care of all the many customer requests and inquiries while processing complex orders and juggling the demands of many internal groups for detailed information or changes that impact orders. We are pleased that Maryjane has joined the Superstar Team of SSMs in the VCSC.

(Continued on Page 20)

**THE VCSC'S MARYJANE SIMMONS**

(Continued)

Having grown up in the Oakland/Bay Area, Maryjane attended San Francisco State University and has her B.A. degree in Psychology. Maryjane has been married for many years to James, who is a fine artist. She has three boys (ages 18, 15 and 7 years) and the "four boys" keep her busy. But she finds time for her love of flower arranging and reading motivational books. Her favorite author is T.D. Jakes who wrote "Maximize the Moment." Maryjane sets out an intention or affirmation everyday. These are four intentions she lives by daily:

1. **Have a Dream** and work hard to make it a reality.
2. **Keep my word** (to have integrity and commitment)
3. **Share** the things that work with others (she advises others on personal financial management and on getting ahead and how to enjoy life)
4. **Have a positive attitude** and have fun

With her positive attitude and inspirational goals, Maryjane aspires to become a therapist for women after she retires from Pacific Bell. In this way, she feels she can help her community in a positive, yet rewarding way. Sounds like she has the right skills for being a great SSM and Maryjane aspires to that role as well.

– Lowayne Shieh  
Liaison Manager  
Consultant/Vendor Sales Group

Here is the SBC Pacific Bell VCSC Team of SSMs who implement your complex orders (i.e., Frame Relay, ATM, PRI, Supertrunk etc.):

Toni Gilbert 714-284-3086  
**tg3152@msg.pacbell.com**

Wendy Grimes 714-284-3082  
**wg1628@msg.pacbell.com**

Maryjane Simmons 415-545-6041  
**ms3196@msg.pacbell.com**

**“CINGULAR WIRELESS”**

- Q.** What is Cingular Wireless doing regarding 3G service?
- A.** Cingular announced in the fourth quarter it will begin upgrading its network to third-generation (3G) wireless data technology by introducing EDGE (Enhanced Data Rates for Global Evolution). This technology enables consumers nationwide to access the Internet from their wireless device at much higher speeds than in the past. The upgrade to EDGE will be later this year, with an expected completion in early 2004.

Cingular currently offers short-messaging service nationwide and its Wireless Internet Express through its GPRS service, which is equivalent to the 1XRTT service Verizon recently announced. Both services have similar peak data rates. GPRS also is an international standard and is being adopted in more than 170 countries.

Cingular launched GPRS service in Seattle in August and also offers the service in Las Vegas, North Carolina, South Carolina, eastern Tennessee and coastal Georgia. The company expects to launch GPRS service in California later this year. Cingular now has 1.3 million subscribers who pay for monthly access to data services.

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- |                 |  |
|-----------------|--|
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