MOBILE ENTERPRISE

OPPORTUNITIES AND CHALLENGES:
ENTERPRISES AND THE WIRELESS INTRANET

WHITE PAPER

Deepak Pareek
FinaTech India

OPPORTUNITIES AND CHALLENGES: ENTERPRISES AND THE WIRELESS INTRANET

I. EXECUTIVE SUMMARY

Increasingly, the world's enterprises are facing a new technology challenge nearly as great as that of the Internet itself: the wireless intranet. Today, intelligent cell phones, pagers, palmtops, PDA's, and other mobile devices are fast becoming popular for accessing the Internet. For the intranets that connect many enterprises to their employees, suppliers and customers, the opportunities and challenges of mobile devices are more subtle— but no less important. Opportunities for gaining competitive advantage via wireless intranet applications abound. They include horizontal applications such as email and calendaring, plus more vertical, industry-oriented applications. This white paper will explore these opportunities and detail the challenges for wireless intranet computing today. In addition, it will examine how the infrastructure-based products and services can help enterprises put the wireless intranet to use, maximizing strategic advantage.

II. WIRELESS INTRANET: OPPORTUNITIES AND CHALLENGES

The wireless intranet promises to be a vital resource for enterprises of all types, and in all businesses, by helping empower employees and business partners with new opportunities for mobility. Some examples of wireless intranet applications:

- **Email, calendaring, and expense reports**— Giving employees and partners mobile access to these applications could bring significant competitive advantages. Today, employees spend more time than ever before on the road, whether in traffic jams or waiting at airports. With a mobile intranet, such "down" time could be put to better use doing repetitive tasks such as checking email or updating calendars. In addition, a mobile expense report application would be extremely helpful in keeping travelers up-to-date on their expenses, entering them into a home database even while they are traveling.
- **Sales force automation**— Clearly, any tool that can help an employee close a sale better or faster than the competition is a valuable purchase. Today, such tools are all around, in the form of mobile phones, pagers, and handheld. Wireless connectivity is therefore a mandatory requirement for the savvy sales person.
- **Inventory tracking and other vertical applications**— Many industries have vertical applications that would be better served through mobile capability. One example involves tracking inventory for a delivery service, using off-the-shelf handheld devices such as Palms— for some companies, these would be far more economical and more reliable than the proprietary devices now in use.
- **Financial tracking**— A must-have application for any financial services company is up-to-the-minute mobile access to information on mutual funds and other assets. Why? Because customers of the firm are also likely using mobile devices, so the firm's experts can't afford not to be equipped at least as well as their customers.

These examples point to a few of the possibilities for mobile intranet innovation. At the same time, major system integrators (SIs) such as EDS, Arthur Andersen, and KPMG are now forming, or have already formed, wireless practices.

The result: industry momentum toward newer applications will grow quickly. These wireless application practices at the major SIs and consultancies will accelerate the adoption by enterprises to adapt existing business-critical information and applications for specific mobile devices. And these major SIs are looking to partner with key mobile Internet infrastructure providers to offer enabling tools, services and technologies.

III. UNDERSTANDING THE CHALLENGES

Enterprises should begin immediately to put their wireless intranet plans in place, given the significant levels of infrastructure planning and investment required to get to market with a mobile intranet solution. To start, IT managers should identify their most business-critical mobile intranet challenges.

These include:

A Multiplicity of Devices

Wireless devices come in all shapes and sizes, and use different display formats and data-markup languages. Developing mobile applications will be challenging enough, since developers will have to carefully prioritize text and graphics to fit onto the smaller screens of mobile devices. However, adapting content and applications to fit multiple device types and markup languages could bring additional slowdowns to the application development process.

Network Performance and Reliability

Because wireless device users are going to be mobile users, they will make new kinds of demands on network resources— a user might be driving through California one day, and traveling to Canada the next. The network infrastructure will have to possess the intelligence, and the processing power, to give that user maximum performance no matter where he or she is, and no matter what device he or she is using. Also, the network will have to offer ultra-high reliability and availability as a matter of course, since enterprise wireless applications will most likely be business critical.

Network Scalability

How quickly the wireless intranet will grow— how many new applications and how many users— is anybody's guess. But most analysts and other experts typically agree that wireless growth is likely to be fast and furious. This means the enterprise must put scalability high on its list of priorities, especially for those intranet applications that are somewhat customer-facing— sales force automation, inventory tracking, and so on. Also, scalability is important for directly competitive reasons: enterprise A might create a killer wireless intranet application today, but if that application can't be scaled quickly to adapt to market changes, enterprise B might come up with the same application— and beat enterprise A into a new market. Any organization built for growth must understand the need to scale a service infinitely.

