Comparing Research In Motion and Microsoft Mobile Solutions

For Your Mobile Device Needs

June 2008

Prepared by Advaiya, Inc.

Contents

Executive Summary: The Mobile Work Culture

In our mobile work culture, we see corporate staff, from executive to individual contributor, working beyond the boundaries of the traditional office environment. The concept of working "any time and anywhere" has become popular. To support this concept, many organizations are adopting mobile solutions. As employees use these solutions, their expectations are increasing—employees want not only access to information, but full participation in business from any location whenever it is required.

Mobile solutions are essential to a strong IT infrastructure because they facilitate employee access to information in near-real time, regardless of location. Organizations that implement mobile solutions enable employees to be more productive, responsive, and aligned with the latest business events—and benefit from a work force that remains fully connected to the business both on and off site.

Manufacturers and mobile network operators have released a wide array of devices that have different characteristics and capabilities. Many mobile solutions require the purchase of specific devices and accompanying server-based middleware; these requirements can add to the cost, complexity, and administrative overhead of the solution.

This paper compares the Research In Motion BlackBerry solution (BlackBerry mobile devices and BlackBerry Enterprise Server) with the Microsoft® mobile solution (Microsoft Windows Mobile® and Microsoft Exchange Server 2007 SP1 with Microsoft ActiveSync® technology) by analyzing features of the user experience and the administrator experience.

From a user perspective, features support access to data sources, customization, and ease of use. From an administrator perspective, features are tools that support and control mobile devices, most importantly, secure mobile messaging and sensitive corporate information that will be stored on and transmitted by mobile devices. Use the information in this paper to understand the benefits and shortcomings of both solutions.

User Experience

The following tables compare features of Windows Mobile devices that use Microsoft ActiveSync technology with features of BlackBerry devices.

Key	☑Included	✓Partially supported	☒Not included

Mobile Architecture

Features	Windows Mobile	BlackBerry
E-Mail, Messaging, and Collaboration		
E-mail accounts. Supports corporate e-mail (including Lotus Notes and Microsoft Office Outlook®) and personal e-mail (POP3 / IMAP and Web mail).	☑	☑
E-mail applications. Interoperates with e-mail applications such as AOL, Hotmail / Microsoft Windows Live™, and Yahoo.	☑	☒
Attachments. Provides the capability to view large attached files and images.	☑	✓
Follow-up flags. Users can set out-of-office messages or flag messages directly from the mobile device.	☑	☒
Text messages. Users can send text messages by using short message service (SMS) and multimedia messaging service (MMS).	☑	☑
Threaded text messages. Messages are threaded together into single conversation, similar to instant messaging.	☑	☒
Microsoft Office files. Users can view, edit, or access Microsoft Office files and use links to documents that are stored on a server or attached to an e-mail message.	☑	☒
Over-the-air search. Users can search for information by querying the local device and the user's entire mailbox on the server.	☑	✓
Pictures and videos. User can share pictures and videos on the spot.	☑	☑
Ease of use. Users can easily set up e-mail and use menus and function keys. Users can also browse through Internet content and make phone calls.	☑	✓
E-mail security. Users can receive, reply to, forward, and compose messages that are protected by Information Rights Management (IRM).	☑	✓
Data Entry and Access		
Remote mailbox access. Users have remote access to the entire mailbox, including flags, read status, and the subfolder structure.	☑	☒
Contact list. Users can access the corporate global address list to search for contacts directly from the mobile device.	☑	☒
Call history. Users can view and sort the historical list of calls.	☑	☑
Use links. Users can view and click links to documents that are stored on servers.	☑	☒
Videos with sound. Users can take full-motion video with sound on the device.	☑	☑
Online Presence and Synchronization		
Synchronization. Users can synchronize calendars, contacts, tasks, inboxes, or particular subfolders with the server, to keep them up to date.	☑	✓
Availability status. User can retrieve, set, and change their availability status.	☑	✓
Auto reply notification. Users can set automatic reply notifications.	☑	✓

Security Features

Features	Windows Mobile	BlackBerry
Self-service device wipe. Over-the-air wireless IT policies and commands to lock down a device or wipe data from a lost or stolen devices help users protect sensitive information.	☑	☑
Encryption and cryptographic services. Users can encrypt locally stored documents and data, including documents and data stored on external storage cards.	☑	☑
Compliance and confidentiality. Users can lock down device communications for compliance and confidentiality.	☑	☑

Added Functionality

Features	Windows Mobile	BlackBerry
Full Web browsing. Users can browse, search for information, navigate to favorite sites, set up really simple syndication (RSS) feeds, and more.	☑	☑
Online shopping. Users can store all purchasing information on the device.	☑	☑
Social networking. Users have access to social networking sites.	☑	☑
Global Positioning System (GPS) and location base services. With navigation technology, users can get maps, directions, and real-time traffic views.	☑	☑
Voice and sound. Users can issue voice commands to start programs, make phone calls, and listen to a list of appointments.	☑	☑
Organizer. Users can organize contacts, calendar, tasks, and appointments.	☑	☑

Choice and Flexibility

Features	Windows Mobile	BlackBerry
Hardware vendors. Users have a vast choice of device manufacturers.	☑	✓
Applications. Users can choose among multiple commercial mobile applications.	☑	✓
Third-party solutions. Users can employ third-party solutions for their mobile devices.	☑	✓

Administrator Experience

The following tables compare features of Microsoft Exchange Server 2007 SP1 and ActiveSync with features of BlackBerry Enterprise Server.

