

The Mobile SMB and Wi-Fi

Penetration, Market Sizing, Forecasts, and Segmentation



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Section 1.

EXECUTIVE SUMMARY

1.1 SMB Definition

The term “SMB” refers to a “small to mid-sized business.” The US Census Bureau classifies business establishments of 500+ employees as “large.” It provides a number of different establishment employee breakouts including 1-4, 5-9, 10-19, 20-99, 100-499, and 500+. Traditionally, analysts interpret the SMB market segmentation to categorize establishments with 1-4 employees as “SOHO” (Small Office/Home Office) or “very small,” establishments with 1-99 employees as “small businesses,” and establishments with 100-499 employees as “mid-sized businesses.” ABI Research has extended the definition of medium-sized businesses to include all establishments with 100-999 employees. The primary reason for doing so is that many of our clients choose to define the market segment this way as a reflection of their products and services portfolios. Europeans tend to use the designation SME (Small to Mid-sized Enterprise)

1.2 SMB Demographics

The number of global SMBs (establishments with 1-999 employees) will grow from three hundred and four million in 2007 to three hundred and thirty million in 2014. The sheer predominance of small and very small businesses (establishments with 1-99 employees) is reflected in the fact that this market segment will grow from three hundred and one million in 2007 to three hundred and twenty-four million in 2014. North America has, by far, the greatest number of large enterprises with 1,000+ employees (9,491 establishments in 2008), while economic conditions have severely limited the growth of large establishments in Latin America (23,606 in 2008) and in Africa and the Middle East (3,535). Globally, small businesses with 1-99 employees comprise anywhere from 97% (North America) to 99% (Latin America and Rest of World). The most attractive portion of this market for communications vendors is the 20-99 employee segment because these companies are large and complex enough to require infrastructure products rather than less expensive, less robust consumer products.

1.3 SMB Profile

SMBs can generally be categorized in a number of different ways. The very fact that they are small means that they focus on OPEX (Operating Expenditures) and not on CAPEX (Capital Expenditures). As a result, they are far more sensitive from a purchasing perspective to changes in the economy. These companies do not have lots of dedicated technicians. In fact, they generally lack great technical expertise and often rely on manufacturer web sites, friends, and Google searches, while their larger counterparts rely to a great degree on resellers’ advice. As a group, SMBs have far less concern for security than do large enterprises. One surprising fact is that SMBs are far more mobile than most people realize. Due to some of their unique needs, SMBs want products developed specifically for them and not simply products originally designed for large enterprises that are repurposed and repackaged for the SMB market. SMBs frequently use their office equipment for personal use both during and after work hours. Finally, SMBs are usually short-handed and, as a result, are excellent candidates for managed services.

1.4 The Mobile SMB

Mobile employees working for SMBs (establishments with 1-999 employees) will increase from two hundred and sixty-nine million in 2007 to five hundred and seventy-three million in 2014. Drivers include the declining price of smartphones and laptops and the growing ubiquity of Wi-Fi. SMB employees spend significant time traveling and working at client sites.

1.5 Major Trends for Mobile SMBs

A number of major trends are associated with mobile SMBs. These trends include the following:

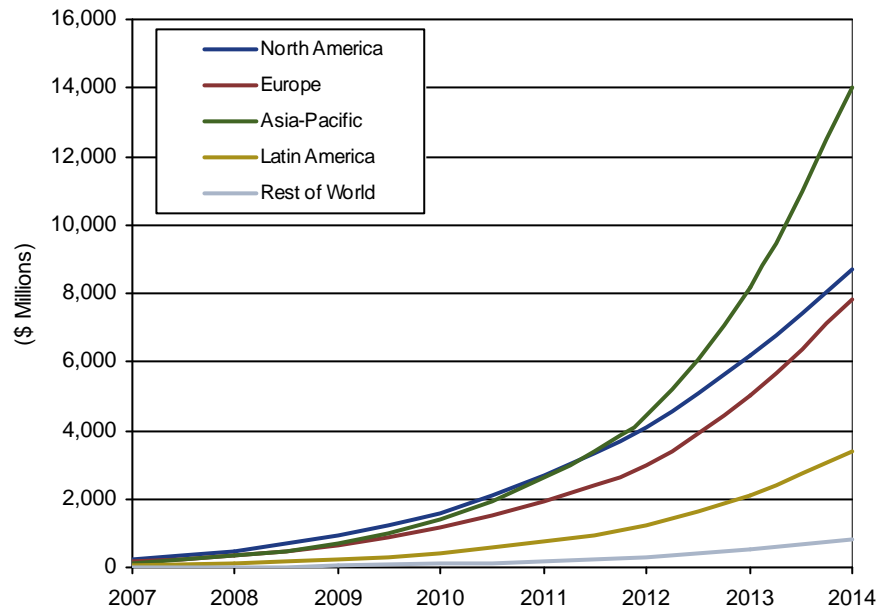
- **It is not 3G or Wi-Fi, but 3G AND Wi-Fi.** Look for more and more laptop manufacturers to follow Lenovo's lead and begin offering SMB specific models that include 3G radios as well as Wi-Fi. Due to SMBs' well documented concern over physical security, the ability to remotely "kill" a stolen laptop via an SMS command over a 3G network will resonate with mobile SMBs.
- **Invasion of the European SMB Services Model.** F-Secure has found a very receptive SMB market in Europe for its managed services approach (Protection Service for Business) that focuses on mobile device security. Look for more US service providers to begin following that example. Security companies, such as McAfee and Trend Micro, are offering managed service products and web portals that can be branded by the service providers.
- **SaaS (Software as a Service) resonates with SMBs.** Microsoft's worst nightmare becomes a reality as more mobile SMBs look for SaaS applications for both smartphones and laptops. Cost, security, and convenience will all be drivers.
- **Ubiquitous wireless for one price.** Mobile operators will all begin offering bundled Wi-Fi and 3G for a single monthly charge as the advantages of locking customers into their services and reducing churn become apparent.
- **The death of SMB hand-me-downs.** Virtually all major vendors will follow Cisco's lead and begin offering SMB products that have been designed from the ground up for this market. That means more functionality and robustness than consumer models but a far lower price than large enterprise models.
- **Convergence in a box.** Cisco made an attempt this past year to offer complete convergence in a single box for SMBs, but failed to provide adequate functionality at an attractive price. Polycom recently began offering relatively low-priced Wi-Fi-enabled phones specifically designed for the SMB market. Vendors will revisit voice/data wireless convergence for SMBs and begin bundling Wi-Fi-enabled phones with SMB WLAN equipment. India might be a testing ground for such an approach because of the lack of adequate fixed-line service.
- **Data in the sky.** More companies will to begin offering SMBs remote backup services. Much further down the road, the very long-term impact could be devices that require far less storage capacity since data will be stored and then retrieved from a service. This means that a mobile SMB employee could use a smartphone or laptop to retrieve key data via secure wireless connections and not even require internal IT VPN infrastructure.

1.6 Managed Mobile Security Service

The prospect of physical security for their laptops and smartphones is driving SMBs to adopt managed mobile security services. One of the most popular features for both is the "kill" feature that can wipe clean stolen laptops or smartphones. Lenovo recently introduced a laptop with a built-in Ericsson 3G radio that enables customers to send an SMS message to a stolen laptop that disables it after it sends an acknowledgement that it has received the message. Look for other laptop manufacturers to partner with cellular radio vendors to offer this feature.

In fact, managed services are all primed to grow for the SMB market as Chart 1.1 illustrates.

Chart 1.1 SMB Managed Mobile Device Revenue by Region, World Market, Forecast: 2007 to 2014



(Source: ABI Research)

1.7 Global WLAN SMB Opportunities

It is possible to examine global WLAN equipment vendors' best opportunities on a region by region basis. Such an examination reveals the following:

- In North America, large numbers of doctor and dentist offices still lack Wi-Fi. Reaching them requires leveraging resellers with value-add applications that benefit from Wi-Fi. Large numbers of small food establishments are best reached via a hotspot application, while small schools (K-12) can be tempted by the cost savings associated with VoWi-Fi (Voice over Wi-Fi).
- In Europe, the best SMB opportunities for WLAN equipment vendors are services companies with 20-99 employees. The other very attractive target is Eastern Europe, particularly Russia and Poland, since PC penetration is already very high and wired infrastructure is not as developed as in Western Europe.
- The most intriguing SMB WLAN equipment opportunity in the Asia-Pacific region is India. In particular, a predominance of very small manufacturing companies are green field targets for WLANs as their only network since Ethernet cabling is not widespread.
- The major SMB WLAN opportunity in Latin America is in mid-sized businesses and ABI Research believes the Wi-Fi penetration rate is still only around 25%. Since IT infrastructure is not well developed across this region within SMBs, more opportunity probably exists in the industrial sector (18% of all businesses) because Wi-Fi can often be deployed in a green field environment without needing to replace Ethernet. Still, the services sector (61% of all businesses) in mid-sized businesses (100-999 employees) probably represents the best WLAN equipment opportunity in this region.
- Medium-sized businesses are only 15% Wi-Fi-penetrated according to ABI Research's estimates, so mid-sized services businesses represent the best opportunity for WLAN equipment sales within the SMB market for this region.

1.8 Interoperability Issues

Smaller SMBs tend to buy from the consumer channel as well as from the Internet, often buying whatever is on sale at the time rather than sticking to a single vendor partner, often winding up with equipment that has proprietary technology that does not interoperate. While the equipment provides functional performance, the interoperability issues surface at the bleeding technology edge. As an example, mixing and matching WLAN equipment and trying to deploy VoWi-Fi will not work because of proprietary roaming algorithms used in lieu of the just completed 802.11r standard. Since SMB employees often purchase their own smartphones, deploying applications in a heterogeneous environment is also problematic.

1.9 Security Issues

SMBs are far less aware of security issues than large enterprises that have the luxury of a full-time IT staff. Most SMBs use a shared key approach for encryption. They very rarely, if ever, screen for hackers, in part because they generally do not have intrusion detection systems in place. They also do not have a person dedicated to mobile devices, so security policies are generally lacking within SMBs, which opens up SMB smartphones to malware attacks as well as to attacks based on misuse of Bluetooth outside a facility.

1.10 SMB Channel Choices

Very small SMBs tend to buy their WLAN equipment through consumer retail channels or over the Internet, while mid-sized companies tend to mirror their large enterprise counterparts and rely on resellers. SMB employees often purchase their own smartphones. When an SMB does choose a mobile operator, employees are very much involved in the decision and provide their input unlike in large enterprises in which it is generally an IT decision.

1.11 SMB Technology Adoption

Since SMBs are small and nimble, they are early adopters of new technology. That is particularly true of WLAN equipment because they often buy via consumer channels that have been the earliest to offer 802.11n products. SMBs rarely follow large enterprises' cautionary methods of piloting before deploying new technology.

1.12 SMB Impact on the Laptop Industry

SMB employees tend to use their laptops for their own personal use as well as for business. As a result, laptop manufacturers have begun creating new SMB models that offer faster processors and larger screens to accommodate movie viewing. The presence of 3G radios in these models is bound to increase as SMBs show greater interest in physical security including the ability to send "kill" commands to disable stolen laptops.

1.13 Mobile SMB Revenue Projections

It is possible to identify the impact of mobile SMBs on several different markets. Their overall impact includes the following:

- Mobile SMBs will purchase 35.66 million Wi-Fi access points in 2008. This number will grow to 50.12 million access points in 2014.
- SMBs will purchase \$1.9 billion worth of WLAN access points in 2008. With ASPs (Average Selling Price) dropping each year, they will purchase \$1.5 billion worth of access points in 2014.
- SMBs will purchase thirty-one million laptops in 2007. By 2014, that number will grow to one hundred and six million laptops.
- Managed mobile device services to SMBs will grow from \$624 million in 2007 to \$3.47 billion in 2014.

Section 2.

MARKET ISSUES

2.1 Defining a Key Global Market Segment

SMBs are increasingly becoming a major target for mobile communications vendors, in part because they represent such a large portion of the business community. One problem these vendors face as they begin focusing on this market is determining its real market potential. Definitions vary from region to region and demographic data is often not readily available, so relatively simple tasks turn out to be surprisingly complex. This section examines some of the more commonly used definitions.

2.1.1 SMB Definition

As stated earlier in Section 1, the US Census Bureau classifies business establishments of 500+ employees as “large,” providing a range of employee breakouts that include 1-4, 5-9, 10-19, 20-99, 100-499, and 500+. Traditionally, analysts interpret this market segmentation by classifying establishments with 1-4 employees as “SOHO” or “very small”, those with 1-99 employees as “small businesses,” and those with 100-499 employees as “mid-sized businesses.” ABI Research extends the definition of medium-sized businesses to include all establishments with 100-999 employees, which more closely matches our clients’ definition of this market.

Vendors have different perspectives when it comes to their SMB market planning. Historically, Microsoft has defined small businesses as those with 1-50 employees. Since many vendors’ WLAN and laptop/smartphone managed services are designed for relatively complex IT environments, they often define small businesses as establishments with 20-99 employees and mid-sized businesses with 100-999 employees. Yet, some vendors define small businesses as having 50-499 employees and mid-sized businesses as having 500-1500 employees.

These various attempts to segment the SMB market are critical because buyer behavior within the different demographic groups varies significantly, which will be discussed later in this report.

2.1.2 SME Definition

European countries, until recently, had their own definitions of SMBs with Germany choosing to classify companies with 1-500 employees as “small or mid-sized.” The European Union adopted the term SME to describe SMBs. It appears to have standardized the definition of an SME so that an establishment with 1-49 employees is “small” and an establishment with 50-250 employees is “medium.”

2.2 Sizing the SMB Market

This section sizes both the US and the global SMB markets. Several reasons why it is important to be as specific as possible when examining the total available SMB market include:

- Channel management is an extreme problem when it comes to targeting this market. How can “feet on the street” reach millions of small businesses, many of them run out of owners’ homes? To make matters even worse, completely different sets of products are required depending on the size and level of complexity of these small businesses.
- The SMB market is very deceptive in size. While millions of businesses are very appealing targets, the actual opportunity for vendors is real, but much smaller. The US market serves as an example. Establishments with 1-4 employees represent half of all establishments with 1-499 employees. Of these very small establishments, many are found in industries that

have a limited need for communications equipment. As an example, the retail industry has over three hundred and seventy-four thousand establishments with 1-4 employees. Many of these are very small operations with a single employee or two employees that are not even computerized. Over four hundred and seventy thousand establishments in the construction industry have 1-4 employees. Once again, need for WLAN equipment is limited within this group.

The key to success for vendors in sizing the SMB market is to look at it as a series of very different markets and choose those sub-segments that match their product portfolios most closely. It is a process that is much easier described than implemented.

2.2.1 The SMB Market in the United States

The United States has, by far, the largest number of large enterprises, which is a reflection of the country's historic economic prosperity. The country is highly industrialized and has a far smaller percentage of establishments in agriculture, an important consideration since greater focus is on other industries more likely to need IT products. The United States was the earliest adopter of PCs including laptops and WLAN equipment. Being such an early adopter, and because channels including consumer channels have been well developed to sell and service such equipment, SMBs have higher penetration rates of penetration for this equipment as compared to other regions of the world. Clearly, though, these rates of adoption still fall far below those of large establishments.

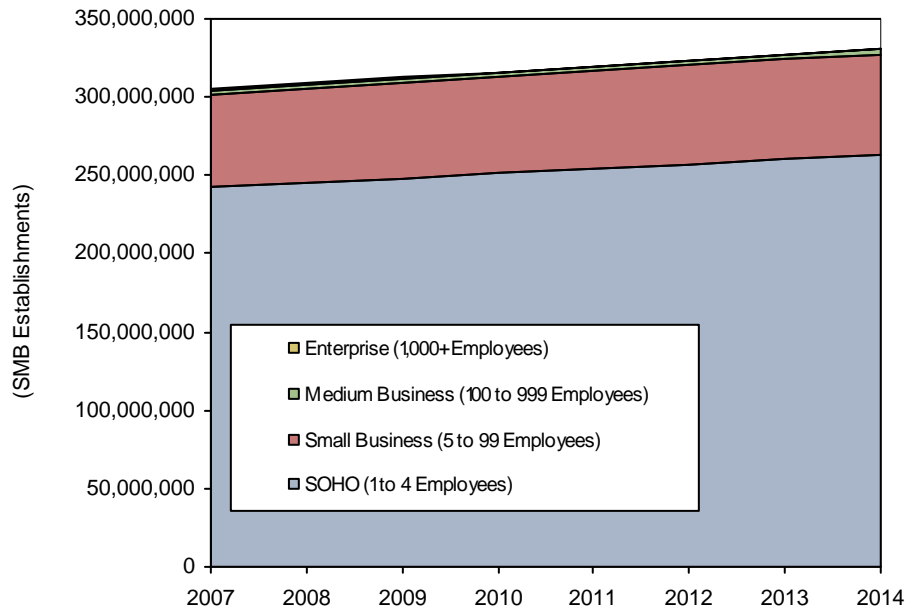
2.2.2 The Global SMB Market

Chart 2.1 describes the current global marketplace in terms of size of businesses. ABI Research believes that, in 2007, global business establishments numbered 304,739,140. The vast majority (79.5% or over two hundred and forty-two million) were SOHO businesses with 1-4 employees. Small businesses with 5-99 employees constituted 19.4% of global businesses or slightly more than fifty-nine million firms. The remaining three million or so businesses, or slightly more than 1% of all global businesses, fall into the mid-sized (100-999 employees) and large enterprise (1,000+ employees) categories.

