August 2004

UPDATE

Solutions for Success

Consultant/Vendor Sales Group

>SBC FreedomLink℠ Moves into McDonalds

SBC FreedomLink℠ is proud to announce an agreement that will give SBC FreedomLink customers unlimited access to McDonalds restaurants Wi-Fi hot spots, with up to 6,000 locations to be deployed over the next year. Under the agreement, McDonalds Wi-Fi hot spots in the SBC service territory will have co-branded, in-store signage and materials identifying them as part of the FreedomLink Wi-Fi network.

"McDonalds' strong brand, convenient locations and commitment to Wi-Fi make their restaurants an ideal fit for our FreedomLink service," said Ray Wilkins, President, SBC Marketing and Sales. "The agreement will help us create the industry's most extensive Wi-Fi footprint, and illustrates how Wi-Fi provides us with a range of revenue-generating opportunities, including revenue from transport services such as DSL."

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John Capoccia

>SBC California Out-of-Franchise Expansion: Now 67 Collocation Sites With More On The Way!

SBC California is pleased to announce a dramatic expansion of our Out-of-Franchise facilities in 2004 that greatly increase the competitive choices for customers that are outside SBC California's traditional territory. Even though we've been doing business in Verizon's, Frontier's and SureWest's territory since the California Public Utilities Commission granted Pacific Bell permission in 1996, our coverage and product offerings have been limited. With this expansion, we're now able to offer our competitive pricing and World Class Service to small, medium and large business customers whose choices were previously limited.

We've expanded our footprint from the nine collocation sites in West Los Angeles, Santa Monica, Marina Del Rey, Playa Del Rey, Mar Vista and Novato areas to serve the following cities with 67 new collocation sites:

LA County: Long Beach, Torrance, Pomona, La Puente, Lancaster, Redondo Beach, Walnut, Baldwin Park, Glendora, Monrovia, Rolling Hills, Hermosa Beach, Pasadena, Covina, San Fernando

Orange County: Huntington Beach, Laguna Beach, Westminster

San Bernardino County: San Bernardino, Ontario, Upland, Cucamonga, Chino

Riverside County: Sunnymead, Temecula

Soon we'll be turning up collocation sites in *Palm Desert* and *Palm Springs*.

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Kari's Korner

>It's All About Communication!

James Connolly would have loved the 2004 Olympics this August in Athens, Greece. To see Olympic winners get instant worldwide acclaim (except of course for any broadcast taped delays) would really be something for the Olympic champion who won the gold in Athens over 100 years ago.

Connolly, a Boston resident, was the first person to win an event in the modern Olympiad in 1896. On April 6th, Connolly won the "hop, step and jump" with an incredible leap of 44 feet, 11¾ inches. He defeated his rival by almost three feet!

Yet no one but the folks in the stadium knew of his victory. In fact, nobody in the United States heard of his victory until Connolly returned and told his family, who started telling everyone else. No more!

The winners in this month's Olympics in Athens will be known much sooner worldwide because of the magic of telecommunications, which seems to be breaking its own world records with ease every time you turn around. So much seems to be faster, more efficient, more affordable than ever before in the world of communication. We're lucky to be living when we are! So when you're watching the Olympics think for a second of how it must have been for the James Connollys of the world in the same city 108 years ago.

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SBC CALIFORNIA OUT-OF-FRANCHISE EXPANSION

Collocation refers to placing SBC California's equipment in the incumbent Local Exchange Carrier's (LECs) wire center, which allows us to provide products and services from our network using only the incumbent LECs "last mile" copper loop facilities. Thus SBC can provide its World Class Service and competitive pricing to business customers on a wide range of voice and data products and services such as Business Access Lines, Centrex, Primary Rate ISDN, Supertrunk, Integrated Access Service (IAS), PremierSERV℠, Frame Relay, ATM, and DS1. In addition, we can provide higher bandwidth services, such as DS3, SONET Circuit Service, SONET Dedicated Ring, OCN, and GigaMAN℠ via "build-out", where we place fiber facilities directly to the customer's premise when economically feasible.

The new collocation sites started turning up in January and results have been outstanding. Hundreds of new customers have been able to enjoy significant savings by converting lines from the incumbent LEC to SBC. We look forward to thousands more!

The entire Out-of-Franchise team is available to assist with designing and implementing solutions to meet the needs of customers in Verizon's, Frontier's and Surewest's territories using SBC products and Services.

SBC CA Out-of-Franchise Organization:

Sales Vice President – Howard Lenox, Jr.

Director – John Capoccia

Sales Manager – Guy Smutz covering West LA territory (Santa Monica to Palos Verdes)

Sales Manager – Morgan Douglas covering San Fernando Valley (Thousand Oaks to Lancaster)

Sales Manager – Eric Cabrera covering South Beaches (Long Beach to Laguna Beach)

Sales Manager – James Nichols covering Inland Empire (Monrovia to Ontario to Upland)

Sales Manager – John Park covering San Bernardino (San Bernardino, Temecula/Murietta to Palm Springs)

Technical Sales Manager – Heewon Kim for statewide Technical Sales Executive Support

Provisioning Manager – Charlotte Fraise for statewide implementation support

Engineering Manager – Nancy Smith for statewide engineering support

John Capoccia, a Director in the SBC California Out-of-Franchise Organization, has been with SBC California since 1983. He can be reached on jc1468@sbc.com.

> SBC Team Deploys IP Telephony Solution to Warner Music Group

Converged Network Increases Productivity, Nets Cost Savings Associated with Owning and Maintaining Disparate Network

Challenge

- Implement a converged voice/data network within main Warner Music Group locations and extend converged regional networks to regional remote offices.
- Provide a totally integrated solution to Warner Music Group employees across the nation.

Solution

- The SBC team converged voice, data, messaging, video and audio communications by implementing the SBC IP Telephony solution enabled by Cisco AVVID (Architecture for Voice, Video and Integrated Data), delivering the business benefits of a converged network using a single IP network infrastructure.
- To streamline communications, the SBC team also deployed Cisco Systems® Unity unified messaging.

Results

The IP Telephony portion of the solution has lowered the cost of ownership dramatically while also decreasing infrastructure costs. It also provided Warner Music Group with a common architecture to expand new applications, the potential to lower traditional telecommunications long distance services between converged sites, and provide remote work opportunities. Lastly, the deployment has helped elevate Warner Music Group to a new level by enabling the company to better meet the needs of its high-profile clients.

The IP Telephony solution has resulted in a more efficient network for Warner Music Group and has delivered significant cost savings associated with owning and maintaining a converged network. Additionally, features such as voicemail and interoffice calling have significantly streamlined communications, while increasing employee availability and productivity. In short, the deployment has helped elevate Warner Music Group to a new level.

"Remember, life is not measured by the number of breaths we take but by the moments that take our breath away"

– Anonymous

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KARI's KORNER

Speaking of WINNERS – that's what we want to make every reader of UPDATE. We want to provide you with valuable information that will help you soar higher, swifter and make your business stronger than ever before.

We're giving you the latest on telecom products and services, strategies, security, wireless and much, much more. Some of our contributors are known internationally (just like the top Olympic athletes). We feel privileged to have Jagdish Kohli, Ph.D., Mark Fei, Jack Nilles, Steve Green and others sharing their wisdom with us. We also have a lot of special resources available just to help make you the most successful ever: liaison managers, sales support manager, websites, hotlines, emails and broadcasts (see back cover). Your Success is our Mission!

Go for the Gold!

Thanks.

Kari Aguinaldo

Kari **415.542.4516**
kw6875@sbc.com

CVSG Leader

2004 Summer Olympics August 13-29, Athens, Greece

The opinions expressed in UPDATE are not necessarily those of the SBC family of companies.

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FREEDOMLINK MOVES INTO MCDONALDS

The important brand-awareness benefits of this agreement for Freedomlink include exclusive Wi-Fi marketing rights in McDonalds restaurants in-region, which will bring the FreedomLink mark into the lives of millions through register toppers, table clings, door decals, instructional sheets, and drive thru/pick-up window decals.

This deal follows an SBC agreement announced in March 2004 that will make SBC FreedomLink service available at thousands of The UPS Store™ locations in the United States. FreedomLink service will also be offered in domestic Mail Boxes Etc.®stores, which are part of the UPS retail network. Adding the FreedomLink service to the array of business services provided by The UPS Store and Mail Boxes Etc. will enhance the stores' roles as "branch offices" for the millions of mobile professionals who already rely on the centers for convenient access to business services such as printing, copying and shipping.

Douglas Ireland

>SBC FreedomLink℠ Installs its 1000th Wi-Fi Hotspot

Executive Summary

SBC FreedomLink℠ jets ahead to become the third largest Wi-Fi provider in the US on the strength of long term contracts with venue partners like The UPS Stores, Cleveland Airport, and Mission Federal Credit Union. Averaging 200 new site installations a week, FreedomLink is poised to become the dominant participant in this exciting market.

Building on Momentum

SBC FreedomLink, the Wi-Fi Hotspot public Internet access service provided by SBC Internet Services, has grown rapidly since its inception to become the third largest provider of Wi-Fi hotspots in the United States. Our current momentum is unstoppable, averaging 200 new locations installed every week. Just as our "big brother" SBC Yahoo! DSL is both America's largest and fastest growing provider of high speed DSL Internet connections in the home or office, we at SBC FreedomLink aim to be America's largest and fastest growing provider of high speed Internet access on the road. Taken together, this provides our customers an unprecedented ability to access their data at blazing fast speeds all over the country.

Our recent success in signing a long term contract at the Cleveland Airport is one example of the strong evolution of our Wi-Fi hotspot engineering over the last year. SBC FreedomLink now has one of the most technologically advanced and service-driven models in the market. We can offer airports a wireless infrastructure that not only supports public Internet access, but also provides additional secure private wireless VLANs for use by the FAA, airport security, and the concessionaires. This advanced network design takes advantage of SBC FreedomLink's commitment to using the highest quality Access Points and switching plant in the industry. Amazing that we can provide this enviable infrastructure at no cost to the airports, but with our vision of being number one and providing FreedomLink users with the broadest possible network, we have to move aggressively and build for the future.

Main Street retail businesses are recognizing the benefits of making Wi-Fi available: drawing in new customers, keeping them in house longer, and generating new revenue streams. One of our new retail location partners, Federal Mission Credit Union, realized that attracting and engaging the young, professional, tech-savvy wireless Internet users in their markets was a good business decision. This market segment appreciates quality and service, and is loyal to brands, making efforts to appeal to them an excellent investment for all types of businesses. We are now rolling out high speed wireless Internet access at every branch, and Federal Mission is rolling out the red carpet to the local professionals.

Future So Bright

With over 1000 hotspots installed today and well over 1000 more contracted hotspots being installed at an amazing pace, SBC FreedomLink is growing into one of the most important competitors in the public wireless Internet access marketplace. Watch the headlines of America's front page news for more exciting announcements as we conclude negotiations for 1000s more sites, and the few remaining contenders for the number one position learn that "objects in the mirror are closer than they appear". The big winner is our customer base, who will be able to leave the wires behind and web surf right out their front doors and on the road this summer.

Douglas Ireland, Senior Account Manager for SBC FreedomLink Venue Acquisition, joined SBC last year after earning his Masters in Network Engineering in Barcelonia, Spain. He can be reached at 415.537.8073 or Douglas.Ireland@sbc.com.

>SBC Announces Wi-Fi Service Available at Bob Hope Airport in Burbank, CA

Travelers passing through Bob Hope Airport won't have to hum his theme song, "Thanks for the Memories," when they think about their high-speed Internet connection. Now they can enjoy the benefits of FreedomLink Wi-Fi (wireless) Internet service provided by SBC Internet Services, an affiliate of SBC Communications Inc., to go online with a high-speed connection from almost anywhere in the airport.

Eleven FreedomLink hot spots provide Wi-Fi service throughout the gate area, baggage check and ticketing, restaurants and rental car area. The technology helps travelers be nearly as productive waiting for flights as they are in the office, with the ability to check e-mail, access the Internet, or to connect to their employers' networks, files and information using VPN (Virtual Private Network) technology.

Customers have a choice of purchasing monthly FreedomLink memberships with unlimited access to all FreedomLink hot spots for $19.95 a month, or day passes with unlimited access to FreedomLink hot spots for one calendar day for just $7.95. The FreedomLink service will be identified through kiosks and displays set up in the airport.

