

[Microsoft.com Home](#)[Site Map](#)

Search Microsoft.com for:

[Go](#)[Sign Out](#)**Microsoft**

OEM Connect

[OEM Connect Home](#)[OEM Connect Program](#)[Sales and Marketing](#)[Technical](#)[Strategic Guidance](#)[Product Guide](#)[Security](#)[Worldwide Sites](#)[Strategic Guidance](#) > [Market Research](#) > [WLAN Outlook: Giving Voice to WLANs](#)

## Market Research

### WLAN Outlook: Giving Voice to WLANs

By Lauren Gibbons Paul  
December 2004[E-mail this Article](#)[Print this Article](#)[Letter to the Editors](#)

#### Contents

[Executive Summary](#)  
[Voice Boosts WLAN Value Proposition](#)  
[A New Class of Device Around the World](#)  
[The SMB Opportunity](#)  
[Market Factors](#)  
[About the Analysts](#)  
[Methodology](#)

#### Executive Summary

Wireless LAN (WLAN) coverage based on 802.11x is becoming ubiquitous among global businesses and consumers. Equipment vendors and wireless carriers looking for ways to extend the WLAN value proposition have settled on **running voice over the WLAN as a natural next step**. Enterprises, small businesses and consumers will slowly adopt Voice over WLAN (VoWLAN) to different degrees via different solutions. A new generation of mobile device combining Wi-Fi and cellular technology is an interesting development, though the long-term profitability prospects are by no means clear. Analysts from AMI-Partners Inc., Current Analysis Inc., International Data Corp. and Strategy Analytics Inc. weigh in on the developing trends and opportunities.

#### Voice Boosts WLAN Value Proposition

Wireless LAN (WLAN) technology based on 802.11x is becoming commonplace, in both households and businesses around the world. "Wi-Fi is getting cheaper and cheaper. The **coverage is increasing and Wi-Fi-enabled equipment is increasingly available**," says Alex Slawsby, senior analyst, mobile devices, for International Data Corp. (IDC), a research company in Framingham, Mass. Where broadband Internet access is available, masses of consumers and small office/home office (SOHO) users are installing wireless routers priced at \$150 USD or less to share that high-speed connection with family members and colleagues. On the other end of the scale, enterprise WLAN adoption remains steady due to the reasonable cost and convenience factor of having wireless data access throughout the building, but security remains a concern.

"Businesses are still fighting the security issues. But the **additional connectivity and productivity**



Unable to find what you are looking for?

**Let Us Know!**

**are driving WLAN acceptance.** More and more, businesses are expected to be able to offer their customers and guests Wi-Fi access while they're in the building. And installing a WLAN does not require a big capital investment," says Joel Conover, an analyst with Current Analysis Inc., in Sterling, Va.

Small- to medium-sized businesses (SMBs) currently use WLANs as a way to share Internet access and as a back up to wireline networks. "The smaller SMBs might not even have a wired network. **For SMBs, WLAN is a way to share the broadband or DSL connection** with others in their small office," says Deepinder Sahni, an analyst at AMI-Partners Inc., a New York firm that specializes in SMB research.

Wi-Fi vendors of all types are looking for ways to **extend the value of the WLAN beyond just convenient data access.** Voice is an obvious answer. Running phone calls over the WLAN promises to help conserve cellular minutes and save on long-distance charges (though the call quality may be lower than fixed line). Wi-Fi-enabled mobile phones and personal digital assistants (PDAs) allow callers to leverage increasingly widespread WLANs for voice calls. Worldwide shipments of Wi-Fi-enabled PDAs will enjoy compound annual growth of nearly 50% between 2004 and 2008, according to IDC.

As for the protocol itself, 802.11g and 802.11b are the most prevalent in both home and office but **802.11a is up-and-coming.** "802.11a is relevant for anyone who wants to run voice communication over Wi-Fi," says Conover. The advantages of 802.11a are increased spectrum and more efficient use of that spectrum, resulting in 23 non-overlapping channels instead of the three available in 802.11b/g. Less interference from cordless phones and other devices in 802.11a's 5 GHz band is another advantage. However, the tradeoffs of 802.11a include reduced range (roughly 100 feet versus 200 feet in b/g) and greater power consumption, according to Conover.

