Wireless Communications

May/June 2004

NVTC

northern virginia technology council magazine

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Christine Kallivokas
eCommute Program Coordinator
ecommute@nvtc.org

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Ad written and designed by RMR & Associates, Inc.

MESSAGE FROM THE BOARD

Twenty years ago I first had the pleasure of being involved with the world of wireless communications. The advancements over this period have been remarkable. I recall carrying around the original cell phones that weighed 30 lbs., and cost $3,000 and were packed inside a briefcase! Today they fit comfortably in a shirt pocket or purse and provide services that were once unimaginable.

During my tenure in wireless, I have seen both the explosive entrance and drastic demise of titans in telecommunications. Today, I can say that wireless services are not only here to stay, but will continue to lead the growth in the telecommunications industry. Our own Northern Virginia region is helping orchestrate the path forward. The region is providing communication tools that enable consumers, businesses and the public sector to be more effective in getting the job done.

The question is ... Why will the wireless sector continue to lead the growth in the telecommunications industry? The answer is quite simple. The wireless sector was built on and continues to thrive on innovation.

At Nextel our mantra is – be first, be better and be different. This culture has enabled a small Reston, Virginia-based telecommunications company not only to survive, but to thrive and grow into a nationwide wireless provider with 17,000 employees. In the first half of 2004 alone, Nextel has produced International Direct Connect (walkie-talkie) service linking the United States, Canada, Mexico and others; launched a trial for Nextel Wireless Broadband(TM) service in

Raleigh-Durham, North Carolina (this is expected to deliver untethered Internet access at speeds comparable to DSL for business and residents); expanded pre-paid wireless services (Boost); and commenced the most prestigious partnership in the sporting world with NASCAR®.

Competition in the wireless industry has allowed the consumer to benefit tremendously over the past decade. Examples include the fact that the average wireless bill has decreased 20 percent, while minutes of use continue to rise (up 30 percent just in 2003 versus 2002). At the same time, the number of wireless customers has grown tenfold since 1993 to 160 million in 2003.

Entrepreneurial spirit is alive and well throughout the wireless world. It is especially evident locally where the Northern Virginia Technology Council is among the finest business groups assembled nationwide, consisting of top-tier telecommunications and technology firms, thinkers, and leaders who collaborate in the name of innovation and advancement.

In closing, the past 20 years have indeed been an amazing ride with highs and lows. However, I am even more confident that the best is yet to come. Applications focused on improved wireless productivity tools including GPS applications, credit card swipe capabilities, and even the ability to send a walkie-talkie voice message to an email account are currently being deployed. All of these remarkable advancements will enable consumers, businesses, and the public sector to reach even greater heights in the years to come.

Bob Johnson
NVTC Board Member
Vice President, National Field Operations, Nextel Communications

BITS + BYTES

Advanced Technology Systems, Inc. (ATS), a developer of information technology systems and solutions, announced that it has been awarded a five-year, $5.7 million contract from the General Services Administration on behalf of the U.S. Law Library of Congress to redesign and host the Global Legal Information Network (GLIN). GLIN will be an online, multilingual database containing laws, judicial decisions, legal writings, and legislative records originating from countries in the Americas, Europe, Africa and Asia. ATS partners on the GLIN project include Verio, BearingPoint, Claraview, DigitalNet, and Fast Search & Transfer (FAST). ATS also announced that it has been awarded a five-year, $12.25 million contract from the Federal Deposit Insurance Corporation (FDIC) to provide software development lifecycle (SDLC) support for FDIC's Division of Administration (DOA). www.atsva.com ■ **FGM, Inc.** has relocated its corporate headquarters office from Dulles, Virginia, to Reston, Virginia. FGM's growth in recent years necessitated the move to the 51,800 square foot space adjacent to the Dulles Toll Road at 12021 Sunset Hills Road, Suite 400, Reston, VA 20190. The move was also made in order to be closer to its government client base, to gain increased visibility, and to improve access to amenities for its approximately 150 employees located in Virginia. www.fgm.com. ■ **Global Internetworking, Inc.** (GII), a facilities-neutral telecom carrier, announced that it has created the new position of Vice President of Global Operations and appointed **Gary Hale** to the new position. Hale is an eleven-year veteran of the telecommunications industry. Hale will be responsible for planning the development and operation of all technology within GII and will be a key participant in setting the executive direction of the company's technical strategy going forward. www.globalinternetworking.com. ■ Virginia is the first state in the nation to adopt **StargazerNET ReadyLinks™**, a Web-based solution to help people, families, groups and organizations be prepared for any kind of disaster or emergency. These simple-to-use tools are available on the Virginia Department of Emergency Management's (VDEM's) Web site at www.vaemergency.com/prepare/. Virginia residents can set up their

Our Professionals

Bobbie Greene Kilberg
President, NVTC
bkilberg@nvtc.org

Pamela C. Dudley
President, NVTC Foundation
pdudley@nvtc.org

Susan Baker
Vice President for Workforce
Development
sbaker@nvtc.org

Josh Levi
Vice President for Policy
jlevi@nvtc.org

Christine Kallivokas
Vice President of Operations
ckalli@nvtc.org

Nancy Rollman
Vice President of Communications
nrollman@nvtc.org

Randy Cisler
Controller
rcisler@nvtc.org

David Baker
Foundation Assistant
dbaker@nvtc.org

Nancy Johnston
Education-Workforce
Liaison
njohnston@nvtc.org

Kristin Seitz
Executive Coordinator
Special Assistant to the
President
kseitz@nvtc.org

Mike Black
Membership Assistant
mblack@nvtc.org

Cameron Kilberg
Project Coordinator
ckilberg@nvtc.org

Lori Ann Cook Suazo
Director of
Programs and Events
lacook@nvtc.org

Mildred Cooper Elder
Marketing and
Communications
Consultant
mcooper@nvtc.org

Michele Mason
Member Services
mmason@nvtc.org

Tia Gibbs
Director of Production
and Design
tgibbs@nvtc.org

Tarin Heilman
Events Coordinator
theilman@nvtc.org

Michelle Senglaub
Techtopia Marketing &
Project Management
NVTCMichelle@aol.com

Windy Honeycutt
Director of Committee
and Corporate Relations
whoneycutt@nvtc.org

Sandra Henderson
Web Communications
and Technical Services
shenderson@nvtc.org

Zuzana K. Steen
Head of International
Relations
Assistant Director of
Workforce Development
zsteen@nvtc.org

Jennifer Williams
Director of Membership
and Benefits
jwilliams@nvtc.org

Margy Holder
Graphic Design
Assistant
mholder@nvtc.org

Nicole Stone
Membership Manager
nstone@nvtc.org

Christina Araujo
Registration
Coordinator
caraujo@nvtc.org

Barbara Johnson
Receptionist /
Administrative Assistant
bjohnson@nvtc.org

Linda Willever
Accounting Assistant
lwillever@nvtc.org

The Northern Virginia Technology Council
2214 Rock Hill Road, Suite 300, Herndon, VA 20170
(703) 904-7878 / fax: (703) 904-8008
www.nvtc.org • hosted by PatriotNet

Mission

The Northern Virginia Technology Council is the membership association for the technology community in Northern Virginia. NVTC has more than 1300 member companies representing over 170,000 employees. Our membership includes companies from all sectors of the technology industry including information technology, software, Internet, ISPs, telecommunications, biotechnology, bioinformatics, aerospace and nanotechnology, as well as the service providers that support these companies. NVTC provides its members with: (1) over 110 networking and educational events per year; (2) comprehensive member benefit services; (3) promotion of Northern Virginia as a global technology center; (4) public policy advocacy on a broad range of technology issues at the state and regional levels, with involvement in federal issues as they relate to workforce and education concerns; and (5) community service opportunities through active involvement in community projects and philanthropy through the NVTC Foundation.

