November 2004

UPDATE

Solutions for Success

Consultant/Vendor Sales Group

SBC Billing Solutions & More On Live Broadcast November 3. **Register with your Liaison Manager**

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>SBC FreedomLink℠ Delivers Wi-Fi to Universities

University students are highly mobile, eager technology adopters, and frequently gather and collaborate in ad-hoc work groups – what population could be better for Wi-Fi networks? SBC FreedomLink has begun to deliver in this hot segment, with two great schools signing on for FreedomLink deployments: The Fashion Institute of Design, with 5 campuses across Southern California and Concordia University in Austin, Texas, part of the Concordia University System with 12 campuses throughout the US.

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>SBC FreedomLink Celebrates A Successful First Year

SBC FreedomLink has been offering Wi-Fi service for just a year, but we've already become a major player in the fast-growing arena of high-speed wireless data communications. We're well on our way to reaching our target of making 20,000 hotspots available to our customers by the end of 2006.

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Kari's Korner

>Choices, Choices, Choices

November is Election Month and we all have a lot of choices to make – from City Council people to the President of the United States. We're so lucky to be able to make our choices, unlike in some countries. These choices are made based on COMMUNICATION – how well the candidate convinces you the voter to cast your ballot. Everything the candidate does – from what outfits are worn, to tone of voice, to campaign signs, to TV interviews, to gossip, to debates, to the message or "spin" on issues important to you – it's really all about communication.

We think it's important to see all sides of an issue – see and hear all the messages – then communicate your choices in the ballot box. Your decisions will help decide who leads your city, your school district, your state and your country.

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Robin MacGillivray, BCS President, SBC West

>Contract Changes For You

I have some great news that will help you spend more time consulting with your clients, and less time handling paperwork!

You've told us you want simpler, shorter, more customer-focused sales contracts.

Now, thanks to your feedback, we've reduced the length of our contracts by 20 percent.

And, we've changed some of the terms of our Master Agreement, including our warranty and equipment testing provisions, to make them even more appealing to our customers.

We've also made it much easier to prepare contracts for bundled solutions.

All these changes make our contracts among the simplest, the most customer-friendly, and the most competitive in the industry.

As you know, it's important that you use only the most current contract forms, and that you always use only SBC-approved contracts with us.

The new contracts are available through your SBC Liaison Manager. We hope the changes we've made will help you spend more time doing what you do best – providing your clients with world-class solutions!

Thank you.

Robin

Inside

Presidential Telecom Trivia

1. Who was the first U.S. President to have a telephone on his desk at the White House?

2. Which U.S. President said, "(The telephone's) an amazing invention but who would ever want to use one?"

Check your answers on back cover

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SBC FREEDOMLINK DELIVERS WI-FI

These deals bring great benefits to the students and the schools alike. Wi-Fi is the best choice for university deployments because it does not require the purchase of expensive proprietary hardware for end-users – it is a proven standard adopted by every major PC vendor and is even required for students in most wireless laptop programs. Because FreedomLink is a market-driven service, it provides universities an upgrade path for future technologies on and around the campus, not an anchor to aging infrastructure.

Students can benefit from having a new media for collaboration and distance learning – they can use FreedomLink sites on and off campus with the same account. Wireless also gives them the flexibility they crave, providing an easily accessible network not tied to RJ45 jack availability. The FreedomLink network usually reduces demand for library and computer lab terminals, increasing availability for students without laptops or PDAs. Universities can help students realize even better value: if fees are added to the tuition bill, national Wi-Fi internet access is tax deductible.

The SBC FreedomLink wireless network deployment also offers numerous advantages for universities. First, it provides World Class expertise and installation capabilities from one of the largest and most admired telecommunications companies in the World. Working with FreedomLink also allows the campus to reallocate funds and staff time necessary for the wireless build out to support the existing network or work on other priority projects. Along the same lines, FreedomLink's Help Desk Staff makes sure new students can connect to the network, and the Network Operations Center ensures that the wireless network is up and functioning across the campus with engineers monitoring and maintaining it 24x7x365.

A few indirect benefits also result from working with SBC FreedomLink. For example, the schools realize the PR value of the partnership as an opportunity to increase public awareness of their progressive technology use and connections with local industry leaders. The network can also enable applications that improve the efficiency of facilities management and campus security through mobile data and communications access. Finally, becoming a greater concern recently, FreedomLink reduces the schools federal reporting burden by taking responsibility for responding to issues stemming from student abuse of resources for file trading or network intrusion.

Universities are deploying Wi-Fi networks in response to demand from students and faculty, and FreedomLink is there to help defray the cost and relieve the management burden. Early success with schools like FIDM and Concordia will be echoed around the country as the FreedomLink team reaches out to more forward thinking institutions.

-- Douglas Ireland

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

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KARI's KORNER

SBC companies are proudly involved in many aspects of Election Year Communication in our territory and sometimes outside. Where appropriate, we help TV networks do polls with viewers, we offer broadcast services, we're the national leader in DSL – allowing customers to communicate quicker over the Internet with candidates and their staffs – and many of our other products and services are used by political parties, candidates and the voting and even non-voting public in election seasons. Voice, Video, Data Services, coin phones and wireless are making a tremendous impact on how people are communicating about this election. Cingular Wireless recently enhanced more than 720 voice channels at over a dozen existing cell sites in and around Boston for the national political convention there. It also deployed three cell sites on wheels (COWs) to provide additional support for increased volumes of wireless usage.

And like elections, we know you always have a choice when it comes to telecommunications. That's why we have UPDATE, Streaming Media Broadcasts, Listserver News Flashes, Bell Advantage, seminars, the CVSG Website and much more--to communicate the latest news, strategies, trends and provide personal assistance so you'll be as successful as possible. When you select telecommunications for your business and your clients, we hope you choose SBC companies because SomeBody Cares. We do! Your Success is our Mission.

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SBC FREEDOMLINK CELEBRATES FIRST YEAR

Here are just a few examples of what we've accomplished since we launched SBC FreedomLink last year:

- We've signed deals to provide service at The UPS Store locations, McDonald's and Caribou Coffee: Whether you're shipping a package, munching on a Big Mac or getting your daily caffeine fix, SBC FreedomLink is there to help, at locations within and outside of our 13-state region.
- SBC FreedomLink is available at airports in many cities, including Cleveland, Burbank and Little Rock. Roaming agreements enable SBC FreedomLink customers to access Wi-Fi at many more airports, including in New York City, Detroit, Minneapolis/St. Paul, Baltimore, San Diego, Miami, Anchorage, Omaha, West Palm Beach, Chattanooga and El Paso.
- SBC FreedomLink roaming agreements also allow our customers to access Wi-Fi at hundreds of hotels in the U.S.
- Our first international roaming agreement - with Telmex - allows SBC FreedomLink customers to use Wi-Fi at more than 400 locations in Mexico, including restaurants, airports, malls, universities, hotels and hospitals.
- We sell an average of 3,000 Wi-Fi gateways a day to residential DSL customers who want a wireless home network. When they're away from home, our customers can access hotspots by getting FreedomLink memberships that offer unlimited access - available for $19.95 a month or $7.95 a day.

Wi-Fi Hits Grand Slam at SBC Park for Fans & Sports Illustrated

San Francisco Giants fans stayed plugged in at SBC Park this season, thanks to SBC FreedomLink℠ high-speed Internet Service. Before the season began, 121 Wi-Fi access points were added, providing continuous coverage to all concourses and seating areas. Fans who brought a PDA, tablet PC, laptop or other Wi-Fi enabled devices to the ballpark gained free access to the Internet through SBC FreedomLink. The technology really saved the day for *Sports Illustrated* whose photographer got shots of Barry Bonds hitting his 660th homerun at 2:55pm. The lensman had to send his digital photos to a New York editor before a 3pm publishing deadline. He quickly removed the card from his digital camera, placed it in his laptop and wirelessly sent his pictures to the editor in time for the photos to be published.

>What's Up? Looking at New Technologies With Eileen Healy

WIMAX: Just when you thought…

Remember Wi-Fi? Of course you do. It is (or was) the hottest wireless technology being deployed -- promising to deliver flexible and tether-free broadband to the masses. So what is this new acronym WIMAX? An intruder? Another act in the acronym parade meant to confuse all and shove unnecessary technologies down our throats?

Well, Wi-Fi is still hot for nomadic broadband users and the number of hotspots is growing, and, WIMAX is gaining momentum as a promising technology for other applications. (Gee, it's just hard to tell!)

So, what is WiMAX? WiMAX falls under the broad category of BWA (Broadband Wireless Access) once called BFWA (for fixed) and also known as BWIA for Internet Access. WiMAX is designed to deliver up to 70Mb/s access – that's way more than a T3 at 45Mb/s. Remember Teligent and WinStar – startup broadband wireless CLECs with well over $1B in cash from investors and licensed spectrum to boot. They, of course, crashed and burned along with their investors' money. Their costs were too high -- some say what they were lacking was standards. But, today things are looking up and horizons are expanding. And, now there is a standard – IEEE 802.16a to be exact and it's not just point to point or line of sight; it's point to multi-point and non line of sight… and soon to be followed by mobile (802.16e). There is also industry momentum emanating from the WiMAX Forum.

WiMAX has one key advantage: it grew up from the enterprise world and similar to Wi-Fi it can be deployed independently of a carrier without big investments. So there is some potential for it to gain momentum with carrier adoption. WiMAX can also enable some LEC-bypass from CLECs who are unhappy with the latest FCC rulings on wholesale rates.

WIMAX is a standard with two primary applications: broadband access and backhaul. Let's explore both options. Wireless broadband access is another competitor to DSL and cable modems, especially for service providers without infrastructure. It's probably a good option in more rural areas where there is less competition anyway and is an alternative for CLECs especially for the enterprise market where 70Mb/s at a reasonable price would be welcome. Another application is backhaul – the transport of traffic from wireless base stations for cellular/PCS and Wi-Fi Access Points. Companies who lease thousands of T1s from SBC would like nothing better than to eliminate that recurring cost.

One downside to WiMAX (along with many other standards) is that the proponents try to make it "all things to all people". Wi-Fi is barreling into WiMAX's territory. WiMAX lusts after mobility. I think Clayton Christensen from Harvard Business School got it right in the "Innovator's Dilemma" when he showed that time and time again the really lousy, cheap technology wins the war (recall TCP/IP). If that's true, Wi-Fi will win. If WiMAX wins it will be because, in the final analysis, its carrier-grade attributes make it cheaper for public networks. Only time will tell.

In the meantime, knowledgeable managers in and out of the telecom industry should be aware of the opportunities and threats inherent in all these new technologies to better prepare for the challenges of the future. Companies may or may not choose to use WiMAX, but will certainly thoughtfully consider it since technology partners and competitors probably will.

Eileen Healy is CEO of Healy & Co, a carrier-class professional services company. Healy &Co is continually tracking emerging technologies. Eileen and her team can be reached at 1.800.977.0727 or telecom@healy-co.com.

>SBC FreedomLink Announces Agreements That Will Significantly Expand Wi-Fi Availability

The agreement with Caribou Coffee will transform its 300 coffee shops into Wi-Fi hot spots, further expanding the SBC FreedomLink Wi-Fi network by enabling customers to access the FreedomLink service at coffee houses in Illinois, Ohio, Michigan, Wisconsin, Minnesota, Georgia, North Carolina, Virginia, Maryland and the District of Columbia.

Adding Caribou Coffee stores to the SBC Wi-Fi network will further diversify the types of locations where the FreedomLink Wi-Fi service is available and will make the service even more appealing to a broad cross-section of business professionals and consumers, including business travelers, mobile workers, college students, and the nearly 4 million SBC DSL Internet access customers. Monthly SBC FreedomLink memberships are available for $19.95 and provide unlimited access to all FreedomLink hot spots. Daily sessions are also available for $7.95 and provide unlimited access to FreedomLink hot spots for 24 hours. Deployment of FreedomLink service in the 300 Caribou Coffee stores began in August and is expected to be complete by January 2005.

Reciprocal Roaming Agreements

And in a move that is critical to the widespread adoption of Wi-Fi, SBC companies have formed reciprocal roaming agreements that will allow FreedomLink customers to roam onto Wi-Fi networks operated by Concourse Communications, Telmex (the company's first international roaming agreement) and Wise Technologies at reduced rates. Customers from these companies will also be able to roam onto the nearly 2,000 FreedomLink Wi-Fi hot spots. Many of the providers' hot spots are in high-traffic venues such as airports, and SBC FreedomLink customers will pay only $4 per daily session.