A Welcome Addition For Travelers

"The FreedomLink hot spots in Bob Hope Airport give travelers the next best thing to being in the office, so they don't have to waste a single moment while they wait for flights. We extend these benefits by providing a consistent Wi-Fi experience nationwide," said Eric Franey, Director, SBC Wi-Fi Market Strategy. "SBC companies are committed to delivering high-speed Internet services to customers wherever they need it, at home, in the office or on the road."

"Offering FreedomLink Wi-Fi access at Bob Hope Airport will be a welcome addition to services for our travelers and enhance the well-known convenience of this facility," said Airport Executive Director Dios Marrero.

In Bob Hope Airport, the FreedomLink service transmits data from users' wireless devices via a base station, called a hot spot, linked to a high speed Internet connection provided by a T-1 line. The service will work with most Wi-Fi enabled laptops or personal digital assistants (PDAs). Customers can gain access to a FreedomLink hot spot when they are within a 150-foot range of its location – about half a football field length in any direction.

The FreedomLink service is part of an integrated effort to meet customer demand for a comparable broadband experience in the home, office or on the road. To meet this goal, SBC companies plan to make available more than 20,000 Wi-Fi hot spots to FreedomLink customers by the end of 2006 and work with Cingular Wireless to utilize Wi-Fi and Cingular's wireless network to deliver unprecedented coverage that enables customers to enjoy a comparable broadband experience at home, in the office and on the road. Customers can learn more about FreedomLink by visiting http://www.sbc.com/freedomlink.

"The Future is Now"

>What's in a Name?

Or Should We Say WIAN? Or Does That Sound Too Whiny?

Acronyms. Bureaucracy.

We've all been there – Reading a document or attending a meeting where acronyms are being thrown about like confetti; Downloading forms where the "instruction document required to fill out the form" is longer than the form itself (what's up with that?) or being told "no more change requests to the change request". I was actually told that recently, and I had to put the person on hold to laugh and spend a moment picturing myself wading into an Olympic-size pool full of red duct tape.

We are surrounded by industries and organizations that are rife with acronyms, where you have to speak the language – or learn to speak it – if you want to understand what's going on at all. These organizations include the federal government the telecommunications industry, and the medical industry. I've actually been bold enough on several conference calls to ask people what an acronym meant Then it got real quiet on the call. I could just picture half the people thinking "stupid moron"; and the other half thinking "I also wondered what that stood for... moron". Recently I was in a meeting to discuss the "DAT process". But no one actually knew what DAT meant; one team member said it would be followed by a meeting to discuss "deeze, dem and doze". People from the south side of Chicago, like myself, can appreciate that humor. (My in-laws still say "youse" – pronounced "yews" – instead of "you"). DAT actually stands for "definition and assessment team", or "digital audio tape". Take your pick.

Let's examine some other "real world" telecom acronyms. We'll consider what they could mean, and what they really mean.

MSOT – name of a new French sports car *(Real meaning: Mechanized Sales Ordering Tool)*

OOM – a hip-hop way to say "boom". "Oom, man. Git it up on". *(Real meaning: order of magnitude)*

BOM – isn't this what teenie boppers say to mean something's cool? Yo dude, that's BOM. It's phat. *(Real meaning: bill of materials – a fancy way of saying "list".)*

SOW – could be mistaken to mean a side of pork, or other such piggy term(s). *(Real meaning: statement of work)*

ROW – isn't this what the British say when they argue with somebody? *(Real meaning: right of way)*

Wi-Fi – no, it's not your daddy's old stereo on 4 legs that looks like a dresser. It's a new rock and roll star's calling card. Remember that old Flintstone's episode where Fred became a rock star and called himself "Hi-Fi"? He used his feet to fly up 3 feet into the air while screaming "go go go go go!" *(Real meaning: Wireless Fidelity, the 802.11 picocell-based Internet access technology)*

ARP – burping sound made by technology workers. *(Real meaning: address resolution protocol)*

RARP – barking sound made by one of those goofy mechanical dog things that were the rage in Christmas, 2002. Or a reverse ARP (the inverse burp some of us are cursed with) *(Real meaning: reverse address resolution protocol).*

WiMax – a new wide-screen theatre format. Or a new line of "big and tall" leather clothing. *(Real meaning: a new wireless WAN-based service that's under development. Maximum wireless?)*

DWID – could stand for "digital squid". Or a 21st century nerd. Or both. "That Smedley, what a DWID". *(Real meaning: Dense Wavelength Division Multiplexing ID)*

SCID – name of a new rapper from Harlem *(Real meaning: SONET carrier ID)*

NCI – a new telecom carrier that's taking the place of MCI (N is after M, right?) *(Real meaning: Network channel interface)*

POP – for Midwesterners, a soda serving. Or Webspeak for "please oh please" – a subtle form of begging *(Real meaning: point of presence)*

SLA – Servings Less Aggravation. An FDA indicator of how many servings are in a specific food item, without listing the % of saturated fat in same. *(Real meaning: Service Level Agreement)*

And don't forget... TLA is an acronym for three-letter acronym.

Paul

Paul Bedell is SBC Product Manager for Hosted IP Communication Service. He also teaches several wireless courses at DePaul University in Chicago and is the author of several telecom books that are available at Amazon.com; Borders; Barnes and Noble and other popular outlets. Paul can be reached at pb1321@sbc.com

"A Smile is a Curve That Sets Everything Straight"

– Phyllis Diller

>Web Watch

Here are a few cool sites. Get out your surfboards:

www.enature.com

This site is basically just what it says. It has an index of "Parks and Refuges", "Wildlife Lists"; "Backyard Habitats" and "Nature Theatre", just to name some of them. It also has "OnLine Field Guides" that give pictures and descriptions of nature in categories such as amphibians, birds, seashells, spiders, trees and wild-flowers to name a few. My personal favorite part of the site: the "Bird of the Day" feature, that allows you to click on a speaker icon to hear the song of the bird. There's also an "Ask An Expert" section, where experts in any given area can be asked questions, and (presumably) they'll give great answers (I haven't tried that yet). Surf and enjoy!

www.emailreplies.com

This site reviews e-mail rules of the road. It contains the 32 most important e-mail etiquette tips. Here are some examples.

1 Rule: "Be concise and to the point". Duh. Or another one you probably already knew…that IT'S NEVER POLITE TO CAPITALIZE IN E-MAIL BECAUSE IT SEEMS LIKE YOU'RE SHOUTING.

14: "Do not overuse 'reply to all'". How many times have you wondered why Tim is telling 35 people that he can't make a meeting (who cares?)

12: Explains how to add disclaimers to e-mail.

29: "Don't forward virus hoaxes and chain letters" – and if you don't send this to 10 people by midnight your tongue will fall out. Really! Surf and enjoy!

SMARTpages.com Now Offers More Than 15 Million Business Listings

- Multiple listings for businesses have been added. For example, individual attorney names and numbers are now also listed instead of just their law firm's primary number.
- Listings without known headings can now be located on a name-search basis.
- Business listings, pulled from multiple data sources are being updated monthly.

Data with David

I recently read a well-written article on the SBC PremierSERV℠ Hosted Internet Protocol Communication Service (HIPCS). The article provides a good overview of the technology and the new Voice Over Internet Protocol (VoIP) service offering from SBC. It was written by Mark Sokolowski, a former newspaper reporter, legislative aide in the Florida House of Representatives and now part of the SBC product management and development team. I've included it below, entitled, *"It's HIPCS To Be Square,"* since it takes what can be a complex service and explains it in simple terms.

The April *Telecommunications Magazine* lists HIPCS and hosted VoIP (Voice over Internet Protocol) as one of this year's 10 hottest technologies. That's not surprising as IDC reported the worldwide IP PBX market had a strong year in 2003 at over 40% in year-over-year revenue and growing 48% in 2004. That's not surprising when you consider IDC predicts revenues of $6.7 billion for all hosted VoIP services by 2007. We are clearly a national player in this market providing hosted VoIP services in tandem with CPE solutions and managed services to meet customers' needs.

It's HIPCS to be square

The first electronic communication sent over wires was digital. Samuel Morse's telegraph used dots and dashes to spell out words and sentences. Today, packets of 1s and 0s have replaced the dots and dashes in digital communication. And our latest product for business customers merges digital signal technology with telephony – Voice Over Internet Protocol (VoIP)

The result is the Hosted Internet Protocol Communication Service, conveniently known as HIPCS (pronounced hips). Sold under the PremierSERV brand, HIPCS is being marketed to business customers and offers a number of features and functionality that increase productivity, mobility and reduces costs.

Since IP Telephony uses the same basic language as common data communications services, such as e-mail, new levels of integration are possible, allowing customers to more effectively manage information and stay in touch with their customers.

- Voice mail and e-mail can be consolidated in a single inbox, and voice messages can be forwarded like e-mail. Users can remotely access e-mail through text-to-voice capabilities.
- Calls can be forwarded to a mobile phone, remote office, another extension, etc.
- Computers become part of the phone as phone calls can be initiated with one click in the Web browser. Conference Calls can be scheduled and initiated from any Internet browser.
- IP Telephony users can plug in their personal computers from any Internet connection, allowing them to use their regular "office" number even when traveling or working from the road.

HIPCS technology pipes voice and data traffic over privately managed, highly secure Internet-based networks using high-speed transport, over the most efficient route. That compares with 117-year-old telephone technology that requires a dedicated line for a single stream of traffic.

Today, HIPCS is available from SBC Companies nationwide in over 65 markets, with over 100 markets planned by the end of the year. The architecture is based on softswitch technology with feature services and media servers out of centralized data centers, with a wide distribution of media gateways across the country.

We tested this service for about a year before it was made a general market offer. Since Oct. 1, 2003 HIPCS was available in selected cities including Dallas, Houston, St. Louis, Los Angeles, San Francisco, San Diego, Sacramento, and Hartford. Since then the number of metro markets served has increased from eight to over 65 and now includes Cleveland, Columbus, Tulsa, San Antonio and others. Additionally, the 30 out-of-region markets (SBC Telecom) have been added.

The company plans to increase the number to approximately 100 markets both within and beyond the traditional footprint by the end of 2004.

Customers must purchase new IP handsets to garner the full functionality of the services. SBC Companies are selling Cisco and Polycom phones, as well as analog adapters to allow customers to continue to use their existing phone sets (but they will not have the full IP functionality). Pricing for the new service is in a comparable range with pricing for CPE solutions. Per-seat pricing begins at $29 on a regional basis and $39 for national service.

On-net calls are unlimited for both pricing plans. The national pricing plan adds unlimited off-net calling to the offer. A unique benefit is that any calls between customers (even if they are with different companies) who have Hosted IP Communication Service from us are all on-net – which means there is no additional charge for these calls.

The reaction from analysts for HIPCS has been good. According to a vendor rating issued on Jan. 15, 2004 by the Gartner Research: "SBC may be the best-prepared former incumbent local exchange carrier (ILEC) to challenge AT&T, MCI and Sprint if it successfully executes its strategy. SBC should appeal to midsize enterprises that are based in the region and looking for low prices."

The VoIP applications are what will drive customers to this new technology beyond any cost savings realized through Internet calling. Increased productivity and convenience of personalized web portal features allow for customization, including "click to call," "click to conference," and "find me/follow me." Remote office employees can access their communication systems and stay in touch from wherever they are. While VoIP has never suffered from lack of hype, it's a technology that will eventually change how we do business, be it a small business or a large corporation. Bottom line, this technology will provide flexibility and features that will make using this service attractive as broadband continues to become the mainstream of Internet access.

For more information about the SBC PremierSERV Hosted IP Communication Service (HIPCS), please contact your Consultant Liaison Manager at 1.800.552.5299.

Tom David
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UPDATE Tips While Driving

We Care For Your Safety

Our readers are very important to us and we want you to get to your destination safely. Here are some tips that may help you:

1. Always stay focused on one thing while in your vehicle – driving. Try not to be distracted by anything else.
2. Drive defensively. Give yourself plenty of space from the car in front of you and expect the unexpected from vehicles around you.
3. Allow plenty of time to reach your destination.
4. Put on your seatbelt when you first sit down in the vehicle and before you start the engine.
5. Don't let other drivers annoy you through their aggressiveness or poor decisions. Don't get uptight. Don't get caught up in it. Stay relaxed.

"Never Be Less Than Your Dreams" – Danny Cox

Nancy Grover

>Steganography – Hiding Before Your Very Eyes

Introduction

The word *steganography* originates from the Greek steganos meaning covered or secret, and graphy which means writing or drawing. Consequently, steganography literally means covered writing; writing that is not perceptible to the casual observer. While cryptography scrambles a message, making it unreadable to anyone without the key, steganography not only hides the message completely, it also hides the fact that any sort of communication has taken place.

