

Navigating the Mobile Internet: Transform or Perish

Prioritize, Partner and Profit from the Mobile Internet, or Perish in the Age of Personalization



by Phil Marshall, Ph.D. | March 2009

Executive Summary

On the back of strong pent-up demand, mobile Internet services present tremendous commercial opportunities for mobile service providers, while challenging the technical and commercial underpinnings of their traditional operations. Service providers are pursuing the mobile Internet opportunity primarily with connectivity-centric approaches that focus on the migration to advanced IP-based radio networks, such as HSPA+, LTE and WiMAX. As this migration occurs, there is a lot at stake for service providers, which must transform their networks, operations and business models to capitalize on the heightened innovation of over-the-top Internet players, pent-up demand for personalization and the need to economically support the massive bandwidth demand that will double each year for the foreseeable future.

Mobile service providers are accustomed to connectivity-centric strategies, with service evolution closely aligned with radio network migration. This has proven effective in the traditional mobile 2G market, where radio performance is a key voice service differentiator, but falls well short in enabling extended service differentiation and sustainable profitability for the mobile Internet. We believe that several factors will enable service providers to profit from the mobile Internet, including the following:

- Leverage network intelligence combined with the scale of a massive incumbent base of users to personalize mobile Internet services.
- Capitalize on IP's pervasiveness and economies of scale for supporting an economically viable array of mobile Internet services.
- Simultaneously harvest short- and long-tail services and applications with a single strategy. This depends on measured partnership and ecosystem management strategies, and technology investments in intelligent infrastructure to enhance the service distribution capabilities of the mobile networks.
- Take advantage of opportunities to leverage massive incumbent scale and the ability to personalize mobile Internet services with network-based intelligence.
- Shift from traditional connectivity-centric strategies to focus on economically supporting mobile Internet service distribution, by capitalizing on the pervasiveness of IP.

Service providers cannot afford to repeat misaligned investment strategies, such as those associated with UMTS and IMS, which both have been re-engineered several times and languished in the early market implementations. To ensure that these strategies are aligned, service providers must continuously interpret their investments through the lens of the broader ecosystem that the mobile Internet is creating.

This custom publication has been sponsored by Cisco Systems.

Table of Contents

I. Introduction	2
II. Mobile Internet Is More than the Radio Access Network	3
Mobile Internet Transformation Drives Heightened Supplier Scrutiny	5
III. Mobile Internet Demands Business Transformations	5
IV. Recommendations for Mobile Internet Service Providers	6
V. Conclusions	6

I. Introduction

The mobile Internet lies at the intersection of the Internet and broadband mobile worlds, and presents tremendous opportunities for service providers to offer subscribers high-bandwidth personalized services in any location. Service providers have grappled with mobile Internet business models for more than a decade, with early walled garden approaches having been hampered by poor performance, a lack of service variety and excessive price points. The mobile Internet is now taking hold with:

- Affordable, intuitive and trendy mobile Internet devices (such as the iPhone, Kindle and G1)
- Consistent Internet application experiences (such as responsiveness and familiar user interface)
- Pervasiveness of IP as a mobile network and Internet application foundation

For the purposes of this report, Yankee Group conducted interviews with conventional and unorthodox service providers, and technology vendors. Extensive survey data was analyzed with a mind to identify both sustaining and disruptive trends in the mobile Internet market. There is clear evidence indicating pent-up demand for mobile Internet services. For example, the Yankee Group Anywhere Consumer: 2008 Web/Data Surveys for both Western

Europe and North America indicate that more than 40 percent of current mobile phone users have a strong interest in mobile Internet services. Only 10 percent of these users are adopting mobile Internet services today, with many potential users citing cost, pricing and packaging as the major inhibitors for adoption.

With the mobile Internet comes the convergence of Internet, communications, media, mobility and machines (referred to as “hyper-convergence”), which significantly expands the opportunity for service providers but disrupts the status quo of the traditional mobile industry. To establish sustainable profitability from the mobile Internet, service providers must transform their commercial and technical strategies and priorities to align with Internet-centric business models, and the broader ecosystem associated with the mobile Internet. Of particular importance for service providers are strategies to:

- Capitalize on the heightened innovation associated with “over-the-top” Internet providers.
- Establish strategies to economically support the ever-increasing demand for bandwidth.
- Expand revenue opportunities from mobile Internet services.

