Point of View

What Do Mobile Business Users Want from Wi-Fi?

Insights from Cisco IBSG Research

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Cisco Internet Business Solutions Group (IBSG)

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Mobile communications have fundamentally changed the way business works. Once the exclusive domain of senior executives, mobile devices are now indispensable to most employees for conducting both their business and personal lives. Smartphones, tablets, and new hybrid devices such as the Samsung Galaxy Note and Apple iPad Mini bring a host of applications and services to the palm of one's hand, providing access to critical information and improving the way business gets done. Ever since the days when executives lugged around brick-like mobile phones, business has been the major driver of success and innovation in the mobile industry.

The insatiable demand for smartphones, tablets, and other connected devices is generating staggering amounts of mobile data. The Cisco® Visual Networking Index (VNI) predicts that global mobile data traffic will increase 18-fold from 2011 to 2016, reaching 10.8 exabytes per month. In parallel, the use of Wi-Fi for Internet access is exploding as more mobile devices are Wi-Fi enabled, the number of public hotspots expands, and user acceptance grows. Once shunned by corporate IT departments, Wi-Fi has increasingly made its way into most businesses. In fact, Nemertes Research estimates that more than 95 percent of U.S. businesses have now adopted Wi-Fi.[1]

Until recently, most technologists and mobile industry executives viewed Wi-Fi as the "poor cousin" to licensed mobile communications. And, they certainly never viewed any role for Wi-Fi in mobile networks or their business. The explosion of mobile data traffic has changed all of that. Most mobile operators now realize that offloading data traffic to Wi-Fi can, and must, play a significant role in helping them avoid clogged networks and unhappy customers. In addition, service providers (SPs) are struggling to understand the new business models for making money from Wi-Fi.

Business users are the most valuable customer segment for mobile operators. Changes in mobile behavior and usage, particularly with regard to Wi-Fi, could have a significant impact on SPs' bottom line. However, there is little research on how mobile business users are actually using Wi-Fi, how they want to employ it in the future, and, more specifically, what is driving them to connect their devices to the Internet using Wi-Fi rather than "mobile."[2]

To learn more, the Cisco Internet Business Solutions Group (IBSG) conducted a survey of 540 U.S. mobile business users to understand their needs and behaviors, current and future mobile usage, and level of interest in Wi-Fi, as well as new forms of monetization. For analysis purposes, Cisco IBSG defines business users as those who use their mobile device at their primary or remote place of work. Roughly 60 percent of these users were "knowledge workers."

[1] "Wireless LAN 2010," Nemertes Research.

[2] In this paper, we will use the term "mobile" to represent wireless connectivity over licensed spectrum, based on a cellular architecture.

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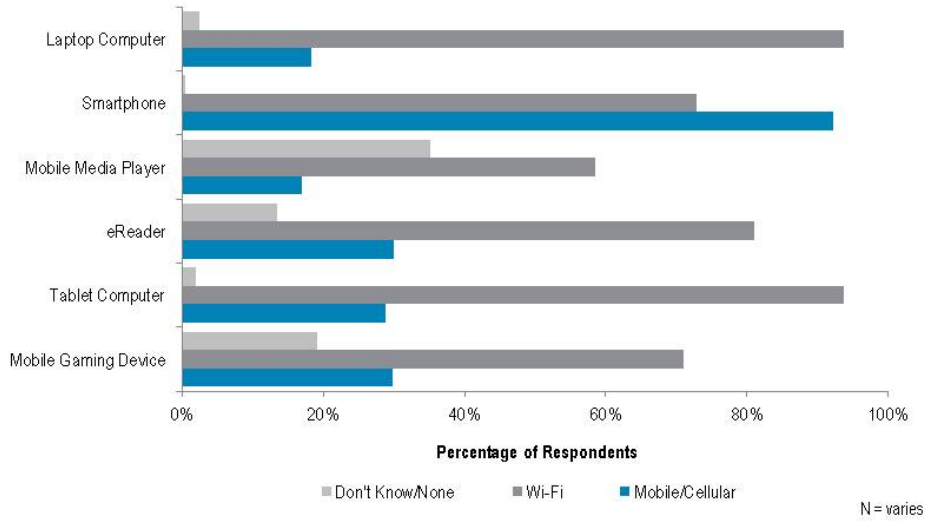
The research findings are important because they help SPs understand the size of the opportunity, develop strategies for success, and differentiate their Wi-Fi business offerings and initiatives to become more competitive.