BITS + BYTES

own secure, personalized place on the Web where they can find information and communicate with others in the event of an emergency and can create their own personal communications plans. www.stargazerNET.net. ■ **Vistronix Inc.,** an information management and technology services company, announced that it has been selected to implement its Web-based Accountability Solution for the District of Columbia Public Schools (DCPS). This solution will be integrated with DCPS' existing system and will include a Vocational Education Student Information System (SIS) used to capture and maintain vocational education student level information. Due to the comprehensive nature of the information data capture, reporting, and analysis mandates of Perkins III, the Vistronix Accountability Solution is built on a flexible integration framework using a standard relational database backend that allows simple and secure access for outside systems. The Accountability Solution integrated for the DCPS builds on accountability solutions already deployed by Vistronix in a number of states including the Maryland State Department of Education (MSDE) and the Arkansas Department of Workforce Education (ADWE). www.vistronix.com. ■ **Women in Technology**, a not for profit organization serving the Washington, D.C., metropolitan region with a networking and professional growth environment has announced the finalists for the 5th Annual WIT Leadership Awards which recognize women for their outstanding accomplishments. Several finalists in various categories are from NVTC member companies, including: Corporate: **Catherine Szpindor**, Vice President, Information Technology, **Nextel Communications**; **Cecilia Schallenberger**, Project Manager, Six Sigma, **Northrop Grumman**; and **Linda Keene Solomon**, Partner, **Deloitte Consulting LLP**. Entrepreneur: **Fran Craig**, President & CEO, **Unanet**; **Cynthia H. de Lorenzi**, Chief Executive Officer, **Patriot Computer Group/PatriotNet**; and **Jill Stelfox**, President & CEO, **Defywire** and as WIT Champion: **Ellen Quinn**, Quality Assurance Manager, **Northrop Grumman Information Technology**. Winners will be announced at the event on May 13, 2004, at the Sheraton Premiere Tysons Corner. ■

NVTC's Information Technology and Telecommunications (IT&T) Committee

by Tom Finkenbinder, New Edge Capital Management, NVTC IT&T Committee Chair

Last month I bought a new QUALCOMM 3g CDMA phone for my wife. It had nothing to do with QUALCOMM CEO Dr. Irwin Jacobs' remarks at NVTC's Titan's of Technology breakfast here in March. It has all the hot new features: clamshell case, neon keypad, digital camera, thumbnail video display, all the hands-free attachments, and an inch-thick user manual that I'm sure we will never read.

Of course the camera images are nowhere near the quality you see in the ads even when taking still shots. My kids chase the cat around the house with it looking for photo opps to email their grandmother – they think it's hilarious – the cat thinks it's a new form of torture (I agree with the cat). Outdoor shots without a flash are okay, but this is probably not the next killer app.

Our theme for the May 2004 issue of *The NVTC Voice of Technology* is "Wireless Communications," and the articles provided by the contributing authors examine current issues and trends in this corner of the Telecommunications Industry. I think it's a fabulous effort to paint a picture of arguably the most resurgent sector in a business still recovering from the missteps in capitalization, business management and corporate ethics that we witnessed in the late 1990s – ongoing, unfortunately.

Scientific achievement in radio telephony now includes voice applications (cellular telephone, paging, push-to-talk), portable hand-held devices (Blackberries), wireless data networks (Wi-Fi), mobile digital markers and signatures (RFID), among other uses. Digital signal transmission has evolved to the point of allowing reliable access and coding methods. Wireless features have almost overnight become integrated with common Internet applications, email and file transfer, even a little Web surfing.

Here in Washington, D.C., with our proximity to the seat of federal government, our attention is drawn to industry regulation and homeland security initiatives, further defining the landscape for responsible use of wireless technologies. The future of the industry will be affected by national efforts to create secure infrastructure in the interest of protecting our country, its citizens and strategic assets.

Many believe we will fight a war on terrorism for the foreseeable future. So like it or not, 'security' becomes an issue with respect to the uses, integration, regulation, growth and development of enabling technologies, like wireless communications.

NVTC members are encouraged to join the NVTC IT&T Committee and participate at upcoming meetings and events. We have tremendous opportunities ahead of us – and we look forward to new ideas and contributions from our diverse membership!

See us on the Web at www.nvtc.org/committees/itt.htm, or email NVTC's Director of Committee and Corporate Activities, Windy Honeycutt, at whoneycutt@nvtc.org for more information.■

Tom Finkenbinder is chairman of NVTC's IT & Telecommunications Committee and president of New Edge Capital Management, an investment advisory firm. www.newedgecapital.com

NVTC IT&T Committee Leadership

Committee Chairman
Tom Finkenbinder
(703) 819-2500

Committee Vice Chairman
Munira Jaffar
(703) 433-8877
munira.jaffar@nextel.com

Committee Events Coordinators
Daniel Hassett
(703) 905-2809 or dhassett@wrf.com
Brian Mudge
(202) 220-4214 or bmudge@kenyon.com

Committee Networking/Social Coordinator
Bill Erbe
(703) 288-9209 or bill.erbe@helpubill.com

Media/Web/PR
Susan Fitzgerald
(703) 251-1989 or sufitzgerald@deloitte.com
John Leahy
(703) 620-6300 ext. 224 or jleahy@linkspot.com

WIRELESS MARKET ON

Wi-Fi Technologies and Introduction of New Applications to Drive

by Matthew Flanigan,
Telecommunications Industry Association

In recent years, the U.S. telecom industry has faced intense economic challenges resulting in spending freezes, R&D cutbacks, job losses and company closings. Those who survived now face a new environment. New technologies and trends such as Wi-Fi and one-rate pricing plans are impacting the market, and an overall recovery is under way. The mobile and wireless communications sector, on both the national and international levels, is one of the highest growth areas in the overall telecom industry according to the Telecommunications Industry Association's (TIA) 2004 Telecommunications Market Review and Forecast.

U.S. Spending on Transport Services ($ Billions)

Source: TIA's 2004 Telecommunications Market Review and Forecast

Current Wireless Market

Spending in the U.S. wireless market in 2003 totaled $134.5 billion, up 7.9 percent from 2002, according to TIA's report. The report defines the U.S. wireless market as transport services, handsets, infrastructure, including Wi-Fi equipment, and professional services in support of the wireless infrastructure. Continued double-digit growth in transport services and an increase in handset and support services spending offset an 8.4 percent decrease in wireless equipment. Spending on wireless services passed long-distance (toll) revenues in 2003 for the first time and is projected to pass local revenues in 2007. The 2003 performance represents the first single-digit gain in the wireless market following years of double-digit growth, indicating the market is approaching maturity.
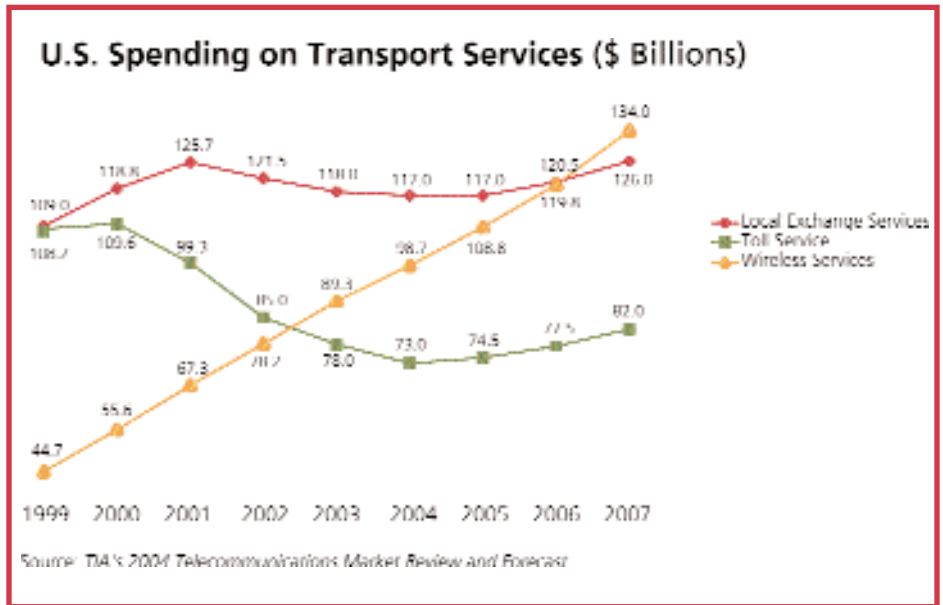
Wireless Subscribers

The U.S. wireless subscriber base (wireless telephony and paging) will continue to expand, but at single-digit rather than double-digit rates. By 2007, there will be an estimated 195.5 million wireless communications subscribers, up from a predicted 168.3 million in 2004. The mobile wireless subscriber base is still expanding, but growth will drop to single-digit levels because a majority of the population already subscribes. The paging market, on the other hand, is declining. One-rate wireless pricing eroded the price advantage of paging, and wireless text messaging cut into an appealing feature of pagers.

We expect spending on wireless services to increase at a 10.7 compound annual growth rate (CAGR) to $134 billion in 2007.

