



WebSphere Everyplace Access: Making a quantum leap in mobile computing

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Executive summary

Leading enterprises are now moving beyond mobile e-mail and calendar to critical business applications that improve data capture and field-level effectiveness. IBM WebSphere Everyplace Access, a core platform for today's mobile workforce, features the robust architecture that enterprises need to expand mobile capabilities and make a quantum leap in productivity.

WebSphere Everyplace Access delivers advanced services to mobile devices for push-based e-mail, personal information management (PIM), notification, location services, embedded databases, Web content and instant messaging. The platform also provides a rich set of tools for developing mobile applications and accessing core order entry, field service, repair, inventory, insurance claims processing and supply chain systems.

This paper analyzes WebSphere Everyplace Access from an architectural, feature and integration perspective, covering:

- New advanced capabilities in location-aware services, intelligent notification, device management, e-mail push and instant messaging
- Enhanced integration with WebSphere Portal for remote portlet access
- Database synchronization and offline forms
- A development toolkit to create, emulate, test and debug applications
- Support for cell phones, smart phones, and Palm, Pocket PC, embedded Linux and Symbian operating systems.

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The WebSphere Everyplace Access vision is to simplify delivering data to a diverse, rapidly evolving set of mobile devices.

WebSphere Everyplace Access—extending the enterprise

In March 2003, Yankee Group rated IBM as the best equipped to implement a comprehensive mobile solution¹. Results from 2002 IBM wireless projects support that conclusion and indicate a potential 30% reduction in call center traffic, 20% increase in dispatch efficiency and 15% increase in field technician efficiency due to better skills-based routing and parts availability.

However, deploying a wireless solution on a short-term basis can be a costly approach. WebSphere Everyplace Access employs an extensible uniform architecture as apposed to a single function approach. Mobile solutions such as access to e-mail and PIM applications can be operational within hours of completing the installation process of WebSphere Everyplace Access. The WebSphere Everyplace Access solution set encompasses industrial-strength infrastructure, software, development tools and professional services for tight integration to core systems.

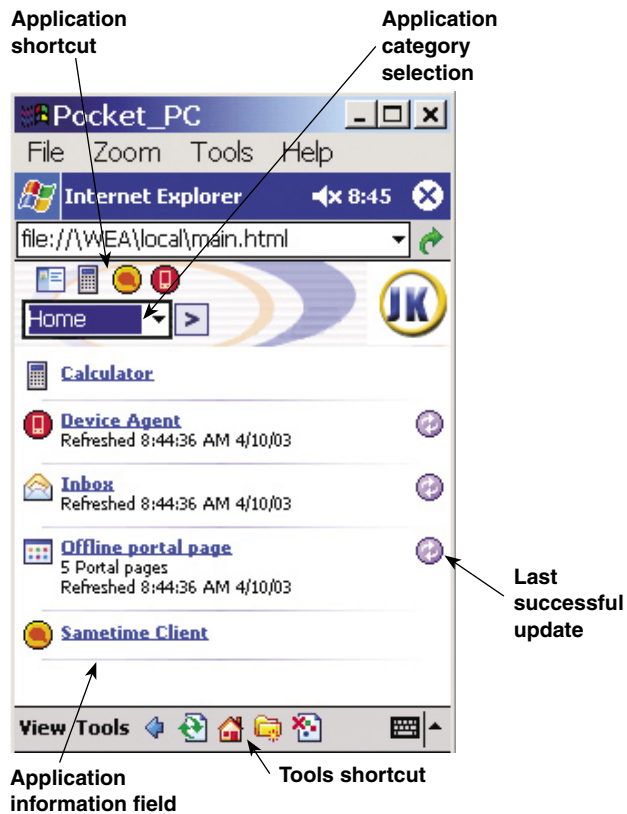
Intelligent Notification Services (INS), for example, is a unique IBM technology that proactively notifies users of key information or events triggered from e-mail, supply chain, news feeds or enterprise systems. With conventional pull-based systems, users must actively search out important information on a frequent basis. INS, in contrast, monitors information from a variety of sources, recognizes when an event occurs and notifies workers via cell phone, pager or Personal Digital Assistant (PDA).

¹ Yankee Group, Technology Titans Tackle Mobile Computing In the Enterprise, by Adam Zawel, March 2003

Advanced capabilities in WebSphere Everyplace Access

Push-based e-mail and PIM

WebSphere Everyplace Access supports SyncML-based synchronization of e-mail and PIM (Address, Task/To Do, Calendar, Notes and Journal) from Microsoft Exchange and Lotus Domino servers, as well as browser access for the connected user. Synchronization also supports delivery of e-mail attachments and invitations, allows users to choose between a server push, timed or manual synchronization, and provides a rich set of filtering options to screen e-mail and improve efficiency.