II. Mobile Internet Is More than the Radio Access Network

Radio network investments consume the lion's share of the capital budgets for service providers and traditionally have garnered disproportionate attention in driving technology migration strategies. Radio networks are the technical and commercial bottleneck for traditional 2G telephony-centric networks, but are eclipsed by the role of the Web and IP technology (see Exhibit 1).

The momentum toward IP centrality opens the mobile Internet to heightened service innovation and reshapes the user experience by enabling an era of hyper-convergence. This convergence heralds disruptive transformation throughout the entire mobile Internet ecosystem (see Exhibit 2 on the next page), which includes the following:

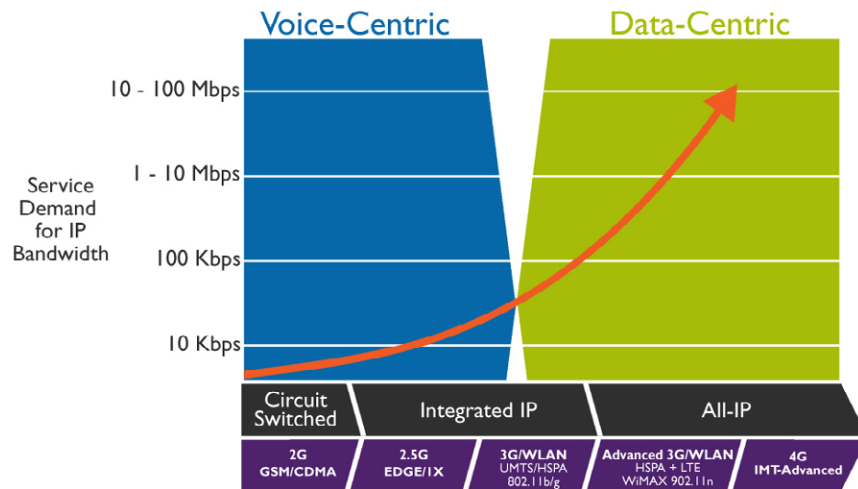
- **Devices** are evolving from vertically integrated voice-centric form factors to media- and Internet-centric form factors. Traditional vertically integrated devices are making way for embedded communications, which ultimately will enable service providers to leverage a broad range of computing, consumer electronics and machine-to-machine devices. This transformation yields a plethora of connected device and appliance categories, enabling over-the-top Internet services to thrive as well as massive growth in bandwidth demands. Players such as Apple and Google are incubating device transformation strategies, with the iPhone and Android. Nokia is optimizing its mobile Internet device transformation with devices such as the N97, and integrating it with rich services and applications through its

Ovi offering. We believe that the early market success of these solutions is the harbinger for media- and Internet-centric devices to proliferate.

- **Access networks** have captured the limelight of the mobile Internet, whether 3G, advanced 3G or 4G radio technologies. The evolution paths for 3G and advanced 3G are well defined and the underlying technologies are becoming increasingly commoditized. Service providers have a limited choice of licensed radio spectrum and migration paths to follow, and differentiate themselves largely based on the rate they traverse their respective migration paths. Mobile service providers are increasingly relying on Wi-Fi radio technology and low power femtocells to support the performance demands and IP-centrality of the mobile Internet and the proliferation of Wi-Fi connected devices. We believe that Wi-Fi and femtocells will play an important role in supporting the economic delivery of mobile Internet services.
- **Backhaul networks**, which in most cases continue to be based on TDM and ATM technologies, cannot support the massive growth in broadband traffic demands. Transport network capital investments have increased and will continue to increase during the next 24 to 36 months as service providers migrate to carrier-grade Ethernet and IP/MPLS-based solutions to support media-rich broadband usage while driving down the cost to operate these networks. These networks are being implemented with optimal combinations of optical and microwave physical layer infrastructure.

