Point of View

Mobile Consumers Reach for the Clouds

Cisco IBSG Research Uncovers Opportunities for SPs To Prosper in Mobile Cloud Market

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The growth of mobility, and the way it has fundamentally changed our lives, is unprecedented. Close to 80 percent[1] of the world's population now has access to a mobile phone, and new devices like the iPhone and Android smartphones are bringing a host of applications and services to the palms of people's hands.

At the same time, cloud computing has become *the* new way of delivering—and charging for—IT services and functionality. Technology services and applications are increasingly being delivered and paid for on-demand from remote data centers, accessible through the "cloud" of interconnected networks that constitute the Internet. Everything from email, content storage, and applications like Salesforce.com, to more complex computing and development platforms, can now be accessed through simple browsers and delivered through the cloud, eliminating the need for end-user applications and high-powered devices.

Moreover, it is also no secret that consumers love mobility. They have been, and continue to be, the biggest users of mobile services. A trip to your nearest consumer electronics store or a casual observation of teenagers obsessed with their latest mobile devices will quickly convince even the most staunch critic that consumers love mobility. In fact, consumers were the original adopters of cloud-based mobile services such as web mail, social networking, and video sharing.

As these trends collide, the mobile cloud stands to significantly increase the overall value of mobility and radically alter the way we live, learn, and play. Time spent perusing blogs, reading research reports, or attending conferences, however, will confirm that the vast majority of content about the mobile cloud is based on hype and contains little, if any, substantive information for taking advantage of the overall mobile cloud opportunity. In particular, almost no emphasis has been placed on understanding consumers' needs and buying behaviors, or on showing how this information can translate into new opportunities for mobile operators.

To better understand consumers' needs and strategies for success in the mobile cloud services market, the Cisco® Internet Business Solutions Group (IBSG) conducted a *Mobile Cloud Watch* survey of 1,016 U.S. mobile users to understand their current and future needs, and to learn how they prefer to pay for mobile cloud services.[2] The research findings are important because they allow service providers (SPs) to understand the size of the opportunity, develop strategies for success, and differentiate their offerings to become more competitive.[3]

Mobile + Cloud—What Does It Mean?

Before we explore the research findings, it is important to establish a common understanding of what "mobile cloud" means. Cisco IBSG defines it as *mobile services and apps delivered from a centralized (and perhaps virtualized) data center to a mobile device such as a smartphone.*

Customers access these services on-demand using the browser or thin client on their mobile devices. This contrasts to "thicker" clients that are downloaded from app stores and reside (and run) on the mobile device. Mobile cloud services are agnostic about the type of device or operating system on which they run.

Mobile cloud comprises two categories of services:

- **Traditional cloud services:** The extension of traditional, wired cloud services (Saas, Iaas) to mobile devices (e.g., Mozy, Salesforce.com)
- **Unique mobile cloud services:** Services that exploit features of the mobile device (e.g., camera, voice recognition) and the characteristics of mobility (e.g., location, presence) to create unique, cloud-delivered offerings (e.g., bar-code scanning, real-time translation)

Mobile Consumers Already in the Cloud

Mobile consumers are interested in having a single mobile phone for voice and data needs in both their business and personal lives. In fact, less than 20 percent of respondents to Cisco IBSG's survey had more than one mobile device. However, consumers have no intention of abandoning other kinds of devices designed for specific purposes, such as PCs and game consoles.