This demographic composition will not change dramatically over time. As Chart 2.1 illustrates, very small establishments with 1-4 employees and small establishments with 5-99 employees will continue to grow faster than medium-sized or large establishments. Some pundits have likened the market potential of SMBs to the economic clout of the Internet's "Long Tail" as described by Chris Wells. In effect, while individual SMBs have very little buying clout, the sheer numbers they represent causes many IT vendors to view this market as one with enormous unfulfilled potential. The problem, of course, is that SMBs do not constitute a single market, but many different markets, each with different requirements. IBM, as an example, sees many small businesses as targets for their very first servers as they outgrow their PCs. As a result, it has developed a line of lower priced servers to address this need, but they are not looking at establishments with 1-4 or even 5-9 employees as likely targets.

In order to start to segment the global SMB market, it is useful to begin with the total available market by world region. Table 2.1 through Table 2.5 provide a detailed look at SMB market segmentation in each key region of the world. The sheer size of the Asia-Pacific SMB market is daunting because, in 2007, more than forty million small businesses with 5-99 employees existed. In some of the less developed regions of the world, such as India and China, companies like Lenovo are developing strategies to reach first-time technology equipment buyers, the vast majority of whom are in very small businesses with 1-4 employees. The channel management Lenovo has adopted is to assume that this group needs extensive hand holding and that they are likely to purchase computer equipment from a consumer-oriented retailer. As a result, Lenovo has established extensive relationships with retailers in very large or tier 1 cities all the way down to retailers in far smaller or tier 5 cities. Lenovo's assumption is that these first-time buyers will feel far more comfortable buying such products from a retailer who provides on-site services as well as advice and training on how to use the equipment. Many smaller cities are far too small to have value added resellers, so the onus falls on retailers to fill the void.

Chart 2.1 The Global SMB Market, Forecast: 2007 to 2014



(Source: ABI Research)

Table 2.1 Total Available Business Market by Company Size, North America, Forecast: 2007 to 2014

Segment	2007	2008	2009	2010	2011	2012	2013	2014	CAGR (07-14)
SOHO (1 to 4 Employees)	4,097,994	4,134,423	4,170,709	4,206,835	4,242,964	4,279,091	4,315,219	4,358,371	1%
Small Business (5 to 99 Employees)	3,016,928	3,043,747	3,070,461	3,097,056	3,123,654	3,150,251	3,176,848	3,208,617	1%
Medium Business (100 to 999 Employees)	255,477	257,748	260,011	262,263	264,515	266,767	269,020	271,710	1%
Enterprise (1,000+ Employees)	9,407	9,491	9,574	9,657	9,740	9,823	9,906	10,005	1%
Total	7,379,806	7,445,409	7,510,755	7,575,811	7,640,873	7,705,931	7,770,992	7,848,702	1%

(Source: ABI Research)

Table 2.2 Total Available Business Market by Company Size, Europe, Forecast: 2007 to 2014

Segment	2007	2008	2009	2010	2011	2012	2013	2014	CAGR (07-14)
SOHO (1 to 4 Employees)	6,057,039	6,112,544	6,131,130	6,137,244	6,141,304	6,144,991	6,148,468	6,209,952	0.4%
Small Business (5 to 99 Employees)	3,373,327	3,404,240	3,414,591	3,417,996	3,420,257	3,422,310	3,424,246	3,458,489	0.4%
Medium Business (100 to 999 Employees)	154,262	155,676	156,149	156,305	156,408	156,502	156,591	158,157	0.4%
Enterprise (1,000+ Employees)	5,576	5,627	5,644	5,650	5,654	5,657	5,660	5,717	0.4%
Total	9,590,204	9,678,086	9,707,514	9,717,194	9,723,622	9,729,460	9,734,965	9,832,314	0.4%

(Source: ABI Research)

Table 2.3 Total Available Business Market by Company Size, Asia-Pacific, Forecast: 2007 to 2014

Segment	2007	2008	2009	2010	2011	2012	2013	2014	CAGR (07-14)
SOHO (1 to 4 Employees)	101,552,595	102,786,907	104,028,981	105,277,329	106,531,214	107,781,408	109,034,062	110,124,403	1%
Small Business (5 to 99 Employees)	40,496,433	40,988,644	41,483,950	41,981,757	42,481,772	42,980,316	43,479,841	43,914,639	1%
Medium Business (100 to 999 Employees)	2,138,850	2,164,846	2,191,006	2,217,298	2,243,707	2,270,038	2,296,421	2,319,385	1%
Enterprise (1,000+ Employees)	65,912	66,713	67,519	68,329	69,143	69,954	70,767	71,475	1%
Total	144,253,790	146,007,110	147,771,456	149,544,714	151,325,837	153,101,716	154,881,091	156,429,902	1%

(Source: ABI Research)

Table 2.4 Total Available Business Market by Company Size, Latin America, Forecast: 2007 to 2014

Segment	2007	2008	2009	2010	2011	2012	2013	2014	CAGR (07-14)
SOHO (1 to 4 Employees)	113,815,467	115,158,672	116,485,829	117,803,604	119,109,754	120,423,654	121,732,387	122,949,711	1%
Small Business (5 to 99 Employees)	4,887,781	4,945,464	5,002,459	5,059,050	5,115,143	5,171,568	5,227,771	5,280,049	1%
Medium Business (100 to 999 Employees)	479,425	485,083	490,673	496,224	501,726	507,261	512,773	517,901	1%
Enterprise (1,000+ Employees)	23,328	23,603	23,875	24,145	24,413	24,682	24,950	25,200	1%
Total	119,206,000	120,612,822	122,002,836	123,383,023	124,751,035	126,127,164	127,497,882	128,772,861	1%

(Source: ABI Research)

Table 2.5 Total Available Business Market by Company Size, Rest of World, Forecast: 2007 to 2014

Segment	2007	2008	2009	2010	2011	2012	2013	2014	CAGR (07-14)
SOHO (1 to 4 Employees)	16,888,027	17,246,092	17,607,475	17,973,785	18,347,129	18,715,784	19,087,566	19,278,442	2%
Small Business (5 to 99 Employees)	7,346,715	7,502,483	7,659,693	7,819,047	7,981,462	8,141,836	8,303,570	8,386,606	2%
Medium Business (100 to 999 Employees)	71,137	72,646	74,168	75,711	77,284	78,836	80,403	81,207	2%
Enterprise (1,000+ Employees)	3,461	3,535	3,609	3,684	3,760	3,836	3,912	3,951	2%
Total	24,309,341	24,824,755	25,344,945	25,872,227	26,409,635	26,940,293	27,475,451	27,750,206	2%

(Source: ABI Research)

2.3 Assessing the Most Attractive SMB Markets for Wi-Fi Products

This section examines the most attractive regional Wi-Fi markets, taking into account the demographic patterns and adoption patterns of these different areas of the world.

2.3.1 The North American WLAN SMB Market Opportunity

History may not always be indicative of the future, but SMBs appear to be following the Wi-Fi adoption patterns of large enterprises. Wi-Fi penetration rates among SMBs is highest in North America, particularly in the United States. Table 2.6 reveals the Wi-Fi adoption forecast for North American businesses and when compared with Table 2.1, which forecasts the total available North American market of business establishments, the real opportunity is clearly for sales of Wi-Fi equipment to businesses with 5-99 employees.

While 25% smaller in size than the 1-4 employee establishment market segment (three million versus four million establishments), the 5-99 employee market segment is very attractive for several reasons. It is at least ten times larger than the market segments for establishments with 100-999 or 1,000+ employees. Additionally, it is still extremely under-penetrated with only 29% of these companies Wi-Fi-enabled. Finally, an obvious need exists for sharing information in many of these business vertical market segments, such as information, real estate, insurance, and retail.

Table 2.6 *Wi-Fi Penetration by Size of Business, North America, Forecast: 2007 to 2014*

Segment	2007	2008	2009	2010	2011	2012	2013	2014
SOHO (1 to 4 Employees)	7%	9%	11%	14%	16%	18%	19%	20%
Small Business (5 to 99 Employees)	26%	29%	32%	35%	38%	41%	44%	47%
Medium Business (100 to 999 Employees)	68%	70%	73%	76%	80%	83%	86%	88%
Enterprise (1,000+ Employees)	88%	89%	90%	92%	94%	95%	96%	98%

(Source: ABI Research)

The best way to attack this particular market is to sub-segment it to look for opportunities. Let us take a closer look at the vertical market segmentation of US establishments with 20-99 employees since the United States constitutes the bulk of the North America market. Table 2.7 displays ABI Research's estimates for Wi-Fi penetration by key vertical market segments of US establishments with 5-99 employees.

Table 2.7 SMB Wi-Fi Penetration by Vertical Market Segment, United States

Vertical	1 to 4 Employees	5 to 9 Employees	10 to 19 Employees	20 to 99 Employees
Agriculture/Forestry	1%	3%	6%	8%
Mining	0%	1%	3%	11%
Utilities	0%	2%	1%	6%
Construction	2%	6%	14%	19%
Manufacturing	1%	4%	9%	19%
Wholesale	6%	12%	27%	46%
Retail	13%	27%	44%	60%
Transportation/Warehouse	7%	17%	29%	40%
Information	18%	32%	45%	67%
Financial/Insurance	9%	15%	21%	37%
Real Estate	16%	22%	34%	35%
Services	14%	36%	46%	73%
Management	10%	17%	24%	37%
Administration	7%	21%	42%	63%
Education	19%	39%	65%	79%
Healthcare	21%	32%	40%	60%
Arts/Entertainment	3%	12%	23%	31%
Food Service	8%	16%	26%	37%
Other	1%	4%	10%	19%

(Source: ABI Research)

The prime market segment to target is the one with establishments that have 20-99 employees. Now, let us factor in size and penetration rates for the key sub-segments of the 5-99 employee market.

Market Segment	Percentage of Overall 5 to 99 Market	Wi-Fi Penetration
5-9	44%	15%
10-19	28%	27%
20-99	29%	41%

(Source: ABI Research)

While the 20-99 employee market segment represents 29% of all establishments with 5-99 employees, it already is far more penetrated with Wi-Fi than other market segments with an overall penetration rate of 41%. If we apply what we know to the verticals listed in Table 2.7, it is evident that certain vertical markets clearly are more Wi-Fi-centric than others. White collar industries, such as management, information, education, and healthcare, are clearly Wi-Fi leaders. Construction and agriculture employees are far less likely to use Wi-Fi. Establishments with 5-9 employees represent a very large target (44% of all establishments with 5-99 employees). A significant portion of healthcare establishments within this group consist of small doctor and dentist offices. Resellers with Wi-Fi-enabled applications for this group provide a viable way of reaching this office and increasing Wi-Fi penetration. Many of the hospitality establishments within this 5-9 employee market segment consist of small fast food restaurants and coffee houses. The best opportunity for reaching this group seems to lie with resellers offering “hotspot in a box” applications since adding free hotspots as a cost of doing business is a growing trend within this vertical as evidenced by Panera Bread’s many branches, all of which offer free Wi-Fi service.

Establishments with 10-19 employees represent 28% of all establishments with 5-99 employees, yet they are only 27% Wi-Fi-penetrated. This group is an easier Wi-Fi sell than the very small companies with 5-9 employees. Clearly, these companies and institutions are large enough to need to share information and large enough to afford Wi-Fi access points. Many of the education establishments in this segment consist of small public and private K-12 schools as well as some proprietary trade schools and small branch college extension offices. VoIP along with VoWi-Fi is proving to be a cost-effective approach for many small educational institutions, so building relationships with resellers offering Wi-Fi convergence solutions to replace outdated key phone systems is a way of reaching this audience. Another way for Wi-Fi equipment vendors to reach companies with 10-19 employees is to partner with PC vendors beginning to offer specialized products specifically designed for this market segment. Dell's Vostro laptops, for example, are designed for companies with 1-25 employees. While HP sells its own Wi-Fi equipment, Toshiba and Lenovo are both viable partners to reach this market segment.

2.3.2 The European WLAN SMB Market Opportunity

Historically, the European Wi-Fi market has trailed the US market by twelve months to eighteen months in terms of growth. One reason has been Europeans' early adoption of a mobile data approach using 2G and 3G handsets with less reliance on Wi-Fi. The exorbitant cost of Wi-Fi in Europe has also been a factor. Despite these drawbacks, Europeans currently have more Wi-Fi hotspots available than do US customers. Another key difference between US and European market demographics is Europe's much higher percentage of citizens employed in agriculture (11% compared to 1%) for which Wi-Fi is not a major productivity tool. At the same time, this region has a much lower percentage of citizens employed in services (62% versus 82%) for which Wi-Fi usage tends to be very high. Europe also has a higher percentage of citizens employed in the industrial sector (27% versus 17%) than the United States. Certain types of industrial establishments are less likely to require Wi-Fi connectivity than services for which timely access to information outside the company is essential. Finally, Eastern European countries, Russia and Poland in particular, are ideal candidates for greater growth of wireless-only networks. They have a large number of SMBs already with PCs, a technologically educated workforce, and less wired infrastructure than their Western European counterparts. Until the recent drop in oil prices, Russia, in particular, was becoming a hotbed of WLAN equipment purchases.

Table 2.8 reflects ABI Research's forecast for Wi-Fi penetration in Europe by company size. It shows an adoption pattern that closely mirrors earlier US growth. The best opportunity for WLAN equipment vendors is in services establishments with 20-99 employees. While smaller than its US counterpart, services represents well over half (62%) of European SMB employees and historical US patterns demonstrate that services establishments are early Wi-Fi adopters. The 20-99 portion of the European SMB market still has ample room for growth since ABI Research believes that, in 2008, only 18% of this group had Wi-Fi equipment installed.

Table 2.8 Wi-Fi Penetration by Size of Business, Europe, Forecast: 2007 to 2014

Segment	2007	2008	2009	2010	2011	2012	2013	2014
SOHO (1 to 4 Employees)	3%	5%	7%	9%	11%	14%	15%	16%
Small Business (5 to 99 Employees)	16%	18%	21%	25%	28%	31%	35%	38%
Medium Business (100 to 999 Employees)	45%	49%	55%	59%	64%	68%	74%	79%
Enterprise (1,000+ Employees)	63%	66%	69%	74%	78%	83%	86%	90%

(Source: ABI Research)

2.3.3 The Asia-Pacific WLAN SMB Market Opportunity

The Asia-Pacific market data is heavily weighted by the dense Chinese and Indian populations. Table 2.3 illustrates the number of establishments that make up the total available SMB market in this region with over forty million small businesses with 5-99 employees, which is a staggering number. The fact that 20% of all SMB employees in this region work in agriculture does not encourage WLAN equipment vendors and it is the services vertical market segment (55% of all SMB employees) that once again represents the best opportunity for WLAN equipment vendors seeking vertically-oriented channel partners.

While Japan, South Korea, and Taiwan are technologically mature enough to support standard reseller channels to SMBs, retailers might be the best way for WLAN equipment vendors to reach SMBs in China and India. PC vendors, such as Lenovo, are making concerted efforts to reach SMBs in these two countries through complex retailer networks that extend from very large or tier 1 cities to moderately sized or tier 5 cities as classified by Lenovo. A side benefit to this approach is that this retail channel is also frequented by a portion of the one hundred million SOHO (1-4 employee) establishments that buy IT equipment. Table 2.9 reveals that Wi-Fi penetration in the Asia-Pacific region trails North America and Europe, but the sheer number of establishments involved makes even a 7% Wi-Fi penetration of forty million establishments with 5-99 employees a very lucrative market.

India offers intriguing revenue opportunities for WLAN equipment vendors. Companies with 1-99 employees account for close to 40% of all manufacturing output and as much as a third of the country's total exports. This segment is growing much faster than larger companies in India. Given the country's relative low level of IT infrastructure, green field opportunities exist for selling WLAN networks to small companies that have never installed Ethernet cabling. One product with enormous potential for this sector would be a version of 3Com's convertible independent access point model 8760.

These small companies could start with an industrial strength and relatively inexpensive access point that would not require expensive controllers, but could add that structure later if their growth required them to scale up their infrastructure. Cisco is very focused on India. It would not be surprising if it decided to modify its current generation of Aeronet independent access points and develop an SMB version that could be converted to a dependent access point down the line. Netgear could also do well in this market with its independent 802.11n access point if it can find good channel partners.

Table 2.9 Wi-Fi Penetration by Size of Business, Asia-Pacific, Forecast: 2007 to 2014

Segment	2007	2008	2009	2010	2011	2012	2013	2014
SOHO (1 to 4 Employees)	0.3%	0.8%	1.2%	2.3%	3.2%	5.0%	7.5%	9%
Small Business (5 to 99 Employees)	4%	7%	11%	14%	18%	21%	25%	30%
Medium Business (100 to 999 Employees)	28%	32%	37%	44%	51%	55%	64%	74%
Enterprise (1,000+ Employees)	38%	43%	48%	55%	60%	64%	69%	74%

(Source: ABI Research)

2.3.4 The Latin American WLAN SMB Market Opportunity

The Latin American WLAN market has lagged behind growth in North America, Europe and Asia-Pacific regions due in large part to economics. Faltering economies have not supported rapid growth of businesses. The relative high percentage of people employed in agriculture (19%) means less opportunity for vendors to sell IT equipment. Latin America lacks the sheer number of very large enterprises found in the Asia-Pacific region. This market segment always represents companies with the highest rate of IT equipment adoption and Wi-Fi penetration.