Key	☑Included	✓Partially supported	☒Not included

Mobile Architecture

Features	Microsoft Exchange Server	BlackBerry Enterprise Server
Deployment		
Server roles. Modular setup and server provisioning based on server roles reduces IT overhead.	☑	☒
Mailbox Management		
Auto mailbox configuration. Automatic mail client configuration reduces end-user confusion about mailbox setup.	☑	☒
Mailbox quotas. Architecture supports increased mailbox quotas.	☑	✓
Security architecture. Mailbox architecture works with the existing security architecture.	☑	✓
Applications and Device Settings		
Device configuration. The task of loading device software and user data onto multiple devices is centralized.	☑	✓
Application controls. Administrators can configure devices to use third-party applications that are necessary or allowed, and can also block forbidden applications.	✓	✓
Device statistics. Administrators can track and manage device statistics and information.	✓	✓
Diagnostics and monitoring tools. Offers diagnostics, monitoring, and troubleshooting tools.	☑	✓
Graphical environment. Provides an intuitive graphical environment in which to perform administrative tasks.	✓	✓
Device policy. IT administrators can set per-user device policies to allow or disallow attachments and to specify personal identification number (PIN) expiration dates.	☑	✓

Security Features

Features (Device and Data Protection)	Microsoft Exchange Server	BlackBerry Enterprise Server
Content protection. IT administrators can protect and encrypt all data stored on devices.	✓	✓
Automatic transport layer security (TLS) encryption. Automatically encrypts connections between hosts and requires no administrator action.	☑	☒
Intra-organization encryption. Automatically encrypts all e-mail inside the organization, from the sender e-mail client to the recipient e-mail client.	✓	✓
Triple data encryption standard (DES) / advanced encryption standard (AES). Supports triple DES and AES encryption, to help ensure the confidentiality and integrity of wireless transmissions.	✓	✓
Backup and restore. IT workers can wirelessly back up and restore user data and settings for deployed devices.	✓	✓
High availability. Systems have high availability by using data replication capabilities.	☑	✓

Added Functionality

Features (Extensibility and Programmability)	Microsoft Exchange Server	BlackBerry Enterprise Server
Application development. Software developer's kits (SDKs) and frameworks are available to create new wireless applications.	☑	✓
Interoperation with line-of-business (LOB) applications. Framework and tools exist to create and combine wireless applications with LOB applications.	☑	✓

Choice and Flexibility

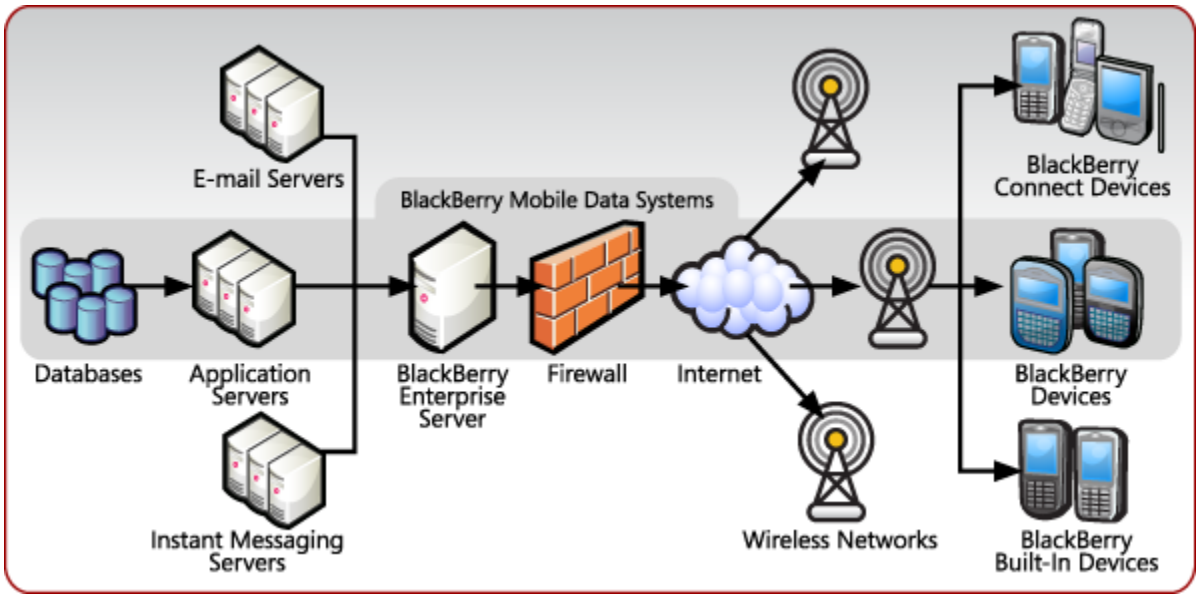
Features	Microsoft Exchange Server	BlackBerry Enterprise Server
Total cost of ownership (TCO). Total cost of managing and updating servers, client access licenses (CALs), and technical support can be identified.	☑	✓