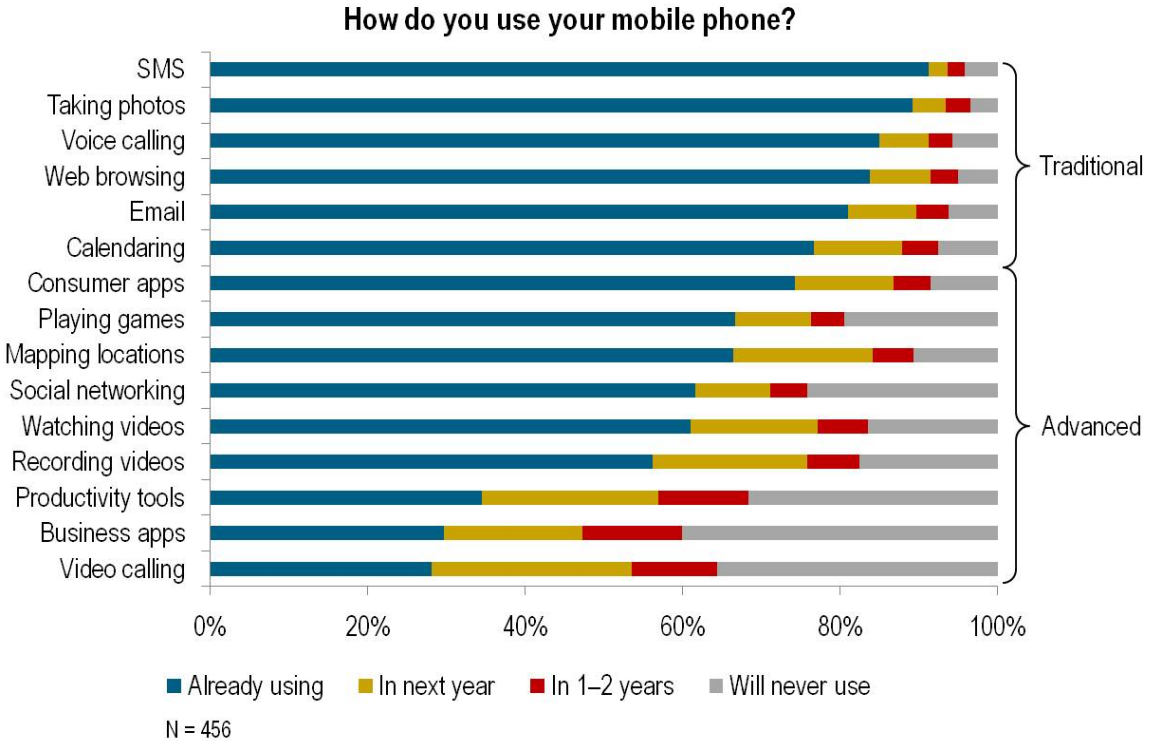
Many respondents also reported possessing new and more advanced devices such as mobile gaming tools, tablets, and e-readers. When presented with a potential offer that would allow them to move seamlessly from one device to another while watching a movie, listening to music, or using a productivity application, however, respondents expressed only a lukewarm level of interest (average of 5.2 out of 10).

More than 90 percent of respondents pay for their own mobile service; the remaining 10 percent have their service covered by their employers. This highlights the *consumerization* of mobility. Consumers are spending more on mobile services, yet there are big differences in spending based on the type of device being used. Smartphone users (45 percent of respondents) average $100 per month for voice and data services, while non-smartphone users average $61 per month, with one-quarter of these users spending less than $30 monthly.

Cisco IBSG also discovered big differences among users of different device types in terms of behaviors, device usage, and degree of interest in mobility. Due to the advanced capabilities of smartphones, users of these devices consume more data, applications, video, and collaboration services than non-smartphone users. This finding, combined with the typical profile of smartphone users, leads Cisco IBSG to believe that these users are more representative of mobile cloud users.[4]

Consumers are wholeheartedly embracing many smartphone features and services: more than 75 percent of respondents were already using the six core smartphone features shown in Figure 1. From this finding, it is clear that mobility is no longer just about voice, since "voice calling" ranked as only the third-most-used feature, with 15 percent of respondents not using this capability at all. Mobile consumers, however, are quickly adopting more advanced services such as apps, mapping, and social networking. In fact, 25 percent of respondents reported they are already using advanced features such as video calling and productivity tools.

