

An Oracle Technical White Paper
November 2011

Using BlackBerry[®] Phones with Oracle Beehive

Executive Overview	2
Mobile Collaboration	3
Mobile Email, Calendar, Tasks, and Contacts	3
Mobile Instant Messaging	4
Mobile Device Management	6
Solution Overview	6
BlackBerry Infrastructure	7
BlackBerry Enterprise Activation.....	8
Beehive Mobile Software Deployment	9
Requirements	10
References	10
Conclusion	11

Executive Overview

In today's enterprise, employees expect their mobile devices to enable the same level of productivity as their computer. Every year the number of employees using mobile devices increases, putting a strain on IT departments which need to adopt new technology and develop new support infrastructures for such services. Oracle Beehive Mobile Services for BlackBerry® smartphones in combination with BlackBerry® Enterprise Server for MDS Applications allows employees to achieve a high level of productivity with their mobile devices while utilizing infrastructure that may already exist in the enterprise.

To ensure ease of use and user productivity an enterprise requires a successful mobile device strategy. Oracle Beehive's Mobile Services paired with the BlackBerry® Enterprise Server from Research In Motion® (RIM) can be a key part of such a strategy.

Oracle Beehive is an integrated collaboration server providing enterprise-class messaging with email, group calendaring, contacts, tasks, and team workspaces. Leveraging Oracle Fusion Middleware and the Oracle Database, Oracle Beehive provides advanced communication capabilities to end users – including integrated voicemail/fax and document management – while providing IT with the robust security and streamlined manageability of Oracle Beehive's modern collaboration architecture.

BlackBerry® Enterprise Server for MDS Applications is an optimized application development framework for the BlackBerry® Enterprise Solution. BlackBerry® Enterprise Server for MDS Applications allows organizations to deliver corporate data wirelessly, leveraging RIM's proven push delivery model and advanced security features.

Oracle Beehive Mobile Services in combination with BlackBerry® Enterprise Server for MDS Applications provide a rich, secure experience for BlackBerry users. Together, these solutions allow mobile users to stay connected to the data, applications and tools they need most to meet critical business requirements.

Mobile Collaboration

The following functionality is available to BlackBerry users from Oracle Beehive:

- Email, calendar, tasks, and contacts are kept fully up-to-date using Oracle Beehive's Mobile Messaging client for BlackBerry smartphones.
- Mobile Instant Messaging possible using Oracle Beehive's Mobile Communicator.
- Mobile SMS Alerts
- Mobile Device Management

Mobile Email, Calendar, Tasks, and Contacts

Oracle Beehive's new Mobile Messaging Client for BlackBerry smartphones provides reliable access to email, calendar, tasks, and contact information directly from the BlackBerry smartphones native Mail and PIM applications the users are familiar with. The client does take into account that continual data access can be costly when roaming and hard on battery life. The update process can be fine tuned to control the amount of data being retrieved, minimize battery use, and can be automatically turned off when roaming allowing for on demand requests.





Email attachments are all presented as URLs which users can choose to download on demand. The BlackBerry OS's robust file format support makes it possible to view or play most popular formats.

Oracle Beehive's Actionable Notifications make it possible for users to accept or decline meeting invitations or task assignments or even approve business process workflows directly from their Blackberry handheld.

Mobile Instant Messaging

The adoption curve of instant messaging (IM) exceeds even email. Financial trading systems are even beginning to use IM as a channel for electronic order entry, for example. Most e-commerce sites today typically have some kind of online chat features built around an instant messaging paradigm, if not IM technology itself. Arguably it's a more revolutionary technology than email: and there is no reason users should be unable to use it while mobile.

The Oracle Beehive Mobile Communicator capabilities deliver effective mobile unified communication. It enables mobile users to view live real time presence information and from it make decisions about the most appropriate mode of communications; conduct text chats with one or more users, initiate an email or voice call, send an SMS.

The primary focus of the Beehive Mobile Communicator is on people. Who are the people you communicate with every day? These are the people you collaborate with. It needs to be easy for

you to initiate communication with these people. You shouldn't need to remember a phone number, an IM alias, or an email address. "Call Cathy", "Email Jim", "Ping George" that's all you want to know.