The result is that Wi-Fi penetration is still low in Latin America as reflected in Table 2.10. ABI Research believes that fewer than 1% of establishments with 1-4 employees has Wi-Fi installed, while only 5% of establishments with 5-99 employees has Wi-Fi installed. The major SMB WLAN opportunity in Latin America is in mid-sized businesses where ABI Research believes the penetration rate is still only around 25%. Since IT infrastructure is not well developed across this region within SMBs, more opportunity probably exists in the industrial sector (18%) as Wi-Fi can often be deployed in a green field environment without needing to replace Ethernet. Still, the services segment (61%) in mid-sized businesses (100-999 employees) probably represents the best WLAN equipment opportunity in this region.

Table 2.10 Wi-Fi Penetration by Size of Business, Latin America, Forecast: 2007 to 2014

Segment	2007	2008	2009	2010	2011	2012	2013	2014
SOHO (1 to 4 Employees)	0.1%	0.4%	0.9%	1.2%	2.3%	3.2%	5.2%	7%
Small Business (5 to 99 Employees)	3%	5%	7%	10%	14%	18%	22%	25%
Medium Business (100 to 999 Employees)	18%	25%	29%	34%	41%	48%	56%	64%
Enterprise (1,000+ Employees)	31%	35%	41%	47%	54%	59%	64%	68%

(Source: ABI Research)

2.3.5 The Rest of World WLAN SMB Market Opportunity

ABI Research's "Rest of World" category includes several African and Middle Eastern countries. Once again, the sheer population size of developing countries in these regions colors the overall demographics when it comes to IT and WLAN equipment adoption patterns. Approximately 46% of all employed people in this region work in agriculture. That, in part accounts for the very low Wi-Fi penetration numbers displayed in Table 2.11. Industry employs only 17% of people in this region, so the major market opportunity is selling into the services sector, which employs 37% of the region's workforce. Medium-sized businesses are only 15% Wi-Fi-penetrated according to ABI Research's estimates, representing the best opportunity for WLAN equipment sales within the SMB market for this region.

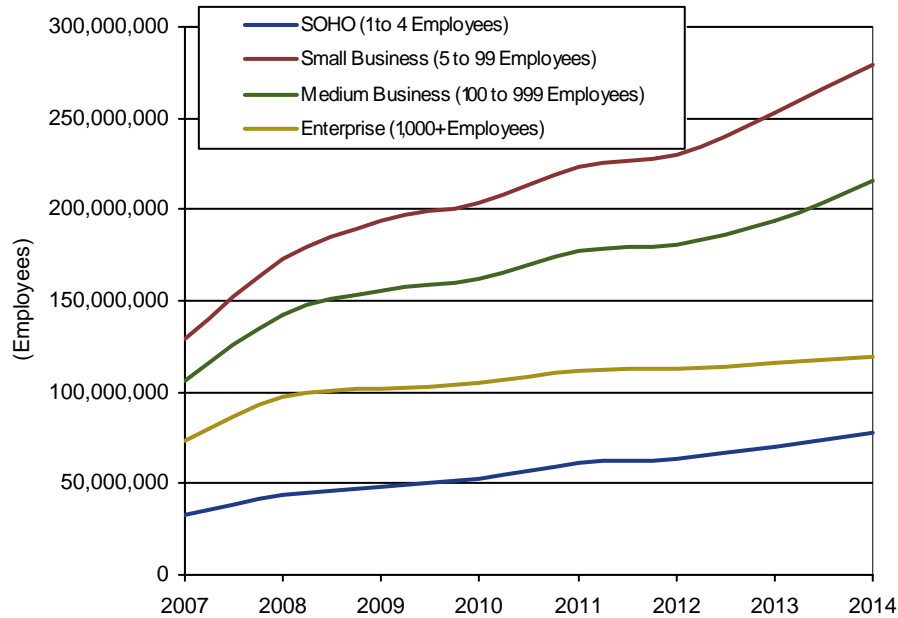
Table 2.11 Wi-Fi Penetration by Size of Business, Rest of World, Forecast: 2007 to 2014

Segment	2007	2008	2009	2010	2011	2012	2013	2014
SOHO (1 to 4 Employees)	0.1%	0.2%	0.5%	0.9%	1.1%	2.3%	3.5%	5%
Small Business (5 to 99 Employees)	2%	4%	6%	8%	12%	15%	19%	23%
Medium Business (100 to 999 Employees)	12%	15%	19%	26%	35%	43%	50%	57%
Enterprise (1,000+ Employees)	24%	27%	34%	39%	44%	50%	58%	64%

(Source: ABI Research)

2.4 SMB Mobile Employees

The focus of this report is on a sub-segment of SMBs that falls across all demographic categories, the mobile SMB employee. ABI Research defines a mobile SMB as an SMB in which employees are equipped with smartphones they use for business purposes when traveling. A significantly smaller portion of this population also has WLAN equipment. As an example, in North America 3,774,105 establishments are equipped with smartphones, but only 2,066,346 establishments are equipped with WLANs according to ABI Research's estimates.

Chart 2.2 Mobile Employees by Company Size, World Market, Forecast: 2007 to 2014

(Source: ABI Research)

2.5 SMB Revenue Potential

Due to the enormous numbers of global SMBs, cherry-picking much smaller, but attractive, sub-segments can stir financial interest among vendors' market planners. Consider virtually any managed service or piece of communications equipment that could appeal to SMBs with 20-99 employees. Even very modest penetration goals (for example, .5%) can result in very large numbers. In 2007, the US market had approximately three million establishments with 5-99 employees. A .5% penetration rate would have meant fifteen thousand sales. If a product's ASP is a \$300 consumer level WLAN access point, this would result in over \$4 million dollars in sales.

2.6 SMB Characteristics

This section details several characteristics associated with SMBs.

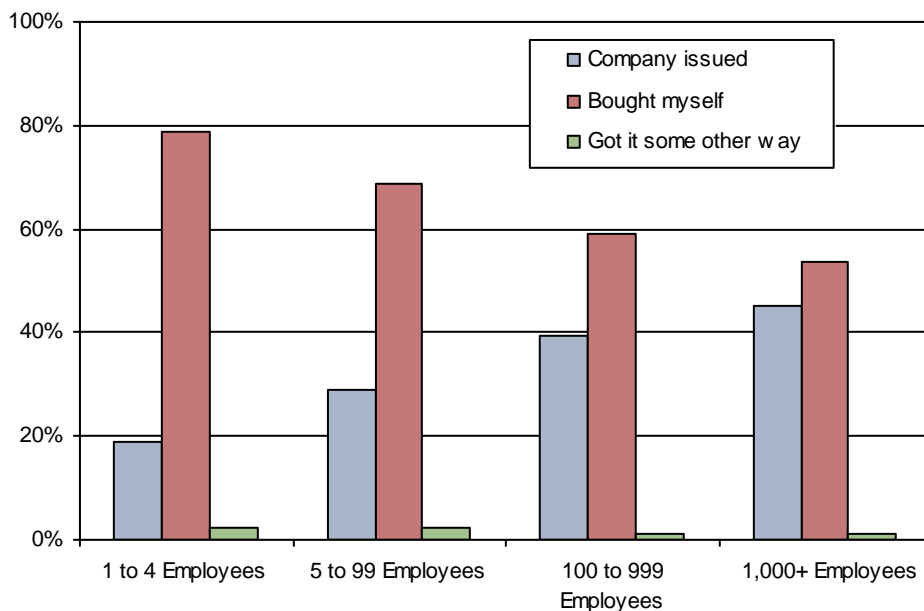
2.6.1 SMB Employees Worry about OPEX, Not CAPEX

SMBs generally do not have the luxury of a CAPEX budget, but must purchase equipment as part of their OPEX budget, which has a number of ramifications. It means that these companies are buffeted the most by economic upheavals since they tend to spend for equipment out of existing operating funds when times are good and cut back sharply when times are bad. The impact on WLAN equipment purchases likely takes the form of an upgrade, or lack of an upgrade, from IEEE 802.11g products to IEEE 802.11n products. Chart 2.3 demonstrates that a higher percentage of employees at very small companies (1-4 employees) tend to pay for their cell phones themselves rather than simply expensing the items and being reimbursed. This is one example of how very small businesses act very much like consumers.

Other examples will follow. The point is that SMB employees look at equipment purchases from a greater personal perspective than employees at larger companies who are accustomed to being fully reimbursed for any equipment outlay or fully equipped with all the equipment needed to do their jobs. Chart 2.3, which summarizes some primary research conducted by

ABI Research, illustrates that 78.6% of employees at very small SMBs (1-4 employees) purchased their own mobile phones. That represents 10% more than employees in companies with 5-99 employees and 20% more than companies with 100-999 employees.

Chart 2.3 *Did your company issue/provide you with a mobile phone or did you buy it yourself?*

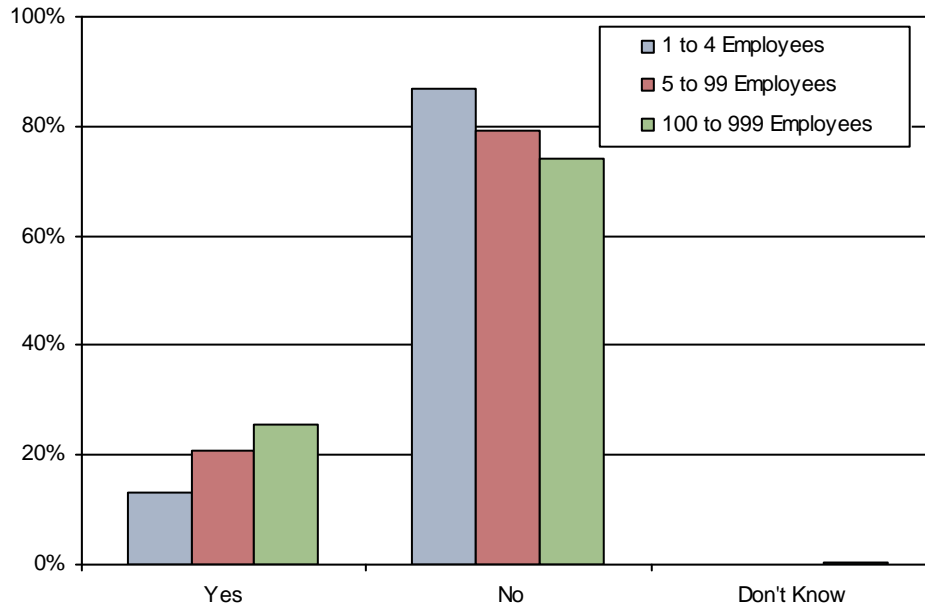


(Source: ABI Research, US Business Mobility Study, February 2008)

2.6.2 **SMB Employees Are “Jacks of Many Trades” & Not Technology Experts**

Chart 2.4 demonstrates one of the real challenges for mobile SMBs. The employees responsible for managing mobility usually have other jobs and do not have the luxury of becoming experts on mobile technology. Chart 2.4 shows that 87% of SMBs with 1-4 employees do not have a network administrator who can focus on WLANs. The figures for SMBs with 5-99 employees (79%) and SMBs with 100-999 employees (74%) are only marginally better. Clearly, having a dedicated network WLAN administrator is more closely associated with large enterprises with 1,000 or more employees.

Chart 2.4 *Is administering the WLAN the LAN administrator's sole job?*

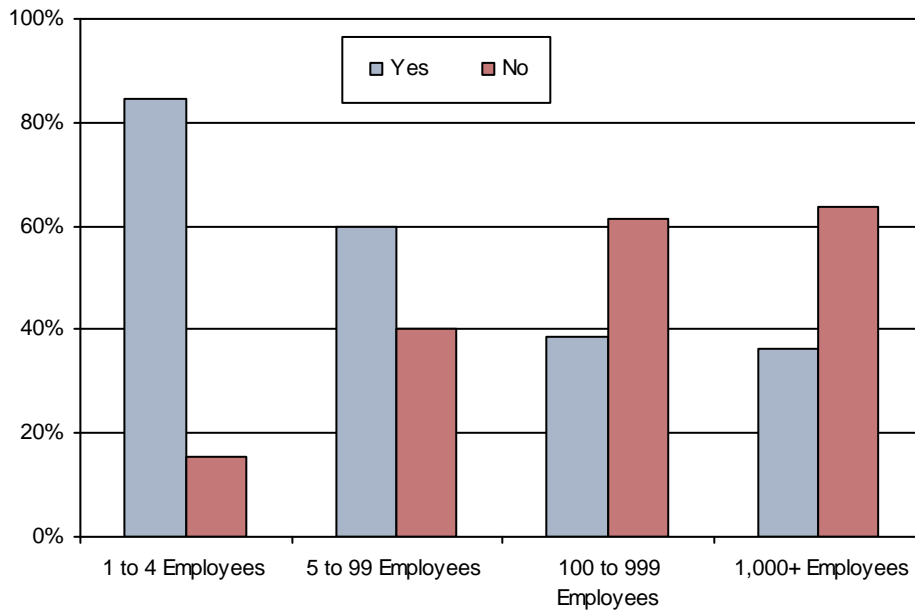


(Source: ABI Research, Wi-Fi Survey, July 2008)

2.6.3 **SMB Employees Have More Direct Involvement in Technology Provider Decisions**

Employees working for large enterprises very rarely have input into technology purchasing decisions. The company is often so large that most employees cannot even identify who makes such decisions, which certainly is not the case with SMBs. Chart 2.5 reveals an inverse relationship between technology input and the size of a company when it comes to selecting a mobile service provider. An SMB employee, for example, would feel perfectly comfortable walking up to the person who handles phones to report a good experience with a specific mobile operator. That same employee might even offer anecdotal tales of woe with other mobile operators. It is hard to imagine the IT department at a large enterprise with a global employee base soliciting suggestions for mobile operators.

Chart 2.5 Are you involved in the selection of the mobile service provider you use for business?

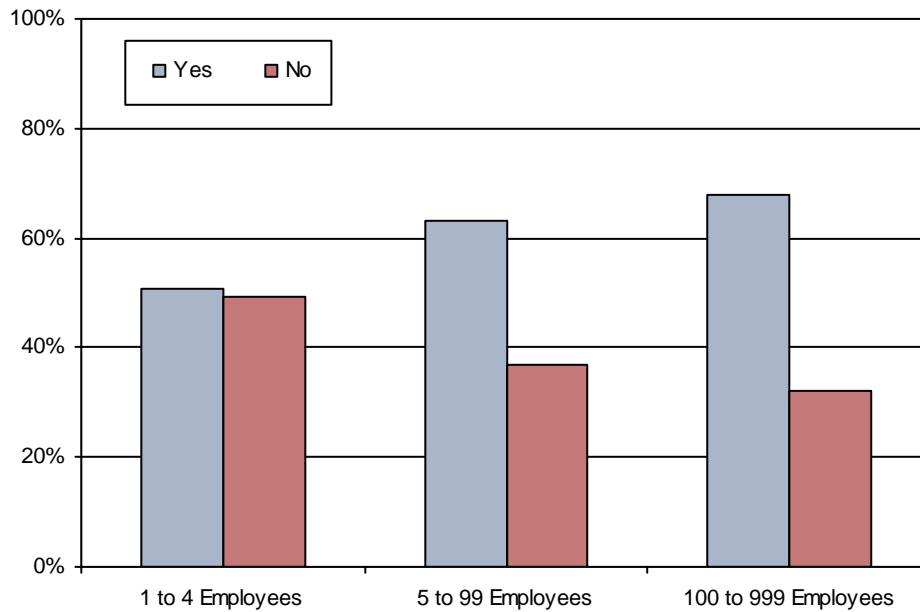


(Source: ABI Research, US Business Mobility Study, February 2008)

2.6.4 SMB Employees Have Less Awareness & Concern about Mobile Security

SMB respondents exhibit far less concern about security related to mobility than respondents in very large establishments. In fact, the Wi-Fi Alliance has actively campaigned to educate consumers as well as SMBs about the need for greater security and has promoted simplified security deployments as a way of encouraging less highly skilled SMB WLAN administrators to activate security mechanisms. Chart 2.6 illustrates the relationship between the size of a company and employees' level of concern about security.

Chart 2.6 Respondents' Concern about Wi-Fi Security by Number of Employees at Respondents' Sites



(Source: ABI Research, Wi-Fi Survey, July 2008)

2.6.5 SMBs Want SMB-Targeted Mobility Products at SMB Prices

Recently, Cisco announced it was creating an entire product portfolio specifically for SMBs including several products designed to enhance SMB mobility. In fact, the company is now developing products aimed at very small SMBs that require minimum functionality as well as products with more functionality (Cisco's Small Business Pro) aimed at more sophisticated larger SMBs. Cisco CEO John Chambers stressed the importance of the SMB market to the networking giant by announcing the company will commit \$100 million to this project. Similarly, several other major vendors have begun targeting the mobility needs of SMBs with products developed from the ground up specifically for this market. Mobile SMB employees require firewalls, for example, but they do not require products with the same level of functionality, complexity and cost as Fortune 500 companies.

Cisco has erred in the past by trying to sell enterprise-designed products to SMBs and other vendors have erred by trying to sell consumer products repackaged for SMBs. While such products generally score high on ease-of-use, they lack the functionality that many SMBs feel they need. Some vendors have understood the need to develop products specifically for SMBs from the ground up, such as Netgear, which focuses exclusively on the SMB market. Its WNDAP330 access point is priced at an SMB-friendly \$475 and it supports the latest Wi-Fi technology (802.11n) while eliminating complexity and the need for a separate controller. It even supports power over Ethernet over the old 802.3af standard.