New user interface for WebSphere Everyplace Access 4.3 main menu:

- Application list with live information such as number of unread messages
- Open application by tapping the icon
- Check network status and sync status

Intelligent Notification Services

INS allows proactive alerting via a scalable publish-subscribe engine that monitors multiple information sources for user-specified matches. The technology includes a straightforward interface to select preferences for content source, notification triggers and delivery via browser, e-mail, Short Message Service (SMS) or custom-defined channel. A “Stock-Out Alert” from an INS-enabled supply chain application, for example, could issue alerts when inventory reaches critical levels. The same notification engine could also be deployed to alert emergency response teams of emergency conditions, account executives of customer orders or field service personnel of a machine outage.

Location-aware services

Location-aware services enable enterprises to dynamically integrate mapping, routing and information directories within their applications for driving directions and proximity searching. With the latitude/longitude of the device provided by an onboard Global Positioning System (GPS) customers can now re-route crews for emergency response, or reschedule field service and deliveries. In addition, WebSphere Everyplace Access connects to outside information providers, such as Webraska and Go2Map, and will support the emerging Open LS standard.

Mobile instant messaging

With the advent of always-on wireless networks, mobile instant messaging is rapidly becoming one of the most powerful forms of instant communication. The implications for instant messaging are compelling: Enterprises can instantly message field service agents about work assignments, quickly answer questions and expedite decisions. WebSphere Everyplace Access makes instant messaging on a PDA with Lotus Sametime Server (R3.0) as easy as chatting from the desktop.

Device management

Device management is important for deploying and maintaining wireless applications, particularly as the number and variety of those devices increase. WebSphere Everyplace Access includes device inventory, software deployment and maintenance, and configuration management of device software. The platform also provides tools for administrators to pre-configure devices through a browser, automate software downloading, and enable rapid, over-the-air repairs with significant costs savings.

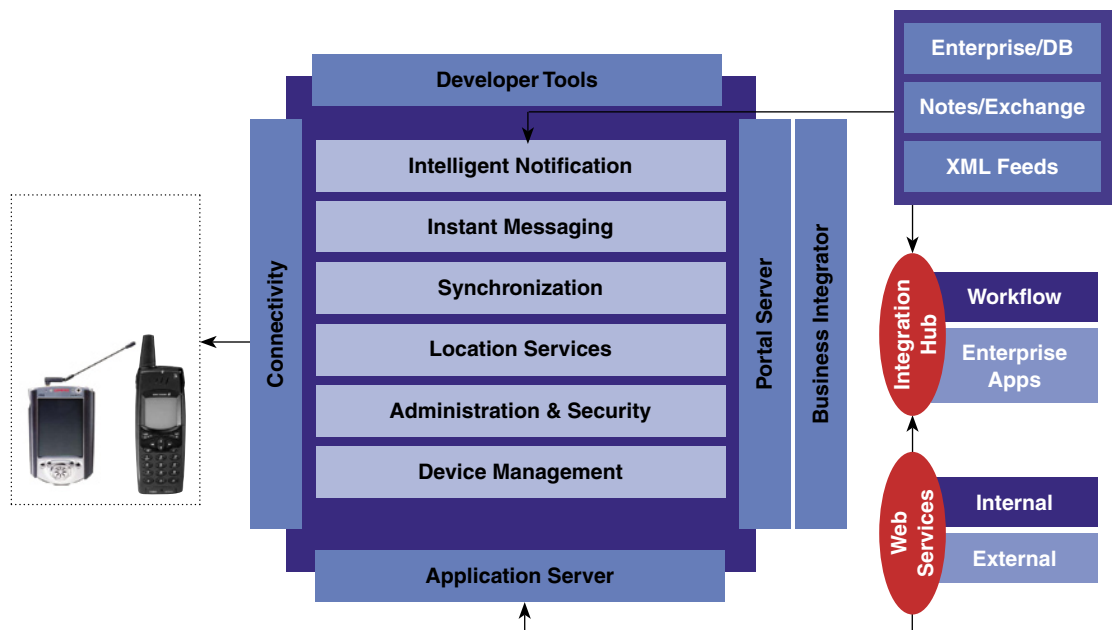
***WebSphere Everyplace
Access supports multiple
pervasive devices such as
PDAs and smart phones
from a single platform.***

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WebSphere Everyplace Access architecture