BlackBerry: The Research In Motion Solution

Key elements of the BlackBerry Enterprise Solution architecture[1] are:

- **BlackBerry Enterprise Server.** Software that links wireless devices, wireless networks, and enterprise applications. All data between applications and BlackBerry devices goes through the server.
- **BlackBerry Mobile Data System.** A framework that provides essential components to enable deployment of applications besides e-mail to mobile users. Such applications can include developer tools, administrative services, and BlackBerry device software.
- **BlackBerry devices.** Wireless voice and data devices that work with the BlackBerry Enterprise Solution. These devices use push technology to provide access to e-mail and data from enterprise applications and systems.
- **BlackBerry connect devices.** Devices from leading manufacturers that use push technology to deliver information and that connect to BlackBerry Enterprise Server.
- **BlackBerry built-in devices.** Devices from leading manufacturers that integrate full-featured BlackBerry applications that can include e-mail, calendar, contacts, browser, tasks, and memo pad.

Figure 1 BlackBerry Enterprise Solution architecture



User Experience

BlackBerry offers many features to meet user needs to communicate, correspond, gather and manage information, and even navigate from one geographic location to another.

E-Mail and Messaging

With BlackBerry, users can manage multiple e-mail accounts from one device. Users can add up to ten personal and work e-mail addresses to a BlackBerry smartphone. Each account's mailbox is automatically updated whenever the user sends, reads, or deletes a message. Users can view attachments saved in popular document and graphical formats without waiting for them to open. Users can also use text messaging to communicate with contacts who use phones or other mobile devices that support the SMS or MMS protocols.

Voice and Sound

With a BlackBerry smartphone, users can talk into the built-in speaker phone, initiate a call with a contact by using voice-activated dialing, conduct a conference call with multiple people at once, listen to voice mail attachments in MP3 digital audio encoding format, and with a Bluetooth headset or car kit, enjoy hands-free dialogue. With mobile streaming, users have access to videos and music.

Internet Access

Web browser. The BlackBerry Internet browser delivers Internet service for users to browse the full Web on the BlackBerry smartphone when and where they want to. BlackBerry smartphones can work as wireless modems—users just need cellular network coverage to browse the Web. Users can search for information by using a search engine, navigate through favorite sites, get maps and directions, and set up RSS feeds. Users can also quickly download and view full-screen pages, set bookmarks, and view browsing history.

Online shopping. BlackBerry facilitates online shopping with the BlackBerry Wallet, which stores all purchasing information on the smartphone so users can easily retrieve it to fill in online purchasing forms.

Business information retrieval. With a BlackBerry smartphone, users can retrieve business information such as customer or supplier details, pricing data, and inventory details from business applications. Users can access key intranet- or Internet-based data and get notified about important business events as they happen.

Social networking. BlackBerry devices support social networking by allowing users to access social networking sites and services such as Facebook to share up-to-date information and photos.

Data Entry

BlackBerry smartphones support SureType technology, which lets users dial or type without the limitations of a traditional phone keypad. The smartphone includes a word list of more than 35,000 words and users can increase that list based on how frequently they use a word. The word list also includes names and addresses in the smartphone's address book. Smartphones can check spelling as the user types, and users can load industry-specific word lists, such as finance, business, medical, and legal.

Navigation with the Global Positioning System

BlackBerry smartphones support GPS technology, to inform users of their exact locations while they're on the go. Users can view maps and receive directions on the BlackBerry smartphone by using BlackBerry Maps. The maps provide a visual route and step-by-step instructions to a specified destination.

Organizer

The organizer that is included with BlackBerry smartphones provides a calendar, appointment scheduling, address book, task list, and memo pad for important notes and memos. Users can mark tasks as complete, even when they are away from their desks.

Administrator Experience

Organizations can streamline the deployment and use of BlackBerry Enterprise Server, to reduce administrative tasks and optimize IT resources.

Deployment

BlackBerry Enterprise Server provides features such as distributed, cradle-free provisioning, which enables users throughout the organization to activate BlackBerry devices over the wireless network without the need for significant involvement from the IT department during deployments.

Applications and Device Settings

BlackBerry Enterprise Server allows administrators to track and manage BlackBerry Devices by using a device configuration tool to load software and data on mobile devices. Device Application Control in BlackBerry Enterprise Server helps administrators decide which third-party applications are necessary, allowed, and forbidden for devices and facilitates configuration. Administrators can also lock devices, change passwords, and wipe device data remotely.

Device and Data Protection

Security features such as content protection in BlackBerry Enterprise Server help to protect passwords and to encrypt data stored on BlackBerry devices. Administrators can use Wireless Encryption Key Regeneration to enable users to remotely and wirelessly change their passwords. BlackBerry Enterprise Server also supports DES or AES-256 wireless transport encryption.