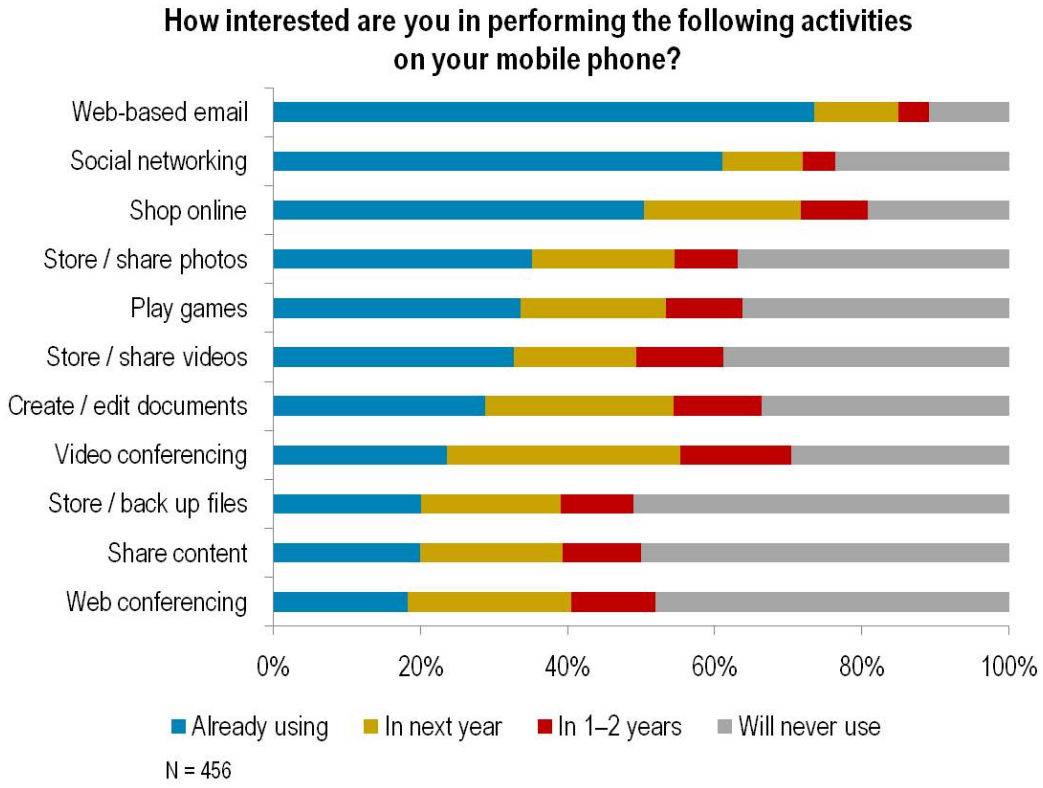
Figure 1. Current and Future Use of Traditional Mobile Phone Features (Smartphone Users).



Source: Cisco IBSG, 2011

In addition to this nearly ubiquitous adoption of traditional mobile phone capabilities and the rapid adoption of more advanced features, mobile consumers are already using a number of cloud services on their smartphones (see Figure 2). More than 50 percent of respondents are currently accessing web-based email, updating their social networks, and shopping from their mobile devices. Remarkably, one-fifth of respondents also reported using advanced cloud services such as web conferencing, content sharing, and online storage. The mobile cloud is already here, whether consumers know it or not.

Figure 2. Current and Future Activities on Mobile Phones (Smartphone Users).