The agreements complement an earlier roaming agreement that SBC companies formed with Wayport Inc. that lets SBC customers access more than 1,000 Wayport hot spots, including airports and hotels.

Key venues where SBC FreedomLink customers can access Wi-Fi at a reduced rate through the new roaming agreements:

- Concourse Communications: JFK, LaGuardia, Newark, Detroit and Minneapolis/St. Paul airports.
- Telmex: More than 400 venues in Mexico including more than 200 restaurants, 20 airports, 20 malls, 20 universities, 70 hotels and nearly 10 hospitals.
- Wise Technologies: Baltimore, San Diego, Miami, Anchorage, Omaha, West Palm Beach, Chattanooga and El Paso airports and retail locations.

Beyond the three reciprocal roaming agreements, SBC companies have also signed in-bound roaming agreements with GoRemote, iPass and Syniverse Technologies, companies that offer global connectivity services, including Wi-Fi, to enterprise customers with millions of potential end users. GoRemote, iPass and Syniverse have similar agreements with other WI-Fi providers and offer their customers access to a collection of hot spots operated by third-party Wi-Fi providers. iPass operates the world's largest roaming network with access to more than 10,000 active Wi-Fi hotspots. Customers from the more than 300 wireless operators and Wi-Fi services providers worldwide that partner with Syniverse will benefit from roaming access to the FreedomLink network.

The agreements will generate additional revenue for SBC companies by making FreedomLink hot spots available to the millions of potential Wi-Fi users these companies reach.

Nancy Grover, SBC Security

>Google Hack

Introduction

Hacking doesn't always denote criminal activity. A hacker can also be someone who enjoys exploring computer programs and stretching their capabilities, as opposed to the majority of users who prefer to learn the absolute minimum. That being said, I'm not going to show you how to hack Google in the traditional sense of the word, but I am going to show you some of the lesser known features of the Google search engine that can help refine your searches and produce superior results.

So, open Google on your browser and follow along.

Operators

In order to effectively perform these refined searches, we will be using operators. Operators are query words that have special meaning to Google. The basic format is:

operator:search_term

Notice, there are no spaces between the operator, the colon, or the search term. If a space is used after the colon, an error message will be displayed. Spaces used before the colon will result in the operator being used as the search term.

Phonebook:

If you want to call your friend, but don't have his phone number readily available, Google has a phonebook feature that looks up phone numbers for a business or residence. The syntax is:

phonebook:grover ca

Type the above query into Google, but replace my last name (Grover) and State (CA) with yours. A city can also be entered. If your friend is listed, not only will you see his number, you'll also see that his address is linked to a map. Reverse lookups can also be performed by using:

phonebook:(858) 555-5555

The operator *rphonebook* can be used to limit the search to just residential listings, and *bphonebook* will limit search results to business listings.

If like me, you aren't too happy about finding your name and address posted in the Google phonebook, follow this link to remove your entry:

http://www.google.com/help/pbremoval.html

Site:

This operator instructs Google to restrict searches to a specific web site or domain. Doing a standard search for the name SBC results in about 3.5 million hits. Using the site operator with the SBC domain achieves considerably fewer results – about 16,000. Try it in your browser to see the difference.

site:www.sbc.com

Now try:

site:sbc.com.

There are about 33,000 results here. This is because many SBC sites do not use a prefix of www. These would include sites using espanol.sbc.com and kn.sbc.com among others.

Inurl:

The inurl operator instructs Google to search only within the URL (web addresses) of a document. This query will not examine page titles or text, just the URL.

The following example displays pages with the word 'Grover' in the web address.

inurl:grover

Doing a simple search on the word 'Grover' resulted in 1.2 million results. Using the inurl operator limited the results to just 228,000. The next operator will decrease those results even more.

Allinurl:

This operator allows you to search for two or more words in a URL. The following searches for URL's containing both the words 'Grover' and 'dog'.

allinurl:grover dog

A basic search using the words 'Grover' and 'dog' comes back with 102,000 results, using allinurl reduced the results to six.

Intext:

Intext finds query words located in the body text of a web page; it ignores titles, URL's and links.

intext:caterpillar

Allintext:

String two or more words together using the allintext operator:

allintext:caterpillar alice

Link:

This advanced operator instructs Google to search within hyperlinks. The following query returns only web pages with a link back to sbc.com's main page.

link:www.sbc.com

The link operator is also useful when wanting to see which pages are linking to your Web page or to another page you are interested in.

Filetype:

This operator searches within the text of a specific type of file, and requires an additional search argument. For example, the following query looks for any Powerpoint presentation with the word Microsoft in the title. Be sure not to include a period before the file extension.

filetype:ppt microsoft

A current list of files types supported by this operator can be found at:
http://www.google.com/help/faq_filetypes.html

Intitle:

The intitle operator instructs Google to search for a word within the title of a document. It ignores URL's, links and text. This query displays pages containing the word 'Charlotte' in the title.

intitle:charlotte

Allintitle:

Allintitle allows you to search for two or more words within a title. This query will only return sites will both "Charlotte" and "web" in the title.

allintitle:charlotte web

Combining Operators

Even more concise results can be obtained by combining operators. Try using the site operator with intitle or intext to find specific types of pages. For example, to find academic pages about Albert Einstein try searching for:

intitle:"Albert Einstein" site:edu

A basic search of "Albert Einstein" returns more than 1.6 million results. By using the site and intitle operators, the results have been chiseled down to 596.

Experiment by mixing various operators and keywords to find the information you want more effectively, as in the following example:

site:www.sbc.com billing

This query returns results from sbc.com that include the term billing anywhere on a web page. A simple search using "SBC" and "billing" as keywords returns 94,500 pages. Combining the site operator with the keyword "billing" results in only 2,800 pages.

For a complete listing of operators and their usage visit:
http://www.google.com/help/operators.html.

Other Search Criteria

To exclude words or phrases from a link, text, or title, use a minus (-) in front of the operator. The query *site:sbc.com. -inurl:www* will remove all SBC sites prefixed with a www. *site:sbc.com -intext:billing* will remove all queries for sbc.com where the word billing showed up.

To search for a phrase, surround the phrase with double quotes (" "). A period (.) serves as a single-character wildcard, while an asterisk (*) represents any word – not the completion of a word, as it is generally used. Take the time to check out some of the other Google features located at http://www.google.com/help/features.html and http://www.google.com/options/index.html.

Conclusion

I have shown you just a fraction of the available quick and easy hacks Google makes available to its users. With this knowledge, some imagination and experimentation, you'll be able to easily find most anything you're looking for.

Unfortunately, malicious hackers have also discovered Google operators and have found ways to manipulate the search results allowing them to identify vulnerable web sites, and locate private information that has not been properly protected. Some of these hackers have been using this information to their advantage. So, beware.

With over 4 billion web pages indexed in Google's database, you too may find information about yourself or your company that you don't want posted on the Internet, and it may be in your best interest to have the page removed from Google's index. Instructions for removing individual pages are outlined at http://www.google.com/remove.html.

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 Security Professional.

SBC Billing Solutions

"Business customers have always told us how important they consider clarity, accuracy, timeliness and flexibility in their SBC bills," Vicki Jones, SBC Senior Vice President-Product Management and Development, recently said.

"We've conducted extensive research into the specific billing capabilities businesses demand. Above all, we learned that customers want the following:

- Single bill integrating charges across all SBC locations and companies.
- Meaningful organization – by division, department, cost center or employee.
- Data to help ensure accuracy and protect against employee abuse.
- Discounts across all their products.
- Reduced staff time analyzing the charges on bills they receive from SBC companies.
- Access to information online and enhanced self service.

"We have developed billing solutions to respond to our business customers' needs for improved billing. Convergent Bill and web-based electronic Billing Analysis Tool (eBAT) were launched last year. Today, more than 900 customers use these products, with that number expected to grow to more than 2,000 by the end of 2004."

We'll have more on SBC Billing Solutions in our next UPDATE.

Cassandra Jessie-Johnson

>Highlights Across the Regions

Sizzling Summer Promotions for SBC Messaging

SBC Messaging has hot new promotions in California and Nevada running through the end of the year. Customers who subscribe to Qualifying Connections Voice Packages are eligible for a 65% discount on the monthly rate of their SBC Voice Mail mailboxes (1-9 mailboxes only) for as long as they are Connections qualified. Additionally, the installation charge will be waived when they add a new mailbox.

Customers who subscribe to Qualifying Connections Voice Packages and have SBC Long Distance are eligible for a 65% discount on the monthly rate of their SBC Unified Communications mailboxes (1-9 mailboxes only) for as long as they are Connections qualified. They will also receive a waiver of their installation charge when they add a new mailbox. Early termination fees apply for Connections Qualifying Voice Packages.

If you have questions about the Connections Qualifying Voice Packages or this offer, please contact your Liaison Managers to determine eligibility for your customers. These promotions will end December 31, 2004.

SBC Star 98 for the East

We keep our word! In our last UPDATE column, we promised that Star Code Access to Voice Mail (*98) would be available in the East sometime in August. It is a new Complementary Network Service (CNS) and has been introduced in Connecticut. Now your Connecticut customers can experience the same voice mail ease as your customers in the Midwest and Southwest. Just to recap, 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 product line. It will also work for other vendor mailboxes in those same switch types as long as their service is compatible with SBC switches.

There are no plans at this time to launch it in California. Existing customers can request this upgrade. There are some limitations, so please contact your Liaison Managers to determine availability for your customers.

Saturn Initiative

SBC Internet Services announces completion of Project Saturn. Now SBC can offer a consistent SBC PremierSERV℠ Dedicated Internet Access (DIA) product to your customers across the West, Southwest and Midwest regions. For West and Southwest, new speeds have been added for DS3 Burstable, Tiered DS3, ATM, Tiered OC3 and OC3 ATM. One new product that has been added for all three regions is Burstable OC3.

There are now numerous new products and speeds available in Midwest and those were already included in the West and Southwest. This standardization of DIA features and price points across the major regions allow Sales Teams to offer postalized rates across the regions with the same feature sets. SBC East and SBC Telecomm were not included in this initiative but will be included at a future date. Contact your Liaison Managers to determine availability of the DIA products in each region.

Centrex/Plexar/Central Link

Effective September 1, 2004, the monthly per line rate for Centrex Primary Stations was increased by $1.00 in Kansas, Arkansas, Texas, Michigan, Wisconsin, and Indiana. The rate for Centrex was also increased in Connecticut. Effective October 13, 2004, pending California Public Utilities Commission (CPUC) approval, the monthly per line rate for Centrex Primary Stations will increase from $4.92 to $5.92. The Nevada price increase is pending approval. Customers with current contracts and promotional offers for Centrex service will not be affected by this price change. SBC values your relationship with us and we are committed to helping your business grow and prosper. That's why we are introducing new business packages that offer substantial savings and added value all the time. To find the right service or combination of services that will work for your customers, contact your Liaison Manager. They can help you to recommend a plan that fits your customer's needs.

SBC Nuggets

SBC is a Fortune 50 company, one of the 30 stocks that make up the Dow Jones Industrial Average.

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

>What's A Cell Base Station?

They're all around us. Right there in front of you. On the side of highways. Hidden from sight within gas station and hotel signs. On the tops of water tanks. Inside steeples. On rooftops. On seemingly ubiquitous towers. Most people don't notice them, or just assume they're magically in place. They're the electronic blood cells of the most popular consumer technology in the history of man. They're cell base stations, supporting the wireless conversations of 190,000,000 Americans, and billions of people around the globe.

A cell base station is the location of the equipment owned by wireless carriers (i.e. Cingular, Verizon Wireless, Sprint PCS) that supports wireless phone calls. At a high level, this includes radios, "combining" equipment (think RF multiplexer); coax cable, antennas, and in many cases towers. Conceptually, a cell is defined as a physical area where a particular set of frequencies serves users, with adjacent cells using different frequencies to avoid interference. The cell base station is also known by the acronym BTS, for base transceiver station. It serves as the air interface between the mobile phone and the wireless system. It is the first or last transmission leg of every wireless phone call, whether that call is originated by the wireless subscriber or received by the wireless subscriber. Cell base stations are capable of handling many simultaneous conversations, and serve as the initial access point to the wireless network.