BlackBerry Enterprise Server introduces new mail agents automatically. Administrators also can use wireless backup to facilitate wireless data restoration and smart monitoring tools to facilitate automatic fault detection.

Application Design and Development

BlackBerry Enterprise Server includes several other features besides e-mail, such as development tools and Software Development Kits (SDKs) for mobile developers to create new mobile applications.

ActiveSync: The Microsoft Mobile Solution

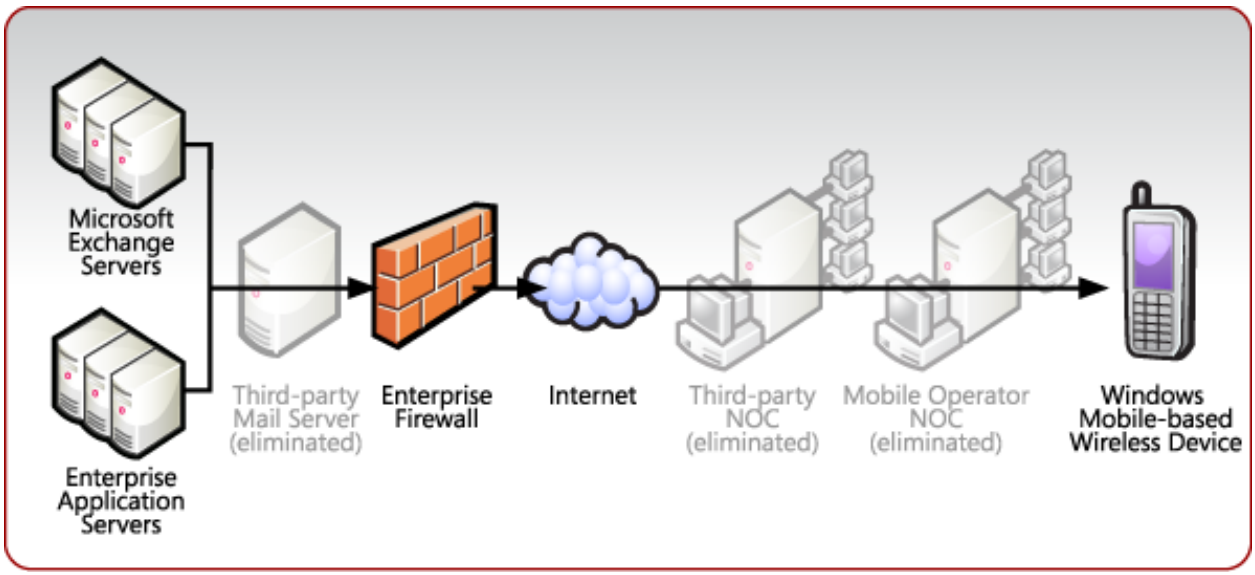
The Microsoft mobile solution with Microsoft ActiveSync technology enables organizations to effectively meet today's mobile messaging challenges without fundamentally altering traditional end-user methods to access e-mail. Microsoft Exchange Server 2007 SP1 architecture is highly scalable and robust. Some mobile messaging servers rapidly require the addition of more servers (both third-party mobile servers and core messaging servers) as the mobile user base expands. Microsoft Exchange Server 2007 SP1 uses the same servers for mobility, including coverage for Outlook Web Access and Outlook Anywhere to provide remote access to Exchange servers from the Internet.

Microsoft Exchange Server 2007 SP1 includes five defined server roles, which empowers administrators to deploy sets of functionality individually on servers or combined with other roles (with certain restrictions). The Microsoft mobile solution enables mobile messaging by using ActiveSync, which allows users to access data on different supported mobile devices through low-latency wireless data networks.

Key components of the Microsoft mobile solution with ActiveSync[2] are:

- **Microsoft Exchange Server 2007 SP1.** Supports multiple clients and enables enterprises to configure devices for users on a large scale. Exchange Server 2007 SP1 allows administrators to deploy server roles such as Client Access Server for mobile users, and it facilitates the sharing of messaging loads across servers.
- **Microsoft Exchange ActiveSync.** A native synchronization protocol for mobile devices that use Microsoft Exchange Server 2007 SP1. Exchange ActiveSync eliminates the need to use the Messaging Application Programming Interface (MAPI) protocol, and thus reduces the load on Microsoft Exchange Server 2007 SP1. Direct Push technology supported by Exchange ActiveSync automatically synchronizes the device when new e-mail arrives.
- **Windows Mobile device**. A hand-held device that runs on the Windows Mobile platform. On a Windows Mobile device, users can make phone calls, retrieve e-mail, keep track of schedules and contacts, browse the Internet, send and receive text messages, read and compose documents in Microsoft Office Word, make Microsoft Office Excel® charts, and view Microsoft Office PowerPoint® presentations.
- **Enterprise firewall.** Contains firewalls for both hardware and software, such as Microsoft Internet Security and Acceleration Server 2006.