Security
As users become more mobile, network security and data privacy become increasingly critical. Just as the wireless industry is now in its infancy, so are security methods just now being developed to meet the stringent security requirements of mobile corporate intranets. Hence, security will play a critical part in an enterprise wireless strategy, because it will be one of the key factors corporate IT organizations will have to address and resolve, before a mobile intranet deployment decision can be finalized.

IV. FORMULATING AN IMPLEMENTATION STRATEGY
The first step in formulating a strategy is to determine the fundamentals of mobile intranet implementation. We suggest that there are two distinct dimensions to a successful implementation: content adaptation and content distribution.

Content Adaptation
This involves developing the applications that will place enterprise intranet content onto the mobile devices. It combines Web site development— the laying out of Web pages, menus, and navigation paths— with an additional process for fine-tuning the content for the smaller mobile device display formats. For instance, a typical PC browser could display a list of 12 sales locations. For a smaller wireless device, that list might have to be broken into two or even three lists. In addition, the resolutions of graphic images might have to be scaled down, or the images themselves might have to be deleted, in order for the content to work effectively with a variety of devices with limited capabilities.

Additionally, the enterprise faces the prospect of having to adapt content for multiple devices, each with its own display format and markup language. Since enterprises will likely standardize on a limited number of devices, this effort will not be as serious as consumer Internet businesses building a solution for every type of device. However, the extra effort required of corporate IT departments to maintain multiple versions of adapted content and revise this content based on new standards or devices will continue to strain already limited resources. Based on this, enterprises should take into account the possibility of adaptation for multiple mobile devices and the commitment necessary to support these.

Content Distribution
Moving beyond just content adaptation, enterprises must be certain that services and content will be available to employees at all times and that this information is delivered by the quickest means possible. Reliability of the delivery of business-critical information and applications should be the highest priority. This is particularly challenging when users are highly mobile.

For content distribution, the enterprise must select (or, if necessary, build) a high-performance network infrastructure, which guarantees the highest levels of performance, reliability, availability, and scalability. Increasingly, specialized networks will become available from Network companies.

V. COMBINING TECHNOLOGIES AND SERVICES

Some Networks employs a combination of technologies, products, and services to help enterprises with implementation dimensions, application implementation, and content delivery.

Application Implementation

To customize content adaptation, user interface design, and application implementation. For implementation, content adaptation creates a database of XSL (Extensible Scripting Language) rules, which define how XML data should look on specific mobile devices.

Adaptive Network

HTML content enters the Network via the network node geographically located closest to the originating Web server. Database in that respective network node will automatically "pull-up" the appropriate XSL template for the specific mobile device the end-user is accessing the content, then it will adapt the requested HTML content on-the-fly to the wireless device of the requesting user, regardless of the device's form factor or wireless markup language.

VI. BENEFITS FOR WIRELESS INTRANETS

Even today, with wireless intranet computing in its infancy, it brings distinct advantages to enterprises.

- Automating the adaptation process—adaptation technology and services make it possible to create templates, based on industry standard XML/XSL scripts, that apply device and content adaptation rules to XML data for specific mobile device types. This way, enterprises are not required to "reinvent the wheel" for each new supported wireless device. In addition, because this solution can be outsourced, IT management isn't forced to over-extend in-house programming resources.

- Assuring network performance, reliability, and scalability—Adaptive Networks automatically performs content adaptation at the cluster node closest to the content provider's Web server in order to minimize network traffic; also, the bandwidth detection and image transformation servers can automatically scale back image resolutions when it senses lower-bandwidth devices.

- Maximizing security— While the mobile industry moves toward establishing much-needed security standards, most Networks support the latest security encryption technologies. For instance, SSL and as newer encryption and authentication technologies, such as certificate-based authentication, emerge as standards, they will offer these to customers as well.

VII. STRATEGY CONSIDERATIONS

As a final step in developing a mobile intranet strategy, we recommend that enterprise IT managers factor these considerations into their planning:

- **Build or buy**— A major consideration will be whether to purchase and deploy a third party content adaptation software package, and build up a content distribution infrastructure, or to buy into an outsourced service. For all but the largest enterprises, we believe the buy decision is most wise, because it speeds time-to-market of mobile intranet solutions, reduces the cost of building and maintaining a wireless Internet infrastructure, and helps the enterprise respond to fast changing market and technology conditions.
- **Standardize on platforms**— Standardization will benefit the enterprise greatly; the trick over the next few years will be to choose the winning mobile infrastructure platforms over those that will not survive the inevitable industry shakeout. Clues can come from monitoring the experiences of early-adopter enterprises.
- **Think out-of-the-box about applications**— Finally, it is important to determine which applications will be best to bring wireless. Moreover, be aware that these may not necessarily be the same applications that are already coded into HTML for the enterprise Web site. By thinking creatively about the possibilities of the mobile intranet, IT management may be able to take some applications wireless that would not have been obvious first choices, and that may help the enterprise gain a meaningful competitive advantage.