U.S. Wireless Subscribers (Millions)

Source: TIA's 2004 Telecommunications Market Review and Forecast

U.S. Wireless Communications Services Spending ($ Billions)
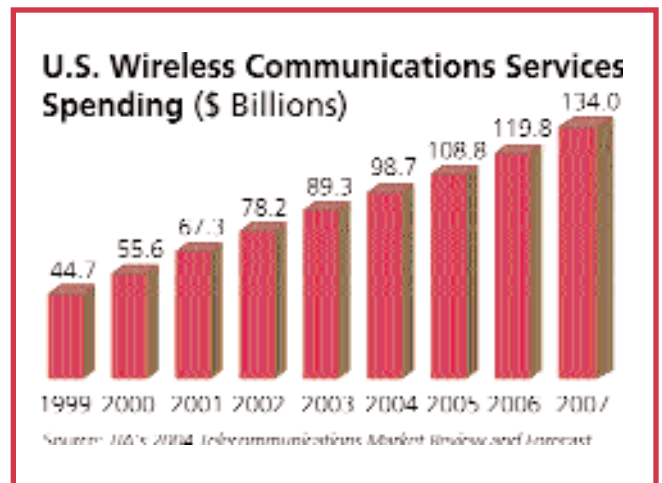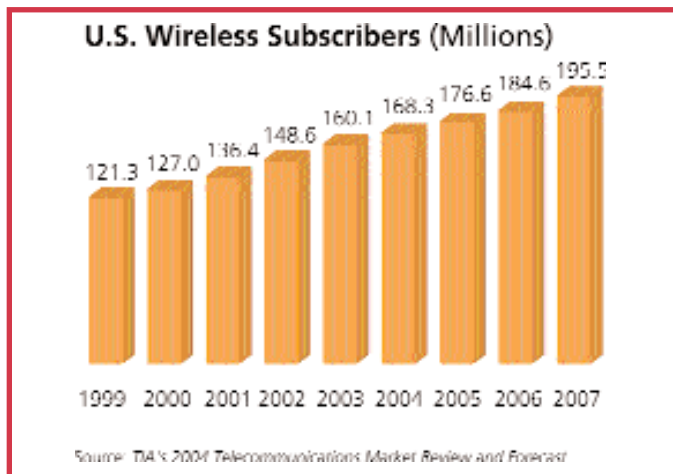
Source: TIA's 2004 Telecommunications Market Review and Forecast

New Applications Driving Growth

With the introduction of new applications such as Wi-Fi technologies and more sophisticated communications products, we'll see an increase in carrier revenues. The initial rollout of 2.5G technologies enabled carriers to offer enhanced wireless data services. We are now seeing the start of nationwide deployment of 3G services with claims of average user speeds of 300-500 kbps.

One-rate pricing plans that include free roaming and large buckets of minutes continue to attract subscribers. Applications such as text messaging, multimedia messaging, wireless games and customizable ring tones are also stimulating the market. Prices associated with these new applications and service plans with more minutes will boost spending on wireless communications services. We project average revenue per subscriber to increase to $59.50 per month by 2007, growing at a 4.7 percent CAGR. That increase represents a notable reversal from the 1990s, when average monthly spending declined steadily. It also represents a larger annual increase over the 2000-2004 period. In addition, carriers are introducing prepaid plans with automatic renewal features. Prepaid plans will help expand the wireless subscriber base, but growth will begin to slow in 2004.

Wireless Capital Expenditures and Wi-Fi Equipment

Capital expenditures by wireless carriers on infrastructure, research and development, and licenses fell in 2003, and further declines are expected through 2005 before spending rebounds in 2006 – fueled by the need to maintain and upgrade aging infrastructure and by payments for 3G licenses. Wireless carriers spent $13.5 billion on services in support of wireless networks and public wireless local area networks in 2003, a 4.7 percent increase. Spending will reach an estimated $17.3 billion in 2007, expanding at a 6.4 per-

cent CAGR. The Wi-Fi market is expanding rapidly and will continue to grow as we see hot spots emerging across the globe.

Wireless Handsets

As subscriber growth slows, new users will provide less of a boost to the handset market than in the past. Subscriber growth and the introduction of smaller and sleeker phones with new features and capabilities have been the principal drivers of the handset market. Spending on handsets by carriers and end users totaled $9.6 billion in 2003, up 1.7 percent, as healthy growth in wireless handsets offsets declines in pagers and personal digital assistants. Introduction of new features including camera phones, wireless games, text messaging and Wi-Fi capability will generate demand for new handsets.

Looking Ahead

The wireless market is undoubtedly highly competitive. At the end of 2003, 95 percent of the population lived in areas served by three or more wireless carriers, and 71 percent of the population had six or more wireless options. Virtually all major providers offer "big bucket" pricing plans that allow customers to call nationwide without incurring roaming or long-distance charges. We expect to see an increase in the rollout of new services and applications on both the national and international front – text messaging, instant messaging, wireless gaming, multi-media messaging service (which allows subscribers to send photos on their wireless phones), Wi-Fi and one-rate pricing. With these new offerings, the wireless sector will remain one of the principal drivers in the global telecomm market.∎

Matthew Flanigan is president of TIA (Telecommunications Industry Association) a U.S. trade association serving the communications and information technology industry. http://www.tiaonline.org.

By special arrangement, NVTC members are eligible to receive a $200 discount on TIA's 2004 Telecommunications Market Review and Forecast. Visit http://www.tiaonline.org/media/mrf.cfm to learn more about the publication. When ordering, please reference priority code "associate" to receive your discount.

U.S. Wireless Equipment Spending ($ Billions)

Source: TIA's 2004 Telecommunications Market Review and Forecast
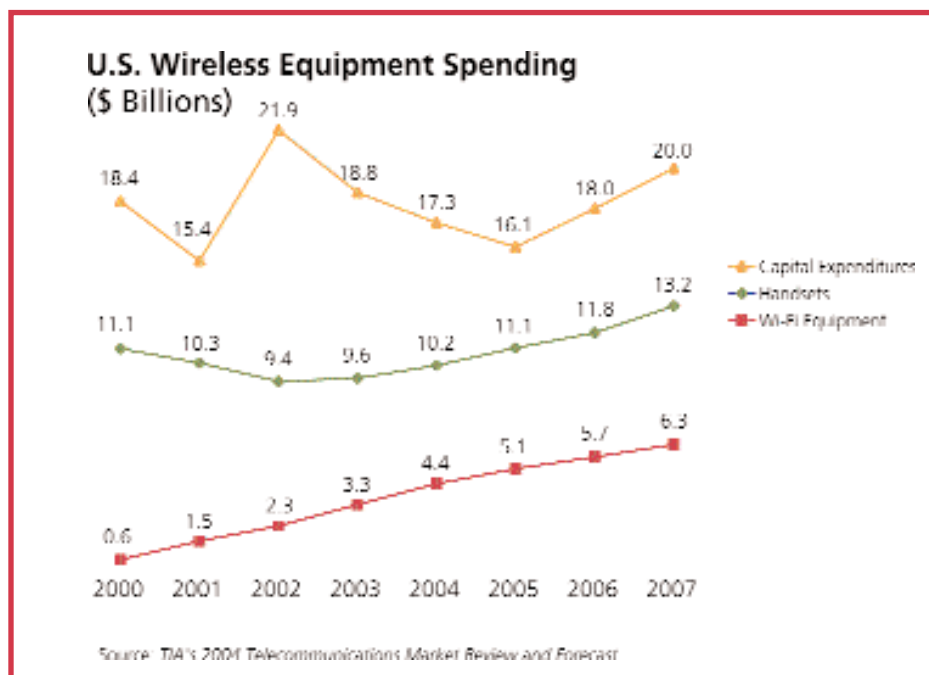
Telecom Industry Consolidation?

Don't Hold Your Breath

by Andrew Goldsmith, Global Internetworking, Inc.

Last October, I attended a telecom conference in Washington, D.C. It was an excellent show in many respects, but I particularly enjoyed was one of the plenary sessions. In it, a panel of Wall Street analysts speculated on the future of the industry – which firms would be winners, which were headed for bankruptcy, which technologies were ascendant, etc. And while there was considerable disagreement among the panel on those topics, there was surprising agreement about one prediction: telecom industry consolidation is inevitable and desirable.

Virginia CLEC Filings 1995-2003

Source: Commonwealth of Virginia

It was the same story at a workshop I attended last month on telecom contract negotiation: telecom firms are going to start buying and merging with each other. And in fact, ever since the telecom meltdown started three years ago, there has been a drumbeat of similar predictions. Their economic logic is impeccable: as industry growth slows and pricing pressure increases due to excess capacity, industry 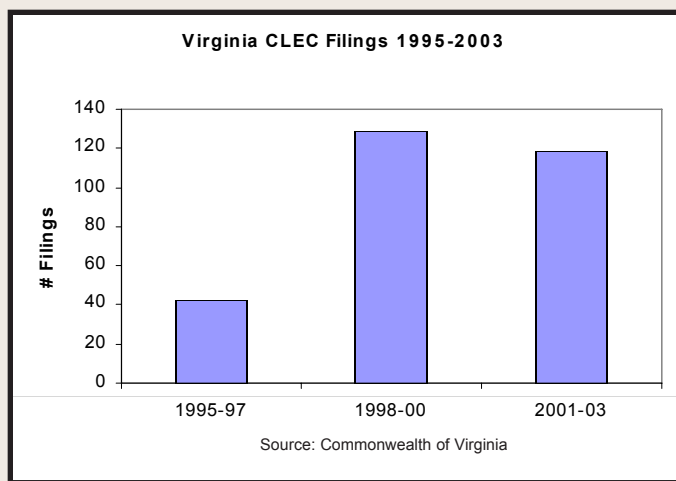leaders will acquire industry "laggards" in order to create economies of scale and maintain profitability, so that in telecom, as in other "mature" industries, only three to five competitors in any given market will remain. And in fact, there have been a number of recent acquisitions in the telecom industry: Broadwing's purchase of Focal Communications, Cingular's purchase of AT&T Wireless, Savvis' acquisition of Cable & Wireless' U.S. assets, XO's acquisition of Allegiance, etc.