A World of Wi-Fi Devices

As the survey revealed, American businesspeople love their mobile devices. On average, they reported having three devices each, compared with 2.2 devices per participant in Cisco IBSG's consumer Wi-Fi survey. Seventy-seven percent of business users reported having a laptop computer. Perhaps more significant, our findings showed that smartphones are the business device of choice, with 76 percent of business users owning a smartphone, compared with only 30 percent of consumers. Equally, tablets are extremely popular with business users. In just two years since Apple launched its first iPad, 30 percent of the business-user population now own some kind of tablet. And, five years after Amazon effectively created the eBook category, eReader ownership is more evenly split between business users (24 percent) and consumers (17 percent). Interestingly, our research showed that business users own more media players and gaming devices than consumers—one-third own a mobile media player (e.g., Apple iPod, Microsoft Zune), and almost one-quarter own a mobile gaming device.

All of these mobile devices now have Wi-Fi Internet access capabilities. In fact, with the exception of smartphones, Wi-Fi is now the predominant access technology for those devices (see Figure 1). Laptops, tablets, and eReaders almost exclusively connect to the Internet through Wi-Fi, with only approximately 25 percent having any mobile connectivity capability. Smartphones are the only truly mobile network device, although three-quarters of respondents' smartphones are Wi-Fi-enabled. Android devices are the most popular smartphones among business users, accounting for 44 percent of all business smartphones, followed by the Apple iPhone (35 percent) and BlackBerry (21 percent). Almost one-quarter of U.S. business users reported having a data card, compared with only 7 percent of consumers; 82 percent use the card weekly and one-half use it daily.

Figure 1. Device Network Connectivity.



Q10. Please describe the wireless capabilities of each of the following devices that you own?

Source: Cisco IBSG, March 2012

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Daily usage of these mobile devices is high, although they are not always connected to the Internet. Remarkably, there is little difference in hours of use per device between business and non-business users. If they own a device, both business and consumer segments make good use of it. With the exception of laptops and smartphones, customers use their mobile devices approximately one to 1.5 hours per day, although they are connected less than half that time. Laptops are still the mobile device workhorse, with respondents reporting that they use their computers an average of about three hours per day, most of which is spent wirelessly connected to the Internet. Business users use their smartphones an average of two hours per day, slightly more than consumers, yet they are engaged in connected activities only half that time. Tablet computers are starting to reflect smartphone and laptop usage patterns, with both segments using them an average of 1.6 hours per day, one hour of which is spent wirelessly connected to the Internet.

These mobile devices are used continuously throughout the day for a number of traditional mobile activities. Just more than 80 percent of business users use their mobile devices at least daily to make calls, send and receive emails, text, and browse the web. In fact, a quarter of people reported doing these core activities continuously throughout the day. A little more than 60 percent of mobile business users visit social networking sites and use apps daily, and roughly two-thirds of these users perform these activities at least several times a day. Forty percent of business users reported using productivity tools on a daily basis, although only one-quarter of them use business-specific mobile apps regularly.

Home Is Where the Business Device Is

Mobile usage has definitely shifted to the home in a big way (see Figure 2). In fact, business users now spend more time on their mobile devices in the comfort of their homes (2.5 hours per typical day) than in the workplace (average of 1.7 hours per day). The business world of mobile devices is definitely changing from a "mobile," on-the-go world (where the average usage is 0.9 hours per typical day) to a "nomadic" world dominated by the home, work, and more stationary locations such as travel spots, public spaces, and retail. And, like consumers, businesspeople expect to increase their use of mobile devices at home even further: two-thirds said they expected to increase home usage within the next year, surpassing on-the-go and work as the number-one location for increased use.

Home is, in fact, the primary location where both business and non-business users employ all of their mobile devices. We found that there was very little difference in home device usage by segment. Of those people using their devices in the home, between 80 percent and 90 percent reported that home was their primary location for using their laptops, eReaders, tablets, mobile gaming devices, and smartphones.