Figure 2 Direct Push technology directly links a mobile device with Exchange Server 2007 SP1 servers



User Experience

Microsoft Windows Mobile software offers an intuitive and familiar messaging and collaboration experience that is usable and attractive. Windows Mobile users can easily browse Internet content, make phone calls, and navigate through a graphical user interface by using intuitive icons, menus, and function keys. Messages are easy to read because Windows Mobile supports sending and receiving messages in Hyper Text Markup Language (HTML) format to preserve tables, bulleted lists, colored text, links, and inline images.

E-Mail and Messaging

Windows Mobile with ActiveSync supports over-the-air search, so a user can start searching on a mobile device, and can query the local device in addition to the entire user mailbox in the Microsoft Exchange server. Users can set follow-up flags on e-mail messages and view large attachment files or long messages. If a user selects a long message or attachment, the device can immediately retrieve the necessary data without reloading the entire message.

Windows Mobile makes it easy for users to organize e-mail by moving a message to a folder or by flagging a message. It also supports enhanced fidelity of viewed messages for users, including IRM-protected mail, and it supports the ability to read and compose protected messages.

With threaded text messaging, Windows Mobile users can view an entire conversation as they type, because messages are combined into a single conversation. When it's time to send a message, Auto-Complete for Recipients lets users type a few letters of a name to view the nearest matches in a list.

Voice and Sound

With Windows Mobile, users can issue voice commands to start programs, make phone calls, and listen to a list of scheduled appointments. Windows Mobile supports Bluetooth wireless technology, which allows users who have Bluetooth-enabled car kits to access phone book information and automatically connect Bluetooth headphones or a headset to the smartphone. With the advanced audio distribution profile, users can listen to a stereo through their Bluetooth headphones.

Windows Mobile also provides utilities to set multiple alarms on a device.

Internet Access

Users can visit more Web sites than ever because Windows Mobile supports Microsoft Internet Explorer® 6.0 and Mozilla/4.0, which are compatible with Windows® CE and Internet Explorer Mobile 6.9. In addition, Windows Mobile 6 includes AES 128- and 256-bit encryption support. Also, Windows Mobile 6 includes Asynchronous JavaScript and XML (AJAX) support and Extended Markup Language (XML) Document Object Model (DOM) support, to facilitate the user experience with Web applications. Microsoft provides the form-based file load method to upload a file on a Web server.

Windows Mobile also helps users who shop online by saving their purchasing information on the device.

Navigation with the Global Positioning System

Windows Mobile is compatible with popular GPS technologies, including those by ALK Technologies, Garmin Ltd., Pharos Science and Applications, Inc., Telenav, TomTom, and many more. GPS features empower a user to determine the current location and get onscreen navigation to the specified destination. GPS technology also provides real-time views of traffic, to help users avoid unexpected traffic jams or road closures.

Online Presence and Synchronization

With Windows Mobile, users can retrieve, set, and change their availability status and AutoReply notifications from a Windows Mobile 6 device.

Users can keep the calendar, contacts, tasks, and inbox up to date by using the Direct Push feature of ActiveSync technology. Users also can view conflicting appointments and appointments that are adjacent to a meeting request.

Device and Data Protection

Windows Mobile with ActiveSync provides self-service device wipe—if a device is lost or stolen, the user can clear the contents of the mobile device or reset the device's password by using Microsoft Office Outlook Web Access.

Data Access

Users can access the corporate global address list and search for contact information in the contact list. Windows Mobile enables users to view and click links to documents that are stored on servers, or view and click links in an e-mail message while using a mobile device. Microsoft Exchange Server 2007 SP1 uses LinkAccess technology to retrieve and display the linked document without using a virtual private network (VPN) or tunnel. Users can view past call history—including calls made, received, and missed—arranged by contact name.

Calendar and Meetings

Users who need to set up meetings can synchronize information about attendee availability with the mobile device, to enjoy the same information that is available in the Office Outlook client. User can forward or reply to a meeting request and see the acceptance status of each attendee. In addition, users can gather details about attendees in the corporate global address list.

Collaboration

Windows Mobile enables users to easily share pictures and videos, take full-motion video with sound to fully capture a moment, synchronize pictures, make slide shows, and view photos from the Home screen.

Partner Solutions

Windows Mobile has a vast partner ecosystem that supports approximately 18,000 commercial software products and more than 1,725 Mobile2Market certified and distributed products, which provides a great choice of mobile solutions.

Application Design and Development

Windows Mobile provides a rich and flexible development platform that empowers mobile application developers to develop more line-of-business applications for mobile devices by using .NET Compact Framework 3.5. This framework enables developers to develop applications in the languages they already use. With Windows Mobile 6, Microsoft includes the .NET Compact Framework 2.0 and Microsoft SQL Server® 2005 Compact Edition in read-only memory (ROM)—to ease the deployment of enterprise applications.

The Web Services Application Programming Interface (API) helps developers embed information from a Microsoft Exchange Server 2007 SP1 mailbox or calendar in a custom mobile application. These services are supported by many platforms and languages.

Security

On-device security features in Windows Mobile enable users to encrypt documents that are stored locally on the device, and data that is stored on an external storage card. Windows Mobile supports the AES 128-bit and 256-bit versions.