With all this doomsaying, is the entrepreneur's window of opportunity for innovation, new company start-ups, and investment opportunities in the telecom industry in Northern Virginia and the rest of the country coming to an end?

Don't bet on it. Consider, for example, the number of new CLECs (competitive local exchange carriers) filing to do business in Virginia. As the table (left) indicates, although the number has tapered off relative to the boom years of 1998-2000, over 100 firms entered the market in the last three years, during the worst downturn in the industry.

Another piece of evidence: total industry growth outpaced overall economic growth in 2003, 7 percent versus 4.1 percent. Why is that important? Because higher than average growth attracts entrepreneurs and investors and creates a positive sales environment for new firms.

But the most encouraging evidence that telecom will remain an area of innovation are the macro trends behind these numbers. Talking to vendors, customers and industry analysts reveals at least three factors that make massive industry consolidation unlikely.

The first is the emergence of hybrid service providers – equipment vendors that are facilitating the convergence of wireline, satellite, ISP, cable, and wireless networks. These companies operate in the space between these different networks and essentially make it possible for them to convert data and voice to whatever standard makes sense for the end user, over whatever medium (wireline, wireless, satellite) the
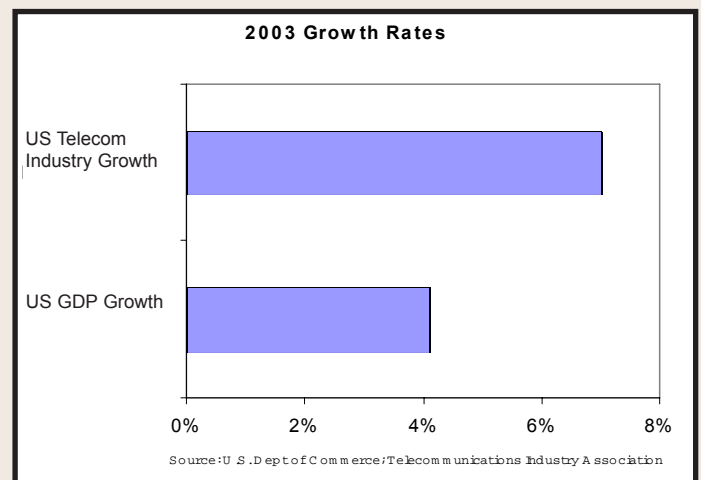
2003 Growth Rates

Source: U.S. Dept of Commerce; Telecommunications Industry Association

end user prefers. Some of the better-known firms are PointOne, Flarion, Virtella, IBasis, and Wayport – but there are scores of others as well.

The second factor is the glut – of talent, of bandwidth, of software and hardware – that has made it relatively easy for companies to enter (and re-enter) the telecom space. Think about it: unlike other facilities-intensive businesses (autos, airlines, hotels) where new companies need to make big upfront investments to enter, in telecom there is a gigantic wholesale sector that allows entrepreneurs to begin operations on a variable cost basis.

The final factor is the complexity of the various kinds of telecommunications services out there. Consider the range of different services available to customers: DSL, ATM, Ethernet, IP transit, IP-VPN, Wi-Fi, Cable Telephone, Frame Relay, Private Lines, PRIs, LD, ISDN, W-LAN, GIG-E, Dark Fiber, etc., etc. Now consider the technical expertise, the process knowledge, the understanding of business applications needed to provide each of these services effectively. This stuff is complex, and there will always be a place for specialist firms that choose to master one or two of these services, rather than try to sell them all.

The bottom line: There will continue to be high profile mergers and acquisitions. But if you look at the industry as a whole, there is a lot of evidence that a whole new breed of telecom service provider is emerging and that far from becoming more consolidated, competition and fragmentation is going to rule the day. ■

Andrew Goldsmith is Vice President of Marketing and Strategic Planning for Global Internetworking, Inc., a facilities-neutral provider of high-capacity data transport solutions.www.globalinternetworking.com

Monetizing Wi-Fi Hot Spots

by John Leahy, LinkSpot

For users of portable computers equipped for wireless, a hot spot is a company providing Internet connection from a given location. For example, a business traveler with a laptop equipped for Wi-Fi can look up a local hot spot (access point), contact it, and get connected through its network to reach the Internet. Hot spots are commonly found in airports, hotels and coffee shops. They are also found in other locations such as RV parks and campus settings.

Customer demand for Wi-Fi, and their propensity to pay for it, is in direct correlation to available alternatives. For instance, in a city setting a Wi-Fi subscriber may have alternatives available at home or the office. In this case, access to Wi-Fi, say in a coffee shop or on a city street is a convenience, but it is unlikely the service can command a very high fee given the proximity of available alternatives. Indeed, the financial success of notable urban hot spot providers such as Starbucks ($9.99/day) or McDonald's ($2.99/day) likely has not been as great as anticipated. Likewise, projects to light up a downtown core area have typically been positioned as a free service.

Showing greater promise are airports (BWI - $7.95/day). In this location, travelers have

more restricted options. The familiar high-speed surroundings of home or office usually are not available. Given the paucity of choices, the traveler is more likely to pay for the service. As an added benefit to the provider, the traveler may be less cost conscience than the typical consumer, since someone else, i.e. the employer, ultimately is responsible for the fee.

Hotels have surpassed coffee shops as the most ubiquitous suppliers of Wi-Fi. (Hampton Inns – complimentary). Many hoteliers give the service away for free. This represents a subtle, but important shift in thinking. The revenue that can be realized in selling Wi-Fi to the consumer pales in comparison to the revenue of an additional room sale. Additionally, this added amenity could justify a rate increase for the property. Even though the guest is away from home, he or she still has broadband alternatives, in this case, choices among hotels.

RV Parks represent a unique opportunity for the commercialization of Wi-Fi, especially for entrepreneurial companies. Unlike restaurants or hotels, RV parks are primarily mom and pop affairs. The absence of any dominant player makes the need for an outside Wi-Fi expert a requirement. The generally rural location of the parks reduces the competition from other vendors. Likewise, guests in RV parks have fewer alternatives, if any, for high-speed Internet access. This makes the pay-for-service model more viable.

Some park owners, like many of the hotels, bundle Wi-Fi as an amenity with their premium sites. Guests get Wi-Fi access as part of their package. This increases site nights at the park – particular valuable during the shoulder season when weather is likely to be more inclement. Like the hotels, the value of a site night far outweighs any return the park can get on a Wi-Fi sale to the guest.

With the costs of Wi-Fi equipment steadily dropping the trend in the future will be to bundle Wi-Fi with other services, be it rooms or campsites. Verizon has experimented with bundling Wi-Fi with its DSL service.

However, the financial commitment to light up a hot spot is not limited to the initial capital expenditure and the ongoing line charge. Most of the cost will ultimately be in controlling access, network monitoring and maintenance, and customer service. Even if Wi-Fi is given away the property owner will still want to limit access to facilitate the management of bandwidth requirements. Access typically is granted via a user ID and/or password arrangement. Monitoring functions for a hot spot include performance, availability and security issues. Ongoing maintenance is associated not only with necessary repairs, but more often with upgrading equipment or adding access points to accommodate growth. Because of the huge variety of computers, operating systems and wireless adapters, not to mention the somewhat transient nature of a wireless signal, customer service will always be a necessity.

As entrepreneurs migrate to this back office model, the property owner, rather than the end user becomes the source of revenue. Not only is this a more secure revenue stream, but also it permits certain economies of scale since standardization of processes can be more readily implemented.■

John Leahy is Vice President of Sales and Marketing at LinkSpot, a provider of high-speed Internet access to guests of RV parks. www.linkspot.com.

NVTC CALENDAR OF EVENTS
Northern Virginia's Premier Events for the Technology Community

MAY

May 5 — Venture Capital Exits and Growth Capital

7:30 am Registration; 8:00 - 9:30 am Program
The Ritz-Carlton, 1700 Tysons Blvd. McLean, VA
$35 Members / $70 Non-Members
Platinum Sponsors: BB&T Capital Markets; Claris Capital LLC; Fish & Richardson; Womble Carlyle Sandridge & Rice PLLC.
Presented by NVTC's Venture Capital Committee.