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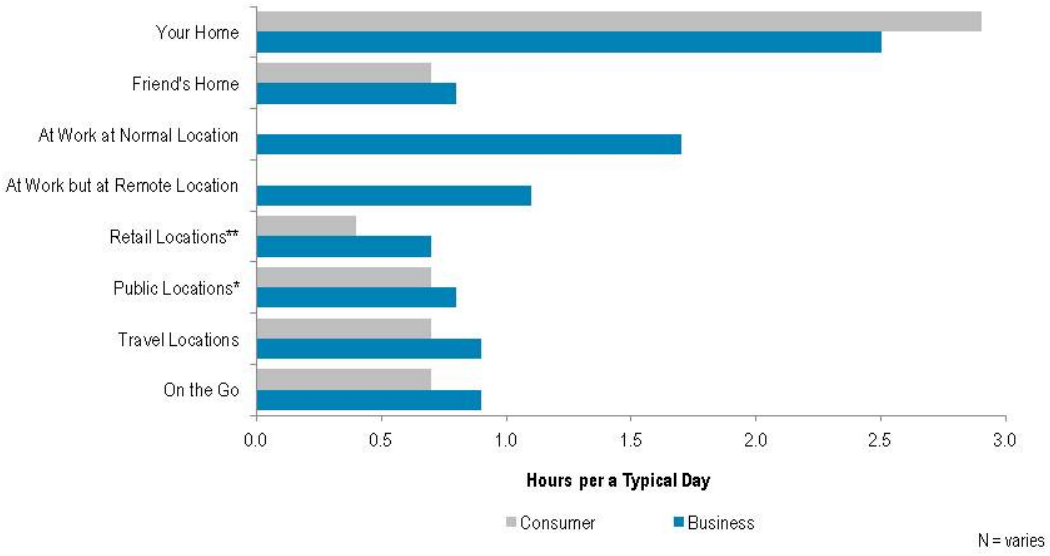
Figure 2. Average Daily Usage by Location.



Q33. In a typical day, for how long do you use your mobile devices in each of the following locations?

* Public—e.g., stadiums, parks, schools ** Retail—e.g., stores, restaurants

Source: Cisco IBSG, March 2012

Business users also reported using their mobile devices an average of 1.7 hours per day at their normal work location and 1.1 hours at remote work locations. Of their mobile devices, smartphones by far are the predominant device—68 percent of business respondents use their smartphones at their primary workplace, followed by tablets (34 percent) and laptops (32 percent). This distribution changes significantly when we look at devices people use when they are on the go: smartphones and basic mobile phones are the principal devices for business users. However, mobile media players are equally popular on-the-go devices for both customer segments (18 percent for consumers and 14 percent for business users), followed by tablets.

Among respondents using their devices at a normal work location, 68 percent of smartphone owners stated that this represented where they primarily use their device. Interestingly, more tablet owners (26 percent) than laptop owners (17 percent) reported using their device primarily at work. Similar distributions were seen for businesspeople using their devices in retail locations (e.g., Starbucks, hotels) and public spaces (e.g., airports, train stations, stadiums). Smartphones (53 percent) are the predominant devices used by businesspeople in these locations, followed by tablets (23 percent). The percentages for these locations differ when it comes to mobile media players, eReaders, and laptops. In retail locations, mobile media players and laptops are used 16 percent of the time and eReaders 17 percent. By contrast, in public spaces, businesspeople use mobile media players 30 percent of the time, eReaders 24 percent, and laptops 20 percent.

Wi-Fi or Mobile? That Is the Business Question

This shift to Wi-Fi-enabled devices and locations is clearly showing up in how business users are choosing to connect their devices to the Internet. As Figure 3 shows, most mobile