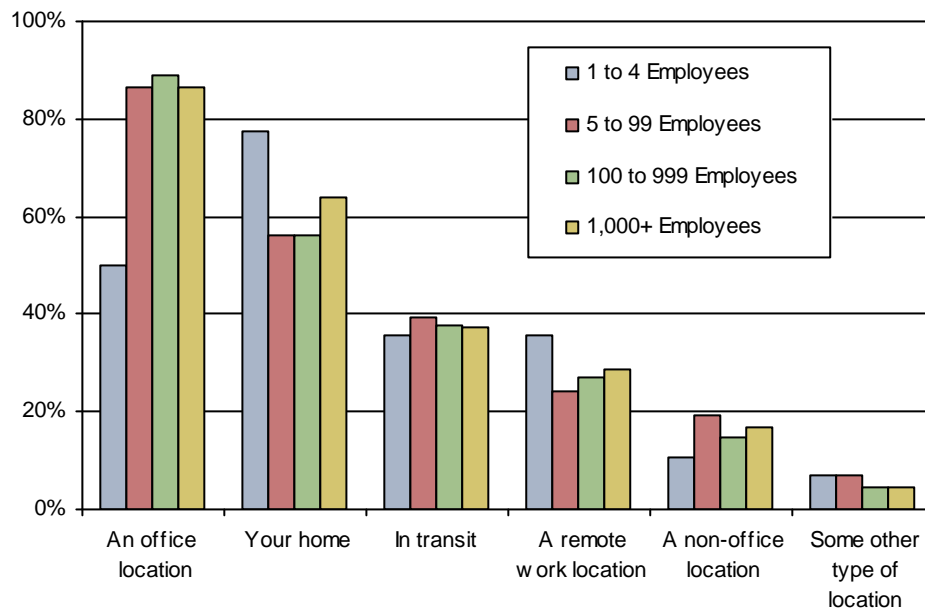
Now that Cisco is re-entering the SMB market with a renewed purpose, ABI Research believes that the SMB market for mobility products will be among the most fiercely competitive.

2.6.6 SMB Employees Are Out of Their Offices Significant Amounts of Time

SMB employees rarely work seven days a week in their offices. As Chart 2.7 illustrates, employees at very small SMBs (1-4 employees) only work at their offices 50% of the time, while employees at larger SMBs and at large enterprises work in their offices well over 80% of the time. SMB employees are more likely to work in transit (traveling on a plane, train, or car) and at

remote locations (job sites, customer premises, etc.) than employees in large enterprises. In fact, it is probably more accurate to think of SMB employees as at least partially nomadic as they travel from job site to job site. This type of work pattern places a premium on technology that provides employees with a communications infrastructure to support secure e-mail access, internet access, and network access from remote locations. The data in Chart 2.7 comes from a survey ABI Research conducted in February 2008. The trends this data reveals are consistent with a survey of over five hundred SMBs conducted in October 2007 by CompTIA (the Computing Technology Industry Association), which revealed that almost three-fourths of SMBs have at least one employee that telecommutes. Over 90% of the SMBs surveyed by CompTIA reported that they had one or more employees traveling on business at least once a week.

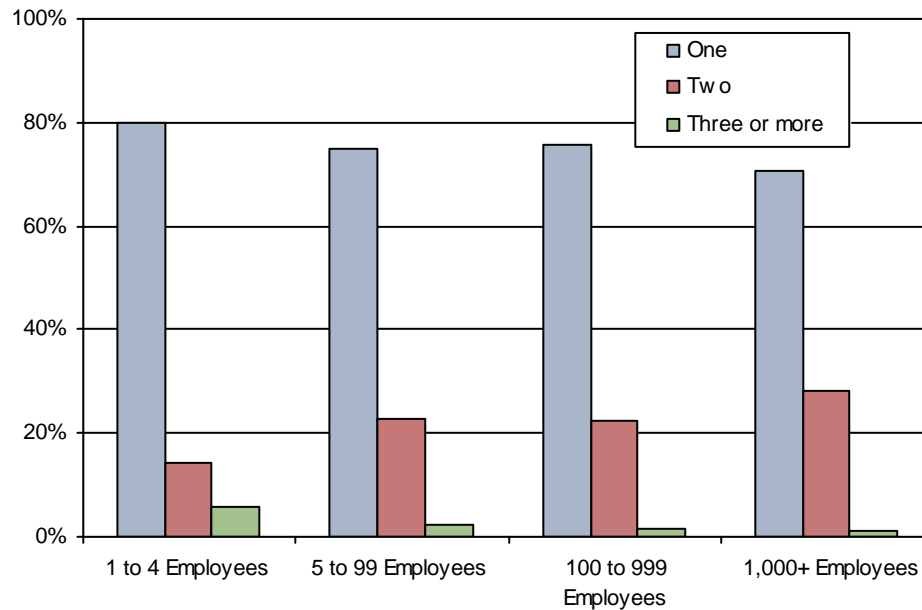
Chart 2.7 *In a typical week, in which of the following types of locations do you work?*



(Source: ABI Research, US Business Mobility Study, February 2008)

2.6.7 SMB Employees Utilize Work Tools for Personal Tasks

Lenovo’s own research revealed that SMB employees often use their business laptops at home for personal activities. As a result, the company has begun adding features that enable customers to view movies on larger screens with greater resolution. Chart 2.8 displays the results of a business mobility survey ABI Research conducted in February 2008. Note that well over 70% of respondents, regardless of the size of their company, responded that they use one mobile phone. Employees in large enterprises (1,000+ employees) were at least 5% more likely to have a second phone, which suggests that their companies might have rules about mixing business and personal calls on what is generally a company-paid cell phone.

Chart 2.8 How many mobile phones do you use on a regular basis?

(Source: ABI Research, Wi-Fi Survey, July 2008)

2.6.8 SMBs Focus on Ease-of-Use

U4EA Technologies focuses exclusively on the SMB market. It offers a low-priced WLAN controller and access point that it claims can be set-up and running within fifteen minutes with a secure WLAN connection. The company's experience with the SMB market has reinforced its belief that ease-of-use is a major SMB buying criterion. It is not that SMBs do not require the same functionality as a large enterprise, but that they want the complexity to be buried and transparent. The key to U4EA's approach is that much of the installation process is automated. A LAN administrator assigns an IP address for the controller, a name for the WLAN, and some basic security parameters, while the rest of the set-up is either automatic or template driven. The templates are available if the WLAN administrator later wants to change certain parameters. ABI Research believes that the use of templates as well as the use of artificial intelligence that provides suggested courses of action will increase as vendors focus on delivering products specifically targeted for SMB customers.

3Com has taken a similar step towards the SMB market. It offers a solution targeting a company with ten or fewer employees and promises a fifteen minute installation. Both 3Com and Netgear have found that SMBs are embracing third-generation WLAN independent access points that are less complex and less costly than a centralized WLAN solution, which includes a controller. In fact, 3Com offers an independent access point that provides SMBs with the ability to eventually migrate to a controller-based solution when their growth requires it without replacing the access point.

Linksys (Cisco) and Netgear have both spent considerable money developing common user interfaces designed specifically for small business customers. The idea both companies embraced is to develop a very easy-to-use interface that SMB customers could use across different product categories so they would not have to re-learn how to interface with equipment as they moved from one network device to another.

2.7 Managed Services for the Mobile SMB

A variety of managed services appeal to large enterprises and some of these services could be modified to fit the requirements and budgets of SMBs, expanding very easily into that market segment. Managed services are available in one form or another for mobile workers including policy development or the ability for IT managers to set policies regarding employee eligibility, use, and reimbursement. A second area is procurement and asset management, which includes services, such as tracking devices, device use inventory, handling firmware updates, enabling/disabling functions for particular groups, etc. Another area is billing, audit, and reconciliation, which is a service that appeals particularly to very large enterprises with hundreds or even thousands of devices. Additional services, such as configuration and testing, are also possible. Finally, one of the most appealing areas is security services, which will be discussed in the next section due to the potential for wide appeal to small businesses.

2.8 Why SMBs Are Good Candidates for Managed Mobile Security Services

All the major security software vendors use both their retail channel as well as their VARs (Value-Added Reseller) to sell enterprise security packages to SMBs. This audience is likely to be the single most attractive target for a mobile device security service and several reasons explain why this is the case. SMBs often have a wide range of devices from different vendors, which makes managing these devices from a single management platform difficult. Additionally, SMBs often lack a dedicated resource with enough time or technical security knowledge to provide adequate security. Finally, this group often prefers to pay as they go via a service, rather than purchasing hardware and software, a strategy that helps SMBs manage cash flow.

A mobile device security service targeted for SMBs should offer an easy-to-use web portal with easily understood policy options as well as some level of data protection via encryption and anti-virus and firewall protection. The key is that such a service must be relatively transparent for end users since IT support will be very limited and any kind of VPN (Virtual Private Network) must be minimally obtrusive. A key incentive for SMBs is the ability of a managed service to provide the same level of protection and management for both laptops and smartphones.

2.9 Managed Mobile Device Security Services

The most embryonic, and perhaps the most interesting, part of the mobile device security market is a managed device security service. In addition to offering significant revenue opportunities further down the road, such a service offers mobile operators the chance to build much firmer and longer lasting relationships with their enterprise customers. Mobile operators can choose to offer such a service that they brand themselves or redirect traffic to a vendor, such as McAfee, to host it.

VeriSign has partnered with mFormation to offer its Secure Mobile Device Management Services to MVNOs as well as to enterprises. In Europe, F-Secure and Adaptive Mobile have lined up a number of mobile operators who will be offering managed security services. UK-based Orange is utilizing F-Secure's software and offers an anti-virus service. Trend Micro has partnered with Taiwan-based Chunghwa Telecom to offer a managed security service to eight hundred thousand smartphone subscribers. Adaptive Mobile and F-Secure have moved aggressively to line up European mobile operators. Recently, Sprint has become the first US mobile operator to offer a managed security service for mobile devices. The operator's strategy, in addition to targeting SMBs via its general business division, is to target high-level senior executives, such as the CIO or CSO, at large enterprises who are accountable should sensitive data on mobile devices be compromised. Sprint's value proposition is that its service meets three critical needs.

- One need, clearly, is for data protection by enforcing password policies across all devices and allowing companies to encrypt individual files or an entire device and memory card. A mobile VPN is also part of this offering.
- A second need for threat prevention is provided in the form of protection against viruses, worms, and Trojans, as well as protection against denial of service attacks. The locking of devices and deletion of data if a device is stolen is also part of this service.
- Finally, the service satisfies a need for compliance, enabling companies to ensure that only company-approved applications are running on mobile devices.

Sprint has used Mobile Armor to integrate a solution from different vendors including Kaspersky Lab and Certicom. The price point of \$8 per month for a bundle of security services might prove to be too expensive for some companies when they calculate the cost for supporting thousands of mobile employees, although certain verticals that place a premium on security are likely to use such a service. Customers are able to access a web portal to set policies and view reports.

2.9.1 Today's Managed Mobile Device Security Services Market

As mentioned earlier in this report, the managed mobile device security services market is in its infancy. Mobile operators have chosen to target commercial rather than consumer markets in part because consumers are far more price conscious, and also because the commercial audience has much more concern about the impact of malware on their IT infrastructure. The large installed base of Symbian handsets in Europe, coupled with the fact that Europeans are far more likely to access the Internet via their handsets than Americans, have pushed the European market into the forefront of the managed mobile device security services market. F-Secure has provided the software for managed security services offered by several European mobile operators including Orange, T-Mobile in Germany, Swisscom, and TellaSonera. Orange charges £2.5 per month for an anti-virus-only service. Adaptive Mobile has polled European corporations and found that a little over half (57%) would pay up to €8 per month for such a service. These prices are in the same ballpark with Sprint's initial pricing. Obviously, the monthly fees these services can charge are very closely linked to regional economies, as evidenced by Chunghwa Telecom's \$2 per month charge.

While European mobile operators have been quick to embrace these services, their counterparts in the Middle East and Southeast Asia have also begun offering their own services. While increased revenue is a primary goal for these mobile operators, other advantages are associated with offering these services. One motivation is to lock in commercial customers and reduce churn. A second goal is to increase customers' data usage by providing a secure environment for running mission-critical applications that contain company-sensitive data. Finally, these services serve as a differentiator for mobile operators, often enabling them to talk with senior executives in a consultative rather than strictly a sales role.

2.9.2 New Applications Will Create the Need for New Services

New mobile applications will create the need for new managed security services. The growth of mobile e-mail provides a potential hotbed for developing infections and is a relatively new trend. The development of Web 2.0 and accessing user-generated online content through mobile portals could raise interesting questions regarding security. Since this spans both fixed and mobile environments, this creates a situation that is very difficult to solve with a universal security service that can cater adequately to the very different needs of two different environments.

BT (British Telecom) seemingly understands Web 2.0 and its ramifications on the SMB market. The giant telecom player is appealing directly to SMBs wanting to succeed online by offering a variety of services (prospecting, selling, closing, and after sales support online) via SaaS partners. BT packages Genius.com's e-mail marketing solution as BT Smart Marketing. BT also has deals with NetSuite, SugarCRM, and EchoSign and it has acquired Ribbit.

2.9.2.1 *Cisco's Possible Entry*

Combine Cisco's ability to self-finance its customers, its interest in and renewed commitment to the SMB market, and its acquisition two years ago of IronPort Systems, and you have a potentially market disruptive mix. The IronPort group has demonstrated its ability to identify security threats to a company's network and offers a service that includes updates every five minutes so that a network is always protected against intrusion detection, viruses, bot invasions, etc.

Cisco could take this ability to identify network threats and package it into a managed service specifically targeting the SMB market. SMBs could use Cisco Capital financing to lease IronPort equipment and pay monthly managed service fees. Their networks would be monitored remotely, eliminating the need for having that kind of security knowledge in-house. Another potential opportunity for Cisco could be offering a video surveillance managed service specifically packaged for SMBs. Cisco already sells video surveillance equipment as part of its Emerging Technology group. Since the equipment price has recently dropped down to the SMB customer price range and very few SMBs have the manpower to monitor video surveillance equipment, this service would be a very nice add-on for a Cisco service provider partner.

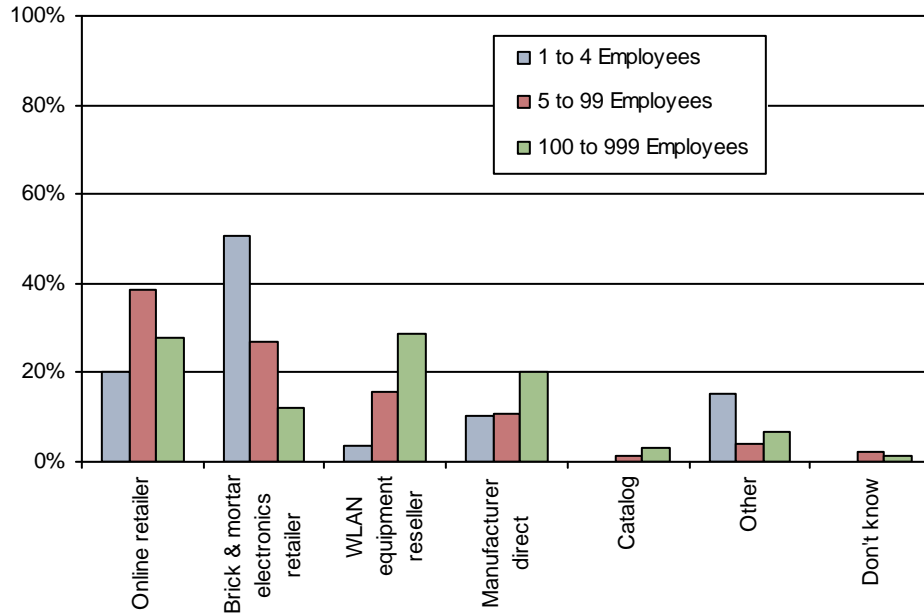
Cisco has developed a pretty effective endpoint security client, parts of which are incorporated into wireless devices ranging from laptops to 3G handsets. This scenario threatens security software companies, such as McAfee, Symantec, Trend Micro, and Microsoft. Security software companies have tried the managed security service business, but have been unable to manage all of the mobile devices. Since Cisco has moved into the wireless 3G space, it may not be long before Cisco partners offer a managed service that monitors the security of all mobile devices including handsets and laptops.

This scenario may not take place immediately, but Cisco does pursue openings like this seriously. Cisco will soon begin offering its SMB partners ninety-day financing to help them with inventory and 0% financing for SMB customers. Currently, Cisco is helping large enterprise customers arrange leases for very expensive telepresence equipment as part of an overall managed services package. The same type of arrangement could be implemented for SMBs as part of a managed security package. Cisco could help with the financing of the IronPort equipment and then a partner would provide the managed security service. This is a potentially disturbing scenario for some security vendors.

2.10 **WLAN Equipment Vendors Target Mobile SMBs**

Very small businesses often use the retail channel for their WLAN equipment shopping. As a result, these customers often have deployed WLANs with limited security and limited feature sets. Chart 2.9 shows that SMB channel selection is directly related to the size of the customer.

Chart 2.9 Channel Where Respondents Purchased WLAN Equipment



(Source: ABI Research, Wi-Fi Survey, July 2008)

What differentiates SMB-oriented WLAN products from consumer WLAN access point products are several features that SMBs generally require. Certainly, they require the latest IEEE 802.11n high-speed radios rather than just the older 802.11g radios. SMBs want Power over Ethernet so they can leverage their switches and avoid having to install additional power outlets. They also want “hardened” equipment including the option of plenum-rated models that meet fire code requirements for placement in air passageways. Larger SMBs often require higher levels of security including RADIUS server support and AES (Advanced Encryption Standard). SMBs are likely to experiment with video and VoWi-Fi, requiring support for WMM (Wi-Fi Multimedia) quality of service so both video and voice traffic can maintain low latency. Larger SMBs require some support for Microsoft’s NAP for endpoint security as well as easy-to-use management software included with access points.