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KEY: The whole concept of "cellular communications" is defined by the ability to parcel out FCC-assigned radio spectrum, and re-use these frequencies over and over and over again throughout a particular wireless market. As a mobile subscriber moves throughout the market, their calls are (ideally) transparently handed off from one base station to an adjacent base station, throughout the duration of the call. This concept is known as "frequency re-use", and combined with the mobile phone's "frequency agility" capability, this is what makes a wireless network run.

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There are many low-power radio transmitter/receivers (transceivers) located within each base station to support customer's wireless transmissions; whether they be conversations, accessing the Internet, or sending a picture to a friend or relative. Each mobile phone is, effectively, also a standalone transceiver. The radio frequencies emitted by a cell base station cover a given geographic area (a "cell"), and cell base stations are created by carving up counties, cities and even buildings into small areas called "cells"; hence the name "cellular". The terms "cell", "cell site", "cell base station" and "base station" are all synonymous and interchangeable.

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KEY: The term "cell" is derived from its hexagonal shape, which is similar to a "cell" of a bee's honeycomb. Cell sizes are not the same throughout a given market. Cells can range in size from a few hundred meters (a "microcell"); to less than a mile across; all the way up to around 20 miles across in some rural areas. The actual size of a cell depends upon terrain, system capacity needs, and geographic location (urban or rural). Generally, cell sizes are very small in urban areas and larger in rural areas, as a result of subscriber (population) density and the overall amount of traffic on the wireless network.

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As the popularity of wireless service exploded in the 1990s, cell sizes had to shrink and simultaneously multiply in order to support the vastly increased number of subscribers. For example, in Chicago in 1998, Cingular Wireless' average cell size was 2 mi. In downtown Chicago, the cell sizes are now half a mile or less. When the system was first built, the average size of a cell site was 5 to 10 mi. Cell sizes became smaller as traffic on the system grew and more cells were added to accommodate the increased capacity required.

Criteria and Methods for Cell Placement

Cell base stations can be constructed from multiple venues. They are:

1. Raw land sites. Wireless carriers purchase or lease raw land, build a tower and install equipment, then turn up the base station.

2. Rooftop sites. Wireless carriers lease space on the rooftop of an existing building. They mount base station antennas on the rooftop, and place the base station equipment either on the rooftop, or in leased space somewhere in the building itself. The roof used can be an office building; a church; an apartment building or even a skyscraper.

3. Water tank sites. Wireless carriers lease space on an existing water tank, mount base station antennas on the tank, and run coaxial cables from the antennas down to the ground where the base station equipment is located.

4. Collocated sites. Wireless carriers lease space on an existing tower where other wireless carriers are located and operate their own base stations. They mount their own base station antennas on the tower, and run the coax cables down the tower to their own equipment.

5. Hidden/Disguised sites. Exactly what's listed in numbers 1, 2 and 3 above. But somehow, the towers and/or the equipment housing are disguised in order to blend into the environment where the base station is located.

The main criterion for determining where a cell base station will be located is where the customers are, or where a high concentration of wireless transmission exist per traffic studies conducted by wireless carriers . This focus was initially on mobile subscribers (i.e., car phone users), and thus sites were usually placed along major roads and highways. Information on vehicular traffic was found from Rand McNally interstate road maps and traffic studies by state and local departments of transportation. This information was used to determine the optimal placement for new base stations. The focus on where to install cell sites has shifted since the early 1990s; to include areas of high pedestrian traffic such as convention centers and arenas, stadiums, shopping malls, downtown areas and nightlife areas. This shift is largely due to the immense popularity of the portable cellular telephone, and wireless service itself.

Overall, site selection today is based on population (subscriber) densities, traffic densities on highways and major roads, the proximity of existing cells, and the existing frequency-reuse plan.

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KEY: Maintaining interference-free service while growing a wireless network is the most challenging task faced by wireless engineers.

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Selecting Cell Base Station Locations

Several key parameters must be examined to determine an ideal location for a cell base station. First and foremost, what area does the wireless carrier want to cover? Where is there an obvious need for new system capacity, based on system traffic studies? What is the height of the terrain above mean sea level (AMSL)? Is the area in a flood plain? Ideal urban cell site locations are in business areas such as industrial parks and strip malls. Residential areas are usually avoided when possible, for aesthetic reasons ("unsightly" towers). In the heart of urban areas such as downtown centers in major cities, base station antennas are often placed at street level to accommodate the large volume of pedestrian traffic, which translates into a large volume of wireless traffic. Today, major advance have been

made in the development and deployment of camouflaged base stations.

The geography of certain areas sometimes makes it impossible to place cell base stations in convenient locations. For example, in mountainous regions in the Western United States, some cells are placed right at the peak of a mountain in order to maximize the radio coverage area for that cell. These locations may be accessible only by helicopter, and can be snowed in for months at a time. In order to reach some of these locations, a cell site technician might have to use a four-wheel drive vehicle for part of the run up a hill or mountain, then a snowmobile, and then walk the remaining distance to the site. These cells can run off of solar power, or huge propane tanks that are filled before the winter weather sets in. The tanks can hold enough fuel to operate the cell nonstop until spring. In areas like those described above, some cells are even constructed on stilts above the projected snow line so that technicians can enter the cell unimpeded, when necessary.

In the mid-1980s, Ameritech Mobile Communications actually used a real, miniature blimp to simulate signal characteristics (and hence quality of coverage) at potential base station locations. The blimp was about 14 feet tall and 40 feet long. It would be tethered at a potential cell location about 300 feet above ground level. There was an antenna inside the blimp, with coax cable running down to ground level to an amplifier. By using the blimp to simulate a cell site, Ameritech radio frequency (RF) engineers could determine whether the location would be good or less than ideal for deployment of an actual cell base station. The blimp was a cost-effective alternative to renting a crane, which could cost up to $10,000 per day.

Cell Base Station Deployment

Today, the locations for constructing new cell sites in existing wireless markets can be a joint decision (a compromise) between wireless carrier marketing departments and RF (radio frequency) design engineers.

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KEY: The proximity of existing cells and the existing frequency-reuse plan must be taken into account when examining potential sites for new base stations.

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Wireless system engineers use search rings to designate areas where site acquisition specialists should seek a location for a new cell site. Remember: this location can be a rooftop; an existing tower or raw land - to name a few options. Search rings describe a three-ringed geographic area, designated on a USGS map, that is deemed optimal for a new base station. The site acquisition specialists should try to obtain a new cell location within the center of the search rings' geographic area. If they are not successful in finding a location in the center of the area, then they should seek a location within the second ring in the target area, and possibly into the third ring, until they are successful.

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KEY: Where a new base station is ultimately placed will affect the frequency-reuse plan and RF power levels at nearby base stations.

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Cell base stations may now be located at just about any land area or structure: on farms, in church steeples, on water towers, in hotel and motel signs, in apartments, and even on light towers at athletic fields. Today base station antennas are even mounted on bridge overpasses on Interstate highways. They are usually painted to blend into the color of the bridge itself. Some wireless carriers have even mounted their antennas on the top of grain elevators. When referring to cell site locations in this manner, we are actually referring to places where the carrier's antennas may be mounted. Regardless of where the antennas are mounted, coax cable will run from the antennas location back to where the BTS equipment actually exists.

Local municipalities are becoming much more stringent when approving new base station installations, especially in urban areas. This is due to community resistance to "unsightly" towers, and is sometimes known as the "NIMBY" phenomenon in municipal political circles "not in my back yard (NIMBY)". To that end, tower vendors have undertaken initiatives since the mid-1990s to create towers that are camouflaged. Many times wireless carriers have to dispatch special teams to testify before municipal zoning boards to get approval to install base station towers. These teams emphasize the benefits of wireless service to the community, and try to come to an agreement with the zoning boards as to what it will take to get the approval to install a new base station (i.e., tower) in a specific area. Sometimes zoning boards will even extract certain concessions from wireless carriers, such as mandating the carriers paint the towers a certain color, restricting the towers to certain heights, or mandating that the carrier share their tower with other wireless carriers. Some zoning boards will even request that the wireless carrier repave village parking lots or build new community parks, to demonstrate their "commitment" to the local community and "give something back" to the community for the right to install towers.

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KEY: The irony of the NIMBY issue is that all people - even elected officials and zoning boards - desire great wireless coverage. They want to be able to make a call anywhere, anytime. But sometimes these very same people stand in the way of allowing wireless carriers to construct towers to provide additional coverage and capacity to a given village or city.

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Today, many wireless carriers deploy their base stations on community water tanks. This type of deployment can be a win-win situation for all parties involved: the wireless carrier is spared from constructing an expensive tower, and a municipality receives a monthly payment from the wireless carrier for renting the space on the water tower. The monthly charge for renting space on top of a water tower can be anywhere from $500 to $3000, depending on the location of the water tower and the local government that is involved. Sometimes wireless carriers get very creative in their efforts to mount a base station on top of a water tower. One community in a suburb of Chicago allowed a wireless carrier to mount their base station (antennas) on the top of the water tower. However, the carrier had to repaint the water tower with the name of the village on it as a condition of being allowed to mount their site on the tower. On the plus side, the carrier also was allowed to paint their name and logo onto the tower as well, which resulted in free advertising! This is a classic win-win situation. Many times community water tanks will even support multiple carriers (sets of antennas). One water tower in west suburban Chicago has a base station (set of antennas) on top of the water tower, and three additional base stations (sets of antennas) from three different carriers on the neck or "stem" of the water tower. Sometimes antennas that are installed on a water tower have a "collar". A collar is a nylon or fiberglass wrap that is wound around the antenna mounting to make the antenna structure invisible to the general public. This is done to hide the antennas from public view - to hide their "ugliness".

In urban areas, wireless carriers also deploy base stations on rooftops of multi-story buildings. Rooftops are ideal places for base stations as they represent a replacement for the construction of a tower; thus wireless carriers are spared from the capital cost of tower construction. The building owners also win in this situation as they are generating revenue in the form of monthly payments for space that might otherwise go unused.

Monthly rent for a rooftop base station can run anywhere from $500 to $3000, but the average cost is about $1000 per month. Similar to water tower rent, rooftop rental

fees are dependent on the building owner and possibly the height of the building itself.

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KEY: A trend that has become commonplace with base station deployment is for municipalities to concentrate all wireless carrier cell sites (towers) within a small geographic area, around a half-mile to a mile in diameter. These cell site "clusters" minimize the negative environmental impact of unsightly towers by concentrating all the sites to one specific area.

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Cell sites are usually named after the area where they exist for example, a town, a highway, or a mountain. Sometimes cell sites are even named after company executives or employees. In many urban areas, they're simply numbered because that's the easiest way to designate them since they're so numerous. Things like base station naming conventions are usually company-specific.

The industry average cost to build an entire base station can range from $150,000 to around $350,000, depending on the type and amount of equipment used and the manufacturer. This includes the costs for the land (lease or buy), the tower if one is necessary, the shelter that houses the equipment, all the base station equipment, antennas and coaxial cable. Circa 1995, this cost was as high as $1,000,000. Several factors contributed to the decrease in the cost of base stations:

- A reduction in cell site equipment costs due to larger volumes being ordered by wireless carriers, specifically by the new PCS carriers. The manufacturers gained economies of scale due to huge orders, and they passed on these savings to the wireless carriers.
- Carrier migrations to all-digital systems, which means all-digital base stations. Digital base stations are less expensive than their analog predecessors: less moving parts; more integrated circuitry (IC) in the equipment; less overall parts required to make the equipment work.

The average lead time to install a new base station is approximately 6 months to a year. This reflects the time period from "no lease" to a fully operational cell site.

Paul

Paul Bedell is Associate Director of Product Management for the PremierServ Hosted IP Service. Paul is also an Adjunct Faculty member at Chicago's DePaul University and a published author. This article is an excerpt from his upcoming book, "Wireless Crash Course - SECOND EDITION", to be published by McGraw-Hill in Spring, 2005. It will be available on Amazon.Com, Borders, Barnes and Noble, and other major bookstores and Internet outlets.

Chris Percy, Cingular® Wireless

>A Brave, New World for Mobile E-mail Users

Businesses understand that mobile technology can help employees staying connected with clients, colleagues and suppliers from just about anywhere they can make a wireless phone call. Giving employees the ability to access business email from a wireless device is rapidly gaining popularity as a strategy for businesses to increase productivity, improve decision-making and boost customer satisfaction. While mobile e-mail has been available for several years, it has often been perceived as a high-end big enterprise solution. Hence, small businesses that need corporate email capabilities but lack the resources to invest in and manage an enterprise-grade wireless e-mail system, have been hesitant to embrace mobile e-mail as a business strategy.