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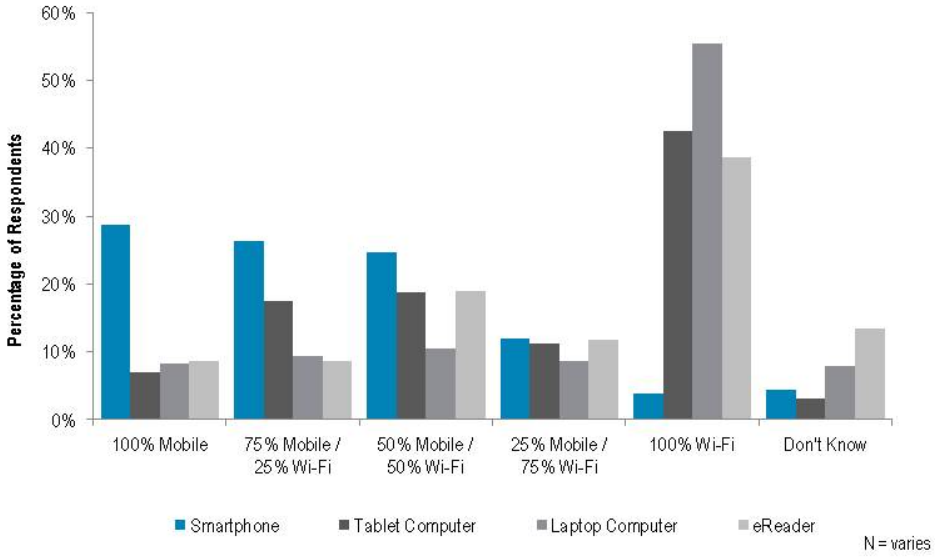
business users are connecting their devices via Wi-Fi at some point, including 70 percent of smartphone owners. Approximately 50 percent of tablets, laptops, and eReaders are connecting exclusively through Wi-Fi. Although 30 percent of smartphone owners are connected only via the mobile network, the remaining 70 percent are supplementing mobile connectivity with Wi-Fi. In fact, on average, smartphone business users use Wi-Fi one-third of the time to connect their devices to the Internet.

Even more astounding is that with the exception of smartphones, business users would prefer to connect all of their devices via Wi-Fi. Given a choice, 80 percent of tablet, laptop, and eReader owners would either prefer Wi-Fi to mobile access or have no preference. And, just over one-half of smartphone owners would prefer to use Wi-Fi or are ambivalent about the two access networks.

Figure 3. Current Distribution of Network Connectivity by Time.



Q29. Of all the time you spend using mobile data (e.g., browsing the web, using email, watching online video) on each of the following mobile devices, what percent of the time do you use a Wi-Fi network (i.e., connected to a wireless router or hotspot at a given location) versus a mobile/cellular network (i.e., over 3G or 4G mobile)?

Source: Cisco IBSG, March 2012

Figure 4 reveals many of the possible reasons for this new attitude toward Wi-Fi connectivity. When asked which network they preferred, business respondents chose Wi-Fi across all attributes with the exception of coverage. Also worth noting is that across most attributes, one-quarter of respondents saw no difference between the two networks. While Wi-Fi cannot compete with the now nearly ubiquitous coverage of cellular networks, what is remarkable is that even business users consider Wi-Fi easier to use and more reliable than mobile—ease of use and reliability are two areas where mobile typically is technically superior. And, despite the technical superiority of cellular mobility in the area of security, both consumer and business users clearly do not make this distinction. These data seem to

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indicate a huge gap between the technical reality and user perception across the key distinguishing attributes of the two access networks.

Figure 4. Preferred Network Access.

Attribute	Mobile/Cellular	Wi-Fi	No Difference	N*
Lowest cost	22%	57%	21%	387
Speed of network	21%	59%	20%	387
Best reliability	32%	49%	19%	387
Best performance for my applications	27%	50%	23%	387
Best coverage	48%	36%	17%	387
Most secure	36%	36%	27%	387
Easier to use	32%	42%	26%	387