Several vendors are actively competing for SMB mobile customers. 3Com has been a strong player in the SMB WLAN equipment space for several years. Its independent access point product line matches up well with SMB customer needs in terms of cost and functionality and, in part, because it still has a very strong channel for SMBs, particularly in the United States. Cisco and Aruba have waged a war by proxy in this market because Aruba has OEMed WLAN equipment to Netgear while Cisco has sold to very small businesses through its Linksys division. Netgear has broadened its product line to include high-end 802.11n technology. Meanwhile, Cisco recently pulled its Linksys division back into the Cisco fold and formulated a new strategy, one in which it will sell Cisco Small Business or Cisco Small Business Pro labeled products to the majority of SMB customers. A very small segment, those SMB customers with very sophisticated technology needs, will be sold the same Cisco equipment that targets larger enterprises. Finally, D-Link has made a departure from the consumer market to sell specifically to SMBs. Much like Netgear, D-Link has designed WLAN equipment for SMBs from the ground up that incorporate the latest 802.11n technology along with virtually all of the key features listed above.

2.11 Mobile SMBs & Their Smartphones

A handful of manufacturers of mobile devices are specifically targeting SMBs. RIM developed its BlackBerry Professional Software specifically for SMBs with up to thirty users. The software enables these customers to integrate their BlackBerries with Microsoft or IBM e-mail platforms. That level of integration means that mobile SMB employees can access their contact lists, notes, calendars, and web applications as well as their e-mail. As a cost-savings measure, RIM's software can be installed on the e-mail server so no additional servers or licenses are needed. RIM offers wizards for fast deployment as well as an automatic assessment tool. Software support for the BlackBerry Mobile Data System means that SMBs can integrate any of the third-party applications developed for large enterprises.

Apple watchers have reported exceptional iPhone 3G sales to SMBs. Apple's new support for Microsoft Exchange ActiveSync to push e-mail, calendar, and contact information to mobile SMB users is a key feature for SMBs. Its security support for WPA2 as well as 802.1x authentication will appeal to larger SMBs. Large corporations' IT departments do have some anti-Apple bias, but SMBs, a group that behaves far more like consumers, are an easier sell. The higher data rate available with 3G is appealing to SMB users because of faster data transfer. A couple of key features are still missing from the iPhone 3G that could deter some SMB customers. The lack of a copy/paste function is a negative for users with very heavy e-mail patterns who want to cut and paste from e-mails to send new e-mails. The lack of a video feature might deter some SMBs interested in mobile video conferencing. The vast bulk of the total available market of SMBs is still a candidate for the iPhone 3G though.

Small companies are seeing the growing demand for enhanced SMB mobility as a very attractive target. Mobile SMBs want to go beyond Gmail or Yahoo! Mail to have the features enjoyed by their large enterprise counterparts. Visenza offers a hosted service for SMBs in the form of packages of ten to one hundred mailboxes for packaged services. Mobile users will have the ability to access their e-mail servers with the same functionality on their phones that they enjoy on their laptops.

SteelCloud offers an appliance specifically designed to support BlackBerry Enterprise Server for as few as twenty BlackBerry users. The product comes with a wizard that promises plug and play deployment and the ability for non-technical staff to get the system up and running in only thirty minutes because 90% of the installation is automated. SteelWorks Mobile supports Microsoft Exchange, Lotus Domino, and Novell GroupWise mail servers. SteelCloud even offers a lease option for SMBs that lack the desire or technical expertise to run the system.

2.12 The Mobile SMB's Impact on the Laptop Market

The growth of mobile SMBs has spurred the growth of laptop product families specifically targeting SMBs. Dell's Vostro line of laptops has evolved from consumer product look-alikes to a distinctly different platform based on focus group discussions with SMBs. Specifically, the product line targets SMBs with 1-25 employees. Notably different from consumer oriented products, the Vostro offers more processing power and higher performing peripherals. This enables SMB customers who also want to use their laptops for personal use to use NVIDIA 64-bit graphics modules and a faster drive to improve their video experience. Since mobile SMB employees travel, Dell settled on a smaller 13.3" display to save on weight. The vendor argues that it provides 94% of the original 14" display, while reducing weight by 20%. The Vostro's \$999 price tag is consistent with the SMB customer's cost consciousness.

Lenovo is another laptop vendor targeting mobile SMB employees. A differentiator is that its SL notebook product line with a starting price of \$799 ships with GPS embedded in a broadband module from Ericsson. In the United States, the notebooks ship with an AT&T broadband trial SIM card. Conversely, in the United Kingdom, these notebooks ship with a built-in Vodafone 3G connection. Customers get a free thirty-day trial of the Vodafone network before having to pay monthly subscription fees.

One intriguing way in which Lenovo is targeting SMBs and their concerns over lost or stolen laptops is by offering a technology it calls Constant Secure Remote Disable, available on ThinkPad models equipped with mobile broadband during the first half of 2009. The technology permits up to ten cell phones to be connected to a ThinkPad. When a cell phone user issues a kill command via an SMS text message, the computer is shut down and the user receives a confirmation text message that validates the deactivation of the laptop.

Lenovo is also offering other services and features that should appeal to SMBs, such as its ThinkPad laptops that will support online backup services. Many SMBs lack the technical sophistication or the time to automate backup. Some of these laptops also will carry Absolute Software's LoJack technology to track down stolen machines. Since SMB employees typically use their business laptops for personal use as well, Lenovo offers HDMI/VGA (High-Definition Multimedia Interface/Video Graphics Array) support for high-definition video as well as an optional high-definition Blu-ray recordable optical drive.

Lenovo freely admits that many of these features are specifically included to help it capture SMBs with 1-99 employees who do not have their own in-house IT support. Given Lenovo's very strong presence in areas of the world where higher percentages of SMBs exist than in the United States, it becomes clear that Lenovo is leveraging its strong channels to target these customers.

Hewlett-Packard has also gone after the SMB market with budget-priced laptops that added features designed to appeal to SMBs. The vendor bundles its ProtectTools on board software. The Device Access Manager turns off USB ports, preventing unauthorized users from transferring or removing data on portable drives. Similarly, if an employee's laptop needs to be recycled to another employee, Disk Sanitizer clears the disk drive.

2.13 Looking Forward: Major Trends for Mobile SMBs

Because of their sheer numbers and their enormous potential revenue, mobile SMBs will move in certain directions that will compel vendors to move in the same direction to meet their needs. Vendors can expect a number of major trends for mobile SMBs. Wi-Fi and 3G are not competitive as much as they are complementary. Look for more and more laptop manufacturers to follow Lenovo's lead and begin offering SMB specific models that include 3G radios as well as Wi-Fi. Because of SMBs' well documented concern over physical security, the ability to remotely "kill" a stolen laptop via an SMS command over a 3G network will resonate with mobile SMBs.

- **Managed services will become a trend.** F-Secure has found a very receptive SMB market in Europe for its managed services approach (Protection Service for Business) that focuses on mobile device security. More US service providers will follow that example. At the same time, SaaS will resonate with SMBs. Microsoft should be concerned about more mobile SMBs looking for SaaS applications for both smartphones and laptops. Cost, security, and convenience will all be drivers. More companies should begin offering SMBs remote backup services. The very long-term scenario could prove to be that devices will require far less storage capacity because data will be stored on and retrieved from a service. A mobile SMB employee could use a smartphone or laptop to retrieve key data via secure wireless connections and not even require internal IT VPN infrastructure, which creates long-term ramifications.
- **We are rapidly moving toward a ubiquitous wireless environment.** Mobile operators will all begin offering bundled Wi-Fi and 3G for a single monthly charge as the advantages of reducing churn become apparent. In this new environment, SMBs will want to take advantage of enhanced wireless connectivity by being able to choose products designed specifically for them. Virtually all major vendors will follow Cisco's lead and begin offering SMB products that have been designed from the ground up for this market with more functionality and robustness than consumer models, but far lower prices than large enterprise models.

- **With the growing ubiquity of wireless connectivity, we will see growing interest in convergence products for SMBs.** Cisco attempted this past year to offer complete convergence in a single box for SMBs, but failed to provide adequate functionality at an attractive price. Polycom recently began offering relatively low-priced Wi-Fi-enabled phones specifically designed for the SMB market. Vendors will revisit voice/data wireless convergence for SMBs and begin bundling Wi-Fi-enabled phones with SMB WLAN equipment. India might be a testing ground for such an approach due to the lack of good fixed-line service.

Section 3.

TECHNOLOGY ISSUES

3.1 Interoperability Issues for Mobile SMBs

Because SMBs are more likely to buy their laptops and their WLAN equipment from retail and online channels than from resellers, they often wind up with consumer grade equipment that still has significant technology gaps that are made even worse because all equipment might not be from the same vendor due to lack of technical savvy on the part of the SMB customer. One example of this phenomenon is roaming on laptops or Wi-Fi-enabled phones. The IEEE 802.11r standard was finalized and approved in late 2008. Virtually all vendor equipment being sold still contains proprietary roaming software that differs markedly from vendor to vendor. The result is that an SMB employee with a laptop or other Wi-Fi-enabled device who roams within a space with access points from different vendors is likely to find that calls get dropped and re-authentication needs to occur.

3.2 Security Issues for Mobile SMBs

This section examines security issues that SMBs must be aware of if their employees are using Wi-Fi-enabled devices or smartphones.

3.2.1 WLAN Security

WLAN security is still an issue for SMBs. In 2008, ABI Research revealed the result of a survey it conducted that found that SMBs are far less likely to monitor their WLANs on a timely basis than large enterprises. Many SMB respondents surveyed reported checking for WLAN intrusion every couple of weeks or even monthly. Large enterprise respondents were far more likely to check daily to identify intruders. One reason for this disparity, of course, is that SMBs are far less likely to own intrusion detection hardware and software than their large enterprise counterparts; certainly, the SMB WLAN equipment they purchase generally does not come with any kind of built-in intrusion detection unlike large enterprise products offered by Cisco, Aruba, and others.

One problem right now for SMBs when it comes to intrusion detection and prevention is that most vendors who specialize in this space have been acquired since this functionality has become a check-off item for large enterprise customers. AirMagnet appears to be the lone viable survivor as an independent vendor. ABI Research believes that this vendor will begin to develop more products with the right combination of price and functionality for the SMB market. This effort will have to include broadening its channel partners to include those with an SMB emphasis.

Since SMBs purchase from the consumer channel, their Wi-Fi equipment is more likely to still contain WPA rather than WPA2 security. SMBs are far less likely to deploy IEEE 802.11x security, which includes AES as well as RADIUS servers. SMBs are more likely to use a shared key for encryption, an option that was developed specifically for consumers because it is far less complex a process to deploy. If an employee or ex-employee reveals this key to anyone outside the company, then the security is compromised. SMBs lack the technical sophistication of large enterprises when it comes to WLAN security, so they are far more likely to use proprietary handheld devices that still only have WEP security, which is no challenge at all for hackers. Finally, SMBs are less likely to pay for directional antennas. That means that such companies are far more likely to have signal leakage beyond the confines of their facilities.

One other area of concern has to do with mobile SMB employees who have Wi-Fi-enabled laptops and Ethernet networks. Because SMBs are less likely to have well trained IT departments, it is more likely for an SMB employee to have a laptop that is still connected via a

peer-to-peer link to another Wi-Fi device when the laptop is reattached to the Ethernet network. The result is that the device attached via the Wi-Fi connection is able to bridge, rather than route, into the wire line network and avoid whatever minimal security measures are in place. Once an intruder is inside a company's network firewall, all sensitive corporate data is at risk.

3.2.2 Handset Security

SMB employees are more likely to buy consumer-oriented equipment, so they are more likely to wind up with phones that only have WPA Wi-Fi security when they do buy Wi-Fi-enabled models. Malware is becoming much more of a threat to handsets. Large enterprises are far more likely to buy the required packaged software or managed service to protect handsets against viruses. Several security experts have demonstrated "proof of concept" malware attacks on handsets. One way malware can attack handsets is by being installed when the user surfs the web, engages in SMS sessions, or shares data on memory cards.

SMBs often do not have a dedicated IT manager responsible for handsets and handset security. That means that the development of specific security policies often never happens. One example is something large enterprises often emphasize: the shutting off of Bluetooth when an employee leaves the office. SMB employees are thus more likely to be vulnerable to Bluetooth initiated attacks by a hacker using a peer-to-peer connection that could compromise address book and application data.

Another security risk for handsets is the compromising of data if the device is lost or stolen. Experts suggest all users deploy encryption and password protection. Without an IT department to help, employees of smaller companies are more likely to shrug off such threats.

Traditional packaged PC security software companies, such as Symantec and Trend Micro, long have targeted SMBs for protection against malware attacks, but now their focus on SMBs is even sharper and their scope much broader. Typical packaged software offerings today include protection against viruses, bot attacks, spam, phishing, etc. Trend Micro's latest Worry-Free Remote Manager software contains a location-awareness feature that automatically changes security settings on laptops depending on the user's location, either at the office or working remotely. Another Trend Micro feature targeting SMBs provides data protection for information stored within the QuickBooks application, a favorite accounting software for SMBs. Companies like Trend Micro and Symantec have designed their software so their channel partners can host it and offer managed services for SMBs. One interesting aspect of Trend Micro's Worry-Free Business Security package is that customers can choose which specific features they wish to run locally and which ones they want to obtain via a managed service.

3.3 The Right Technology Mix for SMB Laptops

The jury is still out when it comes to the right form factor and features that appeal to SMB customers. Acer has chosen to focus on very low priced, notebook-sized models. While some vendors have shrunk displays to 13.3", others offer 17" models with the thought that SMB employees will want larger screens to view movies and other video rich content in their spare time. Support for 3G broadband was once limited to only a few models designed for large enterprise customers; today, Lenovo and others believe SMBs will embrace 3G whenever they have no Wi-Fi access. Hotspot operators report vastly increased softphone usage including the use of Skype for VoWi-Fi calls. ABI Research recently talked to an SMB that has chosen Skype as its only voice communications technology. This company's decision was based on cost and the fact that its employees' business calls were heavily weighted towards international calls. Skype, from their perspective, was a very rational decision.

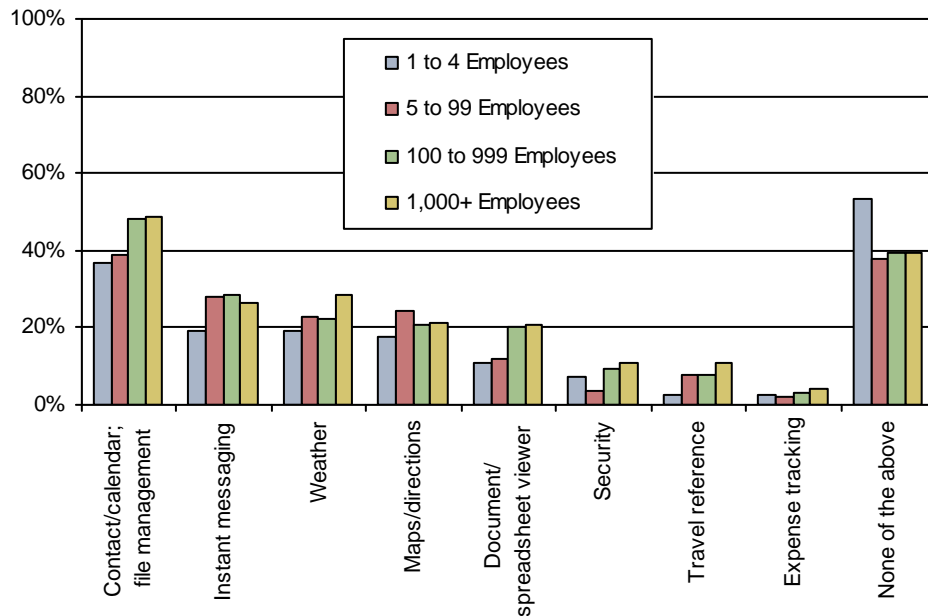
One nearly unanimous decision by vendors has been to place dual core processors in their SMB laptops because customers want that kind of power to run their personal multimedia content.

Another trend has been to counter the lack of WLAN technology expertise on the part of SMBs, even though virtually all laptops are Wi-Fi-enabled, by offering deployment and other services. Hewlett-Packard is an example of this approach with its collection of HP Care Pack services that include site assessment services (HP Wireless LAN Site Assessment Services), installation services (HP Wireless LAN Installation), and even start-up services (HP Startup Services). The specific SMB focus of these services is illustrated by the fact that HP's Care Pack services come in one, five, and ten access point SKUs, each including up to three wireless devices.

3.4 Mobile SMB Employees' Applications on Their Mobile Phones

Chart 3.1 reveals that mobile SMB users are just as likely (28% of respondents) to use instant messaging as employees of large enterprises. Employees at smaller companies (5-99 employees) are far less likely to use more sophisticated applications on their mobile phones. As one would expect, these same mobile SMB employees are far less likely to run security applications, such as VPN software, or document and spreadsheet applications than employees of large enterprises. One explanation for this difference in behavior is that SMBs generally do not have the expertise in-house to develop and support applications specifically for mobile phones.