Steganography allows a person to take one piece of information and hide it within another. Many types of computer files contain unused or insignificant areas of data that can be replaced with other, usually unrelated information. Information can be hidden in these files, and then shared between groups or individuals without others knowing what really lies inside of them. An image of a field of flowers could contain a map to the White House. A recording of a popular song could contain a company's top-secret plans.

Steganography can be used to protect a person's assets, placing a hidden "watermark" on images, music, and software, a technique used to claim ownership. It can also be used for covert communication within an underground community. There are several reports of known criminal factions using steganography to hide messages for the group within images that are posted to known Web sites. When other members of the group download the images, they can run steganography tools against the file to extract the secret message.

The Roots of Steganography

Even though changing computer files with steganography is a relatively new concept, other low-tech forms have been around since at least 400 BC.

Ancient Greeks, wishing to send secret messages would shave the head of a messenger, tattoo information onto his scalp, wait for the hair to grow back, then send the messenger to deliver the message to the intended receiver. This is seen as a form of steganography as the message itself was invisible underneath the man's hair, and the fact that there was message at all was virtually unknown to anyone.

Another steganography technique used in ancient times was the use of tablets. Normal tablets were made of wood with a coating of wax, with a message inscribed into the wax. In order to hide a message, an inscriber would write directly onto the wood, then cover the tablet with a fresh layer of wax, leaving the tablet to look unused. All the receiver of the tablet needed to do was to scrape off the wax to retrieve the secret message.

Later, spies wrote messages in a substance that would darken when heated, such as milk, lemon juice, or even urine. Once the paper was received, the receiver would just need to know to heat it up and the secret message would be revealed.

War movies and spy novels are full of examples of steganography, such as the null cipher, where a secret message is revealed by taking the first letter of each word in the message. Pinpricks in maps can be used as an overlay to reveal relevant letters in a message. Small changes in word spacing can indicate significant letters or words in a hidden message, and using a slightly different font can indicate where to look for those hidden letters. The difference between Times New Roman and Garamond is hardly noticeable when just a letter is changed here or there.

Steganography doesn't only apply to written forms of communication. Broadcast messages from World War II to the present have been used to hide coded messages. Some government sources suspect that recent terrorists have been releasing pre-recorded video tapes to television stations, which contain hidden messages. When these tapes are shown, other terrorists situated around the globe can receive the information intended for them.

Modern Steganography

Modern steganography is considerably more sophisticated than the examples given above. Today, people wishing to hide information can use one of almost 200 software programs known as stego tools. These tools allow a person to hide large amounts of information within images, document files, or audio files. This type of steganography can also be used in tandem with cryptography, doubly protecting the information. Once the data is encrypted, it can be hidden so that an adversary has to not only locate the message, an incredibly difficult task, they would then need to decrypt the information as well.

Stego tools have many legitimate uses, such as applying trademarks, watermarking, or hiding banking and other private information on a personal computer. If a hacker did manage to break into a person's PC looking for passwords or account numbers, they would never find them, especially if this information was hidden in last summer's vacation pictures. A business person might hide company secrets in a picture of their dog, again protecting the company should the laptop become compromised. Unfortunately, this can work the other way just as easily. A contractor or unscrupulous employee could deliberately walk off with information that should never be shared outside of the realm of a business, potentially selling the ill-gotten goods.

Modern steganography has introduced a whole new criminal element. In the past, spies and other underworld activities were carried out using a method known as a dead drop. This usually involved the swapping of a briefcase at a bus stop, or taping an envelope under a restaurant table for a contact to retrieve later. A lot of planning had to go into theses events, with the potential for something going awry being very great. Modern day criminals are still using the dead drop, but now they use the Internet.

They might start up an innocuous site dealing with bird watching, posting pictures of various specimens, some of which could contain secret messages. Their partners in crime could access the site, and using the *save image function* included in all web browsers, download the image, and run the appropriate steganography software against it to uncover the message, allowing the secret to be exchanged. A similar scenario can be played out on one of the many online auction sites. If a bad guy knows which auction to access, they can download the image of the item for sale and pick up their secret information. No one else visiting that particular auction would ever be aware something covert was happening.

The Information Hiding Process

Though it is possible to hide information in a word processor document, it is not used as often because missing letters and extra spaces between words are too obvious. In a graphic file, redundant bits of color can be replaced without a casual viewer noticing. In an audio file, bits of data, not detectable by the human ear, can be altered.

In an audio file, data is most often hidden at the very beginning or the end of a song. This is where a listener would be less likely to notice a change in the audio quality. Usually, the hidden message is placed after the end-of-file bit. This is the signal given by the audio file to the media player that the song is over. By hiding the data there, a listener could never detect that there was any difference in the quality of the audio.

The simplest approach to hiding data within an image file is called least significant bit (LSB) insertion. In this method, the 2 LSB's can be overwritten with new data, changing a color so slightly, it would go unnoticed by the human eye. As an example, suppose that

Jack Nilles

>War, Disease, Disasters and Telework

Although we usually treat telework as a means for coping with everyday business problems it often becomes a key tool for crisis management.

Two recent examples illustrate the situation: SARS and the war in Iraq. SARS (Severe Acute Respiratory Syndrome) burst upon the world stage late in March 2003 with the revelation that this new pneumonia-like disease was a serious potential killer. Probably originating in mainland China, the disease spread to Hong Kong and, via air transport of infected individuals, to the rest of the world. Although (so far) not a massive killer like influenza, SARS provoked Hong Kong into closing schools and, you guessed it, promoting teleworking as a means of continuing business as usual while working from home. As one example, *The Wall Street Journal*, in a front page article, described Ms. Liu of Beijing. Ms. Liu "spends almost all of her time working from home with computer and telephone, leaving only for short walks." Ms. Liu works for a Danish company.

The war in Iraq also has produced a new set of teleworkers: the command staff of US operations. General Tommy Franks oversees the conduct of the coalition forces from a base in Qatar via videoconferencing and other telecommunications technologies, according to press reports. Although the US armed forces have been using teleworking since at least the mid-1960s, judging by my personal experience, this is one of the few times when it has been publicly noted.

This recent recognition of the ability to telework follows a series of prior experiences where some form of disaster induces people to stay at or near home while still getting their work done. Two of the programs in which we have been involved serve as examples.

In 1989 the Loma Prieta earthquake, centered near Santa Cruz, California, caused massive destruction in the San Francisco Bay Area. Among the affected organizations was the California Public Utilities Commission, headquartered in downtown San Francisco. The PUC was participating in the California Telecommuting Project and had several telecommuters. Although the PUC headquarters were shut down for more than a week after the earthquake, the telecommuters kept right on working from their homes. As a consequence, the Governor of California issued an executive order requiring all state agencies to include telecommuting in their disaster preparedness plans.

Just five years later, the 1994 earthquake in the Los Angeles area caused widespread disruption of commuting patterns by the failure of several bridges and freeway sections. Thousands of Californians were cut off from their jobs essentially instantly.

Yet the 1989 and 1994 earthquakes shared a common phenomenon: although the roads were disrupted for months, many people ended up telecommuting. The inability of a lot of employees to get to their usual workplaces convinced thousands of companies and government organizations to try telecommuting over phone lines. Many, if not most of them, have continued that practice. Yet most were not properly prepared for telework and encountered difficulties in both management and technology. Some, but far from all, stopped their teleworking options after the roads were repaired.

The moral of all these examples is: use telework as a standard, everyday business option; you never know when you'll really need it.

Jack Nilles coined the terms "Telework" and "Telecommuting" in 1973. The co-founder and President of JALA International, Inc., has written several books, including "Managing Telework." JALA was the consultant to the State of California Telecommuting Project, the European Community Telework Forum and is helping develop telecommuting projects in Lisbon, Madrid, Vienna and Argentina. Jack can be reached at info@jala.com

"It's Not Your Aptitude, but Your Attitude, That Determines Your Altitude." –

Zig Ziglar

UPDATE

Continued from page 6
STEGANOGRAPHY

there are three adjacent pixels (nine bytes) signifying different shades of the color green:

10010101 00001101 11001001
10010110 00001111 11001010
10011111 00010000 11001011

In order to hide 9 bits of data, we would change just some of the LSB's resulting in the shade of green being altered so slightly, it would be practically impossible to detect.

10010101 00001100 11001001
1001011**1** 0000111**0** 1100101**1**
10011111 00010000 11001011

When done successfully, the only way to tell the difference in an audio or graphics file that has been altered is the change in file size. The new file holding the covert information will be larger that the original. Considering that most people will not have the original, detection is made even more difficult.

Steganalysis and Detection

Of course, the use of steganography is not illegal, but, as in a case involving terrorism, there is the issue of safety. Since steganography is such a secure form of communication and since it can easily be misused, it is important to be able to detect it. Steganography detection, also known as steganalysis, is growing field within the military, private industry and law enforcement.

A child pornographer might hide their files in innocent images, text, or sound files using steganography. An investigator can find a few clues that might lead to the discovery of these files by searching the computer for stego tools, which could indicate that there are potentially hidden files. Also, if steganography sites exist in the user's Internet cache, that too could signify to the investigator to check further.

One of the tools used by steganalysts is a product called Stegdetect, an automated utility used to analyze JPEG files for steganographic content. Certain types of images are more likely to show up as positives even when there is no data hidden there. These include drawings and paintings, and images with monotone backgrounds. The Stegdetect tool can help weed out the false positives.

Once an investigator identifies a file containing hidden data, another tool called Stegbreak may be used. Stegbreak can determine if content was hidden with one of the available stego tools. Once the tool used to hide the data has been identified, an investigator can then use that tool to break the code and reveal the hidden message.

Conclusion

Though modern steganography is still a relatively new idea, there are continual advancements in the field allowing even the casual user to easily hide their secrets. With every new stego tool, there is another program written to detect its use.

Steganography is a very complex and fascinating subject and outside the conventional cryptography and computer security methods most deal with each day. But it is also very real. It is a scary thought that just a sentence or two embedded in an image might be all that is needed to signal a crime or an attack.

Nancy Grover, Regional Manager-SBC Corporate Information Security, is responsible for the company's critical systems, including the core network and the Network Operating Centers. She is a Certified Information Systems Security Professional.

An In-Depth Study

>Legal Aid Societies Transition to a Hi–Tech, Multi-Point Call Center Environment

By Steve Green

Background

"Legal Services," sometimes known as "Legal Aid Societies" to the law community, exist to assure that all US citizens receive equal access to justice on civil matters. As most of us are aware, the office of the Public Defender exists to provide legal representation to individuals that cannot afford an attorney for their defense in a criminal matter, Legal Services provides a very important additional dimension of legal support to the economically disadvantaged community for civil matters. There are 250+ Legal Aid programs nationwide with Federal funding of over $300 million and total budgets exceeding some $500 million.

Legal Services and Legal Aid Societies throughout the United States provide no-fee legal assistance to the economically disadvantaged on matters of family law, including divorce, child custody and domestic violence as well as housing matters such as landlord-tenant disputes and evictions. Legal Services also provides assistance on elder law matters and related government benefits plus employment and consumer law. Essentially, only individuals whose annual income lies at or below the Federal poverty – income threshold may qualify for the "no-fee" assistance from Legal Services. The prioritization of the legal matters handled by a Legal Aid organization are set by that local organization's Board of Directors.

As Public entities, Legal Aid and Legal Services organizations throughout the United States are supported by Public funds. The majority of Legal Services' funding comes from a Federal umbrella corporation, the Legal Services Corporation, (LSC) based in Washington, D.C. LSC receives Congressional appropriations and distributes these funds accordingly throughout the United States based upon demographics. Primarily US census statistics are utilized to ascertain levels of poverty in various regions of our country and funds are distributed in accordance with the relative impoverished populations.

Likewise, most State governments support Legal Services, utilizing interest earned upon private lawyer's trust accounts. This is known as "IOLTA" or simply, Interest On Lawyer's Trust Accounts. Some State governments appropriate additional funds to support Legal Services above and beyond IOLTA funding. Nevertheless, Legal Services' funding is woefully inadequate to support the burgeoning populations of the impoverished, especially those residing in California and other southwestern or otherwise largely rural states.

As lean as Legal Services budgets were to begin after the creation of LSC and Legal Services in the 1960's, they were cut further in the Congressional budget cut days of the middle 1990's when the first serious efforts were made toward achieving a balanced Federal budget.