IBM designed WebSphere Everyplace Access specifically to bridge complex wireless environments with a single, scalable architecture. From a technical perspective, WebSphere Everyplace Access is built on WebSphere Application Server and WebSphere Portal Server with one of the most advanced set of data aggregation, programming tools, business workflow and application interfaces on the market today. In essence, WebSphere Everyplace Access delivers a single access point to mobile devices for a wide range of services that extend business applications:

- A diverse set of connected and intermittently connected wireless devices
- Seamless integration with IBM industry-leading WebSphere Portal, and Java 2 Enterprise Edition (J2EE)-compliant WebSphere Application Server
- Integration with WebSphere Business Integration (WBI) Server as a cross-application hub
- Strong security and authentication capabilities through WebSphere Everyplace Connection Manager, a complementary product



WebSphere Everyplace Access is designed to allow enterprises to start small, then expand over time to a richer set of wireless application functions.

Extending core business applications with WebSphere Everyplace Access

WebSphere Everyplace Access provides both a mobile platform and a powerful entry point into backend applications. By linking through WebSphere Portal and WebSphere Application Servers to a business integration hub, field transactions can flow directly to core systems with speed and accuracy. Placing new orders, receiving alerts on inventory levels and requesting service parts onsite also allow enterprises to better manage their customer relationships. The net impact means a new generation of fast, agile workers who are tightly linked with line-of-business workflows.

1. Leveraging device-based applications

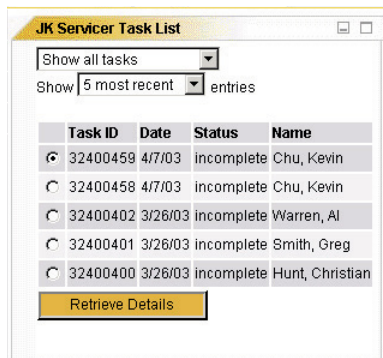
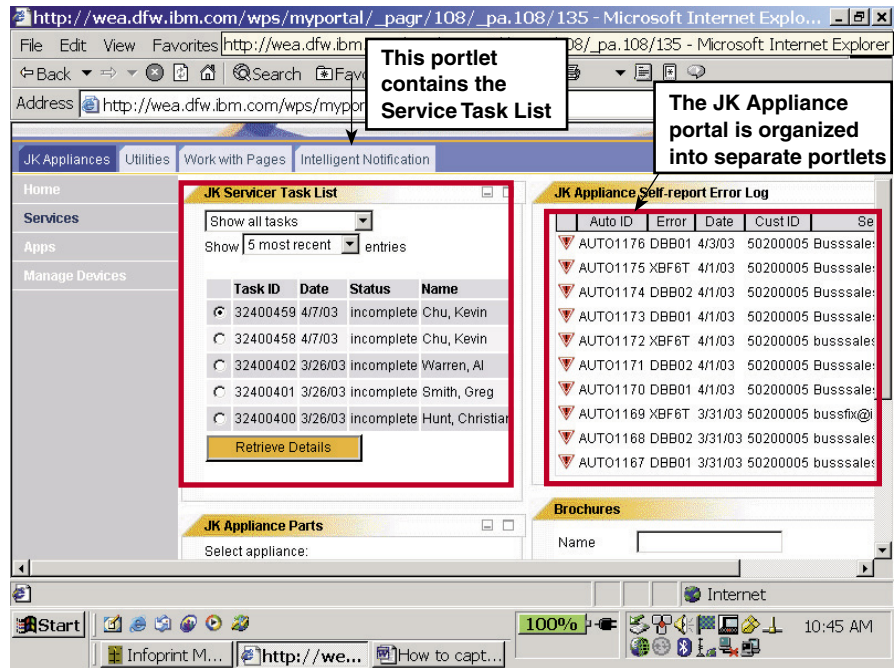
WebSphere Everyplace Access offers two different models for mobile device connectivity. In a thick client model, business logic updates data on the device, while WebSphere Everyplace Access middleware synchronizes with IBM DB2, Oracle, Microsoft SQL, Informix, Sybase or Domino databases. WebSphere Everyplace Access also supports a thin client, or browser-based, model for Web sites and Web forms, in either connected or disconnected mode. Both of the models are crucial because the cost, bandwidth, coverage and quality of today's networks make disconnected access to applications a crucial feature.

WebSphere Everyplace Access also makes outstanding use of WebSphere Portal when extending applications to devices and renders portlets as icons on the client. More significantly, it uses the versatile portal-to-portlet framework to provide access to interfaces with Exchange, Notes, enterprise resource planning, customer relationship management and supply chain applications. In March 2003, IBM portal, collaboration and content management capabilities were rated as the highest in the industry².