Granular Device Control

Windows Mobile provides finer control over device hardware, such as lock-down communications for compliance and confidentiality purposes. It also supports other device security features such as strong PIN requirements, password or PIN expiration, and password history, to protect the device from unauthorized use.

Vendor Flexibility

Windows Mobile provides a wide variety of mobile solutions. With Windows Mobile, users can choose from approximately 140 phones from 50 device manufacturers, and from approximately 18,000 commercial applications.

Administrator Experience

Microsoft Exchange Server 2007 SP1 helps administrators manage the messaging environment by incorporating administrative tools such as Microsoft Exchange Management Console and Exchange Management Shell.

In Exchange Management Console, administrators use an intuitive graphical environment that has an action pane and provides easy ways to filter large lists of objects. Exchange Management Console also helps administrators to analyze and diagnose problems by using different tools such as Exchange Best Practices Analyzer and the Exchange Troubleshooting Assistant.

In Exchange Management Shell, administrators can use a command-line interface to easily automate routine and repetitive tasks.

Applications and Device Settings

Microsoft Exchange Server 2007 SP1 provides powerful configuration features that reduce manual configuration and administrative overhead. Administrators can set per-user device policies, for example, to allow or disallow attachments and to specify PIN expiration dates.

Outlook Autodiscover provides automatic mail client configuration without the help of IT administrators. This feature answers one of the most common help desk inquiries and reduces end-user confusion about mailbox setup.

Device and Data Protection

Microsoft Exchange Server 2007 SP1 supports front-end and back-end Kerberos authentication, Web traffic encryption using secure sockets layer (SSL), and automatic intra-organizational message encryption. Secure Multipurpose Internet Mail Extensions (S/MIME) allows users to exchange signed and encrypted e-mail messages from different devices.

Application Design and Development

Microsoft Exchange Server 2007 SP1 supports Exchange Web Services API and .NET Compact Framework for new mobile line-of-business applications development. The Exchange Web Services Application Programming Interface (API) is supported by many platforms and languages. The Web Services API helps developers embed information from the Microsoft Exchange Server 2007 SP1 mailbox or calendar in a custom mobile application.

Server Roles

The server role concept is part of Microsoft Exchange Server 2007 SP1 setup and deployment, to help eliminate potential errors that can result from manual configuration. Establishing server roles during setup reduces the potential for malicious attacks and simplifies day-to-day management. Server roles do not enforce the need for specific hardware configurations and can be configured on a single server or multiple servers.

Mailbox Management

By supporting 64-bit architecture, Microsoft Exchange Server 2007 SP1 eliminates one of the most common problems administrators face—limited mailbox size. This architecture allows organizations to increase mailbox quotas and minimize per-mailbox storage costs. It also reduces storage throughput requirements and organizations can use a wider variety of storage systems.

Security Architecture

Exchange ActiveSync works with the existing security architecture. Every piece of information goes through an advanced firewall such as Internet Security and Acceleration Server, which decrypts, analyzes, and then re-encrypts the message to allow it through the firewall according to rules about what to allow or block, as defined by the administrator.

Total Cost of Ownership

The Microsoft mobile solution is a cost-effective way to manage and update servers, provide CALs for every user, and offer technical support. Microsoft Exchange Server 2007 SP1 can work with the existing infrastructure, and Exchange servers can work with mobile devices, Web access, and "anywhere access" to securely access and share business information from almost any location—on or off the network. This functionality reduces the cost of licensing and updating Microsoft Exchange Server 2007 SP1, which reduces overall TCO.

There are many case studies that prove the cost advantage of the Microsoft mobile solution with ActiveSync over the Research In Motion BlackBerry solution. Some of these studies are:

- Technology Services Provider Cuts Costs With Scalable Mobile Messaging Solution
- Enterprise Mobile Device Platforms: A TCO Comparison of RIM BlackBerry and Microsoft Windows Mobile Messaging and Security Feature Pack

Comparison

User Experience

Applications. Several vendors provide enterprise applications for BlackBerry and Windows Mobile. However, Windows Mobile provides wide range of applications, primarily for touch-screen devices. Windows Mobile users can choose from approximately 18,000 commercial software products and more than 1,725 Mobile2Market products. BlackBerry users have fewer products to choose from.

Windows Mobile interoperates efficiently with Microsoft Office applications and other applications. It is easier to view and edit Microsoft Office Excel, PowerPoint, and Word files in Windows Mobile. On a BlackBerry device, Office documents cannot be edited without using a third-party application. Windows Mobile also empowers users to easily view Office files in e-mail attachments, and enables mobile device users to view and click links to documents that are stored on a server or are linked to an e-mail message.

E-mail accounts and remote access. With its familiar Microsoft Office Outlook interface, Microsoft Windows Mobile makes it easy for users to perform messaging operations. Windows Mobile has many helpful shortcuts to make already intuitive software even more useful.