Challenge

Subsequently Legal Services organizations had to work smarter and more efficiently. In particular, LSC encouraged the upgrade of voice and data telecommunications technologies to process more client calls with fewer individuals. The concept of "Centralized Intake" for new clients was encouraged to screen new client callers in a faster and more efficient manner than the past.

As only clients whose income would fall within the Federal – income poverty guidelines could be served by Legal Services, and then only in law matters as described earlier, a great many callers are ineligible. Although ineligible clients are referred elsewhere, the intake process is nevertheless slow and painstaking. Intake screeners must be highly trained and experienced. Their work is very stressful and they often must provide double duty as receptionist screeners for walk-in potential clients. Turnover and "burnout" is common amongst those working in this capacity.

Qualified clients are scheduled to meet with an attorney/advocate either via telephone or upon walk-in, or, sometimes their matter can be handled immediately by the intake screener or an available staff attorney.

A difficulty of Legal Services is the dispersal of its staff. Staff must be dispersed in neighborhood offices for out-reach as clients often cannot afford the transportation to reach a single, centralized location. In the earlier years of Legal Services, this requirement complicated the use of the telephone and the filing of client cases and matters.

Improvements, advancements and affordability of telecommunications voice and data hardware and facilities technologies arrived none too soon for Legal Services.

As our new clients, we typically found Legal Aid Societies in "greenfield" states. They often utilized obsolete key telephone systems, or systems of defunct or poor manufacture. In some of our earlier projects there were no voicemail systems and in almost all cases, no permanent wide-area-network infrastructure. This was a surprise as I learned very quickly that, just like any other law firm, LSC required that all Legal Aid Societies either have a uniform case database or some other, reliable methodology for performing conflict-of-interest checks of clientele.

As we moved forward in our work for Legal Services, in most cases, Legal Aid Society Executive Directors and other management officials wholeheartedly embraced the new technologies we introduced to their organizations.

Even with small budgets, ACD technologies were first utilized very effectively for the intake screening process but usually just at the headquarters location. This was an enormous improvement over client applicants standing in line in the reception area of the local Legal Services offices waiting for their turn to schedule an appointment or see a legal worker. (Remember the old ways of Driver License issuance?) ACD queue times in some instances reached 30 minutes or more. The ACD reports could be utilized to show funding entities the high demand for Legal Services and the shortage of staff to meet this demand.

Some Legal Aid Societies developed the "Hotline" Call Center concept that went beyond utilizing the ACD technology just for intake screening. These calls centers provided centralized intake, legal advice and referral services and were generally staffed by Paralegals and/or attorneys. Such "Hotlines" process an enormous number of calls, many of which are 20 minutes or more in length.

Large quantities of calls of great length, coupled with deep ACD queues, added another dimension of problems: call blockage. Analog trunks in hunt groups were costly per DS0 in comparison with PRI services. The "busy signal" problem that plagued Legal Services for many years was well handled by PRI and other digital telephone services. These services became more affordable later, but could easily be justified anyway because of the "smart" technology they afforded.

Shortly after, new affordability of data hardware and facilities permitted the construction of voice and data wide-area-networks. Initially built with partitioned T1's for voice and data, some were much later converted to Voice-over-IP. [An Ohio organization had the first VoIP for Legal Services up and running in 1999 for 6 locations atop an SBC Frame Relay Network.]

In 1998 – 99 time frame, Pacific Bell/SBC and the State of California negotiated CalNet rates for government agencies and other Public organizations, providing very affordable

rates for PRI, Private Line and other data services needed by Legal Services.

With WAN construction for both voice and data, centralized voicemail could then be added for multi-location organizations, reducing costs for maintenance for voicemail systems and streamlining the automated attendant/voicemail and voice processing menu systems that Legal Services utilized for differentiating their callers to the various law disciplines and ACD splits.

The WAN also facilitated a uniform case management database and conflict checks were no longer a problem. Calls could be freely transferred to any location regardless of the location of their initial arrival.

Still later, ACD systems became sufficiently sophisticated and affordable such that some Legal Aid Societies acquired telecommunications systems utilizing the "one switch" concept. This meant that intake screeners and/or other ACD/Call Center agents could work in any of the multiple field offices of the Legal Aid Society with full transparency for the vectoring of calls to them. This meant a single, unified reporting system for all calls was possible, regardless of the location of the call's point of entry into the WAN, plus the availability of both real time agent and call status data and reports, accurately. This technology was acquired by a West Coast organization in the past few months. Earlier technology required that all call center agents must work in the same building upon the same telephone system so that accurate real time data and reports could be produced.

The concept of merging all locations of the Legal Aid Society into a single, transparent integrated call center has prompted some organizations to go further into CTI (Computer-Telephony-Integration), IVR (Interactive-Voice-Response) and Speech Recognition technologies.

This would include providing estimated-time-to-answer or queue depth information to the caller waiting in queue, caller scheduled call-backs, the matching of a previous caller's telephone number to the callers case number – thereby facilitating a "screen-pop" upon delivery of the call to the agent, this plus myriad other advanced Call Center features. The latter feature is soon to be implemented by a Legal Services organization in Maryland atop their VoIP WAN network and Call Center. Eventually this 'MLAN' Maryland Legal Assistance Network will encompass 20+ locations, perhaps the largest for Legal Services.

One of the newest and most innovative approaches to providing Legal Services is the ICAN! system developed and maintained by a west coast Legal Aid Society. ICAN! is a network of kiosks driven by web-based legal services software. ICAN! kiosks can serve low-income individuals in the preparation of properly formatted pleadings, plus provide court tours and education of the laws and the requirements to pursue their legal affairs.

We assisted in acquiring the data facilities that interconnect the kiosks with the host server. My client hopes to someday greatly expand the availability of these systems utilizing SBC RLAN technology, with later inter-operability with their high-tech call center to include video, chat and e-mail interface.

Very noteworthy is that many of these organizations have acquired this technology with the most limited of funds. Rarely able to acquire such technologies within their normal operating budgets, Legal Services management have solicited donations from the Private sector to fund many of their technological advancements and projects.

In less than a decade Legal Services generally has shown a commitment to promote and advance the utilization of telecommunications technologically to levels more often seen in a Fortune 1000 environment.

Even though many of the vendors of the technologies utilized by Legal Services have used the term 'overkill' to describe Legal Services' relatively small applications, the Call Center reports still show that technology improves productivity in terms of calls processed, cases handled and so forth.

Legal Services and Legal Aid Societies are genuinely philanthropic organizations. The hardworking and dedicated attorneys and other staff professionals of these organizations accept significantly less compensation than their peers in Private practices. Added to this is the increased stress of assisting clientele who exist in economic or other fringes of Society.

In our view, any technologies are well justified that provide mechanization, office automation, time management assistance and also the offload of client support from advocates to other media. New Legal Services applications are almost as dynamic as the tech industry itself. However, we expect that innovation and technological advancements will still meet the new demands of Legal Services' organizations as they strive to provide the best of service to their clients and our Society.

Steve Green, President of S.R. Green & Associates, has worked with numerous non-profit organizations. He began assisting Legal Aid Societies in 1994. His firm, with offices in Los Angeles and Wisconsin, provides consulting expertise in voice and network design and specializes in Call Center Applications. He can be reached at srgreen@srgreen.com.

>Yahoo! Content Now Available on Cingular Handsets

Cingular has partnered with Yahoo! to offer the most popular Yahoo! services on select Cingular handsets.

Available Services

Cingular customers can now receive:
Yahoo! Mail
Yahoo! Messenger
Driving Directions
Yellow Pages
News
Sports
Weather
Stock Quotes

Compatible Handsets

Yahoo! is currently available on all Wireless Internet-enabled phones.

How to Access Yahoo!

To access Yahoo! from your handset, follow the steps below:
- Access Wireless Internet (varies by phone)
- Click on "What's Hot"
- Click on Yahoo!

>Cingular, T-Mobile USA to End Joint Network Venture

Cingular Wireless recently announced it would end its network infrastructure joint venture with T-Mobile USA in New York, California and Nevada, with Cingular selling the California and Nevada network and certain California and Nevada spectrum to T-Mobile USA for approximately $2.5 billion.

Cingular will also receive 10MHz of spectrum from T-Mobile in the New York BTA as part of the dissolution terms originally agreed in 2001. T-Mobile USA, in addition to acquiring the network infrastructure in California and Nevada, will obtain 10MHz of additional spectrum from Cingular in San Francisco, Sacramento and Las Vegas, as well an option to buy an additional 10 MHz in the Los Angeles and San Diego BTAs.

The transaction is contingent on federal approvals of Cingular's acquisition of AT&T Wireless. The transaction is also subject to approvals from the FCC and Department of Justice. It is expected to close early in the first quarter of 2005.

>SBC Communications Named Top Telecom Company For Minorities

For the sixth consecutive year, SBC Communications Inc. has been named the top telecommunications company in *Fortune* Magazine's annual Top 50 "Best Companies for Minorities" list.

Jerry Hinek

>Be Suspicious of Your E-mail

Executive Summary

E-mail is the source of a lot of security problems that affect individual users and their personal information. This article addresses computer viruses and phishing, which are both security attacks against random individuals. It shows how to recognize and combat each.

Background

The computer underground knows the biggest vulnerability in computer security is a uninformed and unaware user who can be fooled. While there are technological things you can do to gain some computer security: anti-virus software, SPAM filters, firewalls and even passwords have limits. With the technology so good now, the criminals are stepping up their efforts to trick you into releasing their hostile software and your personal financial information.

Introduction

This article discusses the similar strategies used in two different kinds of hostile E-mail: computer viruses and a new practice called phishing. Phishing is an attempt to get you to give away your personal information freely and without suspicion.

Everyone should become aware and suspicious of even the most innocent and official looking messages.

New Approaches in E-mail Attacks

The criminals writing computer viruses have been collaborating with the people sending you junk mail and with others trying to steal your identity. Recent viruses allow their authors to commandeer your computer to spread newer viruses, to spread SPAM and to load some nasty Spyware on your computer. Originally, viruses were nuisances that vandalized computers. Newer viruses create income for their authors. The motivation has changed and the techniques have evolved.

The people causing the mischief have gotten good at getting innocent victims to trigger hostile payloads with various social engineering ploys that make hostile e-mail look official or otherwise friendly.

Computer Viruses

What's a Virus

A computer virus is software written with two characteristics. First it must spread from computer to computer, infecting computers the way biological viruses infect people.

Second the virus normally also has a payload. The payload could be something designed to disrupt you or your computer. An early virus payload made odd clicking sounds with every keystroke. The problem for the virus writers was that the more effective the virus payload was at disrupting people, the less it spread because people worked harder to defeat it.

Newer viruses try to conceal themselves both from anti-virus software and from people using infected computers. They are out to hurt you, but stealthily so that you don't know about the damage and so that you won't work hard to eliminate the virus.

Anti-virus Software Techniques

Anti-virus (AV) software looks for patterns that identify viruses. Virus X would always look like Virus X. The size of the file would be the same, the beginning, middle or end would have things in common. The AV software businesses analyze every virus for a unique pattern that gives the software a high probability of identifying the virus for removal. No matter what virus writers do to conceal their patterns, there has usually been some residue that the anti-virus software could identify.

There are thousands of known computer viruses that the AV software must be able to identify. That makes it more difficult, but computers have gotten faster and hard drives can store more information, so the AV companies have kept up and developed newer techniques as well. Unfortunately the people writing the viruses also learn from the past and develop new techniques to defeat both the AV software and you.

Virus Counter Ploys

Virus writers have tried compressing their files, encrypting them and randomizing their code all to make it more difficult for the anti-virus software vendors to find consistent patterns for detection. The anti-virus vendors have kept up and even gotten better.

Now the virus writers are encrypting and adding password protection to keep out meddling AV software. Encryption makes the entire virus package different each time it is transmitted. The password prevents the anti-virus software from opening the file to examine it. The trouble with the password protection is that the virus has to get someone on a potential target computer to use the password to open the files and infect the computer.

Never underestimate the effectiveness of social engineering!

The viruses use randomly chosen passwords, and send you an E-mail message that contains the password. The message pretends to come from a boss or an HR department or any one of a number of spoofed originators to break down your suspicions about the attachment. Usually it will claim that the attachment contains confidential information that you would want to protect, and uses that as the premise for having the password.