Source: Cisco IBSG, 2011

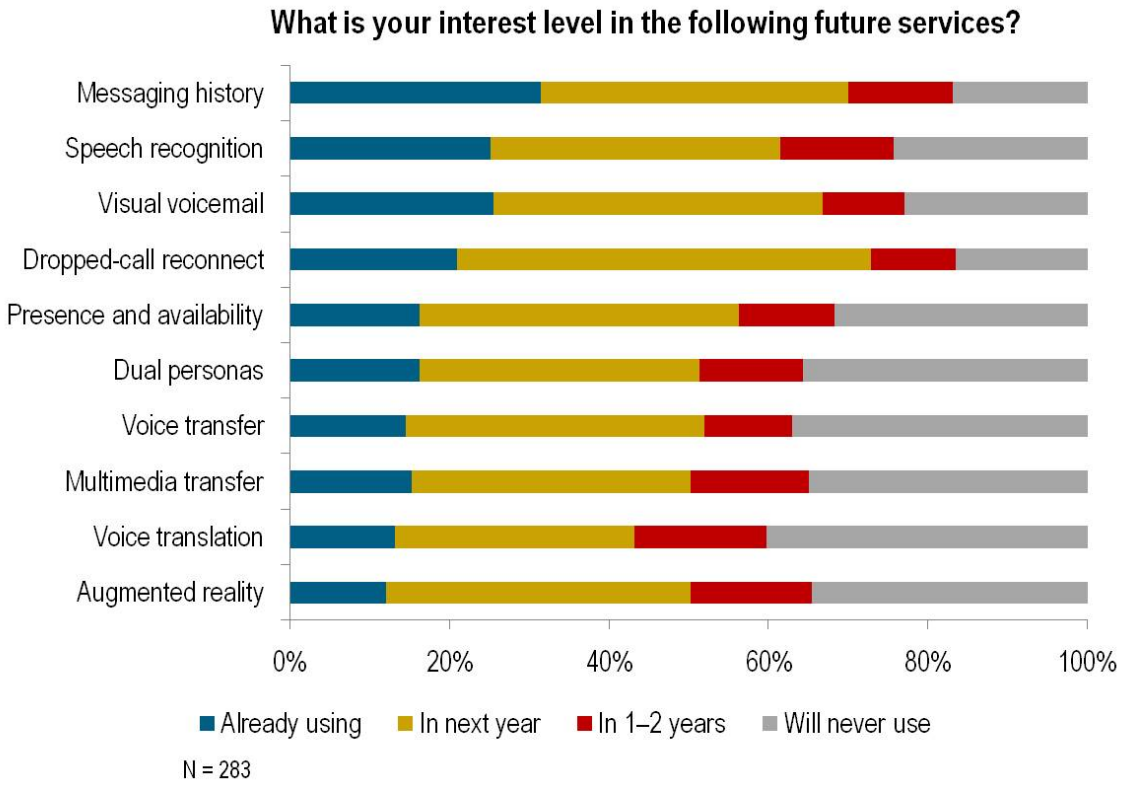
A Cloudy Forecast for Mobile Consumers

While the mobile cloud may already be here, the future will be even "cloudier" (a positive in this case) for consumers. Mobile consumers anticipate using even more advanced features over the next one to two years (see Figure 3). All forms of video—including watching, recording, and calling—will experience the greatest growth, with 70 to 80 percent of all users expressing intent to use these features on their mobile devices. Accessing documents and storing content also are key areas for mobile cloud growth.

In addition, next-generation mobile cloud services are entering (or soon will enter) the market. As expected, current usage of these services is low, but they show tremendous promise. Consumers were very interested in a service that combines the microphone and speaker capabilities of their smartphones for speech recognition (75 percent of respondents would use this capability within the next one to two years). They also liked the idea of combining voice recognition with the characteristics of mobility to do real-time voice translation (60 percent of respondents).

Finally, 65 percent of respondents expressed strong interest in having an easy-to-use dual-persona capability on their smartphones to make it easier to use a single device for both their work and personal lives. The ability to transfer multimedia files across multiple devices showed even stronger interest (70 percent of respondents). All of these next-generation services will be delivered through the mobile cloud.

Figure 3. Future Use of Next-Generation Mobile Services (Smartphone Users).