Chart 3.1 Applications Running on Mobile Phones by Company Size



(Source: ABI Research, US Business Mobility Study, February 2008)

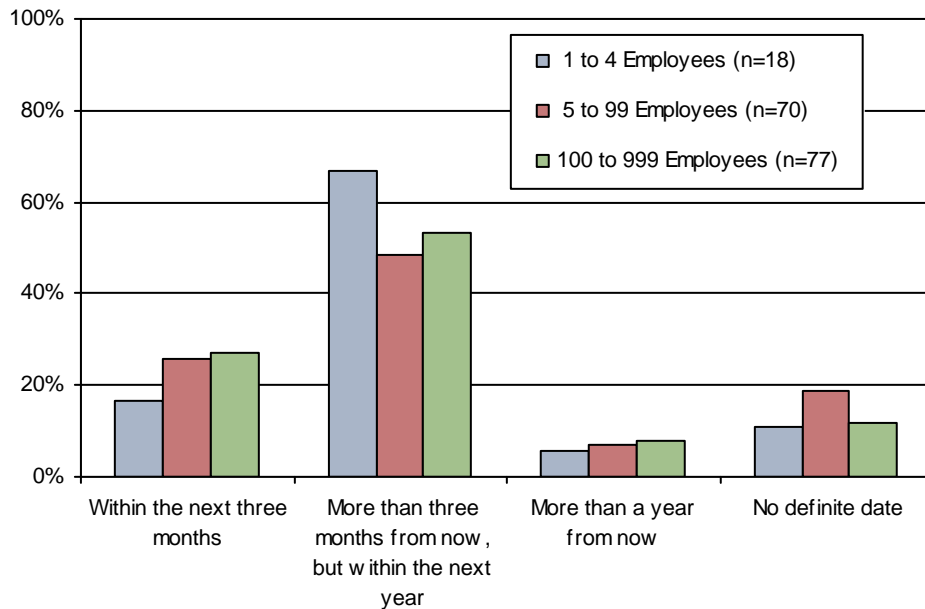
3.5 Mobile SMB Workers & Home Use

Mobile SMB employees often take their mobile devices home. In the case of laptops, SMBs face major security breaches when other members of the employee's family wind up sharing a broadband connection. Recently, Cisco and a few other vendors have begun offering all-in-one products that provide broadband Internet connectivity via a Wi-Fi connection, VPN functionality, and a separate SSID for the employees' family. The separate SSID eliminates the danger of a family member joining the company network and compromising sensitive data.

3.6 Mobility Technology Rate of Adoption by SMBs

Mobile SMBs are quick to adopt Wi-Fi. As Chart 3.2 reveals, mobile SMB employees' short-term plans to update to 802.11n within three months of the time they were interviewed are actually more aggressive than employees' update plans in large enterprises. One reason, of course, is that SMBs are far more nimble when it comes to upgrading equipment because they do not have the enormous CAPEX associated with very large equipment purchases. Also, they generally lack the IT infrastructure associated with lengthy pilot programs to test new equipment prior to adoption. They tend to have equipment that is far more homogeneous than that of very large enterprises, so they have far fewer interoperability issues that have to be studied and resolved. Finally, while SMBs may lack the technology sophistication of their large enterprise counterparts, for the most part, they often rely on new technology as a way to increase productivity. A significant number of SMBs buy a portion of their equipment from traditional consumer channels so technology introduction has been far more rapid than in the large enterprise channel. Draft 802.11n products appeared in retail stores before traditional enterprise channels began selling these products due to large enterprise concern about interoperability.

Chart 3.2 *Timeframe for Respondents' Upgrade to IEEE 802.11n*



(Source: ABI Research, Wi-Fi Survey, July 2008)

Section 4.

KEY INDUSTRY PLAYERS

4.1 Chipmakers

4.1.1 Intel

Intel is reacting to the flattening out of the large enterprise market by working specifically to develop products that will appeal to its customers designing SMB solutions. Because laptop manufacturers are beginning to develop laptops from the ground up specifically for the SMB market, Intel is actively working to add features that provide functionality and appeal to SMB customers. One key example is Intel's VPro option for its Centrino family. Intel has discovered through its own research that SMBs care a good deal about physical security. As a result, it has partnered with Absolute (LoJack) to integrate that functionality into partners' products so that stolen laptops can be located. It has also worked with Lenovo and Ericsson so that partner Lenovo can offer laptops that permit a cell phone user to send a message to a stolen laptop to render it useless. Intel also has developed software called IT Director that will enable an IT manager to monitor and manage up to twenty-five PCs remotely. This product also could support an MSP (Managed Service Provider) that wants to sell an outsourced service to SMBs.

4.2 Laptop Manufacturers

4.2.1 Dell

Dell chose to reorganize during the last week of 2008. One of its four major divisions now focuses exclusively on SMBs. Dell also designed a laptop product family, the Vostro line, specifically for SMBs with 1-25 employees. Earlier, the company had tried selling a model that leveraged its consumer Inspiron line and found little success. Focus group results convinced Dell it needed a different approach for SMBs and not merely re-purposed consumer products.

Dell purchased Silverback Technologies, a managed services platform vendor. Silverback had built a strong partnership channel specifically targeting SMBs. Dell can clearly leverage this acquisition as a way of extending its reach to SMBs. Given the global SMB demographics described in Section 2 of this report, it is not surprising that Dell is planning a major foray into SMBs in the Asia-Pacific region with an initial focus on India. Dell has only a 3% market share in this region according to the company. The focus in India is on brand marketing around the concept of "real heroes" business. Dell has created a dedicated SMB portal for Indian SMBs to promote two-way communications in order to determine which solutions best suit their needs. Dell is devoting considerable resources to this campaign including the use of digital media and broadcast spots as well as SMS messaging.

4.2.2 Lenovo

Under IBM, the primary focus of the ThinkPad line was on large enterprises. Lenovo has added a portfolio of products focused on SMBs. Lenovo partners heavily with Intel and shares marketing data, so its efforts regarding SMBs tend to focus on customer profiles Intel has created. As an example, Lenovo's new integrated 3G radio with its "kill" feature to disable stolen laptops is squarely directed at Intel's early technology adopter customer profile. Lenovo is beginning to see interest in VoWi-Fi among SMBs and has a long-standing partnership with Avaya. Lenovo is likely to add voice specific buttons and better speakers to make voice quality higher. It definitely realizes that its SMB customers are looking for consumer-like features, such as better cameras, since they use their PCs for personal use as well as for business use.

4.3 WLAN Equipment Vendors

4.3.1 3Com

3Com has long focused on SMBs; in fact, its channel remains the major SMB competitor to Cisco in terms of reach. While 3Com continues to sell well in the United States, its sales outside this country are even stronger. 3Com leads in the sales of independent access points. While large enterprises have gravitated to controller-based dependent access points, SMBs continue to embrace 3Com's independent models. One new issue is the company's development of an 8760 model that ships with independent and dependent images, but SMBs that outgrow the independent approach can convert the 8760 to a dependent access point. 3Com continues to OEM its WLAN equipment from Trapeze Networks. Its SMB customers are just starting to ask for 802.11n products, which the company has begun shipping within the last six months.

Security remains an area of strength for 3Com. Its VPN products sell well to SMBs and its customers also are embracing the company's endpoint security. Some of 3Com's partners have begun selling managed services to SMBs. 3Com will continue that approach and avoid competing with its own channel.

4.3.2 Cisco

Cisco has been extremely busy in 2008 when it comes to its approach towards SMBs. The company began by consolidating its Linksys channel partners with its Cisco branded partners. While the consumer market has been Linksys' primary focus, it has also focused on what Cisco calls "very small" businesses including SOHO locations. For that reason, Linksys' WLAN products were deliberately limited in functionality and scalability to reduce the market channel conflict with Cisco products designed for small businesses.

Cisco also decided in 2008 to get really serious about the SMB market. It has committed \$100 million dollars to this effort, which includes a radically different way of triaging the SMB market. Cisco will now develop new SMB products specifically for that market rather than trying to adapt products designed for large enterprises. The company has added engineering personnel to the division so that products can be designed specifically for this market. Cisco Small Business branded products will include limited functionality and complexity, much like the Linksys products, and will be designed for small businesses with very basic needs. Cisco branded products designed for large enterprises will be sold to the small sub-segment of the SMB market that has very complex technology requirements. The very large and broad remaining middle of the SMB market will be sold Cisco Small Business Pro branded products.

The networking giant has certified nine thousand of the combined Cisco and Linksys channel partners as SMB specialists. Cisco still has a very significant number of SMB customers with its older generation of independent access points installed. This group has resisted efforts to upgrade them to controller-based systems. The company is reconciled to continuing to support these customers with independent access point products.

Cisco clearly has its eyes on the vast market potential in the developing world for equipment specifically designed for the SMB market. It has been focusing on India, but China also is very much on its planning board. Cisco has specified that the SMB market will be one of several initiatives that, when taken as a group, have been targeted to provide 25% of its revenue within five years.

4.3.3 D-Link

D-Link sees the sweet spot of the SMB market for itself as being the 50-99 employee segment. As the company moves to expand its market share in the SMB space, it is working to develop a common user interface for its business products that will mirror the approach it has taken with its consumer products. Obviously, products with very different functionality cannot have exactly the same user interface. D-Link's 2590 is an independent access point that sells very well in the SMB market, but the company also sells dependent access points. It now offers a switch with a built-in controller for \$400 and corresponding access points for \$100 each that it believes are ideal for very small businesses. D-Link also offers a high-end solution in which multiple wireless switches can communicate with each other as well as with dependent and independent access points. D-Link bundles rogue detection into its products.

One area in which D-Link sees a lot of potential in penetrating the SMB space is with its extensive portfolio of video surveillance cameras. The price points have dropped to the point that such equipment is now less expensive than older analog technology..

4.3.4 Hewlett-Packard

HP's ProCurve division has been very successful selling switches to SMBs and, in fact, is now Cisco's major competitor in that market. That success has not translated into significant sales of its WLAN equipment to SMBs. The acquisition of Colubris will change that dynamic only slightly since, historically, Colubris has focused on medium-sized companies. Colubris-based products will increase HP's sales at the higher end of the SMB market, but it still lacks a compelling set of reasonably priced products to compete with 3Com, Netgear, D-Link, and Cisco at the lower end of the SMB market.

That is not to say that HP does not have enormous potential in the SMB space. It already has customer presence with its printers and PCs and has been very successful selling laptops to SMBs. Its very strong retail channel offers a way of reaching the lower end of the SMB market. One logical solution for the company would be to develop a product similar to 3Com's convertible access point and offer attractive bundles for SMB customers, especially since each laptop it sells already offers a Wi-Fi connection. Another possibility would be to include a relatively low-priced Wi-Fi-networked laser printer and sell the solution as the "SMB in a box." The company could leverage its strong support services by including Wi-Fi installation and support services already in place.

One new HP initiative designed to grow its SMB market is its alliance with CDW through which it will co-fund 110 new HP-only CDW salespeople to sell HP products into accounts with 499 or fewer employees. The target list includes five hundred thousand potential HP customers. The program will be fully implemented by January 2009.

4.3.5 Netgear

Netgear has been the only SMB vendor besides Linksys (Cisco) that has been able to command a premium price over other vendors' consumer and SMB products. Netgear views its market as SMBs with two hundred and fifty or fewer seats, but has products designed for companies with as few as ten seats. Netgear has enjoyed stronger sales in Europe than in the United States because of its very strong European channel. The company has been early with an independent 802.11n access point priced under \$400 and designed specifically for SMBs. It believes that controller-based WLAN equipment really has very low adoption potential among SMBs. The company is looking long-range towards a unified switch for WLANs to do away with separate controllers. Unfortunately, unified switches still command a premium price over stand-alone switches and the SMB market is very price sensitive. Netgear supports VoWi-Fi and its products have been certified to work with Hitachi Wi-Fi phones, but it has not really emphasized this because it believes SMBs are still not ready to adopt that technology. The company is

emphasizing a common user interface for all its business products. One selling point that resonates with SMBs is its lifetime warranty. Additional market differentiators for Netgear are its VPNs' support for SSL (Secure Sockets Layer) and its SSL appliance. This technology is attractive to SMBs because they can use any device that has a browser to handle encryption. Netgear has acquired CP Secure, a company that provides security appliances and offers anti-virus and spam protection as well as e-mail protection. The major reason for the acquisition is that Netgear now realizes that SMBs care a good deal about security and need better tools for more secure networks. The company expected to launch new security products for the SMB market in January 2009.

4.3.6 SMC Networks

SMC Networks is focused on the global SMB market. Its major focus in the United States is in the 20-99 employee segment. It has enhanced its graphical user interface for an SMB audience. While the company believes it is price competitive in the SMB market, it is appealing to resellers by pointing to its decision to leave the retail channel, and sell completely through resellers. SMC offers free WLAN design services for its SMB resellers as well as dedicated technical support. The company is seeing a lot of SMB interest in 802.11n. It has partnered with Avaya for convergence, but is just now seeing some interest from SMBs in VoWi-Fi solutions.

4.4 Mobile Operators & Service Providers

4.4.1 AT&T

AT&T made a number of strategic moves in 2008. It became the Wi-Fi operator for Starbucks, a major win for the company. AT&T also acquired Wayport, a Wi-Fi hotspot aggregator, for \$275 million. The acquisition provided a way for AT&T to expand aggressively into the hospitality, retail, and healthcare industries in which Wayport is very strong. Equally as important is the fact that Wayport has moved beyond simply providing Wi-Fi service to actively supporting key enterprise applications. AT&T clearly made a strategic decision that its growth on the business side will come from becoming so deeply tied to customers' business applications that companies will not be able to easily extract themselves and switch to a competitor like Verizon.

On the consumer side, the exponential increase in AT&T hotspots to around twenty thousand domestically and eighty thousand globally, coupled with AT&T's recent announcement of free Wi-Fi hotspot service for its wireless customers, means that consumers will equate the ubiquity of AT&T Wi-Fi hotspot service as a tremendous value-add to their monthly wireless subscription and reduce their churn. The Wayport acquisition signals a more aggressive AT&T. Recently, it announced that it will offer free Wi-Fi hotspot service for RIM's BlackBerry Bold. In addition to the BlackBerry Bold, AT&T added the BlackBerry Pearl 8120 and the BlackBerry 8820, which is interesting since Verizon opted to offer the BlackBerry Storm, a model that does not have Wi-Fi support. AT&T has also begun offering free hotspot service to its U-verse customers.

Wayport had already begun marketing location-aware services to the hospitality and healthcare industries. Whether it is instant check-in at a Wyndham resort or locating expensive equipment at hospitals, these applications will make it more painful for business customers to switch services even if a competitor offers a less expensive subscription rate. Wayport has the expertise to reduce AT&T's churn, making the acquisition money well spent.

AT&T has begun offering free Wi-Fi access with all AT&T small business broadband plans, AT&T High Speed Internet plans, and with qualified AT&T LaptopConnect plans. Wi-Fi subscriptions are available for \$19.99 per month for customers without an AT&T broadband or smart phone plan.

AT&T is marketing its U-verse High Speed Internet Business Edition to SMBs and points out that it can serve up to fifty Internet users at one time, and businesses can choose to use static IP addresses in order to host their own domains for web sites or e-mail. The static IP address packages start at \$15 per month for eight addresses, up to \$40 per month for 128. Service packages range from \$40 per month to up to \$85 per month, if the small business also buys wired or wireless voice service.

AT&T is also targeting mobile SMBs with its recently announced BusinessTalk plan, which enables SMBs to pool their employees' phones and minutes. An SMB with five users could pool seven hundred minutes for \$60 per month, while forty users could pool twenty thousand minutes for \$1,075 per month. AT&T is positioning this service as an alternative to a very common SMB practice of permitting employees to pick their own plans and then reimbursing them.

AT&T is outdistancing its mobile operator competitors and locking in its SMB customers when it comes to hotspots by bundling Wi-Fi hotspot service with its SMB U-verse broadband service. Finally, by bundling hotspot service, AT&T is able to relieve a significant portion of the strain that data is putting on its 3G network.

4.4.2 British Telecom

BT's BIS (BlackBerry Internet Service) targets SMBs. Customers receive and send e-mail on their BlackBerries without the need for any IT infrastructure. Customers can collate mail from up to ten existing accounts or set up a new account specifically for their BlackBerries. One option permits customers to create a full-scale satellite navigation system with an add-on unit to their BlackBerry 8700 models.

BT also bundled free mobile broadband to SMBs that signed up for specific fixed-line packages. The free promotion lasted through 2008. Customers added a USB stick and connected via BT's Openzone Wi-Fi service or by using mobile networks. They received two thousand Openzone minutes, while their mobile Internet was capped at 1 GB of downloads per month. BT is in a competitive position as it was pushed to provide this free promotion to counter the free Wi-Fi promotion offered by Orange. Another way BT is providing Wi-Fi to subscribers is via an integrated SMB router made by 2Wire that has Wi-Fi built into the package.

BT is also targeting SMBs with its long-term commitment to offering SaaS to SMBs. The strategy posits that SMBs can conduct their entire sales cycle (prospect, sell, and support) online, keeping their prices low by using a subscription model. The challenge for BT has been to aggregate and integrate a number of different applications. It now has a partnership with prospect-tracking company Genius.com (the product now branded as BT Smart Marketing) as well as existing offerings of NetSuite and SugarCRM. In addition, it also has signed on electronic signature service partner EchoSign and IP telephony application platform vendor Ribbit. The Ribbit partnership means that Ribbit-enabled applications will be able to convert voice messages and memos into searchable text.