A lot of people don't stop to think that there is no privacy or security when the password comes in the same message as the password protected file. You don't leave the key to your front door hanging from a hook outside your home. You don't leave the combination to your safe taped to the door. Why would anyone seriously want to send you the password in plain text in an E-mail that supposedly contains confidential information?

Virus Payloads

Current viruses often install clandestine software on computers that allow the virus writers to usurp some of the capabilities of infected computers. The viruses take advantage of security vulnerabilities in E-mail software. A lot of viruses have their own E-mail routines, and don't use the E-mail software on the infected computer.

Infected computers have become mass mailing slaves for spammers, sending out that junk mail you see every day. Other computers contain Spyware from viruses. Keystrokes and website visits are recorded and sent back to the virus writer or some agent. That information could contain your bank account number and PIN to do online banking. Other computers have been turned into the staging areas for denial of service attacks against business and government. The payload is whatever the author wants it to be.

Phishing

Background

Phishing is a relatively new term. Phishing describes a kind of E-mail message that asks you to go to a website and enter your most sensitive personal financial information. Sure, but why would you just give away this information to the bad guys? Well, the bad guys pretend to be the good guys. They make slick looking messages and pretend that this is all to your benefit. In fact a lot of the messages tell you that doing as they request will help you to better protect yourself. You may not know it, but it's very easy to download any image on any web page. The criminals go to legitimate websites and steal the graphics that make the look and feel.

Citibank® Phisher

The first "phishing" message I ever saw fooled me. I had no idea what it was. I got an E-mail with official Citi® logo and official looking background. The text of the message said that there was a problem with

my Citibank checking account and that I had to register some information with a website or my account would be closed.

Although I wasn't suspicious, I also didn't have a Citibank account, so I ignored the message. A week later someone contacted me to ask if I knew that Citibank had announced that the message was fraudulent. A few days after that, I learned the word "phishing".

Phishing is the technique of using stolen graphics to construct fraudulent E-mail messages and fraudulent websites to entice victims to give up their personal financial information. Phishing is a tool in identity theft. If you recognize a phishing E-mail, and go to any of the target web pages, you will notice that the first two items of information requested are usually an account number and a PIN. That can hurt.

The Citibank website homepage has a big red Consumer Alert link right in the middle of the page. The link leads to a Citibank webpage with many examples of fraudulent messages that targeted Citibank customers. The link tells people what they can do if they fell for any of the phishing messages.

Other Phishing Expeditions

Citibank was the first institutional victim of phishing fraud. Since then phishing messages have mimicked the IRS, the FBI and other institutions. It was easy for me to ignore the first message that looked like it came from Citibank because I didn't have an account to protect. That first one could have looked like it came from the FBI. The FBI gets your attention. The FBI also has posted warnings about fraudulent E-mail messages.

Even SBC Internet was spoofed by a phishing E-mail that targeted SBC customers. SBC has mailed information to its customers and posted information on its website alerting people to the potential frauds.

The economics are similar to the economics for SPAM. You can send out millions of messages for free. You only need a small number of hits to be profitable. Just a few people entering their bank account information, social security numbers and PINs can make a crook a lot of money. If the perpetrators can use computers infected with certain virus payloads to send out the messages, they can disguise themselves and they're hard to find.

Critical Thinking

The crooks aren't smarter than you are, they're just thinking about things differently than you. They understand a little about you, and they can use their skills on a lot of people at the same time. If they make their case seem plausible they can get you to divulge information that you would otherwise conceal.

Certainly it's automatic for us to question the reasonableness of requests for personal information. Normally we wouldn't be shy about saying "No way". We need to raise the bar about what seems reasonable to us. We need to think critically and calmly any time we are asked to respond requests in E-mail. We need to look beyond some fancy logos and backgrounds, even if the grammar appears to be correct.

Clues

Most legitimate financial institutions or governmental agencies would not send an E-mail asking for personal financial information. They would send a written request through the regular mail.

Requests for personal financial information should have a contact name and number for you to get more information.

If there really is a problem with some financial account or a tax bill, why would you get a form letter?

These phishing messages, while courteous and professional looking, don't usually tell you any specific information. If you have an account with Citibank, Citibank should know what account number you have, and should tell you which account is in question. If the IRS has an issue with you, it should tell you which tax year and which form, and what amount is in question. Look for details from the sender, not fancy graphics.

If a bank is doing account maintenance, wouldn't it have sent you notices in the envelopes with your statements. Even if you get electronic statements, there should have been some advanced notice. Why send you a sudden E-mail and ask you for information?

Conclusion

Technology can't secure you; it can only help. You have to make yourself aware and keep paying attention to new attacks against you and your computer. Just as the virus writers and people sending the phishing messages all pay attention and try to stay one step ahead of the technology, they are also trying to stay a step ahead of you. Question the validity of any E-mail request, whether it's a request to use the password to open the file or it's the request to got to a website and give away your bank account number and PIN. Don't get caught up in urgency. Take the time to think about it.

Jerry Hinek is a Senior Business Security Manager for SBC Services. He earned an MBA in Information Management and is a Certified Information Systems Security Professional.

> SBC Yahoo! DSL and Dial Subscribers to Receive Major E-mail, IM Enhancements

E-mail enhancements include industry-leading 2 gigabytes of storage… SBC Yahoo! Messenger enhancements feature Avatars, Audibles for enhanced self-expression and the ability to listen to music and play games with friends.

Delivering on their commitment to provide a superior Internet experience, SBC Communications Inc. and Yahoo! Inc. recently announced a series of significant enhancements to the SBC Yahoo! DSL and Dial services. New and existing customers will receive the enhancements at no additional charge, which will help further fuel consumer and business demand for the services.

SBC Yahoo! DSL and Dial members will receive a "new and improved" version of SBC Yahoo! Mail, which includes an industry-leading 2 gigabytes of main account e-mail storage – 80 times as much as previously offered and 200 times the amount offered by most other Internet Service Providers. The new e-mail storage levels are enough to hold up to 1 million pages of e-mail. Other SBC Yahoo! Mail enhancements include no graphical advertising, a streamlined design and faster e-mail search capabilities.

The increased storage will be particularly valuable as part of SBC Yahoo! DSL Business Edition, which continues to meet small business needs through specialized productivity tools and premium workplace content.

SBC Yahoo! DSL and Dial members will receive an enhanced version of the SBC Yahoo! Messenger, which includes Avatars, customizable virtual online personalities; Audibles, expressive, verbal animations and leading services like LAUNCHcast Internet radio, SBC Yahoo! Games, AddressBook and Yahoo! Search right in the messaging window. Avatars and Audibles are the latest online craze, especially among teens, and SBC Internet Services is the first ISP to offer them as part of its instant messaging service.

The new stealth mode feature provides an easy, efficient and fun way for people to manage relationships and communicate in real time.

"Once again, the SBC and Yahoo! teams are delivering the best value and most innovative features in the industry," said Ed Cholerton, Vice President, SBC Internet Marketing. "With great new enhancements and value pricing, our customers get the very best when they sign-up for SBC Yahoo! DSL and Dial."

Eric Bentel, Cingular® Wireless

>Simplifying the Business End of Wireless

As a leader in the wireless industry, Cingular@ Wireless has a proven track record of creating innovative solutions for some of the country's most successful companies, large and small. Cingular's innovation isn't limited to wireless technology. The company is also leveraging Web technology to allow business customers to choose how they want to do business with Cingular.

Business customers that prefer to be self-sufficient can now do business with Cingular via the Web using Cingular Business Online (CBO). This new Web-based service portal allows customers to conveniently purchase rate plans, the latest wireless phones and handheld devices, and accessories online. CBO portals are customized based on the customer's specific contract terms, and can be linked to the customer's corporate intranet, for ease of use. The Web sites can be password protected and can be set up to support both company-liable and employee-liable purchases, depending on the customer's needs.

With Cingular Business Online, ordering an additional line for a new employee, upgrading a wireless phone for the CEO, changing a rate plan for a traveling manager, suspending service for an employee on disability, or changing user information, can be done with a mouse click. CBO also allows companies to control their wireless spending, with built in notification of company liable purchase orders going to the appropriate authorizing manager. Managers can also view and track orders, and print reports on Cingular business transactions for ongoing reporting.

Wireless billing is an important line item in any business' budget. Cingular's One Source E-Billing allows customers to manage spending with a single consolidated bill for all the company's wireless services. OneSource E-Billing also gives supervisors the ability to view and manage wireless charges for departments or employees based on a company-defined hierarchy, or to drill down to review an individual's call detail. Accounts payable managers and executives can plan for quarterly budgets with an overview of monthly, quarterly and yearly spending patterns. Employees can be authorized for individual bill viewing to stay on target with each month's budget. Billing reports and data can also be downloaded easily to popular financial management tools including Microsoft Excel, Access and other applications.

Even the most Web-savvy self sufficient customer may need help analyzing the company's wireless bill, so Cingular provides its customers with a One Source E-Billing analyst, a single point of contact who can help manage and analyze bills. Cingular has a dedicated staff of business customer care representatives, dedicated to its West Coast customers, and backed by a national business account center. In addition, technical support is available 24/7 for the executive on the road.

Innovative business tools, first-rate customer service and latest technology, products and services are why nearly half of the Fortune 1000 companies have chosen Cingular Wireless to provide voice and data solutions. No matter what size, Cingular is committed to help successful people build successful businesses.

Eric Bentel, Director of Business Sales for Cingular@ Wireless in the San Diego/Las Vegas market, has more than 10 years experience in the telecom industry. The Allegheny College (PA) grad is responsible for delivering both data and voice wireless solutions to business and government customers.

Helpful Consultant Reminders & Tips

Toni Gilbert and Wendy Grimes

Alternate Channels Sales Support Managers

1) Need a quick quote on a Supertrunk, PRI or Point to Point T-1? Please call us directly:
Toni Gilbert – 714.284.3086
Wendy Grimes – 714.284.3082

2) Need help with your customer's voicemail?
Our Voicemail Customer Center can assist! The numbers are:
1.800.540.8020 – For our consultant and vendors in California
1.800.989.8020 – For our consultant and vendors outside California

3) Interested in our 1-800-Conference for a big meeting or on-going meetings?
It's an easy call to make! Just dial 1.800.266.3373 for details.

4) Need assistance in trying to figure out your customer's local toll or long distance carrier?
Just pick up your customer's phone and dial these numbers for the simple way.
1.700.555.4141 – to check PIC (Long Distance)
1.area code.700.4141 – to check LPIC (Local Toll)

5) Need a competitive price on a Router, DSU, CSU or Switch?
Call SBC Datacomm at 1.866.233.6627

>New 951 Area Code In Southern California

The 909 Area Code has been divided and a new 951 Area Code created to meet the need for additional phone, wireless and fax numbers in Southern California. The new 951 Area Code took effect July 17, 2004 and becomes mandatory Oct. 30, 2004. It's important to reprogram fax machines, wireless phones, modems and other automatic dialing equipment. Further details on Area Codes are available on http://www.sbc.com/areacode.

Ron Fischer

>Toll Free Service Web Reports

You Asked For It, We Delivered It!

Beginning July 15 (subject to change), SBC Long Distance is scheduled to start offering a web-based tool for customers to obtain and review near-real-time data from their toll-free numbers, both switched and dedicated. The information will be updated every 5 minutes and offered FREE of charge with no set-up fee.

There will be a variety of reports available that can be set to the customer's specifications based on drop-down boxes and calendars. Reports can be shown on the screen and/or downloaded to Excel files for storage and further manipulation. The key to these reports and the service is flexibility – we are focused on our customers being able to see the Toll Free Service data in the form they need.

The various base templates include:

- Call View: Includes call detail, originating city, calling #, duration, etc
- Call Completion: Total calls, incomplete calls, completed calls, duration of each
- Call Disposition: Completed calls, Non-complete, duration, etc
- Calling Location: Includes info on calls from states, NPA/NXX, call types
- Calling City: Originating cities, originating numbers, calls, completions, duration
- Call Frequency: Sort by calling #, # of calls, duration, etc
- Elapsed Time: Call types by call duration (different duration lengths)

Improve your customers marketing targets, track abusive callers, assist in call center staffing, understand calling patterns – these are all applications for this type of free service. Please contact your SBC Account Team for a demonstration of this great new capability.