The good news is that wireless technology never stands still and neither does Cingular Wireless. Today's high-speed wireless data technology, such as Cingular's nationwide GSM/GPRS network and new converged wireless voice/data devices, along with a new suite of scalable, cost-effective, low overhead wireless email services, is bringing mobile e-mail well within the reach of small business.

At the front end of this new wave of Cingular e-mail products is a host of new "smart" phones and voice-enabled handhelds that offer the functionality of a cell phone, with features such as phone book, voice mail, caller id and speed dial, combined with essential communications tools like text messaging, email and Web access. Many of these devices also offer productivity tools such as calendars, to-do lists and address books.

For example, Cingular offers a GSM/GPRS version of its flagship BlackBerry e-mail service that runs on the new BlackBerry 7280 tri-band (850/1900/1800 MHz) color handheld. The new BlackBerry integrates phone, email and Internet access, plus personal information management functions such as address books, calendars and task lists into one device. BlackBerry customers using wireless e-mail can view and forward attachments. They can also use the BlackBerry Mobile Data Server (MDS) to access corporate applications such as HR management and CRM sales tracking tools from handheld devices.

Businesses that are already using PDAs and handhelds that run on Palm OS, Pocket PC OS or Microsoft Smartphone take advantage of Cingular's new Xpress Mail service, which supports multiple device platforms, so that businesses can implement mobile e-mail on different devices according to employee's preferences or match a device to an employee's specific needs. Xpress Mail is business ready, enabling customers to easily connect to multiple e-mail platforms including Internet (POP3) for personal mail, as well as enterprise e-mail platforms such as Microsoft Exchange and Lotus Notes. Xpress Mail currently runs on the palmOne Treo 600, Cingular's first quad band wireless handheld that supports international roaming for voice and data. Cingular is expanding it's device portfolio and will be offering Xpress Mail on Microsoft Pocket PC and SmartPhone based devices this fall.

Xpress Mail also allows businesses to choose how they want to manage the email environment. Xpress Mail Enterprise Edition puts a dedicated server behind the corporate firewall that integrates wireless capabilities into an existing email environment, making it ideal for businesses that prefer to manage their own information and communications resources. Xpress Mail Network Edition is a Cingular hosted solution for businesses that want the performance, functionality and security of an enterprise-class email solution, but do not want to own or manage the technology.

Cingular's vision is wireless e-mail for business that is flexible, affordable, simple to deploy and easy to manage. Given what we're offering today, and where we're taking the technology tomorrow, it's a great time for small businesses to take the plunge. Whether they are new to mobile e-mail or planning to upgrade or expand an existing platform, Cingular has the products and expertise help businesses implement successful mobile-email strategies

Chris Percy, Regional Vice President of Business Sales for Cingular Wireless in Los Angeles, has more than 13 years in the telecom industry. The Colorado State University graduate is responsible for delivering both data and voice wireless solutions to business and government customers. Prior to joining Cingular 7 years ago, Percy worked for AT&T Wireless.

SBC Internet Data Center Expansion

SBC Internet Data Centers in Dallas and Irvine are expanding to accommodate the incredible growth of E-services. For further information about the IDCs, please contact your SBC Liaison Managers.

>Cingular Wireless Launches New Wireless E-mail Solutions For PDAs, Smart Phones

Powered by SEVEN®, Xpress Mail Enterprise Edition and Xpress Mail Network Edition provide businesses with affordable, secure, real-time data access across multiple device platforms.

Cingular Wireless recently announced the launch of two new enterprise-class wireless e-mail solutions, Xpress Mail Enterprise Edition and Xpress Mail Network Edition. Based on software from SEVEN®, Xpress Mail Enterprise Edition operates behind the corporate firewall and Xpress Mail Network Edition is a managed service hosted by Cingular. Both solutions are suitable for organizations of all sizes and are designed to work on a variety of mobile devices, including palmOne's Treo 600, offered by Cingular.

"Cingular is focused on providing affordability, flexibility and simplicity in wireless e-mail for our business customers, which means multiple devices connecting to multiple e-mail platforms with enterprise-class security, that are easily deployed and managed," said Jim Ryan, Cingular's vice president of data product management and business marketing. "Xpress Mail Enterprise Edition and Xpress Mail Network Edition are powerful, affordable e-mail solutions that are suitable for all employees -- not just executives or road warriors."

"Cingular has been a leader driving the first wave of wireless email adoption in North America. By adding Xpress Mail Enterprise Edition and Xpress Mail Network Edition into their wireless email portfolio, Cingular is providing a compelling and affordable option for businesses seeking a flexible, device-agnostic solution," said Kent Thexton, president and co-CEO of SEVEN. "We are pleased to work with Cingular to remove the high cost and complexity from enterprise-wide email deployments."

Xpress Mail Enterprise Edition and Xpress Mail Network Edition allow secure, real-time wireless access to e-mail, Personal Information Management and other company information. Xpress Mail Enterprise Edition puts a dedicated wireless mail server behind the corporate firewall, making it ideal for businesses that prefer to manage their own information and communications resources. Businesses that want the performance, functionality and security of an enterprise-class email solution, but do not want to own or manage the technology, can opt for Xpress Mail Network Edition and have Cingular Wireless manage the service from its secure data-center. Both solutions use industry-leading security and encryption technologies such as AES, SSL and VPN, ensuring confidentiality, integrity and appropriate authorization at all points in the system.

Deploying Xpress Mail Enterprise Edition and Xpress Mail Network Edition is easy -- once a business customer chooses between the behind-the-firewall and managed service options, users can be set up centrally by IT or individually, based on the company's requirements. All device and service management takes place over the air, which saves enterprises both time and money. Each solution also features reporting tools that make it easy to monitor usage and service.

Xpress Mail Enterprise Edition and Xpress Mail Network Edition provide the following features:

- Behind-the-firewall server (XMEE): installing this lightweight server is simple; most businesses can be up and running in less than an hour;
- Managed solution (XMNE): Zero-footprint, with no incremental hardware or software to purchase, install and manage;
- Push-based data access: Microsoft Exchange, Lotus Domino, IMAP and POP e-mail, personal contacts, global directories and documents are all available in real-time;
- Over-the-air synchronization: All data and updates are delivered over the air, with no need to cradle the device; synchronization schedule and alerts are customizable;
- Multiple inboxes: Access to multiple e-mail accounts from the same user interface;
- Global access: Users can securely check their e-mail from any PC browser across the world; a great compliment to an organization's remote access strategies;
- Enterprise-class security: Utilizes best-of-breed security technologies such as 128-bit AES, SSL and VPN; data is never replicated to third-party servers outside the firewall.

Consider The Dots Connected!

You have Multiple "Dots"

- Multiple Technologies
- Multiple Company Locations
- Multiple Supplier Locations
- Multiple Customer Locations

"We can help you and your clients connect these dots and manage them. We're a National Provider here to help you get connected and maximize your success. Call your SBC Liaison Managers today."

– Ray Wilkins, SBC Group President--Marketing and Sales

>Automobile Club of Southern California Signs Contract with SBC Companies for Voice & Data Services at 100 Locations

SBC Communications Inc. recently announced a new 3-year agreement for a new long distance and data networking services contract with Los Angeles-based Automobile Club of Southern California (ACSC), the largest affiliate of the Automobile Association of America (AAA).

SBC companies will provide local voice, long distance and toll-free voice services to ACSC headquarters, as well as long distance and toll-free voice services to the organization's more than 100 service and administrative locations throughout California, Hawaii, Maine, New Mexico, New Hampshire, Texas and Vermont. In addition, SBC companies will provide frame relay services to connect the ACSC locations.

"The Auto Club continually seeks ways to keep costs down for our members," said Thomas V. McKernan, Jr., Auto Club president and CEO. "For decades, Pacific Bell, now an SBC company, provided our organization with quality local telecommunications service at competitive prices. As we've grown, we looked for a provider that could offer flexible, cost-efficient communications services. SBC companies showed that they could provide the support, service, and competitive pricing we need so we can meet the expanding needs of our members."

"We are excited to provide both long distance and data networking services to the Automobile Club of Southern California," said Bob Ferguson, president, SBC Global Markets. "Our work with companies like ACSC allows us to further demonstrate our expertise in delivering complete, managed communications services to enterprise customers."

How Some Businesses May Increase Revenue

1. Call clients regularly and explore new or changed needs. Ask how you can improve service
2. Call customers who haven't done business with you recently and find out why.
3. Make follow-up calls to customers after you've received a complaint to ensure the problem has been resolved.
4. Call in advance to notify customers of any problems or delays.

Jerry Hinek, SBC Security

>Extranets

Executive Summary

This article uses practical business examples to explore what can be done with an Extranet to help the business better fulfill its mission. An Extranet can enable a business to manage and secure the flow of corporate information outside the network that the business owns or controls.

Introduction

It's not easy to define Extranet, and I apologize up front if my definition seems overly technical. The purpose of this article is to make the concept clearer by describing why anyone would want one and what you can do with one.

An Extranet is a security mechanism that large organizations use to mitigate the risks that come with communicating critical business information over the Internet. Extranets are small networks with lots of security measures that control the flow of traffic between a bounded corporate Intranet and the wide open Internet.

You might say, "Wait a minute, isn't that a firewall?", but an Extranet has a lot more capability than a firewall and also has a different purpose. A firewall tries to block the flow of sensitive information and to thwart invasion of the Intranet. An Extranet is designed to facilitate the secure passage of information across the firewall.

Background

Corporate networks have had to evolve as opportunities have developed to use networks to conduct business, to gain efficiency and to provide better service to customers, suppliers and employees. An Extranet helps a business engage in E-commerce. It creates a secure location for web servers and VPN concentrators.

Early Networks

The first corporate networks didn't communicate with other networks. The Internet had reached only a small number of academic users. There were no general purpose local area networks (LANs), wide area networks (WANs) or metropolitan area networks (MANs), just custom made networks that served very specific and focused business needs such as connecting users at dumb terminals with mainframe computers running business applications.

Internet

As more people went "on line" over the Internet, its usefulness became more apparent. Transmission Control Protocol/Internet Protocol (TCP/IP) became the desired network protocol. TCP/IP is public domain and is now a global standard. It's cheaper to implement than smaller and more focused networks, and it's a lot more useful as well.

Intranet

In a sense Intranets were early information security mechanisms. With the benefits of TCP/IP, it is ubiquitous and cost-effective, corporations began deploying LANs and WANs as their backbone networks. They were separated from the Internet by relatively simple firewalls.

As more organizations deployed TCP/IP networks, they found the need to connect to people and businesses that were outside their firewalls. Rather than using a firewall to keep sensitive information on an Intranet, businesses had to manage their perimeters in ways to control the flow of information in both directions, in and out.

Efficiency and Risk

Instant communication around the world can offer efficiencies to business, but the efficiencies come with risks. If someone places an order over the Internet, can that order be sabotaged or tampered with before it reaches you? If you choose to send sensitive information over the Internet, what assurance do you have that the information will be used as you intend, and will only be seen by the person you intend to see it? Can employees gain access to the corporate network from home or from customer locations with the same level of security possible from a company building?

Obviously you may lose some control in exchange for the speed of the communication. An Extranet helps businesses manage these risks.

Information Flow

Businesses assume risks in order to be more successful, more profitable. They not only have to safeguard information, they have to use it and to communicate it. If businesses can't get information where it's needed when it's needed they lose money. The information loses value. If the information can get to the right place at the right time, it maintains or even gains in value. Fast and easy information flow can still be a competitive advantage for any business.

Business Partners

Most of you reading Update are business partners with the SBC family of companies. Both you and SBC profit when communication is streamlined, but we can't just post information where anyone in the world can see it and use it. We can't trust anyone in the world to send us orders for service. Streamlining only works when both parties can be certain who the other party is and also that strangers can't intercept the communication.

An Extranet can authenticate persons seeking to send or retrieve information with a large business. The Extranet acts as a broker between the person and the computer that handles the information.