4.4.3 iPass

In 2008, iPass launched iPassConnect Mobility Manager, which offers flat-rate, unlimited high-speed Internet access at twenty-four thousand Wi-Fi and hotel Ethernet locations in North America for \$29.95 per month. Companies that choose a global Wi-Fi option for \$44.95 per month can add ninety-five thousand high-speed connections in eighty-six countries including North America. Plans can be combined with North American 3G connectivity for \$69.95 and \$84.95, respectively. iPass has opted for no download or time caps, although the 3G service does have a download cap of 5 gigabytes per month with a prohibition on video streaming. iPass sees the sweet spot for these services as being mobile SMB and individual enterprise users.

Another way iPass is appealing to mobile SMB employees is through partnerships it has created with laptop manufacturers Lenovo and Hewlett-Packard. SMB users have access to iPass Business Mobility Manager. Finally, iPass is eyeing the huge potential SMB market in Asia. It has a partnership with Chunghwa Telecom to offer regional flat-rate pricing for unlimited Wi-Fi, wired broadband, and dial-up access across the region. The concept is that business travelers benefit by having predictable mobility costs wherever they travel in pan-Asia.

4.4.4 T-Mobile

T-Mobile launched its 3G network in 2008, something desperately needed if the mobile operator is to compete at all for both SMB and large enterprise customers. The company lacks business productivity applications to compete for business customers. It did begin offering the G1 phone, which it had hoped would penetrate the SMB market; so far, SMBs have not found it compelling. T-Mobile modified its original @Home Wi-Fi service, which it branded the "Unlimited Hotspot Calling" service. This service could prove to be very compelling for SMBs, particularly those companies who use lots of minutes. T-Mobile appeals primarily to those who use a lot of minutes as well as to customers who use both mobile and fixed communications.

4.4.5 Verizon

Verizon has begun offering a unified threat management service, but at the current time, it is offering this service with an on-site box and not a total cloud approach. It does offer cloud services for firewall and denial of service protection. Verizon is offering its SMB customers its WebOffice for collaboration, which is a hosted service with which any customer with an Internet-connected device can collaborate in real time online. Verizon Wireless is a holdout when it comes to bundling Wi-Fi and 3G services. Apparently, the company is worried that it cannot guarantee the quality of a Wi-Fi call versus a call over its 3G network. Concern exists that customers will simply associate the less than satisfactory Wi-Fi call with a decline in the quality they expect on the Verizon network.

4.5 Smartphone Manufacturers

4.5.1 Nokia

Nokia has focused in Europe and North America on reaching the business community via a combination of operator and IT vendor channels. Its major partners on the operator side include TIM, Vodafone and T-Mobile, Orange, and Telefonica. On the IT vendor side, Nokia's major partners are Cisco, IBM, and Alcatel-Lucent. Its partnership with Cisco opens up Cisco's very large reseller channel to Nokia smartphones as part of Cisco's fixed mobile convergence solution. The IBM partnership includes extensive collaboration between the two companies on implementing Lotus Notes and Domino e-mail functionality on Nokia phones. Nokia sees its support for ActiveSync and Microsoft Exchange as critical for its efforts to encourage business mobility and points to its success in adding this functionality to eighty million Nokia handsets. In emerging countries, Nokia is pursuing an approach towards capturing the large potential SMB market through its Ovi platform. It is currently beta testing free e-mail service on the Nokia Series 40 phones. The idea is to give business customers in emerging countries their first e-mail account. While Nokia says it wants to be an Internet services company more than a phone manufacturer, questions arise as to how this goal is translated into action in mature markets where mobile operators prefer to offer their own services.

Nokia's strength has been limited in the smartphone arena since it did not offer touch screens until late in 2008. Its major strength has been in the lower end and mid-sized phone market, which is consistent with the company's growing emphasis on the consumer market.

4.5.2 Research in Motion

While RIM (Research in Motion) has enjoyed great success in the large enterprise mobility market, its efforts to sell one solution to all markets including SMBs largely failed due to SMBs' lack of infrastructure, limited technical expertise, and limited budgets. RIM addressed this problem in 2008 with the release of its BPS (BlackBerry Professional Software) – a package aimed at companies with up to thirty users. Customers receive mobile e-mail, calendar, contacts, business data, and Internet access to end-to-end security encryption, without having to install a dedicated RIM server. Instead, they can install the software on pre-existing e-mail servers including Microsoft Exchange, Windows Small Business Server, or Lotus Notes.

RIM addressed the complexity concerns for SMBs by offering pre-defined policies for setting up passwords, limiting features, and locking down stolen phones. RIM is offering five- and ten-user packages for \$499 and \$849, respectively. One way of getting SMBs to test the water and pilot BPS is BPS Express, which is a free one-user product that can be downloaded for companies that want to try before they buy.

RIM has tried to attack the SMB market in the past via a hosted server managed services approach. It is now offering handsets that combine its e-mail functionality with a more consumer-oriented set of features that might appeal more to SMBs. One example of this approach is RIM's BlackBerry Pearl 8110, which AT&T is selling in conjunction with a BusinessTalk voice plan that is priced at \$60 per month for five users and seven hundred Anytime Minutes. Some of RIM's partners are having success providing managed services to SMBs that want to off-load the entire e-mail operation to a hosted BPS solution.

4.6 Security Vendors

4.6.1 AirMagnet

AirMagnet's major competitors in the intrusion detection business have all been acquired by WLAN equipment vendors. It is ideally positioned to offer an SMB managed service solution to its channel, which it would like to grow beyond the sale of hardware. The company could benefit from growing interest in VoWi-Fi since its equipment has the ability to monitor voice quality over VoWi-Fi traffic. This functionality could result in a lucrative managed service option. The tricky part for AirMagnet will be to help its channel modify business models that were based on one-time equipment purchases rather than on phased monthly revenue from managed services.

4.6.2 F-Secure

F-Secure launched Protection Service for Business, which specifically targets SMBs at a cost of €2-3 per month per device. Currently, the service focuses on laptops, desktops, and servers and offers protection against malware. The company sees potential in extending this service to smartphones, but plans to first offer such protection to consumers and then follow up with an offering for SMBs. F-Secure's service provider customers generally rebrand the service as their own. The company is selling the service globally.

4.6.3 McAfee

McAfee aligns its products according to several demographic groups: Home and Home Office (1-10 computers), Small Business (10-50 computers), Medium Business (50-1,000 computers), and Large Business (1,000+ computers). It offers McAfee Total Protection Service in standard and advanced versions as a product to SMBs. The service covers desktop and file server anti-virus, anti-malware, and anti-spyware support as well as a desktop firewall, web security, and e-mail anti-spam and anti-virus protection. The company also offers an SMB product (McAfee Total Protection) to its service provider partners. McAfee hosts the service and its service provider partners brand the service.

4.6.4 Symantec

Symantec offers its Brightmail appliance for mid-sized and large enterprises. In addition to packaged anti-virus/anti-spam/anti-malware software bundles designed for SMBs, Symantec also offers SMB Specialization for Partners. Partners can earn a 15% rebate (an extra 5% above the regular 10% rebate calculation) and also has its own toll-free priority access for help.

4.6.5 Trend Micro

Trend Micro is clearly targeting mobile SMBs. Its latest version of its Worry-Free Business Security software offers specific protection for laptops including location-awareness that automatically changes security settings depending on whether the employee is working in the office or remotely. The company has created Worry-Free SecureSite, a hosted service that targets SMB online retailers. The company has indicated it intends to offer more SMB-oriented services in the near future. Its Worry-Free Remote Manager solution is a cloud solution managed by partners. The company's ability to protect data found in QuickBooks applications resonates with SMBs using that accounting package.

Section 5.

MARKET FORECASTS AND ANALYSIS

This section offers ABI Research's market sizing and forecasts for the SMB market as well as shipment and revenue forecasts of mobile communications products and services specifically to SMBs globally.

5.1 The Size of the US SMB Market

Table 5.1 describes the size of the SMB market in the United States by vertical market and size of business. It illustrates just how deceptive the SMB market size can be when vendors start to build their business models. An enormous number of construction businesses have 1-4 employees (470,235). While this group might be ideal for selling push-to-talk cell phones, they are not ideal candidates for PCs or Wi-Fi equipment. Much of their work is outside and at remote locations where Wi-Fi is far less effective without special equipment. The large number of retail establishments with 1-4 employees (446,734) is deceptive since many of these are small kiosks with a single employee. The manufacturing segment for establishments with 1-4 employees (124,369) is also deceptive. While enormous in size, it includes a lot of process-oriented sites where white collar work is simply not conducted.

Table 5.1 SMB Establishments by Vertical, United States

Vertical	1 to 4 Employees	5 to 99 Employees	100 to 999 Employees	1,000+ Employees	Total
Agriculture/Forestry	16,071	8,669	269	4	25,012
Mining	2,784	15,018	1,892	10	19,704
Utilities	11,093	8,769	897	30	20,789
Construction	470,235	279,142	5,584	58	755,019
Manufacturing	124,369	178,205	16,008	280	318,861
Wholesale	202,380	171,466	17,650	443	391,939
Retail	446,734	374,910	34,504	2,346	858,494
Transportation/Warehouse	103,848	63,938	6,066	272	174,124
Information	42,395	34,014	3,980	460	80,849
Financial/Insurance	189,187	100,277	20,761	1,350	311,576
Real Estate	217,584	78,605	7,738	375	304,302
Services	533,271	230,633	11,690	376	775,970
Management	4,159	8,581	6,213	198	19,152
Administration	179,512	118,156	9,822	325	307,815
Education	33,013	37,444	3,644	37	74,138
Healthcare	319,160	329,046	40,415	577	689,198
Arts/Entertainment	56,984	44,955	2,578	43	104,560
Food Service	170,848	281,606	23,971	782	477,207
Other	473,321	284,625	10,560	291	768,798
Total	3,596,948	2,648,060	224,241	8,257	6,477,506

(Source: ABI Research)

5.2 Wi-Fi Penetration in the US SMB Market

Table 5.2 describes Wi-Fi penetration in the US SMB market by vertical market and size of business. It shows the relative early adoption of Wi-Fi by certain key verticals (healthcare and education, for example). It also shows that verticals exist where Wi-Fi has little future, such as very small agricultural sites.

Table 5.2 *Wi-Fi SMB Establishments by Vertical, United States*

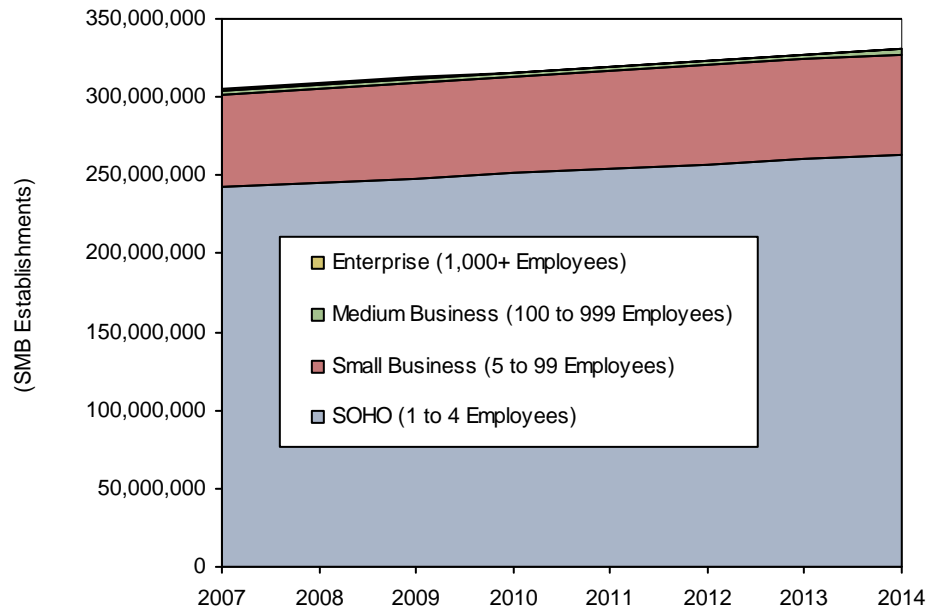
Vertical	1 to 4 Employees	5 to 99 Employees	100 to 999 Employees	1,000+ Employees	Total
Agriculture/Forestry	160	455	38	1	653
Mining	12	675	322	7	1,015
Utilities	40	264	206	24	535
Construction	9,405	33,295	1,619	33	44,352
Manufacturing	1,244	17,235	6,243	190	24,912
Wholesale	12,143	44,356	13,237	403	70,139
Retail	58,075	154,215	26,913	2,182	241,385
Transportation/Warehouse	7,269	17,195	3,639	201	28,305
Information	7,631	15,511	3,462	433	27,037
Financial/Insurance	17,027	23,014	12,457	1,269	53,767
Real Estate	34,813	22,701	7,119	356	64,990
Services	74,657	113,811	10,521	361	199,350
Management	416	2,116	3,976	171	6,678
Administration	12,566	45,860	8,644	305	67,375
Education	6,272	21,576	3,352	37	31,237
Healthcare	67,024	138,923	35,161	560	241,667
Arts/Entertainment	1,710	9,203	1,727	35	12,675
Food Service	13,618	69,761	14,143	610	98,131
Other	4,733	28,314	3,274	131	36,452
Total	328,815	758,481	156,054	7,308	1,250,658

(Source: ABI Research)

5.3 SMB Global Establishments

Chart 5.1 illustrates how the global SMB market's demographics will change between 2007 and 2014. During this time period, large enterprise growth will be flat. The fastest growth will occur with very small establishments with 1-4 employees. This group will grow globally from two hundred and forty-two million in 2007 to two hundred and sixty-two million in 2014. During this same period, small businesses (5-99 employees) will grow from fifty-nine million in 2007 to sixty-four million in 2014. Middle-sized businesses (100-999 employees) will grow moderately from 3.09 million establishments in 2007 to 3.34 million establishments in 2014.

Chart 5.1 SMB Establishments by Business Size, World Market, Forecast: 2007 to 2014

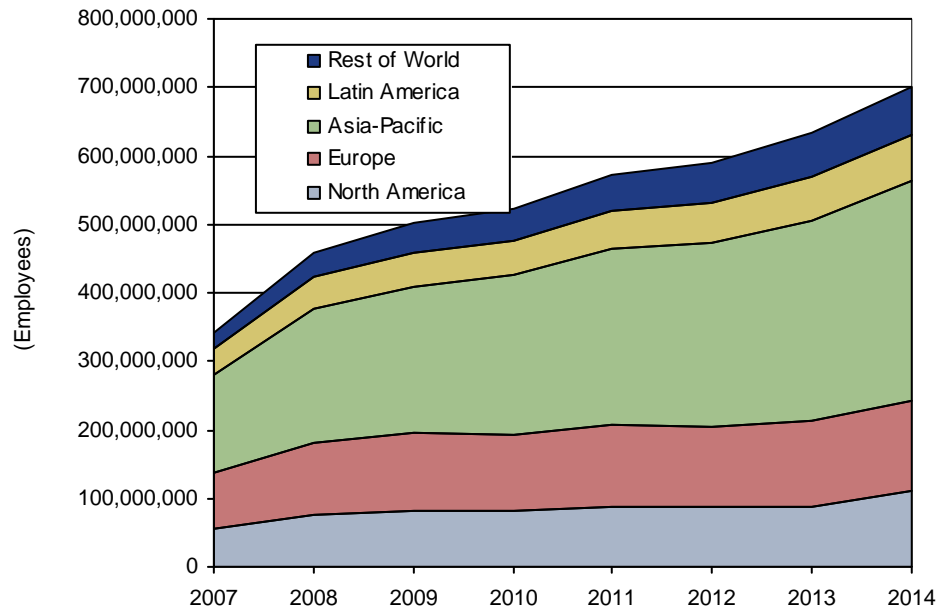


(Source: ABI Research)

5.4 Global Mobile Employees

Chart 5.2 illustrates the growth of global mobile SMB employees by region of the world. ABI Research has defined a mobile employee as one who uses a smartphone for business purposes and travels outside the office for business. This particular chart shows that the total number of global SMB employees will grow from three hundred and forty-two million in 2007 to seven hundred million in 2014. The growth of mobile SMB employees in the Asia-Pacific market is significant. The number of such employees in this region was roughly twice as large as US mobile employees in 2007 and that gap will grow until the Asia-Pacific region has three times the number of US mobile employees in 2014.

Chart 5.2 SMB Mobile Employees by Region, World Market, Forecast: 2007 to 2014

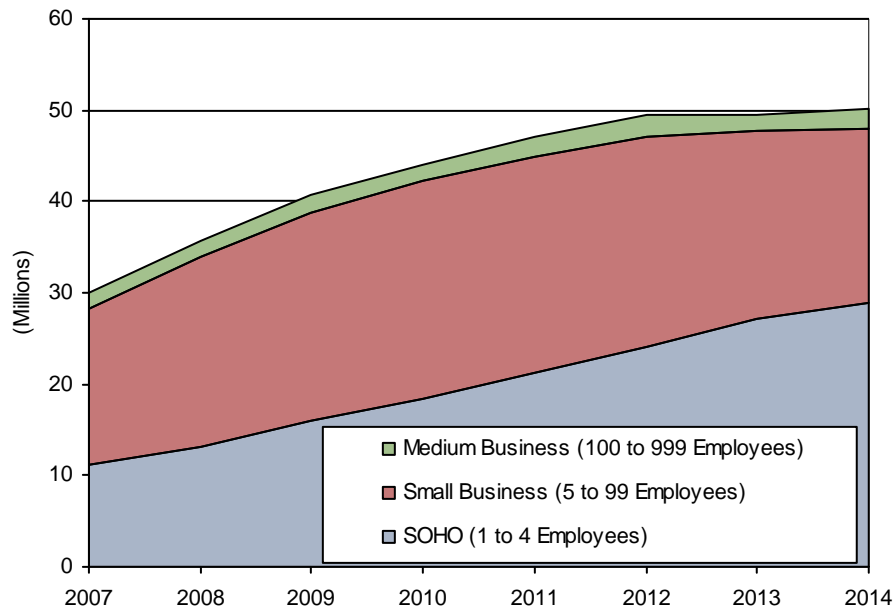


(Source: ABI Research)

5.5 SMB Wi-Fi Access Point Shipments

Chart 5.3 describes the overall growth pattern for Wi-Fi access point shipments. By 2014, the rate of growth will have slowed, but vendors will still ship 50.2 million Wi-Fi access points to SMBs. One downside for vendors of 802.11n technology is that its range is far greater than 802.11g technology. As SMBs move to pure 802.11n networks, they will actually require fewer access points. The bulk of growth reflected in this chart comes from areas of the world outside North America and Europe where extremely inexpensive 802.11g access points will continue to be sold.

