Notebook Computers Go Truly Mobile at the Intersection of 3G and IT

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Executive Summary

On average, almost 40% of a company's employees are mobile, which Yankee Group defines as working away from their primary workspace at least 20% of their workday. Yankee Group forecasts that more than 50 million workers in the United States today fit this description—yet the vast majority of them are not equipped with the right mobile tools required to do their jobs. As enterprises attempt to maintain competitiveness, they are looking toward mobile and wireless technologies to drive business benefits in three ways: decrease costs, increase revenue and improve service.

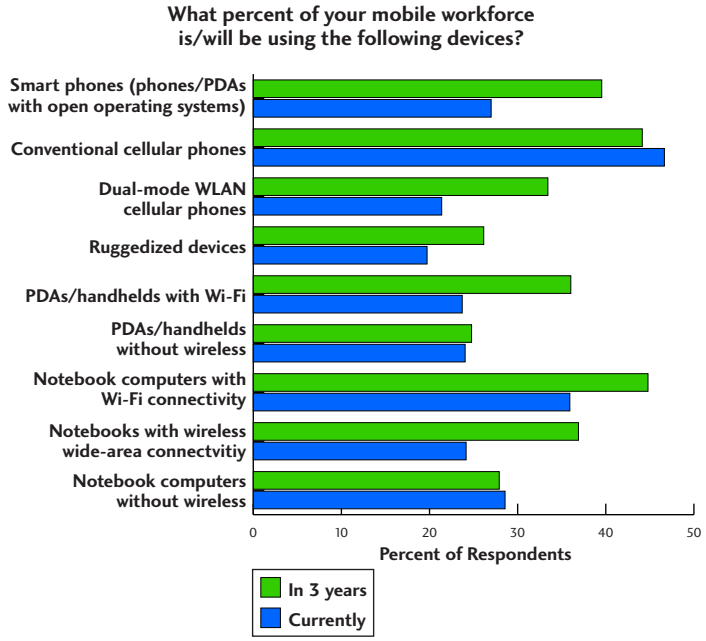
The Anywhere Enterprise™ requires many connectivity solutions to support its expanding mobile workforce. As mobile operators continue to light up the country with high-speed 3G wireless access, data connectivity over wireless cellular networks will become an increasingly popular access solution because of the ubiquity of service and the decreasing price points.

Exhibit 1 illustrates that notebook computers are still poised to be the most significant mobile data device of the remote workforce. True mobility will demand that notebooks become increasingly wireless and that mobile broadband connectivity for notebook computing is the next frontier for strategic enterprise mobility initiatives.

Exhibit 1

Notebook Computers Will Go Increasingly Wireless—and Truly Mobile

Source: Yankee Group 2006 Transatlantic Wireless Business Survey—US Large Business



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Executive Summary (continued)

Wireless wide-area enablement makes notebooks truly mobile—and yields the following business benefits for both corporate IT decision-makers and end-user employees:

- There is a lower total cost of ownership over other wireless remote access options, specifically Wi-Fi hotspots.
- Productivity is enhanced because mobile workers no longer need to be tethered to a location for access to mission-critical information and applications.
- There is both an end-user friendly environment for workers who require broad connectivity options, predictability and ease of use, and an IT-friendly platform for organizations that require management and control.
- Licensed networks such as 3G mobile broadband technologies are inherently more secure than unlicensed Wi-Fi networks. Corporate data may be leaked or stolen over Wi-Fi networks without extra network security software appliances.

Wireless wide-area enablement of laptops will rapidly move from retrofitting existing computers with PC Cards to purchasing notebooks with embedded 3G radio modules. This will cause a shift in traditional IT and mobile purchasing. With this shift come the benefits of the convergence of 3G and IT in laptop computers:

- Improved radiofrequency (RF) performance for better coverage and data throughput
- Optimized power management for increased battery life
- Lower cost of ownership from easier implementation and reduction in help desk support

In this Yankee Group Report, we review the mobility trends that are driving enterprises to evaluate more strategic enterprise mobility tools such as 3G wireless in notebooks. We also explore the business and cost benefits of using 3G over alternate connectivity options such as Wi-Fi. Finally, we evaluate 3G notebook deployment options and specifically examine the benefits of embedded mobile broadband laptop solutions.

Table of Contents

I. Business Are Becoming Increasingly Mobile

More than 50 million US workers are considered mobile, which Yankee Group defines as being away from their primary workspace at least 20% of their time. To support this massive and still growing mobile workforce, enterprises must deploy solutions that provide these employees with access to corporate resources beyond e-mail such as databases and applications. Enterprises still struggle to understand the best ways to provide remote access to a varied mobile workforce.