Customers

Big businesses pay a lot of money to have people staffing call centers to take calls from customers. Call centers have benefits and overhead expenses. Many call centers are not available 24 hours a day and 7 days a week. Customers are not guaranteed consistent treatment from each call center employee. People taking information over the phone can make mistakes in getting that information onto a form or into a computer.

Communicating with customers via websites eliminates some of the overhead and decreases some of the problems. A website can be available 24 by 7. Customers will get a consistent experience. Staffing is decreased. These are attractive benefits, but are they worth the risks of having hostile people using those web sites for hostile purposes?

An Extranet can take orders from customers and pass them along to internal processes that will fulfill the orders. The customer is not aware of the secure Extranet environment, but a hacker seeking to break into the Intranet would be stopped.

Employees

Employees carry a lot of the expertise of a company with them. When employees are home, on vacation or out of town on business, they still know what they know, and often still have the knowledge to make important decisions. More and more hotels offer high speed internet access. Airports are starting to offer wireless internet to travelers. Boeing is experimenting with high speed wireless Internet on its jets. Employees want to use their laptops to gain access to company systems and databases wherever they are, not just from the office. Giving employees this remote access can be a win-win for both the employee and the company.

An Extranet server can unscramble the VPN encrypted messages from an employee who may be anywhere on the Internet, and give the employee secure access to all internal systems and services that the employee could get at a work location.

Conclusion

In the real world, there is no one answer to security. Security solutions always have to take into account the value of the asset, the risk to the asset, and the desired use of the asset. The intuitive idea of security always seems to be to lock something up in a steel safe. Most security would be counter-intuitive. The mission of a museum is to present art, artifacts, information and displays for public appreciation and enrichment. If a museum has a priceless masterpiece, it can't just lock it in a steel safe and still fulfill its mission.

Steel safe security is never the mission of a business. What's in the safe does not normally enhance the bottom line or increase operating profits. The Extranet is not a steel safe, it's a way to keep the assets of a company performing the mission of the business.

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

"Light tomorrow with today."

Elizabeth Barrett Browning

Tips On Cell Phone Use in Emergencies

Dan Norman, Cingular's Vice President and General Manager, offers these tips to help customers communicate during emergencies:

- Try short/text messaging service (SMS) rather than placing a wireless call. The majority of Cingular phones are SMS capable. Also, if you have a wireless data device such as a BlackBerry, you can use its messaging capabilities to communicate.
- Be savvy about making your wireless call; keep non-emergency calls to a minimum. Many people are attempting to place wireless calls, so limit your calls to the most important ones.
- Wait 10 seconds before redialing a call. On many wireless phones, to re-dial a number, you simply push "send" after you've ended a call to redial the previous number. If you do this too quickly, the data from the phone to the cell sites does not have enough time to clear before you've resent the same data and may contribute to network congestion. A good rule of thumb is to end the call, wait ten seconds, then hit send to redial your number.

Helpful Consultant Reminders & Tips

Toni Gilbert and Wendy Grimes

Alternate Channels Sales Support Managers

Did you know that Bell Advantage is available to all consultants and vendors?

This system will provide you with pricing, simple/complex order forms, promotion information and even this UPDATE plus much more. To get a password for Bell Advantage, please contact your Liaison Manager.

SBC California has great Standard Due Date Intervals for the following products:

- Primary Rate ISDN (PRI) – 15 business days
- Supertrunk – 19 business days
- Centrex Service – 5 business days
- Access Lines (POTS) – 2-3 business days
- PBX/DID Service – 10 business days
- DSL – 5 business days
- Point-to-Point (T1) – 7 business days

When a customer moves existing DID blocks of 20 or 100 numbers in the same exchange/central office, we will waive the installation fee. (Analog to digital, digital to analog etc.)

Reminder: Telephone numbers are not guaranteed for printing purposes until they are in and working.

Primary Rate ISDN (PRI) Optional feature – Deluxe Call Transfer is available in a DMS100 switch only. PRI Optional feature-Enhanced Alternate Route will automatically transfer calls to other analog or digital service in the event of a busy condition or T1 failure.

Ask us about Term Pricing on a PRI, Supertrunk or Hicap. SBC California customers could save as much as $1,201.38 off the install with a 2-year term.

Reminder: SBC California offers Winback promotions and tariff offerings on various products, such as Primary Rate ISDN, Supertrunk, Centrex, Access Lines & DID numbers to discount or waive the installation charges.

Consultants/Vendors can log onto our website (sbc.com) to qualify a new DSL.

For additional tips in our column this issue, we asked SBC Customer Sales Support Center Service Representatives. They had some good suggestions:

- When requesting SBC Long Distance, you need to provide a calling plan of choice for the best rates, along with a Letter of Authorization (LOA).
- On all move orders with DSL under the same Billing Telephone Number (BTN), DSL will need to be removed first by calling 888-280-4375.
- When placing an order for new business service, be prepared to provide the following info to the reps:
- Customer Contact Name/Can Be Reached #
- Complete Service Address (inc., suite #)
- Billing Name: Sole Owner (Social Security #; Corporation (ID#) or Partnership
- Listing Information (Classified heading)
- 900/976 Blocking (Local/toll/Long Distance?)
- Access Person, business hours etc.
- Complex/Multiple Orders can be faxed to 877-778-4141, 4133 or e-mail to vcsc@camail.sbc.com

Reminder:

- LOAs expire 1 Year after date signed
- A customer-signed LOA is required before service reps can release any account info.
- The new 13-state LOA can be used for Long Distance, Local and Toll changes
- 800# Responsible Organization forms are valid for 30 days after date signed

Thanks for your business.
We really appreciate it!

Toni & Wendy

>Cingular Wireless' Network Was Strong During Hurricane

Despite Hurricane Charley's wrath, Cingular Wireless's switching facilities remained fully operational, and the hurricane's impact on cell sites across central and west Florida was generally moderate.

Restoration Efforts Continued in Heaviest Hit Areas:

- Free emergency calling stations were set up in Cingular company- owned stores in Orlando, Cape Coral, Ft. Myers/Naples, Lakeland, and Daytona Beach.
- Teams of engineers continued site surveys to refuel back-up generators and determine where additional back-up is needed.
- Over 80 portable generators were deployed at affected cell sites so far with more in route.
- Capacity at unaffected cell sites was boosted to handle increase in call volume.
- Cingular's fleet of portable wireless facilities, or COWs - cellular on wheels - were also on stand-by if additional calling capacity is needed in the impacted areas.

Jagdish Kohli, Ph.D.

>The Next Wave: Communicating Intelligently

Technological evolution continues to provide newer communication products and services. RFID (Radio Frequency Identification) technology has recently caught the attention of service providers to create many new applications. Wi-Fi (Wireless Fidelity) technology is changing the landscape of broadband wireless communications for businesses and consumers. VoIP (Voice over Internet Protocol) technology is gaining ground as more and more users continue to experience enhanced quality of service. RFID, Wi-Fi and VoIP are disparate technologies but when combined together can create a host of new intelligent communication services.

Here we discuss:

- RFID, Wi-Fi, VoIP Overview
- Emerging Intelligent Services Network
- Application Trends & Implications

RFID

Radio Frequency Identification (RFID) technology is built on three main components: The tag, the antenna and the reader. Inside the tag is a microchip with a coiled antenna. The RFID tag can transmit the information held in its microchip memory by beaming radio waves to a reader, which has an antenna as well. The information about tagged items may include – when and where it was made, how to best store and handle it and so on. Every item tagged can obtain a unique identity. The information is read by the reader and relayed to the main computer system.

RFID tags can be placed in almost any object, and can vary in size, shape or form depending on the requirements of the application. The one thing that limits the size of the tag is the antenna. Depending on the frequency, we need the proper (sized) antenna to transmit the data.

There are many types of tags available in the market, but the most popular ones are "passive" and "active" tags. An active tag can broadcast signals to the reader independently because it is equipped with a battery, and is thus much bigger than a passive tag, which does not have any onboard power source. To activate a passive tag, the reader sends out electromagnetic waves to energize the tag's microchip circuitry. Passive tags are the most popular in the market today because of their lower cost. Another key aspect of an RFID system is the transmission range of the tag. Readers communicate with tags at various frequencies, depending on the antenna in the chip:

- Low-frequency tags, which function on the 20 KHz to 500 KHz frequency range, have a reading distance of up to a foot.
- High-frequency tags, at 13.56MHz, can be read up to about three feet away, while ultrahigh-frequency (UHF) tags, which operate from 850-900MHz, can be read from 10ft to 20ft away.
- Typically, active tags are used for UHF applications because their onboard battery power can support external antennas that can boost their transmission range to up to 300ft.

There is an enormous amount of industry activity to deploy beneficial aspects of RFID technology. The following examples just represent the tip-of-the-iceberg:

- Fast food giant McDonalds recently announced that it would begin accepting payment via MasterCard's "PayPass" Radio Frequency Identification (RFID) technology, a method which has the potential to replace magnetic-strip readers used by debit-style cards. The MasterCard RFID technology will expedite the check-out process. Receivers read the user's account information off of an RFID chip built into a gift card, keychain fob or cell phone that is waved in front of it, making it easier to collect customer data and run loyalty programs. While MasterCard has managed to convince a few retailers to install the RFID readers for limited PayPass tests, McDonald's current commitment to roll it out in Dallas and New York this year, and other cities throughout 2005, is the largest to date.
- Wal-Mart recently announced it would require its top 100 suppliers to include RFID chips in their products to be used for inventory purposes.
- Some industry research shows that the use of RFID within the pharmaceutical industry could prevent most of the 1.25 million adverse reactions and 7,000 patient deaths annually in the United States as a result of drug errors.
- In a recent report by the FDA (Food and Drug Administration), the agency estimated that pharmaceutical companies would complete full-scale RFID tagging of most pharmaceutical products within a three-year timeline, using electronic product code (EPC)-compliant RFID tags.

Wi-Fi

Wi-Fi stands for WIreless-Fidelity. Wi-Fi networks use radio technologies called IEEE 802.11b or 802.11a to provide secure, reliable, fast wireless connectivity. A Wi-Fi network can be used to connect computers to each other, to the Internet, and to wired local area networks. Wi-Fi networks operate in the unlicensed 2.4 and 5 GHz radio bands, with an 11 Mbps (802.11b) or 54 Mbps (802.11a) data rate or with products that contain both bands (dual band).

Everyone can use Wi-Fi, almost everywhere in the world. Wi-Fi has become popular for home applications, small and large businesses as well as public places. Application scenarios for these environments are discussed below:

- Home Wi-Fi networks can connect multiple computers to each other, to peripherals, and to the Internet. A Wi-Fi network can connect a family's computers together to share such hardware and software resources as printers and the Internet. That means everyone in the family can share stored files, photos and documents and print them out on a single printer attached to one desktop computer – all without any cables running throughout the home.
- Wi-Fi networks also work well for small businesses, providing connectivity between mobile salespeople, floor staff and behind-the-scenes finance and accounting departments. Because small businesses are dynamic, the built-in flexibility of a Wi-Fi network makes it easy and affordable for them to change and grow.
- Large corporations and campuses use enterprise-level technology and Wi-Fi certified wireless products to extend standard wired Ethernet networks to public areas like meeting rooms, training classrooms and large auditoriums. Many corporations also provide wireless networks to their off-site and telecommuting workers to use at home or in remote offices. Large companies and campuses often use Wi-Fi to connect buildings. Service providers and wireless ISPs are using Wi-Fi technology to distribute Internet connectivity within individual homes and businesses as well as apartments and commercial complexes.
- Wi-Fi networks are also found in busy public places like coffee shops, hotels, airport lounges and other locations where large crowds gather. This may be the fastest-growing segment of Wi-Fi service, as more and more travelers and mobile professionals ask for fast and secure Internet access wherever they are. Soon, Wi-Fi networks will be found in urban areas providing coverage throughout the central city, or even lining major highways, enabling travelers' access anywhere they can pull over and stop.

VoIP

VoIP (Voice over IP - that is, voice delivered using the Internet Protocol) is a term used in IP telephony for a set of facilities for

managing the delivery of voice information using the Internet Protocol (IP). In general, this means sending voice information in digital form in discrete packets rather than in the traditional circuit-committed protocols of the public switched telephone network (PSTN). A major advantage of VoIP and Internet telephony is that it avoids the tolls charged by incumbent telephone carriers.

The VoIP Forum that facilitates the development of VoIP standards also promotes the use of directory service standards so that users can locate other users and the use of touch-tone signals for automatic call distribution and voice mail. In addition to IP, VoIP uses the real-time protocol (RTP) to help ensure that packets get delivered in a timely way.