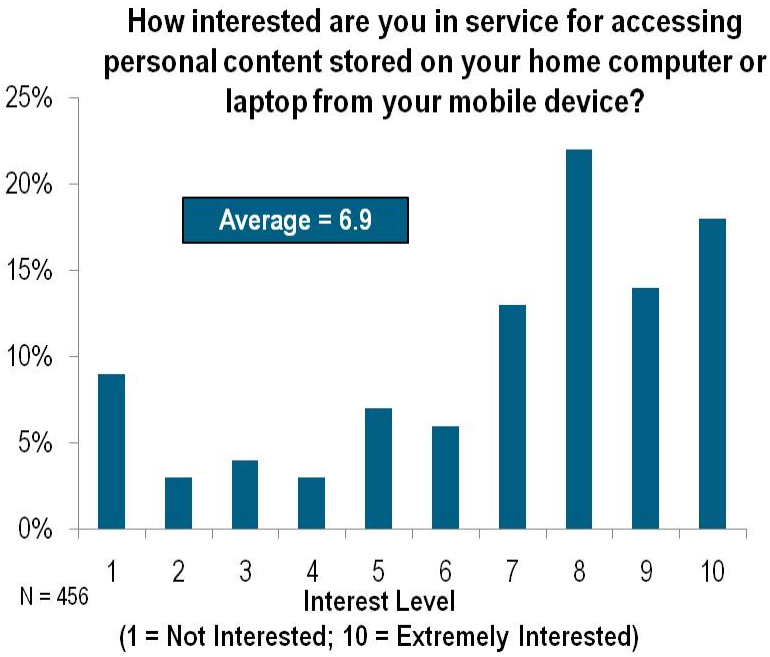


Source: Cisco IBSG, 2011

New Opportunities To Extend the Mobile Cloud

In addition to exploring existing and future cloud services, Cisco IBSG tested consumers' interest in several potential cloud-based offerings. Overall, these services were well received. For example, there was high interest in a service that would allow users to use their mobile phone to manage and access personal content such as videos, photos, and music stored on a home computer or elsewhere. Mobile users recognize the mobile cloud is essential for delivering access to personal content *anytime, anywhere, on any mobile device* (see Figure 4). This consumer interest in storing and managing content across multiple devices is consistent with respondents' intent to adopt the services shown in Figures 2 and 3. Consumer interest in storing and managing content across multiple devices creates a good opportunity for SPs to deliver an easy-to-use content storage and management solution over the mobile cloud.

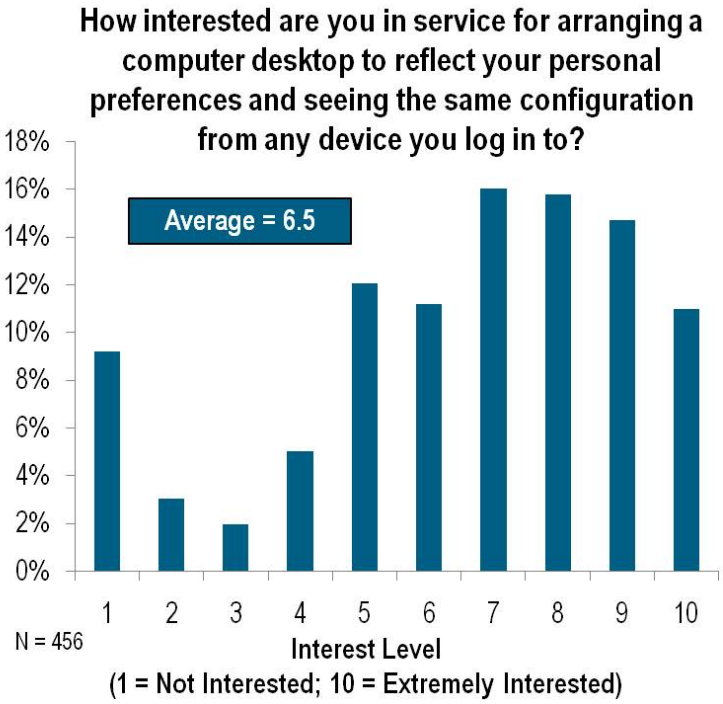
Figure 4. Interest in Accessing and Managing Personal Content Over the Cloud (Smartphone Users).



Source: Cisco IBSG, 2011

Similarly, consumers were very interested in a mobile-cloud-based virtual desktop infrastructure (VDI) service that would allow them to arrange a computer desktop to reflect their personal preferences and view the same configuration on any mobile (or other) device they log in to (see Figure 5). More than half of all smartphone users rated this service as a 7 (out of 10) or higher. These consumers defined the real value of this service as its ability to make them more productive (50 percent of respondents) and appreciated the consistent look and feel across devices (40 percent of respondents).

Figure 5. Interest in a Seamless, Cloud-Based Virtual Desktop (Smartphone Users).