Emerging wireless technologies are presenting more options to enterprises. Wireless networks, devices and applications are all evolving in ways that will enable information to be delivered anytime and anywhere. In this Yankee Group Report, we examine how enterprises can begin to capitalize on emerging mobile broadband technologies today through the incorporation of 3G wireless data in notebook computers. This report:

- Examines the mobility requirements within enterprises that will require business decision-makers to incorporate mobile broadband technologies into their strategic IT planning
- Highlights the business and cost benefits that enterprises gain from implementing mobile broadband access on mobile workers' notebooks
- Presents deployment options and implementation approaches for mobile broadband data access

II. The Changing Mobile Workforce

Although there is a segment of mobile workers who primarily roam within the office or a remote location, the typical mobile worker routinely travels beyond the four walls of the enterprise to serve customers or drive sales.

Mobile workers have quite diverse job titles and responsibilities, but Yankee Group has identified three broad categories of mobile workers (see Exhibit 2 on next page):

- **Mobile professionals:** This category includes knowledge workers such as consultants, managers and senior executives. This segment makes up on average 46% of total mobile workers.
- **Mobile fieldforce:** This category includes salespeople or remote technicians, which comprise 33% of the mobile workforce.
- **Mobile specialty workers:** This category includes physicians, factory staff or couriers, accounting for the remaining 22% of mobile workers.

Yankee Group survey results have shown that the percentage of mobile workers has been increasing steadily during the last several years—a trend we expect to continue. Contributing to this growth will be the increasing numbers of knowledge workers going mobile, particularly as emerging wireless technologies make it easier for them to work outside the traditional four walls of an office.

Enterprise business requirements differ by industry and firm type. Applications and information that remote workers require also differs by job function. However, companies are increasingly seeking to empower their mobile workforces by delivering critical information to employees closer to the point where business interactions take place. Enterprises are increasingly embracing mobility initiatives to support their distributed mobile workforces. Three main categories summarize the business benefits of going mobile:

- **Increase revenue:** Mobility solutions can enhance worker productivity by leveraging real-time information and line-of-business applications, which enable workers to make better-informed decisions and to process orders more rapidly. For example, field salespeople can use time and information more efficiently for business development opportunities.
- **Decrease costs:** Mobile applications can reduce workflow volumes through automation utilization and often can reduce overhead costs by upgrading antiquated paper-based business processes. Wireless technologies have been used to automate business processes within field service environments to decrease service costs.
- **Improve services:** Mobility can enhance public safety, healthcare, utilities, travel and other organizations that rely on real-time access to network resources for rapid response. In addition, mobility can provide differentiated services with location and presence information.

Both mobile workers and business decision-makers are realizing the need for mobile access to critical business information. As companies strive to increase revenue, decrease costs and improve service, they need to examine the business applications to which mobile workers need access to remain productive. Results from the Yankee Group *2006 Transatlantic Wireless Business Survey—US Large Business* reveal that businesses are rapidly moving beyond mobile e-mail enablement when evaluating remote worker requirements.

Among companies that already have invested in mobile broadband, e-mail remains the leading application that corporations are extending wirelessly today. However, access to third-party corporate databases and applications (such as CRM and ERP) is the top priority for future application expansion in these deployments.

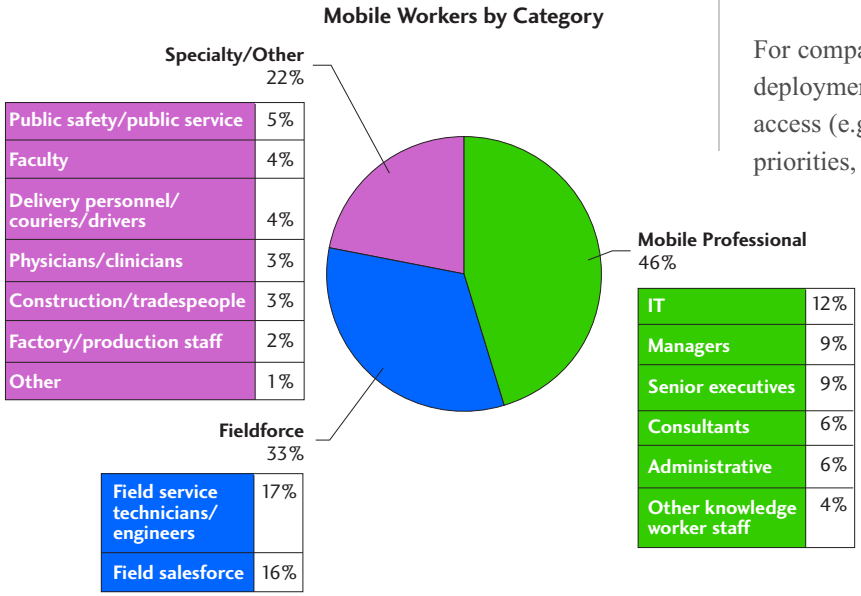
For companies evaluating mobile broadband and planning deployments within 12 months, web browsing and intranet access (e.g., through a mobile VPN) are the top application priorities, followed by e-mail and fieldforce automation.