IP is now the primary driving force for a new generation of integrated network solutions, called IP/Convergence. Voice, video, data and image information are being merged into innovative multimedia applications whose goals include:

- Improvements to the customer interface
- Enhancements to business processes and
- Higher quality, more understandable information.

Emerging Intelligent Services Network

Emerging RFID, Wi-Fi and VoIP technologies can be fused with currently deployed wired and wireless Intranet and Internet technologies. This fusion will create a whole new network for a number of intelligent communication services. A high level view of such a network is shown in Figure 1.

RFID tags can be placed in smart cards, mobile phones, and consumer items in a super market or department store, wrist bands of patients in a hospital or prisoners in a prison.

The RFID readers can communicate with these tagged items or people and track their movement and where about.

Adding Wi-Fi capability to the end devices and network interfaces will provide broadband wireless communications to access corporate Intranet or the public Internet. The addition of VoIP capabilities will allow voice communication along with high speed data communication. IP will also allow the addition of video communication and a host of intelligent multimedia services.

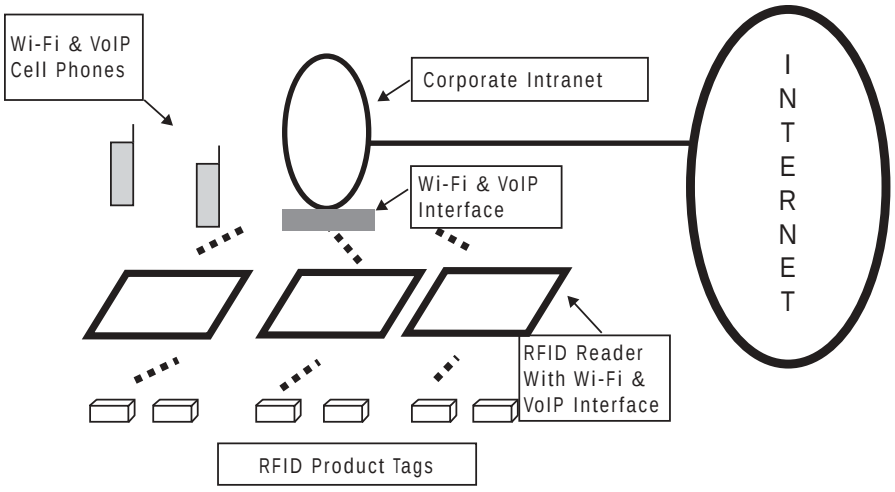
The network shown in Figure 1 will be IP based and very powerful. It will accelerate the creation of new communication services.

Application Trends

A number of integrated product and services are being developed to provide new and more efficient communication capabilities for consumers and businesses. The following examples illustrate new application trends:

- Nokia has recently developed a mobile phone with built-in RFID capability. This feature is expected to facilitate in store or on-line shopping. The same phone can be used for tracking expensive items in the home. A number of other mobile phone manufacturers are working to add similar capability. VoIP interface will be a natural addition as IP networks get established. Providing RFID, VoIP and Wi-Fi technologies in the same device will create a very powerful communication and tracking device.
- Vocera Communications has developed its VoIP badge communicators. Instead of carrying around a phone of some sort, the telephone is contained in a standard employee badge. When an employee wants to call another employee, he or she touches a button on the badge and says the name of the other employee, with the conversation carried over a Wi-Fi network. The batch communicator is under trial at some hospitals for patient and nurse communication. This device is very useful as doctors and nurses are constantly on the move but cannot use cell phones easily.
- A number of companies have developed VoIP Wi-Fi integrated phones. There is a natural fit between VoIP and Wi-Fi as both technologies are IP-based. VoIP over Wi-Fi is becoming very popular for wireless Internet hotspots with unlimited domestic calls, voicemail, caller ID, and call waiting features. These devices are also being used for enterprise communications.

Figure 1. Emerging Intelligent Services Network



Implications

The Internet became a mass market phenomenon in the mid-1990s. It changed the direction of the telecommunications industry and provided a paradigm shift for new opportunities. Consumers and businesses have benefited from many Intranet and Internet technologies during the past decade. RFID, Wi-Fi and VoIP technologies are poised to bring new communication capabilities and associated cost-savings for many businesses.

Incumbent local exchange carriers have the greatest challenge to transform their current voice-centric network to an all IP multi-service network with the inclusion of fast emerging RFID, Wi-Fi and VoIP technologies. These carriers must satisfy the unique communication needs of each customer by creating useful bundled services.

There are a number of unresolved privacy and security concerns with RFID technologies. A number of related services leave users vulnerable to profiling or tracking. These challenges have to be sorted out as RFID, VoIP and Wi-Fi integrated products and services take off in the next few years. Communication companies and user groups have to work together with legislators to create appropriate consumer protection legislation.

"Human beings are multidimensional. Their Creativity is limited only by their imagination."

Jagdish

Jagdish Kohli, Ph.D., is an independent Healthcare & Information Technology consultant. He can be reached at jagdish_kohli@yahoo.com.

"Be someone for somebody."

Mother Teresa

Data with David

SBC recently introduced a new option for SBC PremierSERV Frame Relay service that provides customers with increased bandwidth to manage their network applications. SBC has also geographically expanded our coverage for Inverse Multiplexing over ATM (Asynchronous Transfer Mode) known as IMA. Both services are now available in the SBC 13-state territory, the SBC Telecom nationwide cities and out-of-region through SBC Long Distance where available through the incumbent local exchange carrier. This article reviews inverse multiplexing and how it is used with SBC PremierSERV ATM and Frame Relay services offering business benefits as a WAN technology.

T1 Inverse Multiplexing – What is It?

Local Area Networks (LANs) have grown in popularity and necessity as businesses have become dependent upon intranets and the Internet. The relatively low cost of computers has placed them on every employee's desk. Computer applications have increasingly driven the demand for more bandwidth on LAN backbones. Convergent applications of voice and video together with traditional data traffic have also added to the LANs bandwidth requirements. It's not uncommon for a LAN backbone to have data rates ranging from 100 Mbps up to 1 Gbps.

Added to the LAN bandwidth demand are the bandwidth requirements of the wide area network (WAN). Medium and large companies have enterprise networks, consisting of many LANs tied together with various WAN links. The problem, unlike the LAN infrastructure, which has generally been able to grow and meet these increased bandwidth requirements, is that most WAN connections run at relatively low speeds. Companies are forced to be content with less bandwidth than they require because they cannot afford a full DS3 (T3) pipe (45 Mbps) or because such service is not available to them. In some cases, companies have deployed multiple parallel DS1 (T1) circuits, but this has only added to the complexity of the issue, without really providing the increased bandwidth that they need.

Companies have turned to inverse multiplexing as a solution for increasing the size of their WAN links. Inverse multiplexing, the opposite of traditional multiplexing, combines multiple circuits into a single logical data pipe. So, a large, single stream of data is split up and spread across multiple DS1 circuits and then recombined into a single data stream at the other end. This provides customers with a scalable solution because they can incrementally grow their WAN links as bandwidth requirements dictate. The use of multiple DS1's proves more economical than a full DS3 when eight or less DS1's are required.

What is Inverse Multiplexing over ATM (IMA)?

Inverse Multiplexing over ATM (IMA) provides inverse multiplexing of an ATM cell stream, performed on a cell-by-cell basis, over multiple physical link DS1's. It provides a modular bandwidth access to ATM networks bridging the gap between the traditional DS1 and DS3 physical links. With the introduction of IMA, it provides an effective method of combining the transport bandwidths of multiple links grouped to collectively provide higher intermediate rates of 3 to 12 Mbps.

The Physical Layer specifications for IMA comply with ATM Forum AF-PHY 0086.000. Each IMA group is configured with a minimum of two DS1 lines and maximum of eight DS1 lines.

ATM IMA is provided as User Network Interfaces (UNI) only at the following speeds:

NxT1	Actual Speed	Speed in ASI T&C's and SBC Long Distance Guidebook
2 DS1s	3.046 Mbps	3.0 Mbps
3 DS1s	4.569 Mbps	4.5 Mbps
4 DS1s	6.093 Mbps	6.0 Mbps
5 DS1s	7.616 Mbps	7.6 Mbps
6 DS1s	9.139 Mbps	9.1 Mbps
7 DS1s	10.662 Mbps	10.6Mbps
8 DS1s	12.186 Mbps	12.1 Mbps

- These speeds match the current Inverse Multiplexing over MLFR speeds addressed later in this article
- Access rate and bundle port rate must match
- All ATM QoS services will be supported with IMA, as well as FRATM interworking PVCs

How does ATM IMA work?

The ATM Inverse Multiplexing technique involves inverse multiplexing and de-multiplexing of ATM cells in a cyclical fashion among links (DS1's) grouped to form a higher bandwidth logical link whose rate is approximately the sum of the link rates. This is referred to as an IMA group. Figure 1 provides a simple illustration of the ATM Inverse Multiplexing technique in one direction. The same technique applies in the opposite direction.

IMA splits high-speed transmissions over two or more lower-speed links. It also enables allocation of fractional DS3 without requiring inverse multiplexing (IMUX) equipment.

The customer's CPE aggregates multiple virtual connections together to form higher bandwidth links. The aggregate virtual circuit can be composed of multiple Virtual Connections (VCs) taking different paths across various ATM switches to the respective destinations. The same concept holds true for Multilink Frame Relay.

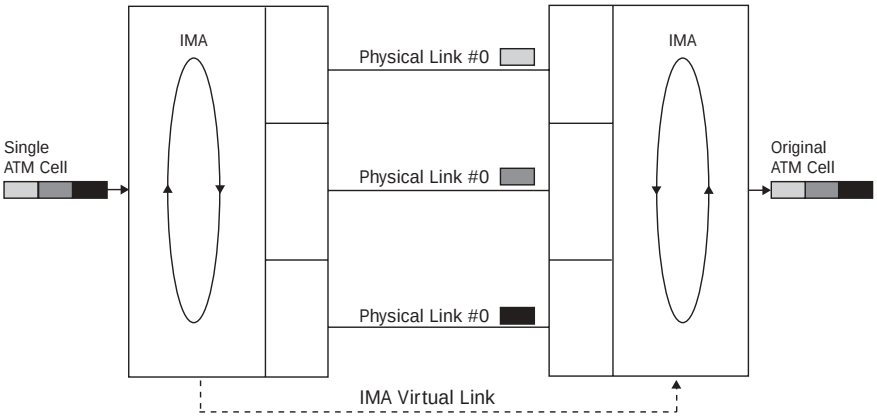
ATM IMA Applications

Customers that have a need for more available bandwidth, higher than what a DS1 ATM UNI can provide, can upgrade without moving to a full DS3 ATM service.

IMA solves the following problems on user-to-network interface in an ATM network:

- Lack of required bandwidth availability due to facility constraints (e.g. no T3

Figure 1.



Transmitted cells are distributed across the links in a round robin sequence; the received cells are recombined into a single ATM

service in a geographical region) or service offering restrictions (e.g. no fractional T1 service),
- The physical interface as an inflexible pool of bandwidth, and
- The physical interface as a single point of failure on the frame relay interface.

By combining multiple physical interfaces into a single bundle, a network operator can design an ATM interface supporting more bandwidth than is available from any single physical interface. Additionally, resilience is provided when multiple physical interfaces are provisioned on a single bundle so that when any of the physical interfaces fail, the bundle continues to support the ATM service.

What is Multilink Frame Relay (MLFR)?

The continued success of Frame Relay technology as a proven, low latency, and secure access service has driven customer demand for more flexibility in implementations. In response, the Frame Relay Forum, FRF.16, created Multilink Frame Relay, an accepted standard for inverse multiplexing over standard DS1 circuits from the customer's location to the Frame Relay service provider point of presence (POP).

MLFR for the User Network Interface (UNI) provides the physical interface emulation for frame relay devices. The emulated physical interface consists of two or more physical links (DS1's), called "bundled links", aggregated together into a single "bundle" of bandwidth. This service provides a frame-based inverse multiplexing function, sometimes referred to as an "IMUX".

The bundle provides the same order-preserving service as a physical layer for frames sent on a data link connection. In addition, the bundle provides support for all Frame Relay services based on UNI standards.