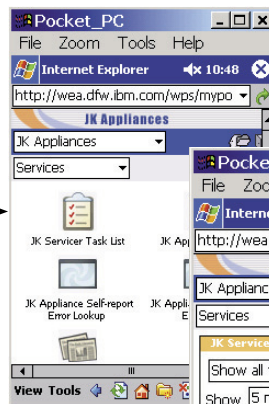
² Gartner, Management Update: Gartner's Smart Enterprise Suite Magic Quadrant for 2003, by S. Hayward, M. Gilbert, G. Phifer and F. Caldwell, March 2003

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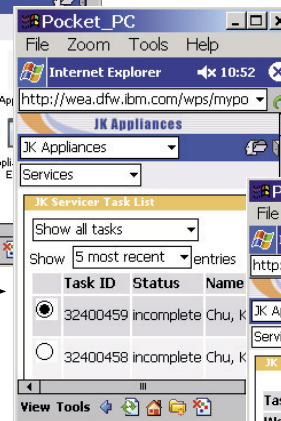
From portal to mobile portlet



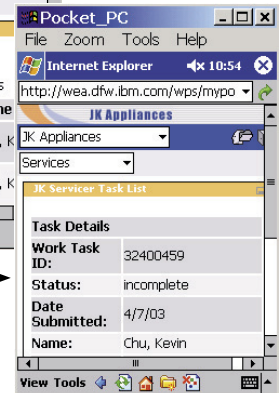
The portlets are rendered as icon on a Pocket PC, saving bandwidth and space



Opening the Service Task portlet reveals uncompleted tasks



And the details of each job



2. Deep integration to core systems and business workflows

Many companies will see a greater impact by reaching beyond the device directly to backend systems.

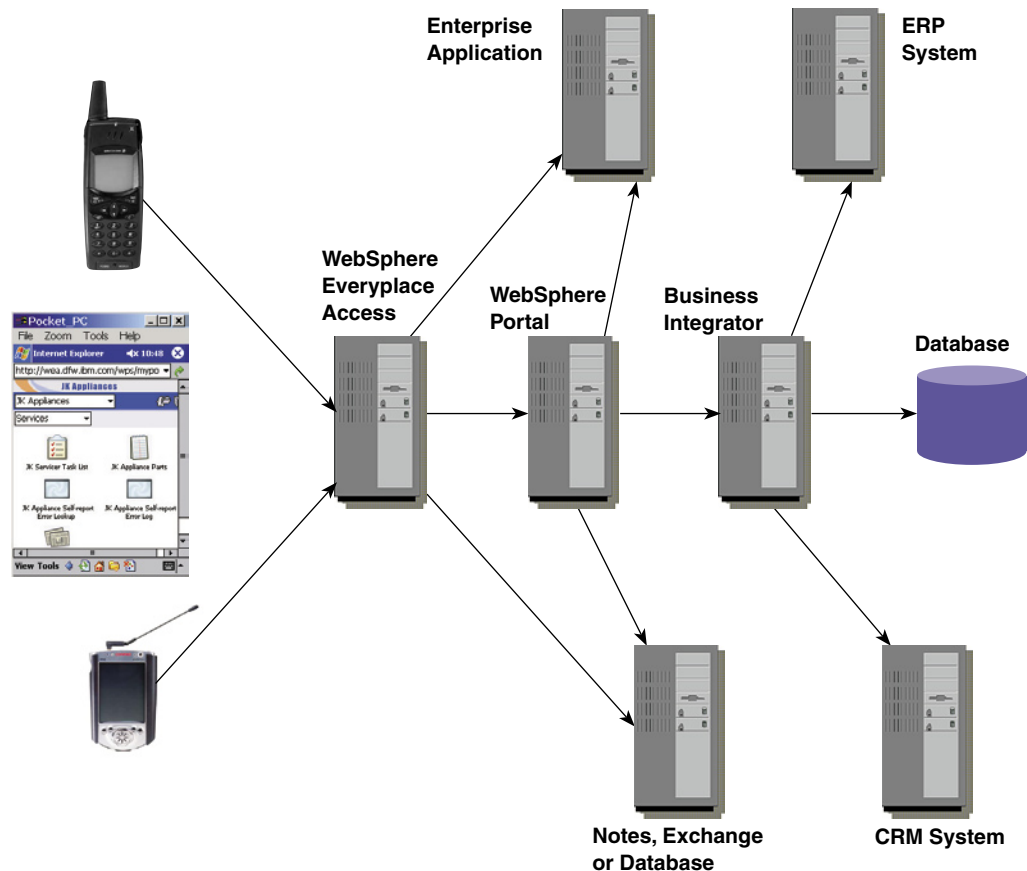
IBM has two complementary products supporting this capability: WebSphere Business Integration Server and WebSphere MQ Everyplace (MQe).