Wi-Fi phones "will help the mobile carriers get their foot into the door of the enterprise," says Chris Ambrosio, director, wireless device service for Strategy Analytics Inc., a Boston market research firm. "Business users account for a little less than 20% of their subscribers but they account for 40% of the carrier's revenue stream."

**PDAs Piggyback on Wireless LANs Worldwide**

Worldwide and U.S. Wi-Fi-enabled personal data assistant shipments, 2004-2008\*

Region	2004	2008	CAGR 2004-2008
<b>Worldwide</b>	893,000	4.03 million	45.8%
<b>United States</b>	585,000	1.48 million	26.1%

\* PDA form factor handheld devices with embedded 802.11x capability

Source: IDC, 2004

On the consumer side, voice over IP (VoIP) calling programs such as **Skype** allow people to call anyone in the world with a Skype account for free (calls to regular phones are charged at a nominal rate). Desktop or notebook computer users running **Microsoft® Windows® XP** can make calls via Skype, as long as their machine includes a microphone and speakers; meanwhile, Skype can also be used on a Windows-based PDA. If you have an HP iPAQ or similar device "you could download your Skype client onto that and use that device to **talk across the globe wirelessly free** of charge," says Sahni. "That is the starting point. This will eventually float into corporations."

Not everyone agrees that consumers will drive this market. IDC's Slawsby sees the momentum going in the opposite direction. "The vast majority of consumers have not heard of this yet and think it's just a business thing. **Enterprise adoption will lead consumer adoption**" in the VoWLAN (voice over WLAN) space, he says.

**A New Class of Device**

Manufacturers such as Motorola Inc. are taking VoWLAN one step further with the recent introduction of so-called **"seamless mobility" devices**. These include dual-network smartphones such as the pioneering Motorola MOD (Mobile Office Device) CN620 running Microsoft® Windows® CE.NET. Announced in partnership with Avaya Inc. and Proxim Corp. last July, this wireless phone transmits voice packets using VoIP while in the WLAN coverage area; outside the WLAN it searches for available cellular voice networks, without adversely affecting the voice call. Motorola CN620 users can surf the Web, access data applications, receive e-mail and manage contacts. Other vendors are expected to announce competitive models in the next 12 to 18 months. Analysts from the four firms agree these devices are a significant development.

In theory, seamless mobility devices such as the Motorola CN620 will allow a user's cell phone to become their universal phone no matter where they are. "Businesses can save on cellular roaming charges while their employees are in the office," says Current Analysis Inc.'s Conover. "The industry has been talking about this for at least six years. The phone manufacturers, PBX vendors, wireless network providers and the wireless carriers are finally getting together," he says. Being able to avoid long distance and roaming charges while in the office combined with convenient access to the Internet and e-mail on the handheld will **boost the WLAN value proposition**, says Conover.

But at present the CN620 requires Avaya software and hardware from Avaya or Proxim in addition to a wireless access point -- a rather complex infrastructure that may not be cost-justified, according to IDC's Slawsby. "If you have the right infrastructure, you can transfer seamlessly from Wi-Fi to cellular. How many people really need that? **Voice is getting to be so cheap these days**. You get 1,000 anytime minutes free," says Slawsby, who believes the savings derived from avoiding roaming charges may not justify the investment.

**New Opportunity in Converged PDA/Smartphone Devices**

Worldwide and U.S. WLAN-enabled converged mobile device shipments, 2004-2008\*

Region	2004	2008	CAGR 2004-2008
Worldwide	270,000	68.45 million	300.9%
United States	170,000	22.67 million	242.4%

\* WAN telephony-enabled devices (smartphone or PDA form factor) with a high-level operating system and embedded 802.11x capability

Source: IDC, 2004

**Dual-Network Device Shipments on the Rise**

Worldwide WLAN-enabled terminal shipments\*

	2004	2009
Total mobile phone shipments*	670 million	860 million
Dual-network Wi-Fi/cellular mobile phone shipments	N/A	86 million

\* Includes WLAN-enabled mobile phone and PDA form factor devices with embedded 802.11x capability

Source: Strategy Analytics, November 2004

**Around the World**

**WLAN growth faces additional challenges in Europe**, where regulatory constraints come into play. "There are some local regulations that say you can't modify buildings or drill holes in the walls," says Conover of Current Analysis, who points out that WLANs still need wires to run to the wireless access points. Though Europeans have embraced general mobile technology as both consumers and business users, they must work to overcome additional hurdles before acceptance becomes widespread. Technology combining Wi-Fi and GSM will be a huge driver in both Europe and China when it becomes available, according to Conover.

