Date: 14 February 2000

File: 885
Author: Jack Gold

Entering the Mobile Millennium. The number of mobile and pervasive devices deployed in organizations and by customers/partners will increase dramatically during the next three to four years. Organizations must build strategic organizations and plans, standardize on device types, build access infrastructure, mobilize applications, and limit increased costs.

META Trend: A multitude of client form factors (e.g., handheld, cellular, pager, information appliances) will be widely used in businesses (2001/02) and homes (2003/04), establishing a pervasive computing environment. Roaming users will increasingly demand connectivity (e.g., Bluetooth, WAP) and data synchronization between devices configured in personal-area networks (PANs). IT groups will proactively establish mobile/pervasive computing architectures, standards, connectivity, and security services and remote management (2000-04).

During the next three to five years, the corporate computing world will be drastically altered. The move by internal users, external partners, and customers to mobile devices of many flavors will require substantial investment in infrastructure improvements for connectivity, bandwidth, and application mobilization. Few companies have developed strategic plans to embrace this transition, which will be more encompassing and traumatic than the client/server revolution. Furthermore, the cost to acquire and support multiple device types will increase 100%-150%. Additionally, during the next one to two years, most companion computing devices will be brought into the organization by end users rather than being provided by the organization, making corporate standardization for device and synchronization options difficult.

Fueling the mobile millennium will be the dramatic growth in numbers and form factors of available mobile computing devices (i.e., notebooks, mini notebooks, PalmPilots, Windows CE, WAP-enabled cell phones, two-way pagers, screen phones, AutoPC, game consoles, WebTV, dedicated information appliances, kiosks, etc.). By 2003/04, we expect nearly 50% of corporate knowledge workers to have notebook computers as their primary computing devices (with costs dropping to less than $1,500 for a typical corporate notebook computer). Furthermore, we expect more than 75% of knowledge workers to be mobile (on the road, work at home, remote office, etc.) at least 25% of the time.

By 2004, each corporate knowledge worker will have three to four different computing and information access devices (i.e., notebooks, handhelds, WAP-enabled phones, smart phones, AutoPC, etc.) that will be used to access various application (i.e., e-mail, human resources [HR] systems, order placement, field dispatch, scheduling, etc.). Indeed, within two to three years, 20%-25% of knowledge workers will obtain a companion computing device (e.g., PalmPilot).

Organizations must proactively deal with this dramatic new computing environment by developing concrete plans and strategies for mobile and pervasive devices in the following key areas:

- ***Standardization.*** Organizations must provide internal user standards during the next one to two years to limit device type proliferation and minimize cost. However, customers will no longer interface from a single form factor or known device type (current traditional PC or Web browser), and organizations will no longer have much control over which

Business Impact

Mobile users will demand anytime, anywhere access (from multiple devices) to internal and external applications. However, increased complexity (and cost) as well as unfocused resources will challenge corporate governance.

META Delta

Copyright © 2000 META Group Inc. WEB & COLLABORATION STRATEGIES is published by META Group Inc., 208 Harbor Drive, P.O. Box 120061, Stamford, CT 06912-0061. Phone: (203) 973-6700. Fax: (203) 359-8066. Web: metagroup.com. This publication may not be reproduced in any form or by any electronic or mechanical means, including information storage and retrieval systems, without prior written permission. All rights reserved. Reprints are available.

devices consumers use. Instead, they will have to support user interfaces that enable maximum flexibility. These interfaces will be standardized around information access and delivery using Web browser technology (HTML, DHTML, WML, HDML) in the short term (requiring multiple data presentations to be stored, managed, and delivered). Within two to three years, organizations will convert content to XML (Extensible Markup Language) format, enabling simple information transformation and presentation to the widest array of device types. We do not expect Java to play an important role in the business-to-consumer space, because it will be impossible to predict whether customers will have access devices capable of running a Java Virtual Machine or enough bandwidth to conveniently load relatively large Java applets.

- ***Connectivity.*** Corporations will deploy new methods of connectivity (cell phone, wireless LAN, Bluetooth) as these technologies take hold during the next two to three years. Further, they will be required to deliver content based on connection characteristics (i.e., bandwidth, level of security, TCP/IP, WAP, etc.). VPNs (virtual private networks) will be the dominant connection methodology for corporate users (with appropriate security/firewall software), displacing nearly all RAS (reliability, availability, serviceability — except where maximum levels of security are required, such as financial transactions and health/medical information). Within corporate facilities, wireless LAN technology (802.11) will extend the computing environment for roaming workers with Ethernet connection speeds. The current equipment cost of $300-$500 per user will drop to less than $200 within two to three years. Service bureaus (e.g., MobileStar) will offer fee-based ISP (Internet service provider)-like access in certain public buildings and business locations (i.e., airports, hotels, convention centers, etc.). PANs (personal-area networks), primarily Bluetooth, will be installed on most portable computing devices by 2003/04, enabling users in various settings (corporate campus, home office, hotel, airport, etc.) to wirelessly connect to a networked infrastructure. Furthermore, with the advent of Bluetooth-enabled phones and higher-speed cell phone connections (1-2 Mbps within three years), users will be able to wirelessly connect to corporate networks via the cellular phone network (for near-universal access), though connection cost will remain an issue.
- ***Application Mobilization.*** During the next two to three years, existing corporate applications will be extended to include mobile and pervasive clients, starting with e-mail and collaboration systems, then moving to encompass HR and the field force (marketing and sales). E-commerce systems will be enabled to allow customers to interact with systems beyond the current full browser requirements (encompassing microbrowser and WAP capability). In the short term, companies will use automated systems to configure Web pages for companion computing devices (i.e., Spyglass Prism, Oracle Web-to-go, Riverbed ScoutWeb, Puma Intellisync, AvantGo, etc.). This automated conversion works well for simple interactions and Web pages, but generally does not provide full dynamic data conversion, and requires storage and management of browser pages targeted to pervasive device users. Longer term, applications will be rearchitected to include XML capability, providing near-universal support for pervasive devices.
- ***Organization.*** To fully embrace the coming mobile millennium, enterprises must organize for mobility. This will require providing a mobile-focused strategic program office to plan, implement, and manage the rapid growth in mobile and pervasive users, and to control cost. This program office should be created during the next one to two years, and provide long-term strategic direction while bringing together a diverse team of specialists from across the IT organization, who can cope with the increased complexity and diversity that mobilization of the organization will ultimately create.

Bottom Line

Corporate end users will substantially increase the numbers and types of mobile and companion computing devices they deploy during the next three to four years. This will create many more connectivity options, but also will severely stretch the resources of the organization. A strategic program office should be established to enable the transition, manage complexity, and control costs.

Copyright © 2000 META Group Inc.