By combining multiple physical interfaces into a single bundle, a network operator can design a frame relay interface supporting more bandwidth than is available from any single physical interface. As with IMA, resilience is provided when multiple physical interfaces are provisioned on a single bundle so that when any of the physical interfaces fail, the bundle continues to support the frame relay service.

The major advantage in using MLFR is the support of multiple protocols. Frame Relay is designed to be protocol-agnostic.

Multilink Frame Relay is provided as UNI interfaces at the same speeds that match the IMA speeds previously listed. The access rate and bundle port rate must match. Standard and Priority PVCs will be supported, as well as FRATM interworking PVCs.

How does MLFR work?

Multilink Frame Relay (MLFR) splits high-speed transmissions over two or more lower-speed links. It also enables allocation of fractional DS3 without requiring inverse multiplexing (IMUX) equipment.

The FRF.16 standard, in conjunction with other FRF standards, multiplexes several physical or interface connections together to create a single, higher-speed link over the transport network. The aggregated traffic link, known as a bundle and the physical circuits terminate at each switch along the virtual circuit.

MultiLink Frame Relay Applications

Customers that have outgrown the available bandwidth of a DS1 Frame Relay service and wish to upgrade without moving to ATM service are the primary market for this service. Multilink Frame Relay solves problems previously discussed in the ATM application which include:
- Facility constraints
- Physical interfaces
- Single points of failure

As with IMA, combining multiple physical interfaces into a single bundle, MLFR can support more bandwidth and is more resilient than from any single physical interface. MLFR and IMA will support multiple PVCs, or a single PVC that is larger than the individual DS1 transport. For example, a 3 Mbps IMA or MLFR will support a 3 Mbps PVC. For customers with remote sites that require aggregated bandwidth greater than a DS1 and a larger PVC, these services are the logical choice.

Conclusion

IMA and MLFR provide both the flexibility and scalability allowing customers to choose bandwidth options from 3 Mbps to 12 Mbps for their User-to-Network Interface. Companies seeking to bridge the gap between their LAN and WAN connection speeds will find that IMA and MLFR will offer an affordable solution for increased bandwidth over twisted pair when the higher 45 Mbps (DS3) over fiber optics is not required or affordable.

Tom

Tom David is an SBC Consultant Liaison Manager. He can be reached at td1898@sbc.com

"You have to do your own growing no matter how tall your grandfather was."

Abe Lincoln

>SBC Announces 3-Year Data Center Hosting Contract With Unocal Corp.

SBC Communications Inc. recently announced a contract to manage data applications with Unocal Corporation, one of the largest U.S.-based independent oil and gas exploration and production companies.

Under the terms of the three-year contract, SBC E-Services will provide Unocal with SBC PremierSERV℠ Data Center Hosting, a scalable, reliable solution consisting of data center hosting and managed services. Additionally, SBC companies will provide GigaMAN® service, a dedicated, fiber-optic, point-to-point gigabit Ethernet service to connect Unocal's El Segundo, Calif., headquarters and its Brea, Calif., location to the SBC Internet Data Center in Irvine, Calif.

Unocal chose SBC PremierSERV Data Center Hosting to support a variety of global applications, including its corporate Web site, www.unocal.com, enterprise e-mail and network-based services for its users in Southern California.

"Outsourcing our data center services has been a consistent focus at Unocal for three years. When it came time to close one of our data centers, we wanted to make sure we selected a provider who could provide a cost-effective, complete solution," said Fred Magner, CIO, Unocal. "SBC E-Services met our needs."

SBC PremierSERV Data Center Hosting is an equipment housing service that offers on-site technical support in a fault-tolerant, secure environment and is offered through the SBC Internet Data Centers, which have completely redundant power back-ups to ensure highly available solutions. Additionally, all SBC PremierSERV Data Center Hosting services are backed by comprehensive service level agreements.

Executive News

Susan Johnson, vice president-finance for SBC West, has been named senior vice president-corporate planning, SBC Operations, Inc. She will be responsible for corporate planning for all of SBC and report to Forrest Miller, group president-external affairs and planning, SBC Communications Inc.

Frederick Chang, president-technology strategy, SBC Operations, Inc., has announced his resignation after nearly 18 years with the company. He will be taking the position of research professor in the department of computer sciences and director of the center for information security at the University of Texas at Austin.

>American Mortgage Network Signs IP-VPN Services Contract With SBC Companies

IP-based network upgrade designed to accommodate rapid growth, enable remote access to applications.

SBC Communications Inc. recently announced a new contract with San Diego-based wholesale mortgage banker American Mortgage Network (AmNet), a wholly owned subsidiary of AmNet Mortgage, Inc.

Under the terms of the contract, SBC companies will provide SBC PremierSERV℠ IP-VPN Service to connect AmNet headquarters with 19 locations in its branch network. The new, managed IP-VPN service will help AmNet support rapid growth and give employees new productivity tools, such as remote access to network applications.

"As one of the nation's fastest growing wholesale mortgage banks, we needed a stable, financially sound provider that could accommodate the growth of our company as we added branch locations across the country," said Randy Myres, Senior Vice President of Information Technology at AmNet. "The data networking services offered by SBC companies have helped us to grow as we extend our geographic reach and penetrate new markets."

"We are pleased to have the opportunity to expand our relationship with American Mortgage Network," said Bob Ferguson, president, SBC Global Markets. "Our ability to provide advanced IP networking services to one of the fastest-growing lenders in the nation further demonstrates our commitment to delivering flexible, cost-effective solutions to meet the needs of our enterprise customers."

"Look for the good in every situation"

Didja Know?

SBC operators have offered assistance in Spanish, Chinese and other languages but SBC California Residential Customers now get added support in more than 150 languages. During a trial with Language Line Inc., customers were assisted in more than 90 languages. The Top 10 were: Russian, Armenian, Farsi, Punjabi, Portuguese, Hmong, Arabic, French, Thai and Hindi. Because of the trial's success, extended language support is now part of the way we do business in California. This language service is offered to SBC California Residential Customers at no additional charge.

>New Data Services Contract With Real Estate's CB Richard Ellis

SBC Communications Inc. recently announced a new, three-year communications services contract with global real estate leader CB Richard Ellis that streamlines communications and enhances security at over 100 real estate locations nationwide.

Through the contract, SBC companies will provide CB Richard Ellis with a suite of managed services and solutions, including SBC PremierSERV℠ Internet Data Center Hosting, SBC PremierSERV Frame Relay and SBC PremierSERV Network Management. These solutions will deliver an enhanced, fully managed and monitored communications network to over 100 CB Richard Ellis locations nationwide.

"With CB Richard Ellis's continued growth, we wanted a state-of-the-art communications network that could evolve as our business needs change and included a solid network security component," said Patrick Schreffler, chief technology officer, CB Richard Ellis. "We believe the SBC team has what it takes to help us achieve our goals."

CB Richard Ellis will use SBC E-Services' Platinum Internet Data Centers to host and monitor its vital company information as well as provide a complete redundancy solution. Through SBC PremierSERV Data Center Hosting, CB Richard Ellis will be able to monitor and manage its equipment without the power, reliability, and security issues the company might encounter if the company's information was housed on-site.

>Contract With Maritz Inc. To Cover Locations in 16 States

SBC Communications Inc. recently announced a new contract with St. Louis-based Maritz Inc. – the world's largest source of integrated performance improvement, travel, and marketing research services – for voice and data services in 16 states.

Under terms of the contract, SBC companies will provide local and long distance voice services and a total upgrade of the company's core and edge data networking equipment. The contract covers Maritz locations in Arizona, California, Colorado, Florida, Georgia, Illinois, Indiana, Kansas, Massachusetts, Michigan, Missouri, New York, North Carolina, Ohio, Texas, and Virginia.

"Our needs in terms of voice and data services were fairly straightforward," said Mark Bryzeal, division vice president, Maritz Inc. "We wanted to cut network costs by at least 15 percent, and continue to maintain the same high level of network availability for our internal users and external customers. SBC heard that challenge and came through with a solution that met our needs."

"The scope and scale of our contract with Maritz further demonstrates our ability to provide comprehensive voice and data services to enterprise customers with locations across the nation," said Bob Ferguson, president, SBC Global Markets. "Regardless of a customer's location, SBC companies have the solution to get the job done."

>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.

Carlos Alas, Jr.

>Sales Teams Have Improved Contracts and Support at SBC

Custom Contracts have been improved by reducing the average contract length by 20 percent. Support for Custom Contracts involves at least seven work groups.

At SBC companies, we continue to see improvements to our contracts. In the last UPDATE article we saw how SBC adopted the SBC Global Services Master as a standard offering for all contracts. SBC enhanced some of the terms in its Master Agreement by modifying its warranty, limitation of liability and indemnity clauses in an effort to better meet our customer's expectations. The adoption of the SBC Global Services Master makes it easier for SBC customers to conveniently add affiliate services under contract.

Most recently, SBC has further improved its contracts in order to make them simpler, shorter and easier to present to customers. The average length of SBC contracts has been reduced by 20 percent.

The goal of the contract process is to make it simple and efficient for the Sales Teams to present contracts to SBC customers. How, you may wonder, does SBC work to support its Sales Teams in that effort? The following brief outline of the groups involved in various contract support efforts should help in understanding how it all takes place.

To begin with, there are seven distinct work groups that support SBC Sales Teams throughout its national footprint when it comes to Custom Contracts. Those groups are: Contract Development, ICB Pricing, Legal, Global Solutions, Complex Solutions, Proposal Center and Contract Management. A brief description of each of these work groups follows:

Contract Development

Contract Development is charged essentially with developing Custom Contracts for SBC customers. That entails being the primary contact for SBC Sales Teams and coordinating all interaction between the other parties involved such as Pricing and Legal. Contract Development negotiates certain terms and conditions directly with the customer and works in tandem with legal to craft custom language in order to meet the customer's expectations. Typically, this is the first stop for all Sales Teams with a Custom Contract opportunity for strategy and organization of the contract project. All Custom Contracts are a product of this work group which is organized around the various Sales Channels at SBC such as Global Markets and Alternate Channels.

ICB Pricing

Individual Case Based Pricing is part of Finance and is charged with looking at the financials for each Custom deal. They ensure that SBC pricing is competitive and meets all regulatory requirements. They negotiate directly with the Sales Teams as well as the customer where necessary and develop terms and conditions specific to the deal which are then incorporated into the final document.

Legal

Legal is charged with making sure all Custom Contracts comply with SBC policies as well as Regulatory rules and regulations. Legal is brought into the negotiations by Contract Development in order to discuss and develop specific language around negotiated terms and conditions with the customer. All custom language must be approved by legal prior to being released for signature. Legal also plays a role in Request for Proposal (RFP) responses with regards to the legal review required for each of these opportunities.

Global Solutions

Global Solutions is an organization that supports the development of all 13 state Master Discount Agreements (MDA). They are responsible for organizing all Pricing requests and the stewardship of these multi-state Agreements in support of the Sales Teams.

Complex Solutions:

Complex Solutions is a group the Sales Teams turn to when they have an opportunity that requires the coordination of several affiliate contracts being developed across the 13 state region. They coordinate and project manage all the parties involved in coming up with a packaged solution for the customer. A typical project of this type would not only involve an MDA but also multi-affiliate and multi-region contracts.

Proposal Center

The Proposal Center is a resource for SBC Sales Teams that assists in coordinating successful, uniform and professional presentations to our customer's RFP's. With the assistance of all of the involved parties they coordinate responses that are timely, well documented and professional. This requires that they project manage this along with the Sales Teams.

Contract Management

Contract Management generally works in a post customer signature environment to process, monitor and archive all contracts whether custom or not. Contract Management has responsibility for signature of all contracts except multi-region MDA's which are signed at the Executive Vice-President level. Whenever a Sales Team has a question as to whether or not there is an existing Custom Contract for a customer or needs a copy of a specific contract, regardless of the affiliate, this is the organization they turn to.

In conclusion, Custom Contracts at SBC are constantly evolving and improving. There are many resources for the Sales Teams designed to assist in the professional execution of Custom Contracts. For more information on the Custom contract process at SBC companies, feel free to 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.

SBC Reaches Milestone With 400th Patent

SBC recently reached an innovation landmark with its 400th patent from the U.S. Patent & Trademark Office.

Patent No. 6,751,304 relates to an "always-on" modem for communication over a dedicated, twisted-pair data line. Inventors are Eugene L. Edmon and Carlton L. Brown, both of SBC Laboratories in San Ramon, and Christopher Rice, SBC executive vice president of services and chief technology officer.