May 6 — Meet the Capital Players

7:30 am Registration; 8:00 - 9:30 am Program
Pillsbury Winthrop Conference Room, 1600 Tysons Blvd., McLean, VA
No Charge for Members / $35 Non-Members
Platinum Sponsors: Comerica Bank, Technology & Life Sciences Division; Ernst & Young; Piper Rudnick LLP; Wilson Sonsini Goodrich & Rosati.
Presented by NVTC's Capital Formation Committee.

May 7 — Executive Forum

7:00 am Registration; 7:45 - 9:30 am Program
The Tower Club, 8000 Towers Crescent Dr., Ste 1700, Vienna, VA
$35 Members / $70 Non-Members
Executive Forum Platinum Sponsor: McGuireWoods LLP. *Executive Forum Gold Sponsors:* PricewaterhouseCoopers LLP; SalesTraction, Inc. *Executive Forum Silver Sponsors:* Hampton Roads Economic Development Alliance; Howrey Simon Arnold & White, LLP; Kenyon & Kenyon; LeapFrog Solutions, Inc.; Pillsbury Winthrop LLP. *International Committee Platinum Sponsors:* Morrison & Foerster LLP; Welsh Development Agency. *International Committee Gold Sponsors:* Baker & McKenzie; The British Midlands; Global Relief Technologies; Howrey Simon Arnold & White, LLP.
Presented by NVTC's Executive Forum and International committees.

May 11 — Nanotechnology

7:30 am Registration; 8:00 - 9:30 am Program
SAIC Conference Center
1710 SAIC Drive, McLean, VA
$35 Members / $70 Non-Members
Silver Sponsors: Lockheed Martin Corporation; Squire, Sanders & Dempsey L.L.P. *Location Sponsor:* SAIC
Presented by NVTC's Nanotechnology Committee.

May 14 — Business Development, Marketing & Sales Forum

7:45 am Registration; 8:00 - 9:30 am Program
Pillsbury Winthrop Conference Room; 1600 Tysons Blvd., McLean, VA
No Charge for Members / $35 Non-Members
Platinum Sponsors: Gibbs College; Qorvis Communications, LLC *Gold Sponsors:* Carter Cosgrove + Company; Joan Carol Design & Exhibit Group *Location Sponsor:* Pillsbury Winthrop LLP.
Presented by NVTC's Business Development, Marketing & Sales Committee.

May 18 — Emerging Business Network

7:30 am Registration; 8:00 - 9:30 am Program
Grant Thornton, Conference Center Lower Level; 2070 Chain Bridge Rd., Vienna, VA
No Charge for Members / $35 Non-Members
Gold Sponsors: The British Midlands; KPMG LLP
Location Sponsor: Grant Thornton.
Presented by NVTC's Emerging Business Network Committee.

May 20 — CFO Series

7:30 am Registration; 8:00 - 9:30 am Program
The Ritz-Carlton, 1700 Tysons Blvd. McLean, VA
$35 Members / $70 Non-Members
Platinum Sponsors: Ernst & Young; ShawPittman LLP *Gold Sponsors:* Comerica Bank, Technology and Life Sciences Division; Marsh, Inc. *Silver Sponsors:* Equis Corporation; Spaulding & Slye Colliers. *In-kind Sponsor:* Bowne of DC Financial Printing.
Presented by NVTC's CFO Series Committee.

May 24 — NVTC's Spring Golf Tournament

This event is sold out. Player spots are available for sponsors.
10:00 am Registration; 11:00 am Shotgun Start; 5:00 pm Dinner
River Creek Club; 43730 Olympic Blvd Leesburg, VA
Tournament Sponsor: New Technology Management, Inc. *Club Sponsor:* AH&T Technology Brokers. *Beverage Sponsors:* Joan Carol Design & Exhibit Group; Northwestern Mutual Financial. *Hole-in-One Sponsor:* Pillsbury Winthrop LLP. *Closest to the Pin Sponsor:* Dan Bannister. *Longest Drive Sponsor:* RCM&D, Inc. *Hole Sponsors:* George Mason School of IT & Engineering; Hale and Dorr LLP; Micromuse Inc.; PricewaterhouseCoopers LLP; Robbins-Gioia; ShawPittman LLP.
Presented by the NVTC Foundation.

May 26

International Committee Forum: Hong Kong: The Place To Be For Asian Business

Speakers: The Hon. George Newstrom, Secretary of Technology for the Commonwealth of Virginia; H.E. Jacqueline A. Willis, Hong Kong Commissioner, USA
7:30 am Registration; 8:00 - 9:30 am Program
Pillsbury Winthrop Conference Room; 1600 Tysons Blvd., McLean, VA
No Charge for Members / $35 Non-Members
Platinum Sponsors: **Morrison & Foerster LLP; Welsh Development Agency.** *Gold Sponsors:* **Baker & McKenzie; The British Midlands; Global Relief Technologies; Howrey Simon Arnold & White, LLP.**
Presented by NVTC's International Committee.

May 26

eBusiness Technical Forum

6:00 - 6:30 pm Registration; 6:30 - 8:30 pm Presentation and Discussion
Location: TBD
Presented by NVTC's eBusiness Committee.

JUNE

June 2

TECHCONNECT: Clarendon Connections

Join us for this High-Tech Mixer
6:00 - 8:00 pm
Clarendon Ballroom, 3185 Wilson Boulevard, Arlington, VA
$40 Chamber/NVTC members / $50 Non-members
Presented by NVTC and the Arlington Chamber of Commerce.

June 3

Meet the Capital Players

7:30 am Registration
8:00 - 9:30 am Program
Pillsbury Winthrop Conference Room, 1600 Tysons Blvd., McLean, VA
No Charge for Members / $35 Non-Members
Platinum Sponsors: **Comerica Bank, Technology & Life Sciences Division; Ernst & Young; Piper Rudnick LLP; Wilson Sonsini Goodrich & Rosati.**
Presented by NVTC's Capital Formation Committee.

REGISTER AT:
www.nvtc.org
hosted by PatriotNet

JUNE

June 10

eBusiness Morning Forum

7:30 am Registration
8:00 - 9:30 am Program
SAIC Conference Center, 1710 SAIC Dr. McLean, VA
No Charge for Members / $35 Non-Members
Platinum Sponsors: **SAIC.** *Gold Sponsor:* **Radware, Inc.**
Presented by NVTC's eBusiness Committee.

June 8

8th Annual Greater Washington Technology CFO Awards

6:00 pm Registration & Networking Reception
7:00 pm - 9:00 pm Dinner & Awards Program
Hilton McLean, 7920 Jones Branch Dr., McLean, VA
$175 per Individual Ticket / $1750 Per Table of Ten
Platinum Sponsor: **Ernst & Young.** *Gold Sponsors:* **Deloitte; Deltek Systems; ePlus, Inc.; KPMG LLP; M&T Bank; Marsh Inc.; PricewaterhouseCoopers LLP; ShawPittman LLP.** *Banquet Reception Sponsors:* **Hale and Dorr LLP; Spherion.** *Kickoff Reception Sponsors:* **Cassidy & Pinkard; Comerica Bank, Technology and Life Sciences Division.** *Nominee Reception Sponsors:* **Silicon Valley Bank; Willamette Management Associates.** *Silver Sponsors:* **AH&T Technology Brokers; Beers & Cutler; Bowne of DC Financial Printing; Cardinal Bank, N.A.; Friedman, Billings, Ramsey; Houlihan Lokey Howard & Zukin; Piper Rudnick LLP; Qorvis Communications LLC; Resources Connection; Russell Reynolds Associates; Scheer Partners, Inc.; Spaulding & Slye Colliers; The St. Paul Companies; UK Trade & Investment, British Embassy; Updata Capital, Inc.**
Presented by the Northern Virginia Technology Council & the Tech Council of Maryland; with participation by the DC Tech Council.

June 11

Business Development, Marketing & Sales Forum

7:45 am Registration
8:00 - 9:30 am Program
Pillsbury Winthrop Conference Room, 1600 Tysons Blvd., McLean, VA
No Charge for Members / $35 Non-Members
Platinum Sponsors: **Gibbs College; Qorvis Communications, LLC.** *Gold Sponsors:* **Carter Cosgrove + Company; Joan Carol Design & Exhibit Group.** *Location Sponsor:* **Pillsbury Winthrop LLP.**
Presented by NVTC's Business Development, Marketing & Sales Committee.

JUNE, continued.

June 15 — Emerging Business Network

7:30 am Registration
8:00 - 9:30 am Program
Grant Thornton Conference Center Lower Level, 2070 Chain Bridge Rd.,
Vienna, VA
No Charge for Members / $35 Non-Members
Gold Sponsors: The British Midlands; KPMG LLP. *Location Sponsor:*
Grant Thornton. *Breakfast Sponsor:* Hale and Dorr LLP
Presented by NVTC's Emerging Business Network Committee.