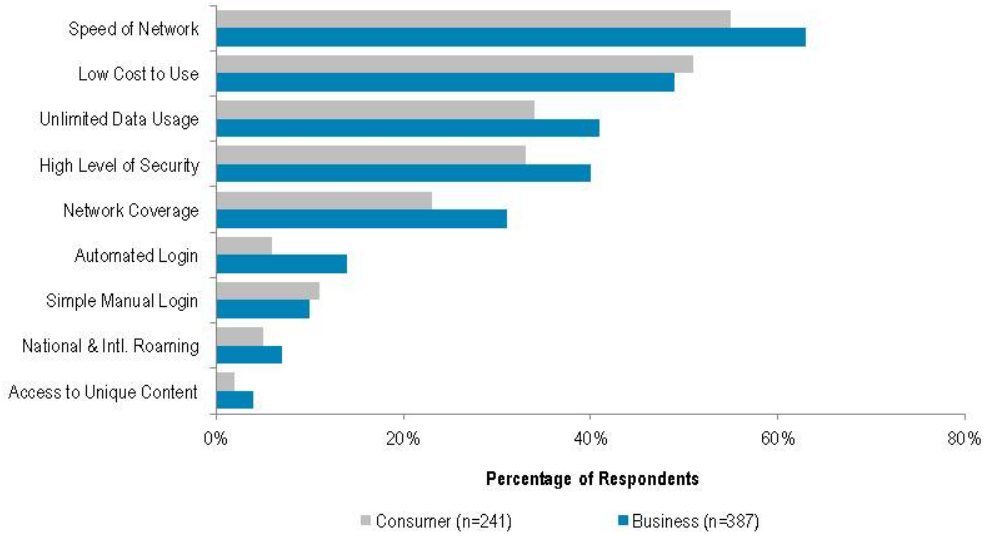
*Don't Knows removed from sample.

Q38. Thinking about Wi-Fi and mobile/cellular networks, which type of wireless network do you think offers the most desirable performance or features in each of the following areas?

Source: Cisco IBSG, March 2012

Mobile business users are drawn to the speed and lower cost of Wi-Fi networks, but sometimes are challenged by the difficulty of locating access points and by variability in performance. As Figure 5 shows, both business and consumer users are choosing Wi-Fi over mobile connectivity based on cost advantages and because it doesn't impose data-usage caps or reduce their mobile data plan quotas. The top reason for choosing Wi-Fi, however, is that people find it much faster than mobile networks.

Figure 5. Most Important Wi-Fi Features.



Q40. When you choose to select a Wi-Fi network, what are the most important features to you (select up to 3)?

*Don't Knows removed from sample.

Source: Cisco IBSG, March 2012

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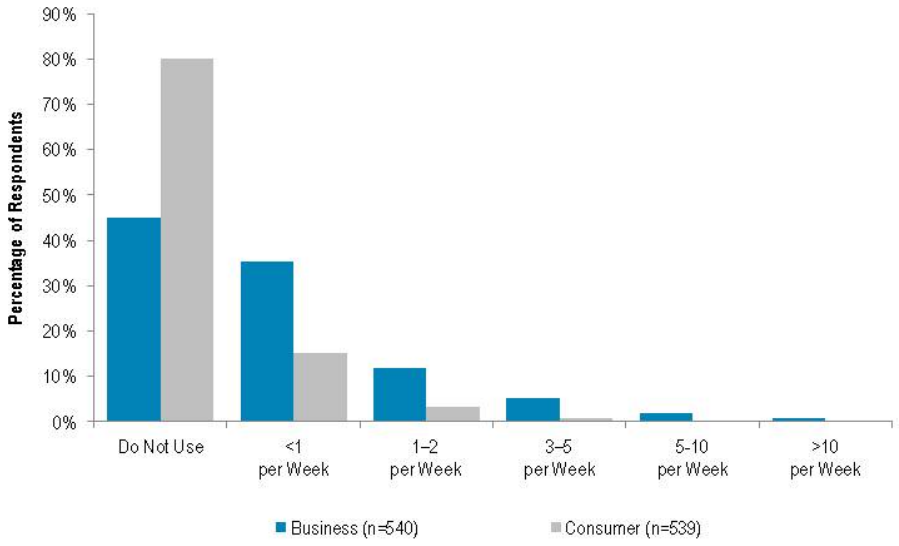
Interestingly, 40 percent of respondents in both user segments named network speed as the top challenge to Wi-Fi. This no doubt reflects the huge variability in quality among Wi-Fi networks in the home, office, and public venues such as hotels and coffee shops. Of no surprise is that all respondents indicated that locating access points is an equally significant challenge.

One thing is certain: people expect seamless integration within and across access networks. And, this is even more critical for mobile business users: 90 percent of business respondents (compared with 80 percent of consumers) felt that a seamless handoff between Wi-Fi networks is important, with 72 percent (compared with 52 percent of consumers) saying it is "very" or "extremely" important. Equally, 88 percent of business users (compared with 79 percent of consumers) felt that a seamless handoff between Wi-Fi and mobile networks is important, with 69 percent (compared with 52 percent of consumers) indicating that it is "very" or "extremely" important.