Japan's premier wireless carrier, **NTT DoCoMo is well-positioned to take advantage of the seamless mobility trend** in WLAN devices. "NTT has fixed wireline service and they have wireless assets too, so they can offer everything an enterprise user might need," says Ambrosio of Strategy Analytics. "They can offer a mixed solution."

### The SMB Opportunity

#### The best WLAN opportunity lies with businesses of less than 1,000 employees,

says Ambrosio of Strategy Analytics. "These companies do not have huge fixed costs in installed networks. They have much more flexibility to update or migrate. They don't typically need highly customized solutions like the bigger enterprises but they do need low cost."

Sahni of AMI-Partners agrees SMBs will be lively WLAN adopters. Like consumers,

SMBs currently view WLAN as a way to share a high-speed Internet connection and as an easy means of creating network redundancy. Today, smaller SMBs use wireless routers and access points priced under \$150 USD with minimal security features. Between 2006 and 2008, global SMBs will move to the next stage of WLAN adoption, with VoWLAN use more widespread and routers running at speeds of up to 100 Mbps, according to AMI-Partners. SMBs in vertical industries such as **healthcare, retail, wholesale, warehousing and manufacturing** will continue to be early adopters of advanced WLAN technology.

Those same verticals are heavy WLAN users in the large enterprise space, according to IDC's Slawsky. "**WLANs are big in 'gray-collar' applications such as retail and hospitals** where they need a mobile solution but they don't need a heavily ruggedized device," he says.

#### SMBs to Spend Big on WLANs

Worldwide SMB WLAN spending\*

	2004 (\$USD)	2006 (\$USD)	2008 (\$USD)	CAGR, 2004- 2008
Worldwide SMB WLAN spending	\$1.41 billion	\$3.07 billion	\$5.86 billion	42.8%

\* Includes spending on routers, access points and network cards

Source: AMI-Partners Inc. 2004

### Market Factors

The consumer and enterprise demand for higher functionality mobile devices will parallel the general health and stability of worldwide economies, according to IDC, helping to drive growth in Wi-Fi and WLAN technology. As worldwide business IT spending increases at a compound annual growth rate (CAGR) of 5% to 6% between 2004 and 2008, **enterprises will increase their WLAN investments accordingly**, according to IDC.

#### VoWLAN Market Predictions


##### Research Firm

AMI-Partners

##### VoWLAN General Outlook

- From 2003-2005, SMBs worldwide will use WLANs for backup and to share a broadband or DSL connection.
- For many smaller SMBs, one inexpensive (less than \$150) wireless router will support all the users and security features will be minimal.
- Between 2006 and 2008, SMBs will begin to segment LANs and create virtual LANs (especially in verticals such as healthcare, retail and warehousing).

- Many SMBs will implement VoWLANs during this period, spending \$300 USD and up per router or access point.
  - Multiple routers will be deployed.
- Current Analysis
- IT managers still have major reservations about WLAN security but most have some form of WLAN technology implemented (if only to detect rogue wireless access points).
  - Large vendors such as Avaya will have some success in pushing next-generation WLAN technology in the market.
- IDC
- Continued advancement in 802.11x WLAN component solutions will drive improvements in cost, size, power consumption and overall performance.
  - Higher resolution displays, faster processors and improved software will bring a compelling high-bandwidth wireless experience to handheld/converged mobile devices.
  - Business and consumer demand will increase.
  - VoWLAN will deliver significant cost savings to both businesses and consumers.
  - Solution providers must make the VoWLAN experience easy to use without training.
- Strategy Analytics
- VoWLAN can help businesses and consumers save on telecomm costs.
  - Vendors should be wary of getting into the dual-network device space.
  - The total dual-network market may not reach enough volume to justify the undertaking.