Exhibit 1.
IP Plays an Increasing Role in Delivering Internet Services over Next-Generation Mobile Networks

Source: Yankee Group, 2009



- **Edge and core networks** must migrate from a monolithic, connectivity-centric paradigm to a context-aware, personalized and Internet-centric paradigm. This paradigm must leverage IP infrastructure in conjunction with service and subscriber profiles to facilitate personalized Internet services. For mobile Internet services to be delivered economically, we believe that the edge and core networks must be designed for efficient application and service distribution that incorporates the network and device capabilities. This includes:
 - Leveraging the significant performance gains of the next-generation IP routers necessary to manage the explosion in mobile data traffic
 - Managing peer-to-peer technologies to ensure fair use of shared resources
 - Utilizing advanced content distribution network (CDN) algorithms to preserve the user experience while optimizing content for varying mobile Internet devices (i.e., small, medium, large screen)

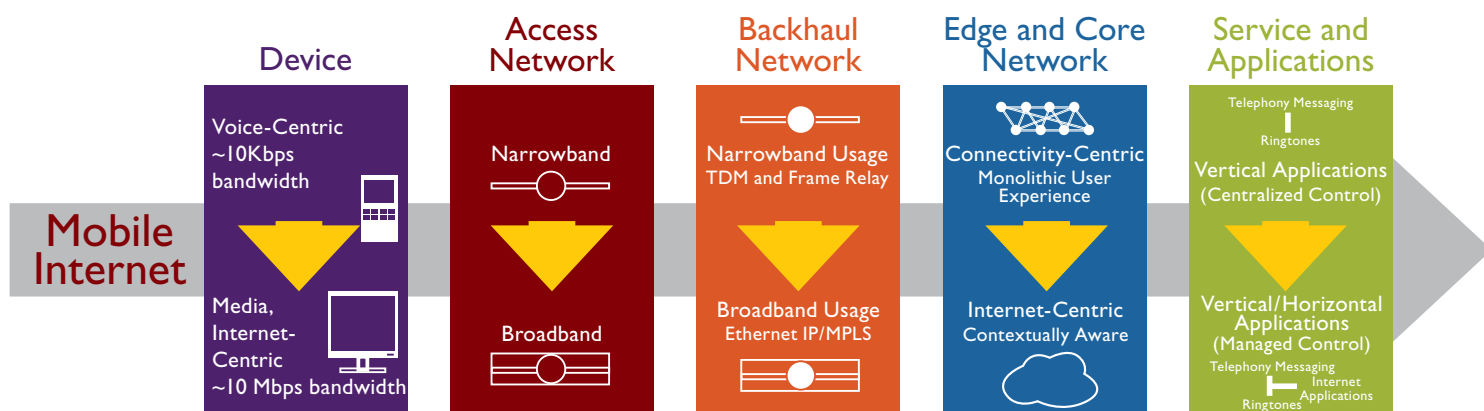
We believe that the edge and core network strategies are critical in determining whether a service provider can profit from the mobile Internet, irrespective of its investments in other parts of the ecosystem, as illustrated in Exhibit 2.

- **Services and application** strategies must focus on delivering high-performance best-of-breed applications while creating a platform capable of capitalizing on the plethora of niche Internet services and applications, which creates a long tail of Internet applications consumers have come to demand. In federating the long-tail applications, we believe that service providers must adopt strategies to:
 - Harness mashup techniques (such as combining Google Maps with buddy lists) to add value across Internet application silos.
 - Add personalization to improve the “quality of context” attributes of key services and applications.
 - Create seamless integration with the plethora of devices and appliances.
 - Introduce new models for monetizing services such as targeted commerce and advertising, where the service provider manages commercial transactions and the abstraction of information to enable targeting without violating privacy regulations.

The network core and edge play a critical role in facilitating these requirements. This role is fortified as service providers migrate toward all-IP networks.

Exhibit 2.
Mobile Internet Drives Transformation Throughout the Entire Ecosystem

Source: Yankee Group, 2009



Mobile Internet Transformation Drives Heightened Supplier Scrutiny

In the past, service providers have struggled with their transformation strategies and languished with technologies, such as IMS and UMTS, which have yet to deliver the promise of the mobile Internet. We believe that these struggles have been exacerbated by the challenging transformation requirements that traditional telecommunication infrastructure vendors must address as Internet-centric business models take hold. To avoid the perils of strategic misalignment with their suppliers, service providers must interpret the posture and positioning of their suppliers relative to their strategic focus and incumbent strength. We believe that service providers must leverage the support of their key infrastructure suppliers in the areas that they are strong, but take an integrated approach to delivering new services.