3Q PROMOTIONS AND PROGRAMS (Subject to Change based on final approvals)

Voice:

SBC Long Distance HVCP II+: Continued great rates for Dedicated Access and Switched Access

SBC Long Distance Small Business Solutions: Great rates based on term and commitment

SBC Long Distance: Unlimited LD for $20/month/line (restrictions apply)

ISDN PRI Fire Sale: Special rate for PRI and DS1 For 3 year term

Out of Region ISDN PRI: Monthly Recurring charge discount of $100-$175 based on term selected

Data:

Inter-lata DS1: In-state $950 with 1 location within SBC territory, Inter-state with discounts of 15-40% based on mid-link distance (increased discount for 2 or more ordered at the same time)

Frame Relay: 20% discount on new or upgraded locations

Managed Frame Relay: Increasing discounts as add'l components added to the bundle of FR, LD Voice, and Managed Services

Wireless Data & FreedomLink Wi-Fi Hot Spots: Bundles of integrated services for business travelers will be provided including hardware and connectivity

IP Services:

Network VNP: 15-30% discounts on new locations/services based on speed/term

Dedicated Internet Access: Excellent tiered pricing for DS1 access, port, router, and firewall based on the bundle selected

The SBC family of companies appreciates your business. Thank you for your ongoing support. Please make sure you contact your Liaison Manager with thoughts or suggestions.

Ron

Ron Fischer, Director of Channel Delivery for SBC California, has been in the telecom industry for 25 years.

SBC Internet Services Security/Privacy Tips

- Install an anti-virus program
- Use a firewall
- Use an e-mail filtering program
- Back up your data regularly
- Don't share e-mail or web site passwords
- Create hard-to-guess passwords
- Encrypt confidential e-mails
- Use pop-up ad blocking tools
- Don't download unauthorized content or use file-sharing software.

Visit the SBC Yahoo! Anti-Spam Online Resource Center at http://sbc.antispam.yahoo.com to obtain information on how to fight spam and better manage e-mail.

Richard Goff

>SBC & 1-800-CONFERENCE®

Many Business Needs… One Solution Provider

A multi-channel marketing company needs a seamless, cost-effective method to enable its Call Center associates to connect qualified mortgage loan prospects with the company's mortgage lender partners. A financial institution is looking for a way to integrate a web-based training solution into its existing training website. A large cosmetics company would like to provide a simple and inexpensive virtual meeting solution to its national network of independent distributors.

Clearly, the collaboration needs of these few companies vary widely. While the applications are all quite different, the common thread running through them is that they are looking to SBC's 1-800-CONFERENCE® product line to provide the solutions. With our full suite of audio, web and video conferencing and webcasting services, SBC is the partner of choice for these and thousands of other businesses and organizations of all types and sizes.

What's the difference?

Without question, 1-800-CONFERENCE® offers customers a breadth of service options that are second to none in the industry. The key differentiator, however, is the consultative, customer-focused approach we employ to truly understand each customer's unique needs so that we can tailor our services into an effective business solution. Whether it's customized billing with client/matter codes and special security features on audio conferences for a law firm, a web-based audio and web conferencing solution for the board meetings of a local school district, or a host of other unique meeting applications that help businesses do business, SBC's 1-800-CONFERENCE® team can work with you and your clients to formulate the right conferencing solution.

To learn more… call 1.800.CONFERENCE® at 1.800.266.3373 and select option 1 to speak with a Conferencing Specialist.

Richard Goff, Sales Manager Conferencing Services, SBC West, manages a statewide team of Conferencing Specialists in California. His team consults with SBC customers to provide customized conferencing solutions within the 1-800-CONFERENCE® portfolio of audio, web and video conferencing and webcasting services.

Jagdish Kohli, Ph.D.

>The Next Generation Wireless Network & Applications

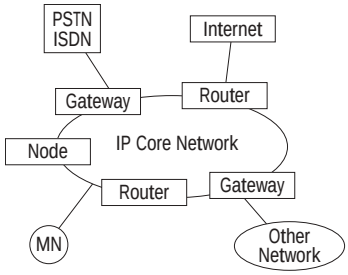
Wireless growth shows no signs of slowing down. There are currently over one Billion worldwide wireless subscribers. By 2010, the total worldwide population will exceed 2 Billion subscribers, according to one market research report. Personalization aspect of wireless service will continue to tap new customers. Our planet is currently inhabited by approximately 6.4 Billion human souls. This number could rise more than 9 Billion by 2050. Wireless services will continue to follow the growth of human population.

Currently the wireless industry has entered the third generation (3G) of wireless technology and network. This provides an array of new business wireless data applications. The next generation 4G network will be much more powerful and will provide a family of newer services and applications. Here we explore 4G network characteristics and potential yet-to-appear applications.

4G Network

The next generation wireless network will work in harmony with the current Public Switched Telephone Network and the Internet. The core of this network as shown in Figure 1 will be based on all IP digital technologies.

Figure 1: Interconnected Next Generation Wireless Network



IP=Internet protocol;
PSTN= Public Switched Telephone Network
MN=Management Network

Currently the wireless industry has evolved to the 3G set of wireless technology and network. The following are the key reasons for moving to the 4G network:

- Support a family of new interactive multimedia services: entertainment, videoconferencing, personal healthcare, security, etc.
- Wider bandwidths, higher bit rates.
- Global mobility and service portability.
- Low cost.
- Scalability of mobile networks.

The following points summarize some key highlights of this emerging 4G network:

- Entirely packet-switched network.
- All network elements are digital.
- Higher bandwidths (up to 100Mbps) to provide high resolution multimedia services.
- Tighter security control.

A comparison of current 3G and the next generation 4G network is shown in Table 1.

4G bandwidth of up to 100 Mbps combined with the next generation Web developments creates a new paradigm for the creation of a very powerful set of services. A number of new evolving network standards will facilitate in the creation of these services. Examples of these standards include:

- Computer-to-computer communication: These standards basically determine how my wireless device can ask some other device to do a specific task over the Web.
- Grid standards: These standards specifically manage the interaction among networked wireless devices. The idea is to get the services between those devices to work right.
- Semantic Web: These are standards that define the meaning of what is on the Web and how to interpret it.
- Business standards: These are very specific standards that large organizations and industries use so they can communicate with each other and share data.

Potential Applications

4G network along with next generation Web will provide a host of new and homogenized set of wireless services and applications. User transparency will be one of the highlight of these future services. Potential applications are discussed below under Personalization, Healthcare, Entertainment, and Security class of service.

Personalization

Personalization services will satisfy the individual needs of human beings. Examples of personalization applications include:

- My personal profile update
- My personal home page
- Alerts on changes in my credit report
- Alerts on changes in my flight information
- Alerts on changes in my appointment for car service etc.

These services are also a part of delivering personalized healthcare, entertainment and security services.

Healthcare

Wireless services are poised to impact the delivery of healthcare in the coming years. Social forces will surge to create a regulatory environment whereby consumers should be able to benefit from this technological evolution. Examples of wireless healthcare services include:

- Alerts on my scheduled medical, dental and vision appointments
- News on new medication for my healthcare condition
- News on new surgical treatment on my medical condition
- Exercise plan on my wireless communicator based on my personal need
- Home or Long-Term Healthcare

Nanotechnology (microminiaturized technology) will create a number of medical sensors for the home healthcare. These sensors will be able to monitor illnesses within our body. They will tell us if our heart is misbehaving or if our blood-sugar level is out of normal range. Accordingly these sensors will alert our doctor or other healthcare provider. It's amazing what this technology can do to improve the quality of our life.

Entertainment

Wireless offers a multitude of possibilities for creating new entertainment applications. Some of the examples of these applications include:

- My personal new music download
- My personal multimedia entertainment such as high resolution video download
- Multi-player interactive game sessions at any time and from any where
- Web gambling at any time and from anywhere

Security

4G and the Web will redefine the security industry. A number of multimedia sensors can be embedded in different locations and monitored remotely. Here again there are a number of potential applications. Examples of these include:

- My personal thumb impression security identification

Table 1: Comparison of 3G & 4G Network

3G	4G
Back compatible to 2G	Extend 3G capacity by an order of magnitude
Circuit and packet switched networks	Entirely packet switched networks
Combination of existing & evolved equipment	All network elements are digital
Data rate (up to 2Mbps)	Higher bandwidth (up to 100Mbps)

- My personal handwriting recognition input identification
- My personal voice recognition input identification
- Remote monitoring of my child care provider
- Remote monitoring of my home security
- Remote control of my appliances in my home

Future Implications

The wireless industry is about 25 years old yet seems to be just out of its teething stage. Many technological developments are in the research pipeline which will boost the development of an unprecedented new family of wireless services and applications. Nanotechnology is one such technology likely to have a major impact on the next generation wireless devices and network. This will allow the creation of very efficient, light weight, sturdy and paper like flexible portable devices. The competitive market forces will keep the prices of these devices in the range of affordability for many consumers.

Service delivery for consumers will be a dominant force redefining the market space. We will see big macro shifts in wireless and associated service industry. Big industries will not only change how they do certain tasks, but who does them. The definition of what business we are in will start shifting.

"Change is the only aspect of life which is constant."

Jagdish Kohli is an independent Healthcare and Information Technology consultant. He can be reached at jagdish_kohli@yahoo.com.

The opinions expressed in UPDATE are not necessarily those of the SBC family of companies.

Remembering Your Number

The first step in getting your customers to remember to call your number is to make sure they know it.

Publish it, Publish It, Publish It

- On stationary
- On bumper stickers
- On the sides of your company vehicles
- In your Yellow Page and newspaper ads
- On your products and catalogs
- On promotional giveaways, like pens and coffee mugs
- On Holiday cards and notes you send to customers and employees
- On business cards

Note: Do not publish your number until it is in service

Cassandra Jessie-Johnson

>Highlights Across the Regions

SBC Star 98 for Nevada

In the past, we've heard our customers state that voice mail retrieval can be cumbersome and time consuming. Well, there is now a solution. In April, Star Code Access to Voice Mail (*98), a new Complementary Network Service (CNS) was introduced in Nevada. It utilizes the Advanced Intelligent Network (AIN), allowing a customer calling from the line on which the mailbox exists, to use the feature by picking up the telephone handset and dialing *98 to speed-dial the customer's mailbox access number. The customer will not hear the digits being dialed; they will just hear their mailbox greeting once the number has been dialed. One less lengthy number to remember! Star Code Access to Voice Mail (*98) will work with Voice Mail Series 100 and Unified Communications. It will also work for other vendor mailboxes in those same switch types as long as their service is compatible with SBC switches.

This feature is available to customers in the SBC Midwest and SBC Southwest regions. Although there are no plans at this time to launch in California, it is scheduled to rollout in the SBC East Region sometime in August of this year. Existing customers can request this upgrade. There are some limitations, so please contact your Liaison Managers to determine availability for your customers.

Customer Network Management on SONET Ring and MON Ring

Customer Network Management (CNM) is an enhancement to selected SBC dedicated ring services. CNM enables customers to view the overall health of their network and to detect alarms (termed as Performance Monitoring and Fault Management respectively). CNM will be offered as a feature of the following SBC SONET and Multi-service Optical Network (MON) products:

- Dedicated SONET Ring Service (SBC Midwest, Southwest, East, and West)
- SONET Ring and Access Service (SBC West)
- Multi-Service Optical Network Ring (MON Ring)

CNM benefits customers by enabling them to verify the continuity of their SONET and MON service and obtain information necessary to develop and support their business continuity and contingency plans. The target audience is high-end Retail customers who purchase these products and require sophisticated network surveillance and alarming capability. This enhancement is available in all four regions.

Check Order Status

A new release was implemented late April to provide the capability for all Small Business and Consumer customers to check their order status on the web, through the SBC website, www.sbc.com. Check Order Status is a new option under "Help" on the home page that is automatically available to all small to mid-sized Business and Consumer customers who have or create a MySBC account. Customers can check status on record, change, and move service order types. One of three (3) self-explanatory order positions will show: Completed, In Progress, and Cancelled. Orders placed within last 24 hours may not appear online. Customers can check status on orders placed within last 90 days, which allows them the flexibility to check on line at their convenience. A customer can create or log-in to their MySBC at www.sbc.com/mysbc/.

SBC Tidbits

Cingular Wireless is 60% owned by SBC, and the second-largest wireless provider in the United States serving more than 24.3 million customers.

Cassandra Jessie-Johnson is Associate Director of Business Processes Team, SBC Central Sales Operations.

SBC Companies – Helping businesses for more than 125 years. We're here for you.

Mark Fei

>Telecommunications: Economics & Value

Editor's Note: The writer is a world renown telecom consultant and speaker. He'll be providing his unique perspectives in future issues of UPDATE.