The patent demonstrates the innovation and invention that occurs across the SBC family of companies from employees regardless of their job or level. Each example of an employee finding a new approach to improve the operation, increase efficiency, enhance product bundles or deliver superior service helps SBC extend its competitive advantage in intellectual property and could be the basis for a patent.

Patents, trademarks and other know-how are as important to SBC now as they were in 1876, when Alexander Graham Bell won Patent No. 174,465 for the telephone – filing his application just two hours before Elisha Gray filed one for a similar device using electricity to enable sound to be heard over distance.

In its first full year of operation in 2003, SBC Knowledge Ventures filed 217 patents and 23 trademark applications.

>Security Solutions Spotlight: From SBC Companies & 3Com

VPN Capabilities

Importance: Virtual Private Networks (VPN) allow a customer to access their secure Corporate Network via the Internet. This is accomplished by creating secure/encrypted tunnels between the Gateway & Corporate Network. This is especially important if a customer works from home, as the VPN tunnel provides the same access as a direct connection to the Corporate LAN.

Potential Customer Benefit: All 3Com Gateway/Router devices support VPN pass-through and will allow any PC to Host VPN traffic to pass. The 3com Secure Router and VPN Firewall take this two steps further by offering Site-to-Site VPN Security Associations and VPN Client Termination. This means they can provide a permanent VPN Tunnel between two locations allowing seamless connectivity without modifications to user PCs, at the same time providing a point of entry/authentication for home users.

Firewall Security

Importance: The first step in any security scheme usually is to guard the entry points to your network with a Firewall. Firewalls inspect each packet presented for access to the protected LAN and either allow it to pass or discard it based on the security rules in place.

Potential Customer Benefit: 3Com offers Stateful Packet Inspection (SPI), the highest level of perimeter security protection. It can be set up in minutes via a Guided User Interface and 3Com's configuration wizard.

Security Methods

Importance: User PC-based software Firewalls (i.e., Black Ice, Personal Firewall, Windows XP Firewall) offer some protection. All firewalls perform some level of "Packet Filtering." The administrator can set up rules to specifically allow or deny access to a packet. These rules can be addresses, frame types, socket numbers... Each packet is individually checked against these rules before access is allowed. Access Lists are used by some firewalls to locally control access based on statistically-loaded information.

Potential Customer Benefit: Any security solution running as an application on a PC is not good enough because it is open to attacks directed at the underlying "operating system." 3Com's security solutions are free-standing, purpose-built devices with most functions embedded in Application-Specific Integrated Circuits (ASIC) and not exposed to this threat. Solutions provide Stateful Packet Inspection (SPI). In addition to a packet complying with the rules of the packet filter, the SPI engine makes sure the data also complies with the context of the existing data stream. This blocks attacks sent by hackers spoofing the address or other portions of legitimate traffic. A content filtering solution also is offered. This feature allows the administrator to block access to websites based on rules chosen regarding content. An access list is downloaded and upgraded periodically to ensure the filter stays current.

DMZ Hosting

Importance: Every business or individual who allows direct contact to its network from the Internet needs a secure place to send packets of unknown origin or intent.

Potential Customer Benefit: The 3Com solutions include a Virtual DMZ feature, which allows you to specify a specific device or group of devices to receive public traffic from the Internet. For example, a proxy server could be installed to receive all untrusted data from the Internet and only forward packets meeting the correct access policy.

Contact your Liaison Manager for further information on Security Solutions

-- Daisy La, Channel Sales Manager, SBC Alliance Channel & John Tsang, Program Manager, 3Com

DISH Network Receives Top Ratings

DISH Network has regained its highest ranking from 2000 receiving top ratings in Billing, Cost of Service and Offerings/Promotions, according to the newly released 2004 Residential Cable/Satellite TV Customer Satisfaction Survey conducted by J.D. Power & Associates. The survey said DISH Network also performs near the top in Customer Service, Image and Performance/Reliability. It's based on the responses of more than 8,600 U.S. households who evaluated their satellite or cable TV providers. (Earlier this year, SBC Home Entertainment and EchoStar Satellite L.L.C. teamed up to offer customers SBC DISH Network, a satellite TV service that provides equipment and programming options.)

>SBC Disaster Recovery Solutions

SBC companies can assist you and your clients in being prepared with the latest Disaster Recovery Plans through a variety of products & services designed to help companies stay in business during and after crises. Some of these products & services include:

Hosting

- Platinum Internet Data Centers (IDC) – Dual hosting center with World Class redundancy, security, network access, environmental and performance features.
- Hosted Hot Site – Dedicated hosted Disaster Recovery infrastructure for customers via the Data Center Hosting (colocation) product.
- Tape Backup & Restore – Automated backup processes that help protect data hosted in the IDC against corruption, deletion or disaster.
- Managed Servers – Fully managed server hardware providing a foundation for customer managed Disaster Recovery applications.

Network

- Network IP-VPN – Secure interconnection of distributed facilities, offices and remote access users, using virtually any network access service.
- ATM & Frame Relay – Efficient & economical leased line connections among customer facilities and/or to an SBC IDC.
- Dedicated Internet Access (DIA) – Redundant, high availability access to public networks for remote/branch offices and data centers.
- Metro Optical – High performance optical networking options to support a wide range of Disaster Recovery applications and protocols.

Consulting

- Business Continuity Planning – Expert professional consulting to aid with business impact analysis and development of a Disaster Recovery Plan.
- Network Design & Planning – Architecture of resilient networks to support continuous or rapidly restores business operations.

Contact your SBC Liaison Manager for further Disaster Recovery Plan information.

"There is no one in such a hurry as a Californian."

Frank Marryat, June, **1850**

>SBC Announces Multi-tiered Voice And Data Services Contract With Vitro

SBC Communications Inc. recently announced a new contract with Monterrey, Mexico-based Vitro, S.A. de C.V., for a variety of voice and data services for 182 regional offices and retail locations of its U.S.-based subsidiary, Vitro America.

Under the terms of the contract, SBC companies will provide local and long distance voice services, SBC Yahoo! DSL Internet service, SBC PremierSERV℠ Data Center Hosting and SBC PremierSERV℠ Network-Based VPN (NVPN) to Vitro America's locations nationwide. Approximately 180 locations will utilize the local and long distance voice services, while 125 locations will be outfitted with SBC Yahoo! DSL Internet service. Fifty-six locations will utilize the SBC PremierSERV℠ Network-Based VPN (NVPN).

The solutions will give Vitro America a more centralized network, making it easier for the company to conduct inventory audits and do customer product searches. For example, if a customer at Binswanger Glass in Waco, Texas, wanted a car windshield that was not in stock, the employees of Binswanger could do an inventory search to determine which store in the Vitro network did have the windshield in stock. This would be made possible with the help of a computer application that will use the communication circuits provided by SBC companies.

"As one of the United States' leading glass producers with locations nationwide, it's important for us to know what inventory we have and where, so we can continue to provide the best possible service to our customers," said Luis Gonzalez, president, Vitro America. "Our relationship with SBC companies, and the state-of-the-art voice and network services they provide, will be instrumental in helping us maintain that level of customer service."

SBC PremierSERV℠ Data Center Hosting is an equipment housing service that offers on-site technical support in a fault-tolerant, secure environment. SBC PremierSERV℠ Network-Based VPN (NVPN) uses MPLS (Multi-Protocol Label Switching) functionality to enable hosted VPN connections to work seamlessly with existing data network connections, such as optical services, Frame Relay, ATM or premises equipment-based VPNs.

Prior to this contract with SBC companies, Vitro America was utilizing a frame relay network from different carriers that covered 22 locations. Already utilizing some SBC Long Distance services, Vitro America decided to consolidate all of its voice and data services with the SBC companies.

>Sterling Commerce Joins EPCglobal US, Commits To Advance Rapidly-growing RFID Technology

Business integration leader Sterling Commerce announced recently that it has joined Radio Frequency Identification (RFID) technology innovators as a subscriber to EPCglobal US™, an affiliate of EPCglobal Inc, a joint venture between EAN International and the Uniform Code Council, Inc. As a subscriber to EPCglobal, Sterling Commerce will help define, guide and provide support for adopting RFID standards worldwide. This work will help Sterling Commerce continue to provide leading-edge business integration solutions to its customers helping them lower their supply chain costs and increase profitability.

Recognizing that standards are a cornerstone for true business integration, Sterling Commerce continues its legacy of actively defining, shaping and incorporating industry standards such as the Universal Product Code (U.P.C.), EAN.UCC and RosettaNet into its product portfolio. The company expects to incorporate Electronic Product Code™ (EPC) standards into its flexible and modular business integration platform and its B2B solutions.

RFID technology allows companies to use automation to track and trace the physical movement of goods through their extended supply chain. A unique Electronic Product Code on each Cingular product enables real-time inventory visibility at all levels, and by integrating this information into their logistics, fulfillment and other supply chain management processes, companies can improve customer service levels, reduce labor costs, and achieve better overall inventory management.

>Sterling Commerce Provides Kroger With Tighter Supply Chain Collaboration

Sterling Commerce recently announced that The Kroger Co., one of the nation's largest retail grocery chains, will use Sterling Information Broker to achieve tighter supply chain collaboration for electronic commerce transactions with its trading partners resulting in increased accuracy, timeliness and operating efficiencies.

Through a single point of connection to Sterling Information Broker, a hosted trading network service, Kroger can exchange electronic documents with essential trading partners including customers, suppliers, freight carriers and financial institutions.

Sterling Information Broker enables Kroger and its trading partners to conduct business in a cost-effective and efficient manner. With Sterling Information Broker, Kroger can handle high data volumes, perform any-to-any data transformation and expand its electronic commerce program.

To improve the communications process of business information exchange, Kroger takes advantage of the Sterling Information Broker value-added services such as guaranteed delivery of business critical documents, proactive notification of document exceptions, data archiving, disaster recovery, end-to-end audits and controls, and customer support.

According to Sterling Commerce Vice President of Global Marketing Nolan Rosen, Sterling Commerce invests in network technologies so that companies like Kroger can reap the benefits of tight supply chain collaboration.

"Our goal is to help companies improve their business relationships and continue to remove unnecessary costs from the supply chain," Rosen said. "Sterling Information Broker enables Kroger to maximize integration between trading partners."

"You see things and say, 'Why?' But I dream things that never were, and say, 'Why not?'"

George Bernard Shaw

Q & A: Biggest Technology Breakthrough

What do you think is the single biggest technology breakthrough facing the telecom industry today?

"I think Internet Protocol, the basic language of the Internet, has fundamentally changed the face of the telecom industry. We've been testing IP services since the early 1990s. IP is capable of carrying voice, data and video over a single network infrastructure. And by taking the language of the Internet and applying it to new services and new appliances, we can add whole new dimensions to communications, productivity and entertainment. The possibilities are truly endless."

– Keith Cambron, President & CEO, SBC Laboratories

>UPDATE Heading For Bahamas

Allen Dimapasoc, one of our readers, sent us this photo of a distinguished gentleman caught reading the SBC UPDATE aboard a cruise ship heading for the Bahamas. He's definitely got his priorities straight! Smart fellow, bringing along UPDATE to keep up with the latest news, trends and solutions, helps smooth out the journey in the choppy seas of life. If you catch someone reading UPDATE in an unusual locale, please snap a shot and send it to the UPDATE editor. If selected for publication, we'll be sure to give you a photo credit so your superb photography can be appreciated by our thousands of readers. Thanks Much!

Presidential Telecom Trivia

1. Who was the first U.S. President to have a telephone on his desk at the White House?

– Herbert Hoover, 31st President of the U.S. (1929-32). He graduated from and met his wife at Stanford University.

2. Which U.S. President said, "(The telephone's) an amazing invention but who would ever want to use one?"

– Rutherford B. Hayes, 19th President of the United States (1877-1881). He banished wines and liquors from the White House.

How To Avoid Wasting Time

In a survey of business managers, people named their own lack of time management for 92 percent of the failures among those under their supervision. How do managers waste so much time?

The most common contributor to wasted management time is doing an employee's job for him or her. This occurs much more frequently than we might think and can easily cost a manager one-third or more of his or her efficiency.

– Danny Cox, Leadership When The Heat's On

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 News Broadcasts (Next one - November 3rd)

(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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