III. Mobile Internet Demands Business Transformations

The mobile Internet disrupts traditional service provider business models by heralding a broad ecosystem with a plethora of services such as over-the-top media applications, social networks and gaming applications. This is making new players such as Amazon, Facebook, Google and Flickr a controlling force in the mobile customer experience, and disintermediating traditional service providers. We investigated these disruptive trends in recent Yankee Group Report, "Transforming Service Providers into Anywhere Providers." We observed that in the face of disruption, there are several truisms that service providers must focus upon as they endeavor to deliver the desired customer experience. In particular:

- Service providers must embrace and establish federation strategies for the long tail of applications, and allow them to thrive without major encumbrances. Consumers are accustomed to an unfettered Internet world that they expect service providers will mobilize.

- The Internet application environment is inherently siloed, creating opportunities for service providers to leverage combination and mashup techniques. This is particularly the case as service providers apply quality-of-context attributes to key service and application mashups. These quality-of-context attributes might include user location, temporal device preferences and real-time correlation with prior application downloads.
- As popular long-tail applications pop up and gain market scale, service providers must capitalize on opportunities to commercialize the applications. This commonly will be achieved using key management and personalization functionality that resides in intelligent IP networks.
- When the market entry barriers for a popular third-party application are high, service providers will benefit from strategies to enhance the application, whether in terms of how the application is enhanced and personalized with intelligent IP networks, or combined with other applications in mashup scenarios.
- When a service provider is delivering a strategic application that has a high degree of complexity (such as high-performance telephony or messaging solutions), it must develop open access integrated solutions built upon standards-based platforms that leverage the increasing variety of mobile, computing and consumer electronics devices. For example, an application such as video telephony, or mobile WebEx would require this type of capability.

In all cases listed above, service providers have the opportunity to create sustainable differentiation through delivering personalized and context-aware services. This depends on advanced network and application platforms in the core and edge of the network to extract and data mine key subscriber and service attributes to enhance the user experience. This also creates the potential for new revenue streams from mobile advertising and commerce.

IV. Recommendations for Mobile Internet Service Providers

Many service providers recognize the need to transform but are perilously juggling indecision, delay and straddled strategies. We believe that these challenges arise as service providers simultaneously address both short- and long-tail applications, handle over-the-top Internet providers, and capitalize on strong players in parallel ecosystems (such as Apple). To address the requirements without straddling strategies, we believe that service providers ultimately must cluster their services and applications according to three lines of business:

- **Open access integration**, where open access devices and standardized modular infrastructure deliver vertically integrated services and applications. This category targets enabling complex services and applications across a wide variety of devices and appliances, such as converged telephony applications.
- **Harvest and personalize** capitalizes on opportunities to distribute services offered by established third parties (such as Apple in media entertainment, and Johnson & Johnson in health care). This approach replaces the traditional service provider walled-garden approach, which stifles these opportunities with undue control on the part of service providers. Service providers that have embraced Apple's iPhone are essentially implementing harvest strategies. These strategies should capitalize on Apple's developer community, and personalize and enhance key iPhone applications such as network enabling gaming applications, adding location and availability context to social network applications, and managing transactions for commercial applications being developed on the iPhone platform.
- **Federate and incubate** long-tail applications to thrive and enhance user experience, with a mind to harvesting and personalizing those services and applications that gain popularity. Players such as Amazon have mastered the long-tail phenomenon in the Internet retail market, and Google and T-Mobile are looking to adopt a similar approach with the Android platform and GI, respectively. We believe that the major value for service providers is to add attributes to long-tail applications so as to drive them into the short tail. To increase the chances of success with this strategy, service providers must enable the long-tail applications to flourish with an uninhibited Internet model and by continuously harvesting opportunities.

To capitalize on each of the three proposed lines of business, service providers must focus on harvesting the intrinsic value in their networks and service distribution. Although partnership strategies and positioning vary across each line of business, we believe that sustainable intrinsic value for service providers stems from the intelligence and personalization that they can leverage from the core and edge of their networks, and through advanced IP-based network technology.