WebSphere Business Integration Server is an integration hub designed to model and simulate business processes, integrate disparate systems and automate workflows. For customers looking to improve the operation of their business, the results look encouraging.

To ensure transaction integrity, MQe runs on a device as a small footprint client for robust, once-only messaging so that transactions are not lost or duplicated. This technology, which supports asynchronous and synchronous messaging, is highly customizable and connects seamlessly to WebSphere Business Integration Server. MQe also adds realtime messaging to database synchronization, allowing customer orders, for example, to be confirmed in realtime.

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Developing mobile applications

Wireless developers need a standards-based, functionally rich set of development tools to streamline the launch cycle for applications. To meet that demand, WebSphere Everyplace Toolkit for WebSphere Studio includes wizards for content development and adaptation. Developers can now code, emulate, test and debug applications without extensive experience or the actual device.

As the number of devices continues to rise, developers are facing an increasingly complex series of functions in each application. With the WebSphere Everyplace Toolkit, Web and portlet applications can now be written once and deployed to multiple devices with different characteristics, a big step toward rapid application development. Additionally, Toolkit samples of synchronization, notification and portlets match the major functions within WebSphere Everyplace Access, streamlining the cycle further.

Recommendations

Although the market for wireless deployments is still emerging, many companies have already started pilots and are now looking beyond basic office mobility features. IBM anticipates that integrating the handheld device with front-end portals and core applications will yield strong returns in productivity, responsiveness and operational effectiveness. In order to take advantage of the deeper potential in wireless deployments, companies need to consider a five-point plan to efficiently extend, create, deploy and manage a new generation of applications:

A five-point plan for enterprise mobile deployments

1. Analyze operational constraints and potential improvements, and build a detailed business case
2. Evaluate wireless solutions using an e-business infrastructure that links the device to core business applications, databases and portals
3. Quantify returns from both office (e-mail and PIM) and enterprise-class mobility, particularly in the areas of supply chain management, sales and field service
4. Partner with a leading vendor on the basis of product capabilities, partnerships, future roadmap and financial stability and services expertise
5. Design and build an infrastructure that is standards based, functionally rich, highly extensible and user friendly

A roadmap to on demand mobile computing

WebSphere Everyplace Access is a critical component for making mobile applications available on demand with an increasingly flexible, reliable and resilient wireless infrastructure. To support that strategy, IBM plans to provide world-class PIM, e-mail and database synchronization, instant messaging, and support for new classes of mobile devices and the Linux operating system. Future WebSphere Everyplace Access releases may expand the WebSphere programming model to mobile devices and support multi-modality combining voice and data interactions.

As mobility goes mainstream, companies may start folding mobile deployments into an enterprisewide architecture, with options for utility-based computing and flexible financing. That approach could have major implications in terms of improving efficiency, building greater business resilience and creating links between enterprises. The unique IBM on

“IDC estimates the U.S. mobile workforce population will reach 104 million by 2006, nearly doubling the growth of the immobile worker. For the workers in the field, access to relevant customer information and back-office applications will become an essential, if not critical, element of their workday.”³

demand vision for pervasive computing – which is based on new business models, core software and deep industry expertise – can help enable that capability.

Summary

IBM has created an extremely rich, standards-based, e-business application platform in WebSphere, and is extending it to mobile devices with WebSphere Everyplace Access. In one package, WebSphere Everyplace Access delivers the technology needed to give mobile employees access to enterprise data and applications from virtually anywhere, at any time. It supports multiple pervasive devices from a single platform. It helps move business-critical information throughout the organization more efficiently and without boundaries – whether to deliver customer information to field sales professionals, inventory information to warehouse pickers, or PIM data to managers on the move.

WebSphere Everyplace Access will continue to grow and broaden its services and capabilities, and will benefit from IBM research, the IBM commitment to open standards, and the experience of IBM as it helps enterprises reap the many benefits of mobile and pervasive computing.

For more information

To learn more about IBM Pervasive Computing and WebSphere Everyplace Access, visit: ibm.com/software/pervasive/products/mobile_apps/ws_everyplace_access.shtml

³ IDC, Mobile Application Solutions: Making a Credible Case for Mobile CRM Adoption, 2003



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