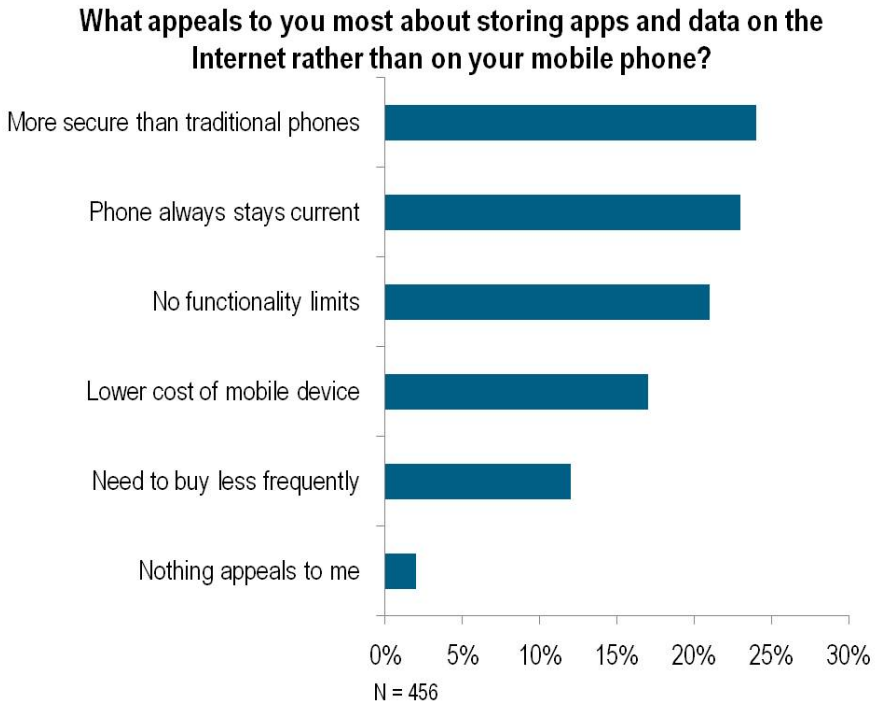


Source: Cisco IBSG, 2011

There was moderate interest in a thin-client device that could be used to access all content and smartphone functionality from the cloud. The average level of interest in this potential offering was 6.5 out of 10. However, 60 percent of all respondents were very interested (rating of 7 and above), recognizing they could lower their overall expenses and would no longer need to continually upgrade to the latest mobile devices to have the most current and exciting technology. Cisco IBSG strongly believes the mobile cloud will create significant demand and opportunities for "dumb" phones (limited processing power and storage) by delivering services through the cloud.

Consumers are most attracted to the mobile cloud because of better security, convenience, and an expanded range of functionality as compared to device-centric services (Figure 6). Security is top of mind because consumers recognize the growing importance of mobile devices in their lives and understand how difficult life would be if their devices were lost, stolen, or damaged. People also recognize the key value proposition of the mobile cloud—storing all of their critical information, media content, and apps in one place where they can be readily accessed no matter what happens to their mobile device.

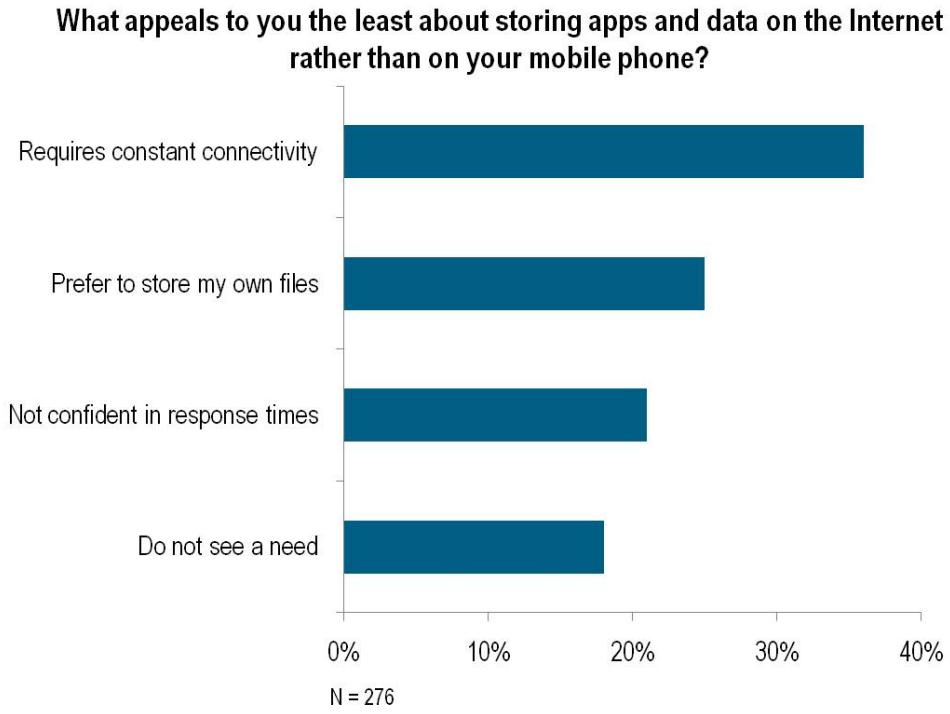
Figure 6. Mobile Cloud's Most Appealing Attributes (Smartphone Users).