V. Conclusions

The mobile Internet carries high stakes for the future of mobile service providers. To succeed, service providers must carefully prioritize their investments with particular focus towards enabling intelligent end-to-end IP capabilities to facilitate profitable partnerships and personalized mobile Internet services.

The mobile Internet creates significant upside opportunities for service providers that capitalize on the hyper-convergence that it heralds, but it demands service providers to transform their technical and commercial strategies and reprioritize their investments. As service providers migrate their networks with advanced IP-based radio technologies such as HSPA+, LTE and WiMAX, they must embrace open access, leverage the IP capabilities to better manage network bandwidth resources, personalize services and applications, and create a unified experience. With intelligent management of network resources, service providers can benefit from the critical role that networks play in enhancing and distributing mobile Internet services and applications.

Since mobile networks consist of high-performance and specialized equipment, service providers will continue to require significant support from their key infrastructure suppliers. To avoid mismanaging the infrastructure or misaligning investment strategies, we believe that service providers must seek support from vendors in the areas where they are strong, and remain cautious when vendors promote solutions and/or design philosophies that lie outside their core competencies.

Service providers must transform their operational models to avoid straddled strategies as they pursue mobile Internet business opportunities. We believe that this is achieved with strategies to drive three distinct lines of business: one focused on enhancing their traditional vertically integrated offers with open device access capabilities; another focused on orchestrating and enhancing solutions with players that have dominance in a parallel market, like Apple; and a third that federates the long tail with a mind toward incubating key services into the short tail as they gain popularity. For all of these lines of business, we believe that the network edge and core play a critical role in delivering the necessary intelligence for service providers to maintain a sustainable market position.

Yankee Group—the global connectivity experts

The people of Yankee Group are the global connectivity experts™—the leading source of insight and counsel trusted by builders, operators and users of connectivity solutions for nearly 40 years. We are uniquely focused on the *evolution of Anywhere*, and chart the pace of technology change and its effect on networks, consumers and enterprises. For more information, visit <http://www.yankeegroup.com/>.

Yankee Group has research and sales staff located in North America, Europe, the Middle East, Africa, Latin America and Asia-Pacific.

For more information, please contact one of the sales offices listed below.

Corporate Headquarters

Prudential Tower
800 Boylston Street
27th Floor
BOSTON, MASSACHUSETTS 02199
617-598-7200 phone
617-598-7400 fax

European Headquarters

56 Russell Square
LONDON WC1B 4HP
UNITED KINGDOM
44-20-7307-1050 phone
44-20-7323-3747 fax

Yankee Group Link

Yankee Group Link™ membership brings clients the insight, analysis and tools to navigate the global connectivity revolution. It provides timely, actionable and accessible research and data that analyze the impact of connectivity and the transformation it will create in driving enterprises and consumers to an Anywhere society. The result is an experience that no other market research firm can provide.

Link Research

Yankee Group's qualitative research forms the core of our offerings, with analysis focused exclusively on the transformational effects of the connectivity revolution. Our research reports arm you with the insight and analysis to make the right decisions today and tomorrow.

Link Data

Yankee Group's quantitative data analysis includes monitors, surveys and forecasts. Together with Link Research, our data connects you to the information you need to make the most informed strategic and tactical business decisions.

Link Interaction

Connect one-on-one with Yankee Group analysts to get answers to your most strategic and critical questions, as well as gain deeper insight into research and trends. We encourage you to have direction interaction with analysts through ongoing conversations, conference calls and briefings.

Link Consulting

Who better than Yankee Group to help you define key global connectivity strategies, scope major technology initiatives and determine your organization's readiness to undertake them, differentiate yourself competitively or guide initiatives around connectivity change? Our analysts apply Yankee Group research, methodologies, critical thinking and data to produce expert, timely, actionable results.

Link Events

The Anywhere revolution won't wait. Join our live debates to discuss the impact that ubiquitous connectivity will have on your future. Yankee Group's events—live and online—offer our clients new insight, knowledge and expertise to better understand and overcome the obstacles to succeed in this Anywhere revolution.