June 16 — Business to Government

7:30 am Registration
8:00 - 9:30 am Program
The Ritz-Carlton, 1700 Tysons Boulevard, McLean, VA
$35 Members / $70 Non-Members
Platinum Sponsors: Dickstein Shapiro Morin & Oshinsky LLP;
INPUT; ObjectVideo. *Gold Sponsors:* GTSI; Morrison & Foerster
LLP; Trammell Crow Company. *Silver Sponsors:* Operational
Research Consultants, Inc.; Panacea Consulting, Inc.; Venable LLP;
Vistronix.
Presented by NVTC's B2G Committee.

June 18 — IT & Telecommunications Series

7:30 am Registration
8:00 - 9:30 am Program
The Ritz-Carlton, 1700 Tysons Boulevard, McLean, VA
$35 Members / $70 Non-Members
Platinum Sponsors: Gardner Carton & Douglas LLP; Kenyon &
Kenyon. *Gold Sponsor:* Morrison & Foerster LLP. *Silver Sponsors:*
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Communication Networks, Inc.
Presented by NVTC's IT & Telecommunications Committee.

June 22 — International Committee Forum

7:30 am Registration
8:00 - 9:30 am Program
Pillsbury Winthrop Conference Room, 1600 Tysons Blvd., McLean, VA
No Charge for Members / $35 Non-Members
Platinum Sponsors: Morrison & Foerster LLP; Welsh Development
Agency. *Gold Sponsors:* Baker & McKenzie; The British Midlands;
Global Relief Technologies; Howrey Simon Arnold & White, LLP.
Presented by NVTC's International Committee.

June 25 — TechDonuts

7:30 am Registration
8:00 am - 9:30 am Program
Virginia's Center for Innovative Technology, 2214 Rock Hill Road,
Herndon, VA
No Charge
Platinum Sponsors: Fish & Richardson; Scheer Partners. *Silver
Sponsors:* e-cerv; FedLeads.
Presented by NVTC's Entrepreneur Committee.

June 24 — NVTC Annual Meeting

All Members are Encouraged to Attend!
8:00 am Registration
8:30 - 9:30 Program
The Tower Club, 8000 Towers Crescent Dr. Ste 1700, Vienna, VA
No Charge
Presented by NVTC.

REGISTER AT:

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Securing your Enterprise Wireless LAN with
Wireless Protected Access™

by John Holmblad, Televerage International

Wireless LANs - A Fast Growing Onramp to Broadband Services

The growth of Wi-Fi wireless LAN technology in the enterprise and, more recently, in the home has been nothing short of phenomenal over the last five years. The rapid absorption of the technology into the market has been facilitated by a common set of standards (802.11a, 802.11b, and 802.11g) developed by the Institute of Electrical and Electronic Engineers (IEEE) 802.11 standards group, coupled with the growing demand for always-on broadband Internet service anywhere, not just at the corporate or home desktop computer. The vast, global market potential of this technology has in turn stimulated healthy competition among suppliers which has driven down prices as the technology has matured.

Businesses and home users alike are impressed by the ease with which this technology can be deployed. Specific aspects of the 802.11 standards along with computer operating system software from Microsoft, Apple, and others makes the installation process extremely fast and easy for most users. Once familiarized with the operation of a wireless LAN, its use becomes second nature for the typical user.

Unfortunately the ease of use characteristics of this technology do not also assure that the implementation of a wireless LAN is secure. Most 802.11 wireless networks deployed today do not have adequate security safeguards in place. This is so, in part, because implementing such safeguards requires extra effort that is often beyond the capabilities of all but the most technically sophisticated users, and because the original security standards that were defined by the IEEE 802.11 standards group were themselves seriously flawed.

Security Services and Supporting Standards

The security of any communications system and the protocols which implement that system can be analyzed in terms of the capability of the system to deliver one or more of the following security related services.

- Message Privacy
- Message Integrity
- Message Non-repudiation
- Sender and Recipient Authenticity
- Service Availability

The principal underlying industry security standards which may be utilized to support Wireless LANS include:

- Secure Sockets Layer
- Wired Equivalent Privacy
- Wi-Fi Protected Access™
- Port Based Network Access Control
- Draft Supplement to Standard for Telecommunications and Information Exchange Between Systems
- The Directory: Public-key and attribute certificate frameworks
- Extensible Authentication Protocol
- Transport Layer Security
- EAP - Transport Layer Security
- Protected EAP MS Challenge Handshake Protocol V2
- Remote Authentication Dial-In User Service

While this is not an exhaustive list it represents the major components that are utilized as the key ingredients for any secure Wireless LAN and which are intended to provide one or more of the aforementioned security related services over the communications medium.

The Security Challenges of Wireless Networks

A century after Guglielmo Marconi, a self-taught 21-year-old from Bologna, Italy, successfully propagated electromagnetic energy for the purpose of communications, the ubiquitous application of wireless communications has transformed civilization and pervaded almost every aspect of our lives. Since that first transmission in 1895, however, the world has had to contend with the security consequences of what, after all, is a fundamentally insecure medium.

Attacks on Wireless Networks

In chapters 3 and 4 of their text, "Real 802.11 Security, Wi-Fi Protected Access and 802.11i," authors Jon Edney and William A. Arbaugh provide a concise yet thorough review of the types of attackers and the types of attack that can be mounted against networks in general, and specifically against wireless LANs. The economic risk to the victim is greatest from "profit or revenge" attackers because such attackers generally understand where the economically valuable information is located within the victim organization and, having obtained access to it, use it for their own benefit. Of course, any given attack, even one which "accidentally" compromises and/or destroys valuable information, can be devastating to the victim's firm.

Flaws in the Original 802.11 Security Protocols

The original standard contains a set of security related services known as Wired Equivalent Privacy, or WEP, and it has been amply documented that each of these services can be compromised at an almost trivial economic cost.

WEP Vulnerabilities, Attack Methods, and Consequences

The implementation of the Client to Access Point authentication is so seriously flawed in the original 802.11 standard that some implementers of 802.11 products don't even support the feature. Where it is supported it should be turned off to avoid exposing the WEP key to disclosure.

These vulnerabilities in the cryptographic aspects of WEP give rise to the potential for all manner of easily mounted and successful attacks on a network which utilizes the 802.11 protocol including Message Interception, Rogue Access Points masquerading as a legitimate Access Point and Message Forgery.

There should be no doubt in the reader's mind that the aforementioned weaknesses in the 802.11 security protocols can be exploited in the real world. At the recently completed Wi-Fi Planet Conference in December 2003, TechWorld reporter Peter Judge reported that Air Defense monitored Wi-Fi traffic at the trade event and observed 21 attempted man-in-the-middle (MITM) attacks of which 16 were successful (a success rate of 76 percent.) This represents a substantial increase in the percentage of successful attacks of this type from the similar event just six months earlier in June 1002 where only 3 of 32 (-9%) were successful. Air Defense also recorded 75 Denial-of-Service (DOS) attacks and 125 MAC spoofing attacks. In addition, at least one cracker was able to construct a "rogue" ad hoc network with an SSID of "wi-fiplanet" which was real enough to trick at least 10 delegates into associating with that rogue network.

Of course, the aforementioned weaknesses in WEP security have not stopped users from utilizing 802.11 based networks, just as the high vulnerability of first generation mobile voice networks based on the Advanced Mobile Phone System (AMPS) standard to eavesdropping did not stop users from using that service starting in the early 1980s. What is different today, of course, is that 802.11 based networks are being used extensively inside of the perimeter defenses of enterprises and, in many cases, government agencies where the weaknesses in WEP can expose the whole business or government network to

unauthorized access, theft, and destruction of information.

Short Term and Medium Term Replacements for WEP

Once the security flaws in the original 802.11 standard became apparent, a consortium of suppliers of 802.11 technologies known as the WI-FI Alliance (www.wi-fi.org) worked aggressively to develop an interim "fix" to WEP security known as Wi-Fi Protected Access™ (WPA). In the meantime, the IEEE itself has been working on a more extensive and, even more cryptographically robust replacement for WEP known as 802.11i which is currently in draft form and is expected to be ratified sometime in 2004. The security architecture for 802.11i is also referred to as Robust Security Network (RSN) and it utilizes the IEEE 802.1x standard as the underpinning for the access control, authentication, and cryptographic key management functions associated with 802.11i.

The Wi-Fi Alliance has been careful to design the WPA standard to have both downward compatibility with many (but not all) previously deployed WEP-based systems as well as upward compatibility with the still-to-be finalized/ratified IEEE 802.11i draft standard (draft 3.0 in fact). The balance between downward and upward compatibility in the WPA standard shows itself in the area of the choice of cryptographic methods for message privacy. Although the 802.11 supports two alternative cryptographic methods, the Advanced Encryption Standard and the Temporal Key Integrity Protocol (TKIP), the WPA standard only requires the TKIP alternative (AES support is supplier optional). This is because TKIP can be more easily implemented through a software/firmware retrofitting of the already extant 802.11 equipment than can the more cryptographically secure but more computationally intense AES standard. Furthermore, there is one useful but not as critical feature of 802.11i/RSN, authenticated roaming access, which is not yet finalized by the 802.11i standards committee and so that feature was left out of WPA altogether.