Source: Cisco IBSG, 2011

Compared to traditional wireline cloud services, the mobile cloud presents a different set of challenges when it comes to attracting consumers (see Figure 7). Consumers' biggest concerns about using the mobile cloud are its lack of network reliability and robustness. If users are going to migrate their content, apps, and personal information to the cloud, they want to know they will always have mobile coverage and reliable connectivity. Cisco IBSG expects these concerns to subside and demand for mobile cloud services to accelerate as networks migrate to 4G technology, which provides faster, broader, and more reliable mobile services.

Figure 7. Mobile Cloud's Least Appealing Attributes (Smartphone Users).



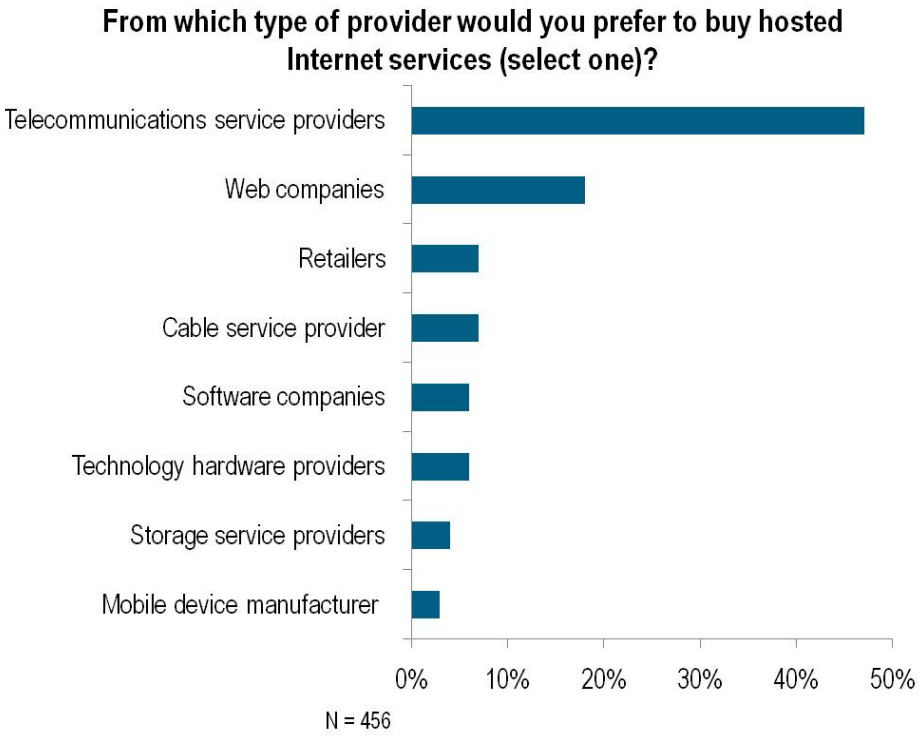
Source: Cisco IBSG, 2011

Mobile Operators Are Well Positioned

With some well-publicized exceptions, mobile users seem very satisfied with all aspects of the mobile service they receive, especially with coverage, reliability, and customer support. On average, respondents rated their level of satisfaction with the overall mobile experience as 7.8 (out of 10). It seems that the mobile industry may have finally matured enough for users to accept more advanced mobile services—such as the mobile cloud.

Given this high degree of satisfaction, consumers appear to be open to buying future mobile cloud services from their existing mobile providers. As Figure 8 shows, SPs were the preferred channel for close to 50 percent of respondents, dwarfing the less than 20 percent of mobile users who prefer web companies.

Figure 8. Preferred Provider of Mobile Cloud Services (Smartphone Users).



Source: Cisco IBSG, 2011

In choosing a mobile cloud provider, consumers most valued the reliability of service, familiarity and strength of their current relationship, and the operator's trusted brand. Mobile users who chose non-SP companies were also impressed with the service reliability that these providers deliver, but also were attracted to the lower prices and better quality of customer care offered by web companies. Remarkably, mobile consumers perceived non-SP providers to be much stronger in the areas of security and data privacy. Respondents who preferred non-SP companies ranked security and data privacy as their third-highest selection criteria. In comparison, those who chose mobile operators as their preferred providers ranked security and data privacy sixth on their list of priorities.