Both solutions allow users to work with e-mail applications such as Lotus Notes and Office Outlook, and to use POP3 / IMAP and Web mail accounts. However, Windows Mobile 6 works more efficiently with common e-mail applications.

Yahoo, AOL, and Hotmail / Microsoft Windows Live are already configured in Windows Mobile e-mail setup—users can access these e-mail providers directly. BlackBerry users must configure these accounts separately.

By using Windows Mobile, users can easily access the corporate global address list and search for contacts in the contact list. Windows Mobile also supports IRM-protected messages, so users can receive, reply to, forward, and compose protected messages.

Windows Mobile with Microsoft Exchange Server 2007 SP1 provides true remote mailbox access. Direct Push technology offers complete user access to the entire Exchange user mailbox, read status, and subfolder hierarchy, which is synchronized immediately with the hand-held device. Users can even select a particular folder to synchronize on the mobile device instead of the entire mailbox. With the BlackBerry, users have access to only the most recent 1000 e-mail messages.

Over-the-air search allows users to search for information by querying the local device and the entire user mailbox on the Exchange server.

Mobile devices. BlackBerry has one hardware vendor and three basic phone models to choose from, all based on a single defined architecture. Windows Mobile users can choose from approximately 140 phones from 50 device manufacturers.

Administrator Experience

Deployment. Both solutions are wizard based and intuitive, which helps administrators to automate and deploy them more efficiently. Microsoft Exchange Server 2007 SP1 has a modern, modular architecture that is based on five server roles, which reduces the time required for installation, minimizes manual configuration by the administrator, and increases security by limiting the surface area available for attack.

Management. Both BlackBerry Enterprise Server and Microsoft Exchange Server 2007 SP1 help administrators save time and reduce effort by providing advanced management tools. Administrators have a command-line interface to manage all Microsoft Exchange Server 2007 SP1 objects and to carry out processes automatically by using scripts. The graphical management console includes an improved interface and tools such as Exchange Best Practices Analyzer and the Exchange Troubleshooting Assistant to help administrators analyze and diagnose problems. Administrators can use ActiveSync properties to manage synchronization settings, facilitate calendar item provisioning, deliver HTML-formatted e-mail and attachments to mobile devices, and synchronize information while users are roaming. Administrators also can set the maximum size limit of an attachment.

With Autodiscover, Microsoft Exchange Server 2007 SP1 can configure a mail client (Microsoft Office Outlook 2007) to connect to Microsoft Exchange Server 2007 SP1. If the user is logged in to the network, Microsoft Exchange Server 2007 SP1 automatically configures the user's Outlook profile.

Microsoft Exchange Server 2007 SP1 includes improved calendaring, message flagging, and search features. The Calendar Attendant automatically processes meeting requests and updates so that users' calendars remain up to date even when users are offline. It also enables users to see attendee status for meetings they have organized.

Security. Microsoft Exchange Server 2007 SP1 provides local and remote device wipe. If a device is lost, the user can initiate a remote wipe of the device by using Outlook Web Access without having to contact the help desk or a third party.

BlackBerry Enterprise Server enables users to encrypt documents and data stored on BlackBerry devices. Microsoft Exchange Server 2007 SP1 supports front-end and back-end Kerberos authentication, Web traffic encryption using SSL, and automatic intra-organization message encryption. Microsoft Exchange Server 2007 SP1 also allows administrators to define per-user device policies.

Microsoft Exchange ActiveSync can easily work with the existing security architecture and perform each transaction through the user's advanced firewall. A BlackBerry Enterprise Server user does not have complete visibility and control over informational transactions.

Application development. Windows Mobile supports an enhanced application design and development environment by supporting .NET Compact Framework 3.5. This framework empowers mobile developers to develop and integrate line-of-business applications for mobile devices by using the same development languages and tools that they currently use to develop Windows and Web-based applications. BlackBerry is based on Java 2 Mobile Edition, Mobile Information Device Profile, an older open-source technology.

BlackBerry Enterprise Server also enables interoperability with third-party applications, but the Microsoft mobile solution gives additional choices for third-party applications and facilitates fast development of applications in the .NET environment. Exchange Web Services in the Microsoft mobile solution enables easy integration of Microsoft Exchange Server 2007 SP1 data with line-of-business applications and third-party applications.

TCO. Organizations can use one Exchange server to make services available for mobile devices, desktop systems, and Web access. This capability reduces the total cost of ownership to manage the server, provide CALs for every user, and update servers. BlackBerry requires additional servers (both third-party mobile servers and core messaging servers) to provide different messaging functionality or to meet the needs of an expanding mobile user base, which increases the TCO.

Conclusion

The wireless mobile solutions market is continually growing and making substantial demands for enterprise-wide mobile technology solutions that enable remote access to e-mail and network resources. In the new mobile work culture, corporate staff expects mobile solutions to deliver not only e-mail but access to information when and where they need it.

The Research In Motion BlackBerry solution and Microsoft mobile solution with ActiveSync both provide users with the features and functionality to manage e-mail and data from a mobile device. The functionality and manageability of the Research In Motion BlackBerry solution enabled Research In Motion to take an early lead in mobile e-mail technology. However, by introducing Microsoft Windows Mobile and Microsoft Exchange Server 2007 SP1 with ActiveSync, Microsoft offers mobile users a strong, flexible solution. In our opinion, Research In Motion BlackBerry technology is good, but the future is with the Microsoft mobile solution.