The analysts all agree the WLAN subset VoWLAN presents an attractive growth opportunity. But **not all analysts are equally bullish about the long-term prospects** for dual-network devices. Ambrosio of Strategy Analytics sums up the more cautious outlook this way: "One hundred million units in five years doesn't offer much scale. The question is, 'Can a manufacturer gain enough market share to be profitable?' The enterprise market is the most expensive to serve and support. The long-term profit opportunities are not clear." 


#### About AMI-Partners Inc.



Access Markets International-Partners Inc. (AMI-Partners) specializes in actionable market intelligence, strategic consulting, venture capital and go-to-market solutions for the global Small and Medium Business (SMB) Enterprises market. Established in 1996, AMI-Partners is based in New York City. For more information, visit [www.ami-partners.com](http://www.ami-partners.com) .

#### About Current Analysis Inc.



Current Analysis delivers critical analysis on such high-tech heavyweights as Cisco, Oracle, Microsoft, AT&T, SBC, Lucent, 3Com, Nortel, SAP and Sun Microsystems, as well as the vast number of smaller technology companies that are emerging quickly and gaining market share with more powerful and sophisticated products and services. For more information, see [www.currentanalysis.com](http://www.currentanalysis.com) .

### About International Data Corp.



IDC is the premier global market intelligence and advisory firm in the information technology and telecommunications industries. It analyzes and predicts technology trends so that companies can make strategic, fact-based decisions on IT purchases and business strategy. For more information, go to [www.idc.com](http://www.idc.com).

### About Strategy Analytics Inc.



Strategy Analytics Inc., a global research and consulting firm, provides timely insights and strategic business solutions to companies operating at the convergence of information, communications and entertainment technologies. With worldwide headquarters in Newton, Mass. and principal offices in England, France and Germany, Strategy Analytics focuses on market opportunities and challenges in the areas of Automotive Electronics, Broadband, Telematics, Wireless Strategies and Enabling Technologies. For more information, see [www.strategyanalytics.com](http://www.strategyanalytics.com).

### About the Author

Lauren Gibbons Paul has more than 15 years of experience as a writer and editor for leading business and technology publications, including *eWEEK*, *CIO*, *Managing Automation* and *Network World*. She has also done research assignments for a number of well-known analyst firms.

### Methodology

This report was prepared for Microsoft by Triangle Publishing Services Co. Inc. working with published reports supplied by leading analysts specializing in Information Technology. The reports are carefully analyzed by Triangle, calling upon additional published reports where necessary for information. More information about Triangle is available at [www.triangle-publishing.com](http://www.triangle-publishing.com).

In addition, the lead analysts who have authored these reports were interviewed by Triangle to resolve any differences among the reports, as well as explain variances and offer any additional insights or analysis.

The complete reports from these firms are available for sale by their publishers. In all cases, the information provided by the analyst firms and published in this report represents only a small subset of the data provided in the actual published reports from these firms.

Have a question? Want more information? Contact the writers and editors at [oemedit@microsoft.com](mailto:oemedit@microsoft.com).

© 2005 Microsoft Corporation. All rights reserved. This document is for informational purposes only and subject to change without notice. MICROSOFT MAKES NO WARRANTIES, EITHER EXPRESS OR IMPLIED, AS TO THE INFORMATION IN THIS DOCUMENT. The entire risk of the use or the results of the use of this document remains with the user.

Microsoft may have patents, patent applications, trademarks, copyrights, or other intellectual property rights covering subject matter in this document. Except as expressly provided in any written license agreement from Microsoft, the furnishing of this document does not give you any license to these patents, trademarks, copyrights, or other intellectual property.

Last Updated: December 6, 2004

---

[Manage Your Profile](#) | [Contact Us](#) | [All Rights Reserved](#) | [Terms of Use](#) | [Newsletter](#) | [Site Map](#)

© 2005 Microsoft Corporation. All rights reserved. [Terms of Use](#) | [Trademarks](#) | [Privacy Statement](#)