Delivering the Mobile Cloud Promise

Cisco IBSG's *Mobile Cloud Watch* research clearly demonstrates that mobile consumers are hungry for cloud services delivered to their mobile devices. In fact, many of them are already using several of the basic and more advanced mobile cloud services, and are eager to use the next-generation of services and integrated cloud solutions.

The good news for mobile providers is that consumers are generally satisfied with their current provider relationships and view mobile operators as a natural and preferred source for mobile cloud services. Operators also have a strong brand and relationship with customers that they can extend to become consumers' premier mobile cloud provider.

On the other hand, users recognize the importance of the network for delivering mobile cloud services. More than one-third of respondents cited "the need for constant connectivity" as their primary concern in moving applications and data to the cloud. To make the mobile cloud a

reality, SPs should ensure the network infrastructure is robust and always available. The reliability of mobile networks will need to approach that of terrestrial networks to gain user confidence.

SPs need to consider several important implications and potential strategies to capture the explosive consumer mobile cloud opportunity:

- **Create new, mobile-centric cloud services.** Develop a portfolio of innovative cloud services that exploit the unique features of mobile devices (e.g., cameras and location identification) to create a diverse range of new and exciting consumer solutions.
- **Strongly position the mobile cloud.** The window of opportunity for the mobile cloud will not last long. Mobile operators must gain the high ground in mobile cloud through aggressive marketing and brand positioning as the natural provider of cloud services.
- **Differentiate with unique capabilities.** SPs alone have the ability to integrate their natural advantages in the network with IT to deliver new and differentiated services. Equally, operators need to aggressively take advantage of the reasons consumers view them as their preferred provider of mobile cloud services.
- **Partner for success.** The mobile ecosystem is extremely complex. To succeed, operators need to identify the best partners that will augment their own capabilities. Potential partners could help in areas such as distribution through app stores, innovative application development, device integration, and co-marketing campaigns.

Mobile consumers are definitely reaching for the clouds. This important customer base will drive the growth and development of the mobile cloud market. Cisco IBSG believes that mobile operators are well positioned to prosper from the huge opportunity presented by mobile cloud. To become successful providers of mobile cloud services, SPs must focus on technology and innovation, as well as on clearly understanding consumers' needs. With this understanding, they must then develop offerings, features, and sales-and-marketing tactics that successfully meet the needs identified in this paper.

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Endnotes

1. Source: International Telecommunication Union, October 2010.
2. Cisco IBSG, with the support of Cisco Marketing and Cisco CTO, launched *Mobile Cloud Watch,* an online survey of 1,016 U.S. mobile users, in February 2010. The survey sought to understand which mobile cloud services these customers use now, which ones they are planning to adopt the future, and from whom they would buy these services. In addition, Cisco IBSG wanted to understand the role and opportunity for mobile operators, and how they might differentiate their mobile cloud offers.

   The survey base was representative of the U.S. population in terms of age, income level, physical distribution, and employment status. In terms of attitudes toward adopting new technology, respondents were well distributed among early adopters (13 percent), early majority (35 percent), mainstreamers (35 percent), and laggards (17 percent). Fifty-six percent of respondents were employed: full-time (40 percent), part-time (8 percent), and self-employed (8 percent). The remaining 44 percent of respondents were not employed: stay at home (9 percent), student (7 percent), unemployed (8 percent), unable to work (4 percent), and retired (16 percent).
3. Based on the research findings, the Cisco IBSG Global Service Provider Practice and the Cisco IBSG Research & Economics Practice created four white papers.
   - *The Mobile Cloud: When Two Explosive Markets Collide*—An overview of the top 10 mobile cloud findings, implications, and opportunities for SPs from the combined perspectives of business users, consumers, and devices.
   - *Mobile Consumers Reach for the Clouds*— This paper.
   - *Taking Care of Business in the Mobile Cloud*—Research paper focused on the top findings, implications, and opportunities for SPs from the perspective of business users.
   - *Advanced Mobile Devices Meet the Mobile Cloud*—Research paper focused on the top findings, implications, and opportunities for SPs from a device perspective.

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