The New Mobile

Our survey revealed that more than half of all business users use public Wi-Fi weekly, compared with only 20 percent of non-business users (see Figure 6). And, 20 percent of all mobile business users take advantage of a public hotspot weekly. The top locations for these more active business users are outdoor public spaces (e.g., parks, streets), coffee shops/restaurants, and other locations (e.g., schools, doctors' offices, and retail). These users ranked travel locations such as airports and trains sixth on the list of popular public Wi-Fi locations.

Figure 6. Public Hotspot Usage per Week (all locations).



Q35. How frequently do you use public Wi-Fi hotspots during a typical week in each of the following locations?

Source: Cisco IBSG, 2012

Remarkably, very few people are paying for public Wi-Fi: our study showed that three-quarters of business users use free public Wi-Fi, and an additional 21 percent access free

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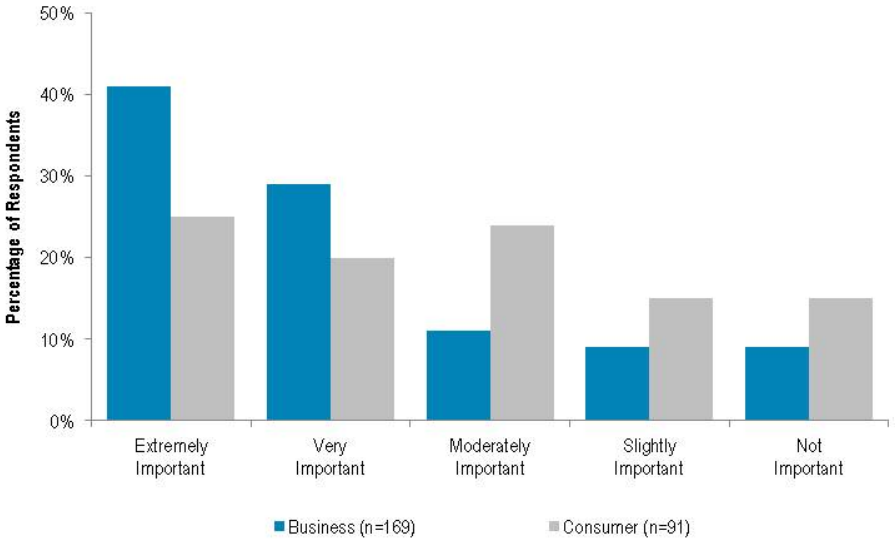
public Wi-Fi as part of their home broadband subscription (9 percent), mobile plan (8 percent), or loyalty program (4 percent). Business-expense-friendly venues such as hotels, airports, and trains are the most popular locations used by the 6 percent of regular business users who pay for public Wi-Fi access. When respondents were asked where they desire additional Wi-Fi access, the top locations were parks and restaurants/cafés, followed by hospitals, grocery stores, subways, and retail stores/shopping malls.

Broadband providers bundle free public Wi-Fi access with their subscriptions as a means of retaining customers. But does it work with mobile business users? As Figure 7 indicates, free Wi-Fi is an important factor in subscribers (particularly business customers) choosing to stay with their broadband provider. Almost three-quarters of business respondents who knew that free Wi-Fi access was bundled with their home broadband subscription indicated that it was a "very" or "extremely" important factor in their choice of broadband provider.

Equally, almost two-thirds of all business respondents (49 percent consumers) indicated that they were at least moderately likely to switch broadband providers if they were offered free public Wi-Fi, with 33 percent (compared with 21 percent of consumers) saying that they would be "very" or "completely" likely to switch. Not only does the inclusion of free public Wi-Fi seem to be effective in retaining existing broadband customers, it may also be a means of attracting new ones—especially mobile business users—from competitors.

Figure 7. Importance of Free Wi-Fi in Broadband Choice.



Q26. How important was free access to public Wi-Fi hotspots in your choice of home broadband service provider?