The Microsoft mobile solution has richer functionality than the Research In Motion BlackBerry solution in the following areas:

- A vast partner ecosystem provides a greater number of device and application choices for users.
- Users can access the entire remote mailbox with all flags, read status, and subfolder structure on the mobile device.
- Users have access to the corporate global address list to search for contacts from the mobile device.
- Users can view large attached files and images, set out-of-office messages, or flag messages directly from the mobile device.
- Users can view or edit Microsoft Office files and can follow links to documents that are stored on a server or attached to an e-mail message.
- Users can encrypt documents that are stored locally on the device, and encrypt data on external storage cards.
- Defined server roles provide greater administrative control over deployment of messaging systems.
- Over-the-air automatic mail client configuration reduces end-user confusion about mailbox setup.
- Messaging services have high availability by using replication and cluster technology.
- Each transaction is secure, because the solution works easily with the existing security architecture.
- Rapid development of line-of-business applications is possible by using the .NET Compact Framework and Web Services API for mobile devices.
- The .NET Compact Framework and SQL Server 2005 can be loaded dynamically in ROM to deliver enterprise applications to mobile devices.

- The Microsoft Exchange Server 2007 SP1 environment is scalable and does not require additional infrastructure to support an expanding mobile user base.
- The Microsoft mobile solution lowers the total cost of ownership (initial and operational costs) as it can be built on the existing Microsoft Exchange Server 2007 SP1 infrastructure and IT knowledge.

In our opinion, the Microsoft mobile solution with ActiveSync enables employees to be more productive, responsive, and aligned with the latest business events because they have numerous choices among devices that can provide greater information security and increased scalability and extensibility.

We believe that the Microsoft mobile solution with ActiveSync helps organizations keep TCO lower by minimizing startup and ongoing operational costs, providing stronger security, and balancing low cost with ease of use for end users and IT staff.

We have seen both of these solutions deployed in large organizations. Although the Research In Motion solution has been the choice of the past, the Microsoft solution is the choice of the future. Only the Microsoft solution has the flexibility, extensibility, and scalability to meet the ever-changing mobile computing needs of businesses in the future.

Notes and References

- Architectural Overview of Windows Mobile Infrastructure Components
  http://download.microsoft.com/download/c/b/d/cbdc18d1-1a01-4736-a557-08474ec73443/Windows_Mobile-Architectural-Overview-of-Infrastructure-Components.doc
- BlackBerry Enterprise Server Features
  http://nhsblackberry.net/BES-Features.php
- BlackBerry Device Features
  http://na.blackberry.com/eng/devices/features/
- BlackBerry vs. Windows Mobile 6
  http://www.laptopmag.com/review/software/blackbbery-vs-windows-mobile-6.aspx
- Microsoft Exchange Migration
  http://www.cms.ca/solutions/exchange2003.html
- Compare Versions of Windows Mobile
  http://www.microsoft.com/windowsmobile/6-1/version-comparison.aspx#tablenotes
- How is Microsoft's Direct Push Better than the Blackberry
  http://littlesandpit.blogspot.com/2006/10/how-is-microsofts-direct-push-better.html
- BlackBerry Enterprise Solution Architecture
  http://na.blackberry.com/eng/ataglance/solutions/architecture.jsp
- Mobile Messaging with Exchange ActiveSync—White Paper
  http://download.microsoft.com/download/0/4/9/049a0e9a-e173-448e-a1a1-059e773927a7/Mobile%20Messaging%20with%20Exchange%20ActiveSync.doc
- Windows Mobile 6
  http://www.microsoft.com/windowsmobile/en-us/meet/default.mspx
- Windows Mobile 6 Line of Business Overview—Leverage Familiar Application and IT Resources
  http://download.microsoft.com/download/c/b/d/cbdc18d1-1a01-4736-a557-08474ec73443/Windows_Mobile_Line_of_Business.pdf
- Windows Mobile 6—Delivering Great Performance and Value for IT Professionals
  http://download.microsoft.com/download/7/9/5/79580b26-b2cf-4f6f-93a5-5164f5bb6a17/Delivering%20Great%20Performance%20and%20Value%20for%20IT%20Professionals.pdf
- Windows Mobile Navigation Solutions Brochure
  http://download.microsoft.com/download/d/9/e/d9eb00bb-b957-4707-8839-beff1f79b4e7/Windows_Mobile_GPS_SmallBiz_Brochure.pdf

Notes

[1] BlackBerry Solution Architecture:
http://na.blackberry.com/eng/ataglance/solutions/architecture.jsp

[2] Architectural Overview of Windows Mobile Infrastructure Components:
http://download.microsoft.com/download/c/b/d/cbdc18d1-1a01-4736-a557-08474ec73443/Windows_Mobile-Architectural-Overview-of-Infrastructure-Components.doc