These broad application requirements indicate that companies need to examine wireless connectivity solutions and mobile devices that support rich application access and data transfer.

Exhibit 2

The Mobile Workforce Is Increasing and Varied

Source: Yankee Group 2006 Transatlantic Wireless Business Survey—US Large Businesses



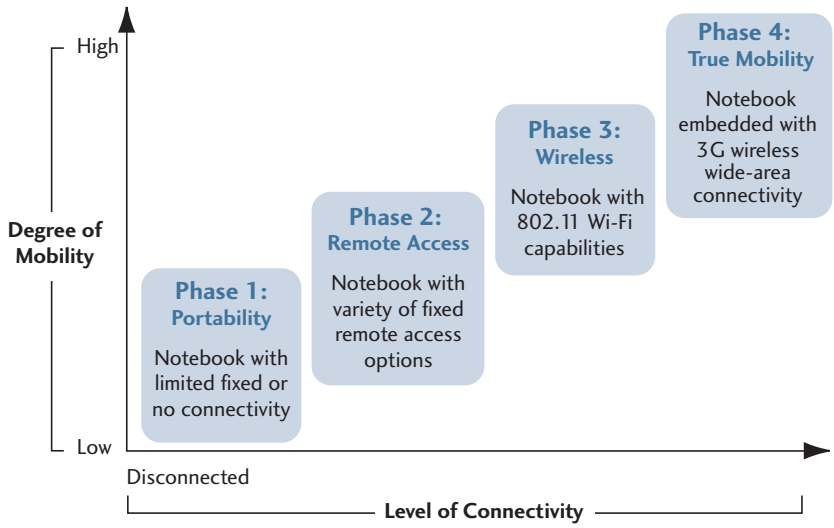
Note: Total does not equal 100% due to rounding.

Notebooks Remain Critical for Employee Mobility

The Anywhere Enterprise requires many connectivity solutions to support its expanding mobile workforce. Organizations today deploy remote access solutions over fixed DSL and cable, public and private Wi-Fi networks as well as wireless wide-area networks. As mobile operators continue to light up the country with high-speed 3G wireless access, data over cellular will become an increasingly popular access solution because of the ubiquity of service and decreasing price points. Integrated devices such as smart phones and PDAs are emerging options for mobile workers, providing convenient access to corporate information such as e-mail and personal information management (PIM). But these form factors have limitations for data consumption such as tiny screen sizes, convoluted user interfaces and restricted keypads that prevent heavy traffic from power users.

Integrated devices complement notebook computers, which will remain the preferred choice of mobile workers who require data-intensive applications. According to the Yankee Group *2006 Transatlantic Wireless Business Survey—US Large Business*, wireless wide-area-enabled laptops will increase their market penetration of mobile users from 24% today to 37% in 2009.

Exhibit 3
Evolution of Notebook Mobility
Source: Yankee Group, 2007



Although embedding connectivity into notebook PCs is hardly a new concept (e.g., dialup modems, Wi-Fi), embedded mobile broadband represents a move by PC manufacturers to make notebook computers truly mobile—no longer bounded by fixed-line connections such as Ethernet or even by Wi-Fi hotspots, which still tether users to a location.

3G Enables True Mobility

Even with the emergence of new mobile devices, notebooks are not going away—far from it. Instead, laptops will still be the most significant mobile device of the remote workforce. It is also evident that both end users and administrators require more mobility from notebooks. Although notebook computers have improved their power and battery utilization as well as their size and weight, true mobility means that users can connect their notebook to critical information and applications from anywhere.

Notebooks initially provided workers with a portable work environment—with or without connectivity. Dialup access and then Ethernet were the first steps to providing mobile workers carrying laptops with remote access; but location and wires constrained mobility. Embedded Wi-Fi (802.11 technologies) in notebooks was the next step, freeing users from wired connections and making configuration standardized. However, mobile workers were still tied to a physical location—the Wi-Fi hotspot.

The evolution of mobility dictates that true notebook mobility occurs not when the connection becomes wireless, but rather when the connection becomes wireless and untethered from a physical location (see Exhibit 3). Wireless wide-area data services—specifically 3G service offerings—offered by the major cellular carriers are making true notebook mobility a reality today. And notebook manufacturers have realized that, just like 802.11, wireless wide-area capabilities need to be embedded into notebooks to optimize the usability and manageability of the technology.