Source: Cisco IBSG, 2012

The results of the research seem to indicate that we may be on the verge of a "New Mobile" paradigm—one in which Wi-Fi and mobile networks are seamlessly integrated and indistinguishable in the mobile user's mind. While users may recognize that there are differences between access networks, Figure 8 indicates that business users are interested in a New Mobile world that combines different access networks to provide pervasive

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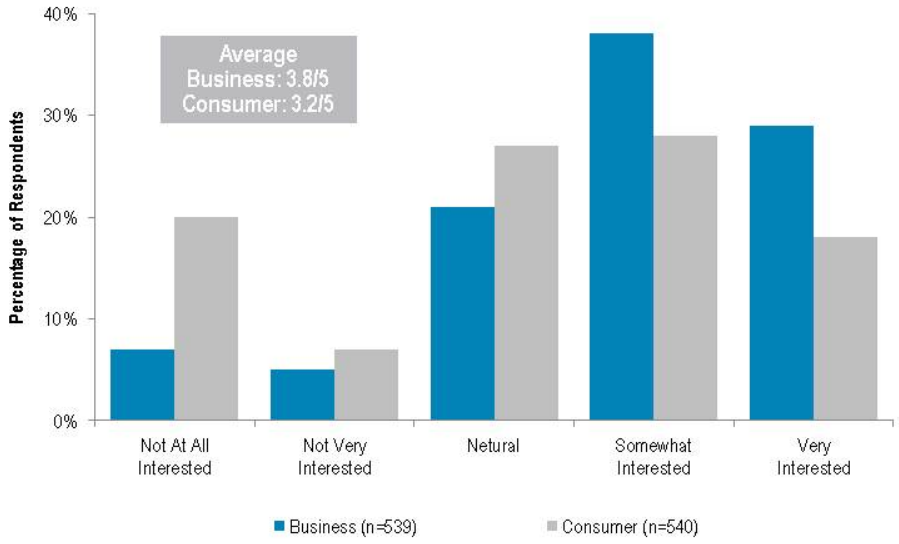
mobility in a cost-effective, seamless, and unlimited data offering. Two-thirds of business respondents (an average of 3.8 out of 5) were "somewhat" or "very" interested in an offer that provides unlimited data across combined access networks for a flat monthly fee. Unsurprisingly, the biggest perceived benefits for both user segments were lower overall costs and unlimited data, signaling the end of uncertainty about overage charges. However, business users also liked the location flexibility, reliability, and seamless transfer between networks that this proposition offered.

Figure 8. Interest in Bundled Flat Fee for Mobile/Cellular and Wi-Fi Access.



Q48. Imagine a service in which you pay a low flat fee for a combined mobile/cellular and Wi-Fi solution with unlimited data access throughout the country (does not include voice service). Your service provider will seamlessly transfer your service to the lowest cost and best suited network with no degradation of quality. This offer would replace your current mobile data plan and would be at least the same cost, or lower, than your current data plan.

Source: Cisco IBSG, 2012

New, Innovative Business Models

To date, most SPs have viewed Wi-Fi as a means to offload some mobile data traffic and help retain customers. However, SPs are beginning to evaluate Wi-Fi business models that provide advantages beyond offloading and retention. Cisco IBSG wanted to test interest among mobile business customers in some of the key alternative business models that we outlined in a recent paper on Wi-Fi monetization.[3] Specifically, we tested four business models, with the following results:

Model 1: Accepting general advertising for free Wi-Fi access. Average interest of 3.3 out of 5, with 47 percent being "somewhat" or "very" willing to accept advertising for free access. The biggest reasons for not accepting were: 1) inconvenience—not worth the money; 2) ads

[3] "Profiting from the Rise of Wi-Fi: New, Innovative Business Models for Service Providers," Cisco IBSG, March 2012.

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slow me down; 3) already have access to free Wi-Fi; and 4) concerned about sharing personal data.

Model 2: Accepting personalized marketing for free Wi-Fi access. Average interest of 2.6 out of 5, with 42 percent being "somewhat" or "very" willing to accept advertising in exchange for free access. The biggest reasons for not accepting were: 1) ads slow me down; 2) don't want retailers to have personal information; 3) inconvenience—not worth the money; and 4) don't see enough value in personally targeted offers.

Model 3: Secure Wi-Fi access to remotely stored content in a digital locker. Average interest of 3.6 out of 5, with 57 percent being "somewhat" or "very" interested in the offer. The biggest perceived benefits were: 1) lower overall cost; 2) unlimited data/no overage; 3) reliability; 4) flexibility of location; and 5) security/privacy of data.