Chart 5.3 SMB Wi-Fi Access Point Shipments by Company Size, World Market, Forecast: 2007 to 2014

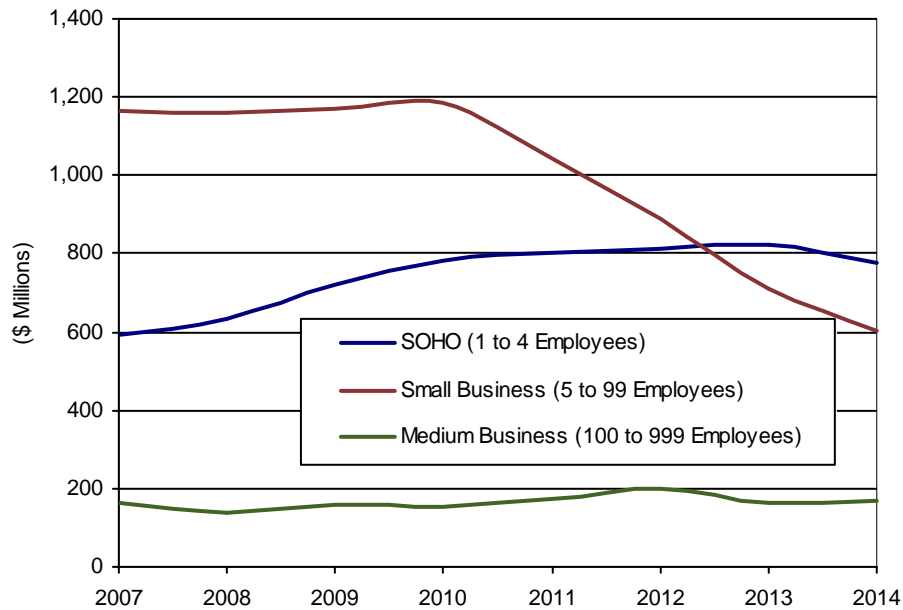


(Source: ABI Research)

5.6 SMB Wi-Fi Access Point Revenue

Chart 5.4 reflects ABI Research's forecast for Wi-Fi access point revenue from sales to SMBs. A couple of significant trends are reflected in the chart. One trend is the decline in ASP for both independent and dependent access points during the period of time forecasted. A second major trend is the move for SMBs with 5-99 employees to adopt inexpensive dependent access points over more expensive independent access points. By the latter part of the forecast period, vendors will have gravitated towards integrating controllers with inexpensive switches, which will make the total investment required for a controller-based WLAN system to be very affordable. So, while revenue will decline between 2007 and 2014, the actual number of access points shipping will continue to increase as Wi-Fi penetration continues to increase. Revenue will still be significant by 2014, though, with the SMB market generating \$1.54 million.

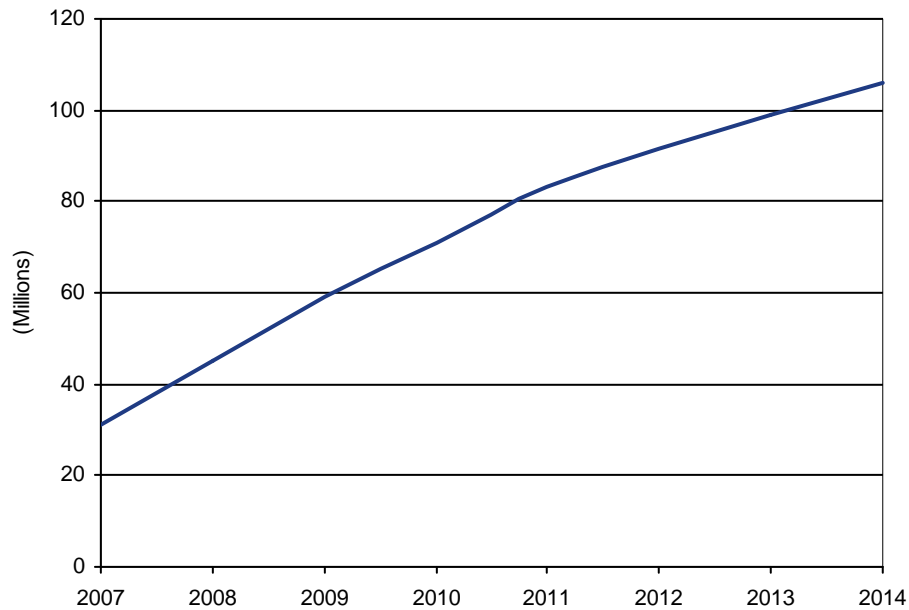
Chart 5.4 SMB Wi-Fi Access Point Revenue by Company Size, World Market, Forecast: 2007 to 2014



(Source: ABI Research)

5.7 SMBs' Impact on Laptop Shipments

Chart 5.5 describes ABI Research's forecast of global laptop shipments specifically to SMBs. Laptop shipments to this market segment will grow from thirty-one million in 2007 to one hundred and six million in 2014. The market for laptops will continue to grow, albeit the percentage of laptops sold to consumers rather than to businesses will continue to increase until it grows to more than half of all shipments by the end of the forecast period. Shipments of laptops to developing countries will continue to grow as a percentage of total shipments as emerging SMBs surpass sales to large enterprises. This forecast reflects a downward projection due to the impact of the global recession in 2008 and 2009. Despite the recession, the hunger for laptops in emerging countries where SMBs require these devices for productivity will help balance the slowdown in North America and Europe. As laptops begin to include more and more 3G and WiMAX radios, mobile SMB employees will always be connected either by laptop or by smartphone.

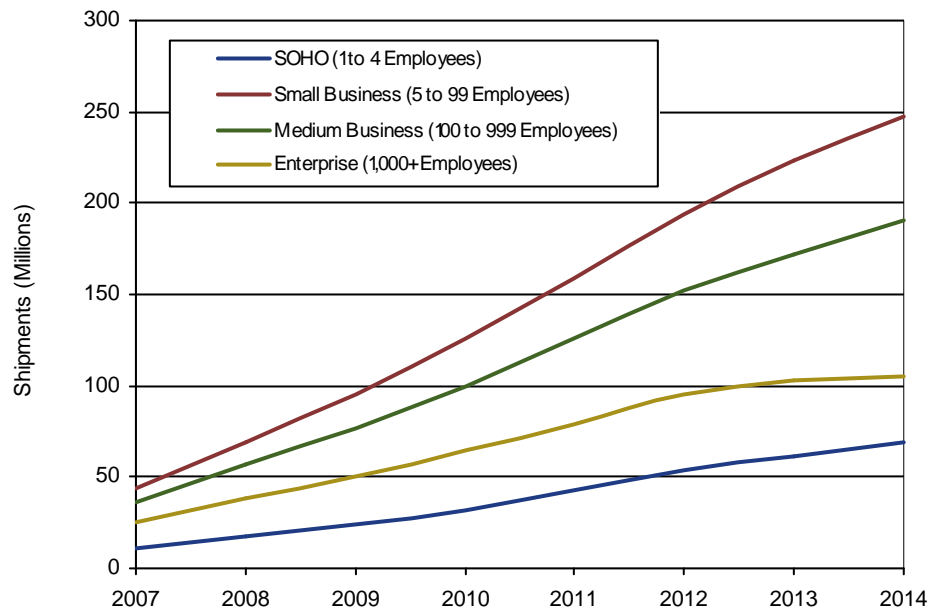
Chart 5.5 SMB Laptop Shipments, World Market, Forecast: 2007 to 2014

(Source: ABI Research)

5.8 SMB Managed Mobile Device Service Revenue

Chart 5.6 forecasts the growth of SMB managed mobile device service revenue, which will grow from \$624 million in 2007 to \$3.4 billion in 2014. A growing trend for SMBs will be to outsource device management of both smartphones and laptops. Intel's recent efforts to imbed remote monitoring and management into its Centrino chip will continue, making it easier for service providers to offer such services. Security will be a major issue as more malware is developed for smartphones. Because more and more mission critical applications will be running on both smartphones and on laptops, outsourcing management and security will grow in popularity, particularly because of SMBs' deep concern regarding physical security. The ability to "kill" laptops and smartphones remotely if they are stolen will become the single most popular reason for outsourcing security to a managed service.

Chart 5.6 SMB Managed Mobile Device Revenue by Region, World Market, Forecast: 2007 to 2014
 (This is Chart 5.8 in the accompanying Excel deliverable.)



(Source: ABI Research)

Section 6.

RELATED RESEARCH

What Do Cisco SMB Wi-Fi Customers Really Want? (RB-Wi-Fi-119)

This research brief is based on primary research conducted with SMB customers who have Wi-Fi deployments. It describes the similarities as well as the significant differences between SMB Wi-Fi customers who operate Cisco branded and Linksys branded Wi-Fi equipment. The brief focuses on these two customer groups' channel preferences, technology choices, rate of technology change and 802.11n migration plans, attitudes towards security, and interest in a managed Wi-Fi security service.

Mobile Device Management for Business: Device Management Platforms, Procurement and Asset Management Services, Billing and Support Services, and Enhanced Services (RR-DMGT)

Mobile Device Management Services – In this report, the market for mobility and device management services and associated platforms is analyzed. An update on the market drivers along with relevant services forecast data set the stage for the growth we expect. The complexity of the needs and solution sets are analyzed along with a review of future competitive scenarios and recommendations to value chain players. Finally, forecasts for device management services are presented for worldwide markets as well as forecast distribution in North America by industry vertical.

Smartphone and OS Markets: Critical Considerations for Handset Manufacturers, OS Vendors, Mobile Operators, Semiconductor Vendors, and Application Developers (RR-SPH)

The smartphone segment is witnessing the fastest growth in the handset market. Handset vendors are coming out with new smartphones every three to six months, and many handset start-ups enter the market with smartphones offering higher margins, allowing new companies to become profitable sooner. The handset OS is the focus of attention. High saturation in developed markets means that carriers can no longer compete on price and tariff alone to capture new subscribers. Carriers need to differentiate themselves at all levels (handsets, services, and user interface) to achieve growth and protect their own subscriber bases. Additionally, generating higher data revenues is critical as carriers cannot continue to grow their businesses on voice services alone. Therefore, the OS is becoming increasingly important as devices need to evolve to support more complex service offerings from carriers. This study provides a thorough overview of the smartphone market, concentrating on key developments in both device feature set expansion and the evolving software landscape. The report covers important topics including specific features and technologies that enhance the user interface, in addition to the encroachment of open source software into the smartphone domain.

Business Mobility Market Data (MD-BMO)

The Business Mobility Database has two sections. In the first section, an expanded view of the data in the research report, "Mobile Business Applications and Services" is presented. Data in this section includes regional and global views of business customer usage of mobile applications and services in seven different categories: voice, data, real-time communications, messaging communications, information access, computing, computing/information access, and business process solutions. Usage in each of these categories is demonstrated by number of customers, revenues, and ARPU's. The regional views are for North America, Europe, Asia-Pacific, Latin America, and Africa/Middle East.

In the second section, business customer usage is segmented by industry vertical, occupation, and business size. This data is forthcoming and initially will be provided for North America.

Mobile Device Security Managed Services: The Mobile Malware Threat, Device Security Management, and Emerging Business Models for Mobile Operators (RB WHAN-108)

Over the past two years, the appearance of malware for mobile devices has established a market for packaged security software. Now a new market, managed mobile device security services, is emerging as a significant revenue opportunity for mobile operators as well as for security software companies supporting these services. These managed services have already been established in Europe and in Southeast Asia and now Sprint has started one in the United States. Mobile operators will need to meet a variety of very specific needs listed in this report and establish price points consistent with those already offered by early players in this market. This research brief spells out the conditions required for a consumer-specific mobile device security managed service to emerge. It also provides a worldwide forecast of mobile device managed security services revenue for the 2006 to 2011 time period.

Section 7. **COMPANY LIST**

3Com Corp

www.3com.com

AirMagnet Inc

www.airmagnet.com

AT&T Corp

www.att.com

BT (British Telecom)

www.bt.com

Cisco Systems Inc

www.cisco.com

Dell

www.dell.com

D-Link Systems Inc

www.dlink.com

F-Secure Corp (Finland)

www.f-secure.com

HP (Hewlett-Packard)

www.hp.com

Intel Corp

www.intel.com

iPass Inc

www.ipass.com

Lenovo (China)

www.lenovo.com

McAfee Inc

www.mcafee.com

Netgear

www.netgear.com

Nokia (Finland)

www.nokia.com

Qualcomm Inc

www.qualcomm.com

RIM (Research In Motion Ltd) (Canada)

www.rim.com

SMC Networks Inc

www.smc.com

Symantec Corp

www.symantec.com

T-Mobile USA

www.t-mobile.com

U4EA Technologies

www.u4eatech.com

Verizon Wireless

www.verizonwireless.com

Section 8.

ACRONYMS

2G	Second Generation
3G	Third Generation
AES	Advanced Encryption Standard
ASP	Average Selling Price
CAPEX	Capital Expenditures
CEO	Chief Executive Officer
CSO	Chief Security Officer
HDMI	High-Definition Multimedia Interface
IP	Internet Protocol
IT	Information Technology
LAN	Local Area Network
MSP	Managed Service Provider
MVNO	Mobile Virtual Network Operator
NAP	Network Access Protection
OPEX	Operating Expenditures
RADIUS	Remote Authentication Dial-In User Service
SaaS	Software as a Service
SMB	Small to Mid-sized Business
SME	Small to Mid-sized Enterprise
SOHO	Small Office/Home Office
SMS	Short Message Service
SSL	Secure Sockets Layer
VAR	Value-Add Reseller
VGA	Video Graphics Array
VoWi-Fi	Voice over Wi-Fi
VPN	Virtual Private Network
Wi-Fi	Wireless Fidelity
WLAN	Wireless LAN

WMM

Wi-Fi Multimedia

WPA

Wi-Fi Protected Access

WPA2

Wi-Fi Protected Access second version (with AES encryption)

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Please be aware that an Excel worksheet containing all market forecasts accompanies this document. When downloading this report as a PDF from the ABI Research web site, please check to see if the Excel worksheet is also available for download. If you have any questions regarding this, please contact our client relations department.

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SCOPE OF STUDY

This study focuses on SMBs globally that have employees who travel and use wireless communications for business purposes. It also focuses on “mobile” employees who travel within an office and access business applications using a WLAN. The report sizes up the total available market for vendors, examines the potentially most lucrative parts of this market for vendors, and offers actionable advice on what channels to use to reach this market.

SOURCES AND METHODOLOGY

An analyst was assigned to coordinate and prepare this Research Report. Research and query specialists helped lay the data and information groundwork for the analyst, who also developed a focused interview strategy.

ABI Research teams follow a meticulous process when examining each market area under study. The three basic steps in that process are: information collection, information organization, and information analysis.

The key element in ABI Research’s information collection process is developing primary sources, that is, talking to executives, engineers, and marketing professionals associated with a particular industry. It is from these conversations that market conditions and trends begin to emerge, free from media hype.

Analysts use secondary sources as well, including industry periodicals, trade group reports, government and private databases, corporate financial reports, industry directories, and other resources.

For the purposes of this study, the analyst was able to take advantage of two primary research surveys conducted in 2008. One of these studies (February 2008) focused on mobile businesses from a mobile phone perspective. The other study (July 2008) focused on SMBs who utilize wireless LANs. Because both surveys used the same methodology and segmented the SMB respondents in the same way, it was possible to use results from both these studies to provide a complete mobile SMB profile that included both mobile phone and Wi-Fi-enabled laptop perspectives.

Analysts’ conclusions take several forms. The text addresses hard data and well-defined trends and is supported by forecast tables and charts. The text also addresses issues and trends that are difficult to quantify and present in neat, tabular form. Lying at the margins of an industry, they are often precursors of the next technology wave.

NOTES

CAGR refers to compound average annual growth rate, using the formula:

$$\text{CAGR} = (\text{End Year Value} \div \text{Start Year Value})^{(1/\text{steps})} - 1.$$

CAGRs presented in the tables are for the entire timeframe in the title. Where data for fewer years are given, the CAGR is for the range presented. Where relevant, CAGRs for shorter timeframes may be given as well.

Figures are based on the best estimates available at the time of calculation. Annual revenues, shipments, and sales are based on end-of-year figures unless otherwise noted. All values are expressed in year 2009 US dollars unless otherwise noted. Percentages may not add up to 100 due to rounding.

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