How much is a beer worth? How much is bandwidth worth? A bucket of water? A barrel of oil…?

I am not an economist and except for the standard "Econ 101" that most of us were subjected to somewhere along the way I've never studied economics in depth. Earlier this year, though, I had a conversation with a friend who is a professor at a local college. He introduced me to a view of economics that has been helpful to my better understanding the world in general and telecommunications in particular. I'd like to share some thoughts about economics, the concept of "value", and how and why all this relates to our business world.

Let's start with a fundamental question: What is Economics? If this question were put to a group of people I would expect to hear answers like, "the study of money", "understanding business, profits, losses, etc.,", "understanding the distribution of wealth", or "the dynamics surrounding the movement of prices". Prior to embarking on my brief journey learning more about economics, I would have answered in much the same way. And while those answers are not wrong, they do not get to the essence of what economics really is: The Study and Understanding of the Actions of Free People.

Central to this is the notion that people are in fact free to make choices about how to spend their time, energy, money, and any other asset. It hasn't always been the case that people have had this freedom and, lamentably, many people still don't in oppressed or underdeveloped parts of the world. But, for our discussion, let's focus on the larger part of the world where such freedoms do exist.

Consider this: Most of us are doing what we want to do for a living; we're not butchers, bakers, or candlestick makers because some central authority tells us what to do. Why do we do what we do? Generally it's because we came to it on our own after weighing a variety of factors including our abilities, interests, opportunities for income, and so on. The thing to notice – and it's really quite amazing – is that our free market system of economics allows this freedom of choice and yet, somehow, we don't wind up with an exorbitant oversupply of butchers or a woeful undersupply of bakers. Sure, from time to time there may be temporary imbalances but history has shown us conclusively that the free market, if left alone and free of intrusion or coercion, will lead to the healthiest possible balance. This is what Adam Smith (economist, author of *Wealth of Nations*) meant when he spoke of "The Invisible Hand of the Market."

This natural balance of free markets affects not only occupational choices, but also availability and pricing of everything from a cup of tea to a ride in the space shuttle. For any transaction to take place there must be perceived gain, or value, in the transaction. And, if the transaction is honest and pricing is not coerced by any outside agency, both parties to a transaction will conclude that they obtained value from it. In other words, in a truly free market, win-win transactions are the norm. Let's look at some examples which help bring this fact home.

At the beginning of this column I asked how much some things are worth. Let's take a closer look at this. If I'm shopping at my local mega-store I expect to pay well under $1 for a 12 oz. domestic U.S. beer. On the other hand, if I'm at a major league baseball stadium I would expect to pay, perhaps, 6-8 times that price. Am I getting "ripped off" at the stadium?

Let's say I have $6 cash in my pocket. The vendor has a keg full of cold beer. The concessionaire and I will only undertake that transaction if I believe the cold beer is worth more to me than the $6 in my pocket and he or she also believes that the $6 is worth more to them than the beer. We can safely presume that the vendor wouldn't be there if they didn't believe this to be the case. But it is equally true that this whole scenario won't work unless there is a sufficient supply of people who value the beer more than the $6. Some will say, "but wait, they have a captive audience without any recourse!" Let's see if the deal still works if the vendor raises the price to $20 per beer. The point is that there is an equilibrium at which both parties to a transaction are getting what they want. Note that a change in circumstance (place, time, need, want, availability) could significantly alter the perception of value.

Let's look at an example in the telecommunications world. This time imagine that I run a web site for the Colorado Philatelic Society. Now philatelists are a wild bunch and so my web site is experiencing, say, 1000 hits per month. I need connectivity to the Internet to support this. If someone offered me a 100 Mbps connection for $5,000 per month I would have to conclude that this is not a good value for me. I need something on the order of a DSL-light connection for around $30 per month; that would be good value. Given that such a service is available, this becomes a win-win for me and my service provider.

On the other hand, let's imagine someone operates a web site where they are charging $20 per month to tens of thousands of subscribers who like to download bandwidth-intensive graphics files. If this web site operator could obtain 100 Mbps connections for $5,000 per month it would be a good value, and again, for both parties.

So, what does all this mean?

Value is in the eye of the beholder. To assume that a given "thing" has an absolute value (or "reasonable price") is to make a serious error. It's obvious that a seller cannot sell "things" for less than their cost – at least not for long. However, the perception of value can be increased, bringing about increased prices as well. I am not alluding to any deception, but rather to product or service differentiation which creates real value.

Commodity prices do exist, but we should be careful not to conclude that some "thing" is always a commodity. For example, a recent study, performed at the M.I.T. Center for E-Business, and data from the Pew Research Foundation, produced some fascinating observations. Approximately 6 million Americans buy something on the web every day. One of the most often purchased items is books. The average price difference for the same title, available at several sites online, is 30%. (Side note: While it's not important to our discussion this is a substantially larger price differential than found at brick-and-mortar bookstores.) In studying shopbots – online services that automatically perform price comparisons and then present the shopper a list of online sellers with their prices – it was discovered that less than half of consumers picked the lowest price. Why? Other differentiating factors such as trust, reliable shipping, and reasonable return policies.

Is T-1 service a commodity? What about OC-12 or metro gigabit Ethernet? If they're offered in a bare bones fashion and in a market with numerous competing vendors then perhaps they are. However, such things as flexible contract terms, the ability to provide true route diversity, variable on demand bandwidth with corresponding price adjustments, can all provide differentiation and thus create increased value.

In today's environment it is possible to be a successful commodity provider. Ultimately this requires having an extremely low operating cost structure in order to win, competitively, on price. However, for those product or service providers who do not choose to be commodity players, success mandates that they differentiate via strategies such as flexibility, integration, and personalization.

Carlos Alas, Jr.

>SBC California Adopts SBC Global Services, Inc. Master for all Contracts

SBC California adopts the SBC Global Services, Inc. Master for all contracts going forward in order to allow customer's to conveniently add affiliate services under contract.

The world of contracts at SBC is constantly changing. Changes in the contract world usually come about in order to make it easier for our customers to do business with us. Such is the case in the recent decision to adopt the SBC Global Services, Inc. Master for all future agreements at SBC California. What that means for SBC's customers is that they will from the start be poised to take advantage of all SBC affiliate product offerings upon entering into any agreement that requires a Master Agreement. For example, if a customer enters into an Addendum for Usage and Access at SBC California, that same customer will now easily be able to add other affiliate offerings such as SBC Long Distance or SBC Dedicated Internet Access Service agreements to their existing portfolio of services. They will accomplish this by simply adding the respective SBC Long Distance or Dedicated Internet Access Service contract to the SBC Global Services, Inc. Master which covers all SBC affiliates. Of course, SBC will continue to offer the SBC California Master to those customers that request it.

The SBC Global Services, Inc. Master is different from other Master Agreements, such as the SBC California Master, which are typically regional in scope and do not address SBC affiliates. The SBC Global Services, Inc. Master encompasses all SBC affiliates and is more comprehensive covering Addenda, Attachments, Orders and Statements of Work as they may arise. These documents in turn might be regional and would simply be added to the SBC Global Services, Inc. Master once agreed to by both parties.

The new SBC Global Services, Inc. Master is made up of a short opening describing the affiliate relationship, the make-up of the document, including signature page, and the process for notification concerning the agreement for both parties. It has three additional sections as described below:

I. Definitions

II. Terms and Conditions for Service

III. General Terms and Conditions

The three sections above contained in the SBC Global Services, Inc. Master are general enough as to allow the specifics pertaining to each region to be addressed by the particular addenda supplied by each affiliate as applicable. An example of one such addendum might be a Minimum Revenue contract for Usage and Access at SBC California. This addendum today looks much like it did previously although it now incorporates language specific to California. The additional sections in the SBC California Minimum Revenue addendum that relate back to the new SBC Global Services, Inc. Master include Terms of Payment, Installation and Acceptance, Warranty and Maintenance, and Limitation of Liability. These sections were previously addressed in the SBC California Master and briefly outline the following concepts:

1. Terms of Payment: Monthly and non-recurring prices will bill upon installation and completion. Bills are due and payable upon receipt. A Late Payment Charge (LPC) of 1.5% is still applicable as by tariff. Back billing limitations applicable to tariff services do not apply to Custom Contracts, i.e. Should SBC find that it has underbilled, SBC California is permitted to back bill to where the under billing began. In the tariff environment, the back billing limitation is three months.

2. Installation and Acceptance: Within 30 days of customer's request, SBC will provide due dates and schedule installation dates. Upon installation at each location, SBC California will test to ensure service is working as ordered.

3. Warranty and Maintenance: Service will be maintained in good working order, for no additional charge unless damage or outage is caused by the customer. SBC California's technicians are available during normal business hours.

4. Limitation of Liability: SBC California's liability for errors/omissions is limited to $10K as determined by the California Public Utilities Commission (CPUC). SBC California and the customer are not liable for one another's special, incidental or consequential damages.

In addition the new SBC Global Services, Inc. Master addresses the order of precedence and regulatory requirements of agreements as follows: Any inconsistency or conflict between the terms of an applicable Tariff and/or Guidebook, this Agreement, and Addendum will be governed in order of precedence by (1) the applicable tariff and or Guidebook (unless the Addendum specifically states that Addendum terms and conditions will supercede the applicable Tariff and Guidebook), (2) this agreement, and (3) the applicable Addendum (unless the Addendum specifically states that the Addendum terms and conditions will supersede the terms of this Agreement).

So look for the SBC Global Services, Inc. Master next time you undertake negotiating a new contract with Master Agreement with SBC. In the meantime, you can request samples of the document from your Liaison Manager who will coordinate your request through a Contract Developer. You may contact your Liaison Manager at 1.800.552.5299.

Carlos Alas, Jr. is an Associate Director in Contract Development for SBC California. He has been with SBC for nine years and previously held positions as Account Manager and executive Briefing Center Manager in San Francisco. He holds an MBA in International Management.

Continued from page 16
TELECOMMUNICATIONS

Government intrusion (regulation) is sometimes necessary, but never produces a better result than the free market would, given time and competition. This is not to suggest that regulation is never necessary – it is. But, we should always be aware of the real reasons for regulation and, as a society, be constantly on the lookout for changing circumstances that might allow us to reduce regulation. The telecommunications industry is, of course, a prime example of this.

So, what is a bucket of water worth, and is it more or less than a barrel of oil? It just depends…

Mark Fei is a consultant/trainer/speaker who has been observing the I.T. and telecommunications industries with wide-eyed wonder since the mid 1970s. His engagements have taken him to 6 continents and he's still having a ball. He hangs his hat in Colorado when not on the road and is always happy to hear from people at mark@feicomm-group.com

Travelers Can't Stay Away From The Net, Survey Shows

A new survey conducted for SBC Communications shows that two-thirds of travelers will likely use the Internet while on vacation; half can't survive more than a week without checking e-mail. It also shows nearly 80% of households have one or more consumer electronics, such as a digital camera, laptop computer or digital music player. Seven out of 10 use them on trips.

Q&A With SBC Chief Technology Officer

> Chris Rice Explains How SBC Customers Benefit From Wave Of Wireless Products And Technologies

Few areas in telecommunications are changing faster than wireless. In just the last few months, for example, SBC Communications launched the SBC DISH Network and announced plans to offer Wi-Fi hotspots at McDonalds, UPS Stores and other locations. And Cingular Wireless continues to work on its acquisition of AT&T Wireless. Here's what Chris Rice, SBC Chief Technology Officer, has to say about how a wave of new products and technologies are improving our ability to serve customers.

How do you define wireless today?

It used to mean mobile phones. Today, it also includes services such as Wi-Fi – at work, at home and in public hotspots; satellite entertainment delivered by the SBC DISH Network; and data delivered to a range of portable devices such as PDAs.

How large is the market?

It's huge and growing fast. Today, over 162 million Americans are wireless subscribers. More than $118 billion is invested in the industry – an amount that grows by $20 billion a year. And every day, 200,000 people use a wireless phone to call for help.

That growth is also moving in new directions. Today, 40 percent of U.S. homes with broadband also have a home network. It is predicted that by 2008, 31 million U.S. homes will have home networking, and many of those networks will be wireless.

The SBC companies are helping customers cut the cord. We sell thousands of wireless high speed DSL Internet gateways every day for as little as $50 and – unlike some cable companies – we don't charge extra monthly fees for wireless networking. Installation is easy – most of our customers get the service up and running on their own using a self-install kit.