Early in 2004, WPA-compliant products (Access Points and various client radio PC

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NVTC NewsLINK

Federal Computer Week Announces 2004 Federal 100 Winners

With the key criterion being "impact," 14 NVTC members made Federal Computer Weeks's "2004 Federal 100" winner list. This year the judges were especially interested in issues that related to the President's Management Agenda.

Other 2004 criteria included making a noticeable difference in an agency or in the community at large; making a difference by going above and beyond their job descriptions to ensure that a project succeeds; making a mark through innovation (coming up with new and better ways of tackling perpetual problems) and blazing a trail that others may follow.

2004 Federal 100 winners include: NVTC Board Member Greg Baroni, Unisys Corp., and NVTC B2G Committee Chair David Nadler, Dickstein Shapiro Morin & Oshinsky LLP, and NVTC members Anthony D'Agata, Sprint; Mary Ann Davidson, Oracle Corp.; Kevin Durkin, EDS; Rodney Hunt, RS Information Systems, Inc.; Joseph "Keith" Kellogg, Oracle Corp.; Karl Kropp, SAIC; Robin Lineberger, BearingPoint Inc.; J.P. "Jack" London, CACI International Inc.; John Sabo, Computer Associates International Inc.; Kent Schneider, Northrop Grumman Information Technology; Ken Silbert, Accenture; Patricia Snodgrass, Lockheed Martin Information Technology; and Jeffrey Westerhoff, SRA International, Inc.

Independent Insurance Agents of Virginia Recognize Armfield, Harrison & Thomas

The Armfield, Harrison & Thomas (AH&T) agency has been recognized for its longstanding excellence in customer service by the Independent Insurance Agents of Virginia (IIAV). "Membership in your professional and industry organization is one true measure of an agency's commitment to providing quality service," stated Robert N. Bradshaw, Jr., MAM, Executive

Vice President of IIAV. "We recognize Armfield, Harrison & Thomas for over 51 years of membership in their industry organization and thank them for their dedication and support for this great industry."

AH&T is one of only 41 insurance agencies recognized out of over 1,100 agencies in the state. John Love, CPCU, Principal of Armfield, Harrison & Thomas, Inc., and Director of AH&T Technology Brokers, serves on the Board of NVTC.

Shenandoah University Harry F. Byrd Jr. School of Business Selects NVTC Chairman Emeritus Dan Bannister as 2004 Entrepreneur of the Year

NVTC Chairman Emeritus Dan Bannister has received the Harry F. Byrd Jr. School of Business "Entrepreneur of the Year" Award. Bannister, former president, CEO, and chairman of DynCorp, received the award April 15th at the Shenandoah University Campus in Winchester, Virginia, after his lecture entitled "Adding Employer Value through Employee Ownership: A Success Story."

The award is given to individuals who are outstanding entrepreneurs and role models for students. Other criteria include exemplary ethical conduct and unique experiences in the creation of new businesses. Last year's award winner was NVTC Chairman Emeritus John Backus.

Three NVTC Board Members Receive 2004 Volunteer Fairfax Community Champions Award

Volunteer Fairfax has announced the 2004 Community Champions Award, and three NVTC Board members have been recognized for this prestigious honor. Receiving this year's award are Scott Hommer of Venable, LLP; Gary McCollum of Cox Communications; and Todd Rowley of Wachovia. The award is presented annually to members of our community who promote volunteerism and exhibit outstanding community outreach service. Thank you and congratulations from NVTC! ■

adapter products) started coming into the commercial market along with the necessary software and firmware to support the WPA feature set.

Conclusion

Wireless LANs are here to stay and for good reason because of the significant productivity benefits that can be achieved by "un-tethering" the broadband Internet. The arrival of Wireless Protected Access and, in the near future, the full 802.11i security standard will bring much needed improvements to the security of wireless LANs so that enterprise and home users can deploy them with the confidence that their valuable information assets remain protected over the wireless medium. ■

Televerage International (TLI) is an information security and technology consulting services firm serving small and medium business clients, government agencies, and systems integrators. JHolmblad@aol.com

NVTC Technology Trade Mission to Jordan

At the invitation of His Majesty King Abdullah II of Jordan, the Northern Virginia Technology Council hosted a 15-member technology trade mission to Amman, Jordan, April 12 through April 15, 2004. The delegation was chaired by Mike Daniels, Sector Vice President of SAIC and former Chairman of NVTC, and included NVTC President Bobbie Kilberg, senior area technology executives, Virginia Congressmen Tom Davis and Jim Moran, and State Senator Jeannemarie Devolites. Karim Kawar, Jordan's Ambassador to the U.S., and Maher Matalka, the Director of the Economic and Commerce Bureau at the Jordanian Embassy, provided extraordinary support and assistance for the trip, and the delegation was privileged to be hosted by int@j (the Information Technology Association of Jordan) which organized every aspect of our itinerary.

King Abdullah II met with 33 of NVTC's technology company executives in September 2003 for a very productive discussion. As a follow-up to that meeting, this delegation traveled to Jordan to forge new relationships and explore specific business partnerships. The delegation met with executives of Jordanian technology companies, King Abdullah, Jordan's government ministers, our American Ambassador Edward Gnehm, and with Admiral Dave Nash, Director of the Program Management Office for the Coalition Provisional Authority(CPA) in Iraq. Admiral Nash, who is in charge of all contract procurement for the CPA, flew to Amman from Baghdad with his Military Assistant, Colonel Bob Ferrell, to spend two days with our delegation.

The NVTC trip was designed for technology executives interested in exploring business opportunities in Jordan and joint ventures with Jordanian companies. The emphasis was on U.S.-Jordanian partnerships for doing business in Jordan, the U.S., and other countries in the Middle East, including the utilization of Jordan as a gateway to Iraq. To foster prospective partnerships, our individual delegation members had over 50 one-on-one meetings with Jordanian company CEOs and it is expected that a number of business deals will result from our delegation trip.

At the conclusion of the trip, the delegation members announced a $15,000 contribution to Jordan's Discovery school program that is designed to provide technology and e-learning to Jordanian K-12th grade students. In addition, NVTC proposed the creation of a business internship program for Jordanian college students and young business professionals with Northern Virginia technology companies.

In addition to Ambassador Kawar and Director Matalka, NVTC expresses its appreciation and thanks to int@j's Marketing Manager Bilal Abuzeid, Chairman Marwan Juma, and President and CEO Ra'ed Bilbessi.

NVTC's Technology Trade Delegation and His Majesty King Abdullah II (center, front)

NVTC's Technology Trade Delegation to Jordan

Michael Daniels, Sector Vice President, Science Applications International Corp. (SAIC) and former Chairman of NVTC

U.S. Representative Tom Davis, Member of Congress and Chairman, House Government Reform Committee

State Senator Jeannemarie Devolites, Member of Virginia Senate, Committee on General Laws

Cem Dogrusoz, Business Development Director, Europe and Middle East, Comsat International

Joe Draham, Vice President of Government Relations and Congressional Affairs, GTSI

Otto Hoernig, President and CEO, SpaceLink International

Les Janka, President, Les Janka International

George Kappaz, President and CEO, Comsat International

Bobbie Kilberg, President, Northern Virginia Technology Council

Jonathan Kilberg, Director of Technology Investments, Overseas Private Investment Corp. (OPIC)

J. P. (Jack) London, Chairman, President and CEO, CACI International Inc.

U.S. Representative Jim Moran, Member of Congress and member of Defense Subcommittee of House Appropriations Committee