Model 4: National / international Wi-Fi roaming. Average interest of 3.8 out of 5, with 61 percent being "somewhat" or "very" interested in the offer. The biggest perceived benefits were: 1) lower overall cost; 2) unlimited data/no overage; 3) no roaming charges for mobile; 4) flexibility of location; 5) convenience; and 6) reliability.

Responses to these new Wi-Fi business models indicate that, in general, mobile business users are much more receptive than consumers to these models, no doubt reflecting the importance of mobile connectivity in their lives. Business users indicated that they would accept some level of generic advertising, but that they are not particularly interested in consuming targeted advertising in order to enjoy free Wi-Fi access. Business users generally perceive advertising as an inconvenience that "slows them down."

Equally, mobile users would value access to a national or international network of public Wi-Fi hotspots that helps them control their mobile connectivity costs and minimizes the challenges of finding public access points. Mobile business users are also interested in being able to securely access their digital content across multiple devices via lower-cost, faster Wi-Fi networks.

Moving to the New Business Mobile

New devices, changes in customer behaviors, and technological advances are rapidly pushing the use of Wi-Fi as a wireless access technology by mobile business users. Cisco IBSG's mobile connectivity research clearly demonstrates that business customers are adopting Wi-Fi to connect their growing portfolio of personal and business mobile devices to the Internet. Many business users, in fact, seem to prefer Wi-Fi to traditional mobile cellular networks for wireless connectivity. While mobile business users recognize that there are differences between the two access technologies, most see them as part of a seamless, integrated means to provide the constant connectivity that their intertwining personal and business mobile lives and devices demand. Many mobile providers may see Wi-Fi as a threat to their traditional mobile business and a risk to their revenues from corporate customers. However, Wi-Fi does offer new opportunities to enhance the overall mobile customer proposition and experience, along with commercialization models.

Service providers must consider several important implications and potential strategies to position themselves to capture Wi-Fi opportunities in the business market:

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- **Incorporate Wi-Fi as an integral part of the business portfolio.** Use pricing, marketing, and new technological solutions to create compelling and integrated business-focused offers and solutions of value to mobile business users and IT departments. Create new Wi-Fi business opportunities to non-cellular "nomadic" devices (both business and personal), such as tablets and eReaders.
- **Target Wi-Fi use in the home and at the "office."** Create solutions and incentives to encourage users to offload mobile traffic at home or place of work, while retaining the ability to provide a unique and differentiated customer experience and connect them to the corporate network and technology architecture.
- **Explore new ways to make money from Wi-Fi.** Augment the typical offload business models with new and innovative Wi-Fi business models such as churn reduction by enhancing the end customer's mobile experience; managed mobility services for small businesses and enterprises; and new, seamless offers.
- **Deliver on the New Business Mobile.** Align network architectures and deploy appropriate technologies to deliver a seamless, integrated mobile Wi-Fi user experience across business, home, and public locations.

As demand for mobile devices and network connectivity continues to grow, both Wi-Fi and traditional mobile networks will be critical to meeting the needs of mobility-enabled business users. Service providers are in an enviable position of being able to successfully integrate these networks and the experience of their customers to provide what the market wants: New Business Mobile. To deliver the New Business Mobile, SPs must focus on advancing the technology, business innovation, and their understanding mobile business users' needs. This will enable them to develop offerings, new business models, pricing and sales-and-marketing strategies, and tactics that successfully address the requirements identified in this paper.

About the Survey

Cisco IBSG conducted an online survey of 540 U.S. mobile users in February 2012. For analysis purposes, Cisco IBSG defines business users as those who use their mobile device at their primary or remote place of work. Roughly 60 percent of these users were "knowledge workers." The survey base was representative of the U.S. employed population in terms of age, income level, and geographic distribution. Respondents reported using Wi-Fi in the following locations: home (65 percent), work (37 percent), and public (35 percent). Respondents' home broadband technology consisted of the following: cable (40 percent), DSL (30 percent), and fiber (10 percent). Fifty-nine percent of respondents had a bachelor's degree or higher. Fifty-three percent of respondents described the area where they live as suburban, while other living environments consisted of urban (28 percent), rural (10 percent), and semi-rural (9 percent).

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