The SBC companies are also moving beyond the home to help businesses use wireless to increase productivity. SBC FreedomLink will deploy Wi-Fi in 20,000 hotspots in the next three years, including UPS stores. Customers can sign up to use the service by the day, by the month, or as part of a bundle that could include a home DSL subscription.

Are there any wireless formats we'll be hearing more about?

Four have lots of promise. There's Bluetooth – technically known as 802.15 – which creates wireless personal area networks so that devices you own can communicate with each other. It's for transfers between a computer and a PDA, for example, or between a cell phone and a wireless headset. In the future, you might use it to play MP3s stored on a PDA over your car stereo, or to lock and unlock your car using your PDA.

Second, there's fixed wireless – which is broadband service you get at home using an antenna or a self-installed indoor modem. The main advantage is you are able to get broadband even if you live outside a DSL green zone.

A third format is radio frequency identification tags (RFID) – tiny microchips that can be read by scanning devices. They allow drivers to pay tolls automatically as they pass through toll booths or pay for gas by simply waving a wand. They also allow companies such as Wal-Mart to track inventory and know where their supply is at any moment – on the conveyor belt, in a truck, or on the shelves. If it's in transit, RFID can tell you the precise delivery time; if it's on the shelves, it can tell you when it's time to re-order.

A fourth technology that's really interesting is Ultra-Wideband (UWB). It transmits at very high speeds (hundreds of megabits per second) over short ranges by spreading the radio signal over a very wide bandwidth. This technology could replace the cables on your computer, audio and video equipment, and allow audio and video distribution throughout the home because it works well with very high transmission rates over short distance – including multiple streams of HDTV.

How will the SBC companies serve these markets?

We own 60 percent of the nation's second largest wireless carrier. After we acquire AT&T Wireless, Cingular will be the largest wireless carrier in the U.S., and GSM technology will allow us to offer data transmission, worldwide connectivity, high performance and excellent sound quality.

Today, we can offer data transmission at 40-60 kilobits per second. When we deploy new EDGE (Enhanced Data GSM Environment) technology by the end of this year, we'll be able to offer 100-150 kilobits per second. Our acquisition of AT&T Wireless will give Cingular enough spectrum to deploy third generation wireless systems using UMTS (Universal Mobile Telecommunications Service), a technology which allows faster data rates and the provision of multimedia services, but is also compatible with networks around the world.

And now that we offer SBC DISH Network, our customers can get local and long distance voice, DSL or dial-up, Cingular Wireless and satellite entertainment all on one bill. DISH will also allow us to deliver broadband service to rural customers who would not otherwise be able to receive it.

What about wireless data?

Cingular's acquisition of AT&T Wireless will give us better coverage, more spectrum and a larger wireless footprint. We're looking at higher-speed technologies, such as UMTS, which like GSM would provide world-wide roaming for data at rates of 384 Kbps for pedestrians. Future enhancement will make speeds in the megabit range possible.

We're also going to integrate Wi-Fi and wireless so our customers can benefit from automatic network selection and seamless sessions that cross networks. You might, for example, use Wi-Fi at an airport, and a cellular network while traveling on the highway to your home or hotel. We're also looking at VoIP over Wi-Fi, which would allow voice calls to transfer between the Wi-Fi network and the cellular one.

Ultimately we are moving to converged networks – integrating wireless and wireline products, and making it all transparent to our customers. For example, this will allow customers to access information on their landline DSL account using a PDA or a Wi-Fi hotspot. We want to enable our customers to use their SBC voice or data services anywhere, anytime, on any device.

What is the role of government in the expansion of wireless?

Our nation needs rules that are clear and consistent, encourage innovation and investment, and prevent harmful interference among services in different frequency allocations.

SBC Executive Changes

Randall Stephenson has been named Chief Operating Officer, reporting to Ed Whitacre, SBC's Chairman and Chief Executive Officer. Reporting to Stephenson are Ray Wilkins, Group President-Marketing & Sales, John Atterbury, Group President-Network Operations and John Stankey, Senior Executive Vice President and Chief Information Officer.

Rick Lindner has been named Chief Financial Officer for SBC.

Forrest Miller has been named Group President-External Affairs & Planning with responsibility for External Affairs Policy, Federal Affairs and Corporate Planning.

Elim Carpenter

>DSL Data News

As you may have gathered by now, the world of DSL is never static (except with our static IP speeds!). Our names have changed but our products continue to be fabulous. In effect now are these SBC Yahoo! DSL names:

CURRENT NAME (# IP addresses)	SPEED Downstream x Upstream	12 MONTH TERM PRICING*
Starter (1 dynamic IP)	UP to 384 Kb x 128 Kb	$34.95/mo
Express (1 dynamic IP)	384 Kb – 1.5 M x 128 Kb	$34.95/mo
Pro (1 dynamic IP)	1.5 – 3 Mb x 384 Kb	$44.99/mo
Starter-S (5 static IP)	Up to 384 Kb x 128 Kb	$54.95/mo
Express-S (5 static IP)	384 – 1.5 Mb x 128 Kb	$64.95/mo
Symmetric (5 static IP)	384 Kb x 384 Kb	$89.99/mo
Pro-S (5 static IP)	1.5 – 3 Mb x 384 Kb	$74.99/mo
Expert Plus-S (5 static IP)	1.5 – 6 Mb x 384 Kb	$99.99/mo

Are you familiar with the other product offerings for your customers if you have qualified them for SBC Yahoo! DSL and on the off chance they're not within either Central Office or Remote Terminal loop lengths? Don't despair, you can offer SDSL and IDSL from SBC Covad.

Covad is the largest and strongest independent broadband provider in the US. Through its alliance with Covad, the nation's largest independent DSL provider, SBC can offer its customers an enhanced footprint and portfolio of broadband services by reaching an additional 54 U.S. markets, 22.4 million homes, and 2.4 million small businesses outside the traditional 13-state territory.

If your customer already has Covad DSL with another ISP, the customer can still switch to SBC/Covad DSL Internet by signing an ISP Switch Agreement and paying a one-time fee of $99.00 for each line conversion. Then the customer's monthly rate for DSL service will change to the SBC monthly rate. If the customer is changing the speed or type of service, new CPE and/or other charges may apply. (Contact your Liason Manager who will contact the SBC/Covad alliance team for further details.)

Although, it launched some time ago, I just wanted folks to know that DSL over Centrex (only available on a CO line, not available on a RT line) is an option as well. Pricing for the DSL is the same irregardless of what it's "riding" on. So keep that in mind when you're evaluating DSL for your customers. As far as how you'll know whether the Centrex is a CO or a RT line, when you do the loop qualification, it'll either come back GREEN or RED, so you'll know from there if Centrex DSL is available to your customer. For more information, to qualify your customers for SBC Yahoo! DSL Internet Service, as well as to order the service for your clients, contact the Unique Services Center South Consultant Queue at 1.866.234.4DSL (4375).

Other exciting developments include the SBC Yahoo! Email upgrade on June 15th and Instant Messaging (IM) upgrade on June 22nd. The mail enhancements feature (for SBC Yahoo! Dial and DSL new and existing customers)

- No ads for all SBC users
- 2 GB Storage level for all SBC Yahoo! Mail users (Automatic Upgrade)
- Removal of underline from links

For existing IM customers, they'll get a notice that an update is available, and that they need to download new Instant Messaging software.

In a recent non-published SBC Small Business Broadband survey, Speed and Reliability were voted as the two most important attributes small businesses associate with their broadband service (Price, Security, ISP Choice follow). In that same survey of 1200 businesses, 61% used DSL in companies with 1-4 employees, however larger companies also benefited from subscribing to DSL as 20% used DSL in companies that employed 10-19 employees, followed by 19% usage in companies that employed 5-9.

*The 12-month pricing promotion ends 9/30/04

Elim Carpenter is an Associate Director at SBC. She holds an MBA in General Management and has worked in the telecommunications industry for nine years.

>SBC DataComm Brings IP Solutions to the Crate & Barrel Table

Challenge

When Crate & Barrel opened the doors to its new state-of-the-art headquarters building in Northbrook, Illinois, it needed a communications system capable of improving productivity for more than 400 service and support associates and of providing an advanced, centralized voice mail platform while keeping upfront expenditures down and minimizing ongoing maintenance costs.

Solution

SBC DataComm delivered a SBC Premier-SERV℠ IP Telephony solution using Cisco Systems® AVVID (Architecture for Voice, Video, and Integrated Data) that includes two Cisco Systems®Catalyst 6509 Switches for the backbone, nine Cisco Systems®Catalyst 4006 Switches in wiring closets, redundant configuration of Cisco Systems®CallManager software to support IP Telephony, Cisco Systems®Unity united messaging, 500 Cisco Systems® IP Phones and system interoperability fully tested prior to delivery.

Result

The IP solution delivers significant benefits including a common platform for eventually sharing features such as voice mail and interoffice calling within individual stores. SBC DataComm solutions also reduce capital expenditures by combining telecom and data infrastructure budgets. The solution is expected to result in $180,000 in savings on maintenance, management and wiring over a five-year period.

In addition to the projected $180,000 cost savings in capital expenditures, the company expects additional savings on toll calls when IP communications becomes available to stores, lowering expansion costs. For example, to add 30 employees to its system, the company now installs one 48-port blade on a Catalyst 4006. By contrast, with a traditional PBX, it would take 30 new digital ports and twice as much wiring.

Beyond savings in hardware and wiring, employees can improve their productivity and information sharing by being able to see their e-mail and voice messages at a glance through the Cisco Systems® AVVID system. The system also allows voice mail messages to be stored in folders and attached to WAVE e-mail files and for voice calls to be dialed from their e-mail contact manager, for e-mail messages to be retrieved by phone through text-to-speech function.

>SBC IP – The Path to New Features & Capabilities

Internet Protocol (IP), the language computers use to communicate with each other, is getting plenty of attention these days.

It's easy to see why. "IP allows customers to get lots of new services and features not available on traditional circuit-switched networks," explained Steve Dimmitt, Vice President-Business Marketing, "and get them at a lower cost. Most of the demand for these new features is coming from business customers – but some is beginning to appear in residential markets."

For business customers, those features include:

- Network convergence: Today, many companies have to operate two separate communications networks – one largely for data, the other for voice. IP allows them to combine those two networks into one, and send all of their traffic over the Internet. This is possible in part because of Voice over Internet Protocol (VoIP), a special type of IP that treats voice communication like any other form of data, breaking conversation into digital packets for transmission over the Internet. At the other end of the call, the packets are reassembled into speech.
- Flexibility: IP allows companies to get completely new features, including "find me, follow me" (which allows users to have communications forwarded to them wherever they are), or one inbox (where users get all communications — voice mail, e-mail and fax).
- Cost savings: Because IP networks are packet rather than circuit switched, they're more efficient, and that translates into lower costs – crucial in today's business world.

"SBC leads the industry in IP solutions," said Dimmitt, "in part because of our commitment to use this technology to meet customer needs."

In business markets, for example, our newest network solution, SBC PremierSERV Hosted IP Communications Service (HIPCS), offers business customers the many advantages that come with IP. Also, it makes them available to small and medium-sized companies as well as large ones.

More information on these products is available from your Liaison Manager.

>SBC Long Distance Introduces Its Best Rates To Asia

Adding to its international plan offerings, SBC Long Distance recently announced sharply discounted "block of time" calling plans to some of the most popular international calling destinations in Asia with rates now as low as 2 cents per minute when all minutes in the $59.95 block of time plan are used. Previous plans offered rates as low as 9 cents per minute.

The JustCall Asia Solution, available for $59.95 per month, gives consumers a block of 3,000 direct-dialed minutes to use when calling friends and family in selected Asian countries at anytime and on any day. Time accrued beyond 3,000 minutes is charged at a low, flat rate of 10 cents per minute.

Countries covered in the JustCall Asia Solution include China, Hong Kong, Japan, South Korea, Taiwan and Australia.

SBC Telephone Tips:

1. Listen to the Caller
2. Be Positive
3. Speak Slowly & Clearly
4. Be Enthusiastic
5. Remember, You Are the Company You Represent!

SBC CVSG Resources For You

1. Website: sbc.com/cvsg
2. Bell Advantage (Password-Restricted)
3. CVSG Hotline – 1.800.552.5299
4. Breaking News on CVSG Listserver
5. SBC Streaming Media News Broadcasts over the Internet

(Call your Liaison Manager to get a Password to Bell Advantage or subscribe to Listserver or UPDATE and to attend Broadcasts in person or via the Internet.)

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Thank You for reading
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