Rob Quartel, Chairman & CEO, FreightDesk Technologies

Chris Rogers, Senior Vice President, Strategic Alliances, Nextel Communications

Dendy Young, Chairman & CEO, GTSI and Vice Chairman of NVTC

TECHNOLOGY COMPANIES

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+2-02-532-5335

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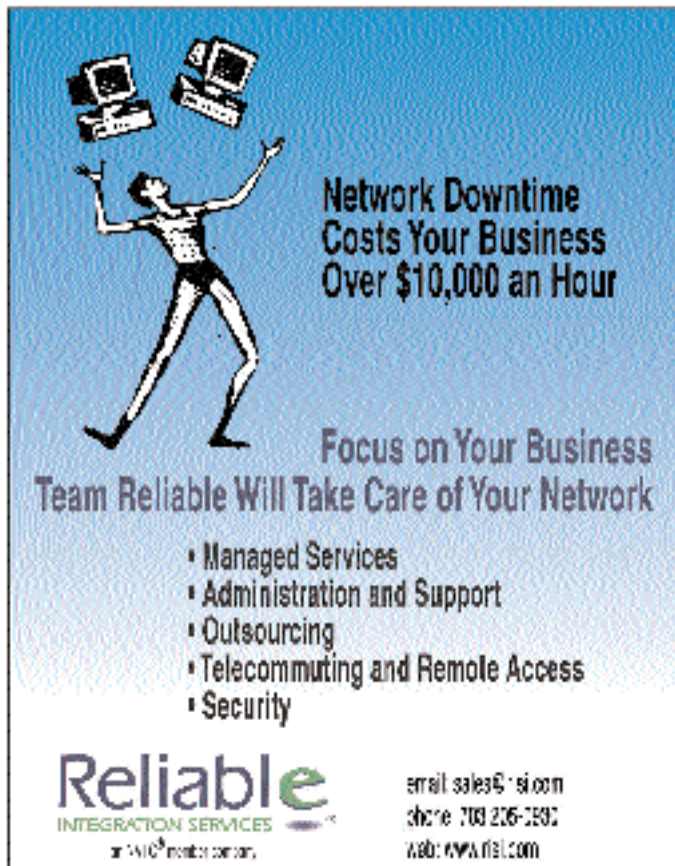Vienna, VA 22182-2633
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NVTC Business Partner Profile

LEE TECHNOLOGIES

Lee Technologies has been helping companies ensure uninterrupted operations and business continuity at mission-critical facilities since 1983. Our products, services and strategies maximize uptime for the infrastructure that powers and protects today's data and communications centers. Lee combines technology and expertise to reduce dependence on outside utilities and minimize susceptibility to human error, mechanical failure, and natural or man-made disasters.

Reliability and maintainability are the hallmarks of Lee Technologies' mission-critical solutions. Our offerings include electrical and mechanical products, equipment integration, site commissioning, and facility-wide service. In addition, Lee offers 24/7 remote side monitoring, technical support and call management from our advanced National Operations Center.

Our every mission is mission critical, so we leave nothing to chance. From engine generators to uninterruptible power systems, secure data environments to access flooring and computer-grade cooling systems, Lee Technologies is uniquely qualified to specify, select and supply the right equipment for your high availability environment. From needs analysis to installation management to remote monitoring and beyond, Lee experts ensure that no detail is overlooked in the development and implementation of your infrastructure solution.

Our client list includes AOL, BellSouth, Booz-Allen & Hamilton, Department of Education, Drug Enforcement Agency, E-trade, Earthlink, Home Depot, Human Genome Sciences, Lockheed Martin, RCN, RoadRunner, Switch and Data, U.S. Postal Service, Verizon and many more.

Our quality and dedication to service has been recognized by Inc. 500, Washington Technology Fast 50 and the Washington Building Congress, and our CEO, John C. Lee, IV, was awarded Ernst & Young's Greater Washington E-Services Entrepreneur of the Year for 2000.

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LEE TECHNOLOGIES™
MISSION CRITICAL SOLUTIONS

Lee Technologies Wins 2004 Volunteer Service Awards

by David Baker, NVTC Foundation Assistant

"I am pleased to recognize an NVTC member that has been active within our own organization and that has been dedicated to this community for over 20 years."

Dan Bannister, NVTC Foundation Chairman

NVTC awarded Lee Technologies with its 2004 Volunteer Service Award on April 22 at the annual Volunteer Fairfax event supported by the NVTC Foundation. Created in 2000, the annual Volunteer Service Awards recognizes companies and individuals making a difference in the community.

"I am pleased to recognize an NVTC member that has been active within our own organization and that has been dedicated to this community for over 20 years. All of our nominees have demonstrated an outstanding commitment to community issues and development," said Dan Bannister, NVTC Foundation Chairman.

The NVTC Foundation had three finalists this year: PEC Solutions, Cox Communications, and Lee Technologies. More than 700 people turned out at the breakfast event at the Hilton McLean to celebrate volunteerism.

Lee Technologies demonstrated its commitment to the community through a series of unique programs that made financial commitments to local charities and non-profit organizations, and by allowing employees to spend company time volunteering with local community groups and schools. The company also has a policy of encouraging individual employees to donate money to charities of their choice and offers a matching program for any donation. Lee Technologies president John Lee is NVTC's Vice Chairman of the Board.

"We know that there are many companies out there taking an active role in the community," said NVTC Foundation President Pam Dudley, "and we look forward to continuing this program that gives companies with community-based involvement some well-deserved credit. We encourage our members to submit nominations. It is a great way for companies and employees to gain recognition for their hard work and service."

Previous winners of the NVTC Foundation Volunteer Service Award include LeapFrog Solutions and Northrop Grumman Mission Systems (2003); Sensei Enterprises (2002); Landmark Systems Corporation (2001); and Computer Sciences Corporation (2000). These companies have all been active and dedicated members of the community, donating money, resources, and employee time, and making an impressive commitment to the region.

To learn how to become involved with the NVTC Foundation or become active in the community, please visit our Web site at www.nvtcfoundation.org.

To nominate a company for the 2005 NVTC Foundation Volunteer Service Award please visit www.nvtc.org/Foundation/volunteer. ∎

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Suddenly, It's Spyware

What is the greater threat, the TCP hole in the Internet, cyberattacks or spyware?!!

Recent reports seem to indicate that a vulnerability in TCP, the transmission control protocol for the Internet, is the greater threat and could encourage widespread denial-of-service attacks. As one publication put it, this development "could shift the current interest in using high-layer security protocols like secure sockets layer as virtual private networks" and that "since SSL and SSH1/SSH2 do not prevent a TCP connection re-start" it may be "better to use Layer 3 cryptographic solutions, such as IPsec, to create secure TCP sessions." Right. Sounds like the precise prescription for taking that threat off the table has been written.

What about cyberattacks, Blaster, Slammer and worse? About half of Americans said in a 2003 survey that they fear cyberterrorism against banking, electrical, transportation and water system networks. So it was reassuring to see that George Newstrom, Virginia's Secretary of Technology and chairman of the Security Committee of the National Association of State CIOs, was setting the record straight on Capitol Hill. Newstrom told Congressional investigators that communications and cyber alerts to states have gotten exponentially better since the U.S. Department of Homeland Security was established in 2003. But he and others warned the House Homeland Security Subcommittee on Cybersecurity, Science and Research that there still was fragmentation in information and warnings from multiple federal sources. Still, isn't the very existence of a Cybersecurity, Science and Research Subcommittee reassuring?

That leaves us with spyware, which sounds much more ominous, and not just because it has a cool name that lets everyone conjure up really bad abuses. Reports about "spyware," loosely defined as software that tracks what computer users do online, have exploded. One recent survey found close to 30 million spyware programs on more than a million computers in a three-month period – nearly 28 programs for every computer! What is an unwitting Internet user to do?!

A start, of course, is to read the survey a little further. The "close to 30 million" includes almost 24 million cookies, the small data files Web sites place on computers to store information. And, of course, because cookies are not programs and cannot control computer functions, they are not software. Still, that leaves nearly 6 programs for every computer! Alas, the vast majority of the remaining programs are adware that track consumer preferences, while other programs give parents blocking controls, allow businesses to use Internet-based security services and provide users of auctions sites alerts about bidding underway.

Real spyware, the deceiving, fraudulent kind, can record what an individual types on a keyboard, thereby capturing credit card numbers or passwords, or even turn Webcams off and on remotely. Much spyware is downloaded along with file-sharing programs. (Read the fine print before clicking "Agree.") But the Federal Trade Commission has concluded criminals still prefer other methods of activity that already are against the law and that spyware doesn't warrant separate regulation.

So why are there new spyware bills in Congress and a new law in Utah, home of the tax Internet sales coalition, if spyware is such a limited threat? Advocates suggest a new law is needed to make illegal the installation of any software on a computer without a user's consent. In Virginia that already comes under the rubric of computer trespass. The problem in the Utah law, for example, is that the legal definition of spyware is so broad as to interfere with legitimate software tools users want.

Is that a parent or a child using the keyboard who needs to be notified that there are blocking and filtering tools automatically being engaged at the instruction of the parent? Can a criminal suspect refuse consent to the use of court-ordered monitoring software after it is mandated he be warned? Are Internet messaging monitors and pop-up notices spyware and, thereby, a damaging invasion of privacy? Can employers continue to monitor Internet use by employees without continuous notice or rely on filtering software that generates a pop-up notification?

The law of unintended consequences overwhelms any good intention here. And the sad truth all have learned from criminal hackers and spammers is that the real deceitful, fraudulent spyware providers don't really care what the law or regulations are. In old tech parlance, it's wetware that is the threat. Humans always provide the difference between use and abuse. ∎

Douglas Koelemay is senior advisor to NVTC and managing director at Qorvis Communications, LLC.

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