Should I call Simon or send him an email? Is he around? Can he talk to me now? The answers to these questions are extremely important and only possible through advanced presence that integrates presence information from multiple sources. It needs to be aware of people being in a meeting, being on the road, or maybe being in a completely different timezone.



From the people list users can then initiate a phone call to a user, start a chat, send an email.

The Beehive Mobile Communicator provides Beehive users with a way to take advantage of real time IM conversations on their mobile device but all communication goes through the Beehive IM service allowing administrators to control its use.

Mobile Device Management

The BlackBerry® Enterprise Server for MDS Applications offers the following mobile device management features:

- IT policies to control which applications users can access and provide security and manageability
- An end-to-end authenticated, outbound-initiated connection that encrypts all data
- Centralized administration console to manage all aspects of the software, including server components, users and application settings
- Deploy applications over-the-air (OTA)

The [BlackBerry Enterprise Solution Security Technical Overview](#) provides a full rundown of these features.

Solution Overview

The figure below provides an overview of the Beehive Blackberry Mobile client solution. A full description of the system components and the interactions between each is described in detail in the following sections.

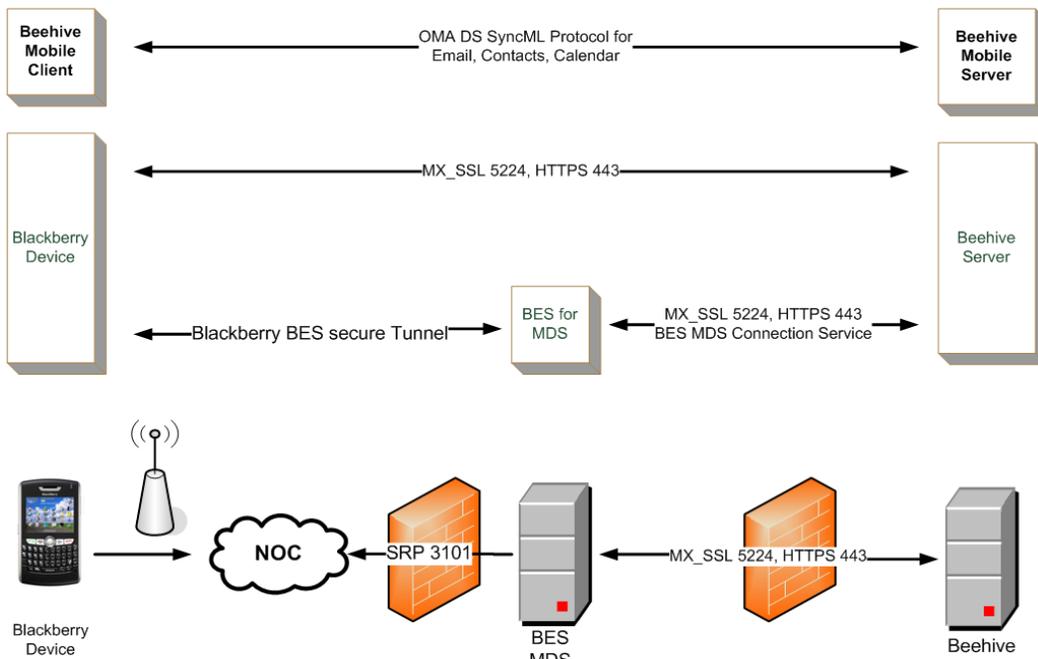


Figure 1. Beehive Mobile Client for BlackBerry Solution Overview

The Beehive server stores email, calendar, contacts and other collaboration objects. Beehive Mobile server is physically part of the Beehive Server.

Beehive Mobile server synchronizes the collaboration objects to mobile devices by communicating with Beehive Mobile Clients or standard based third-party clients. The protocol is SyncML (OMA DS) over HTTPS (port 443) or MX_SSL (port 5224). The Beehive server already uses these ports to serve clients like Outlook and Beehive Web Mail (Zimbra).

For BlackBerry devices, our Beehive Mobile client communicates with the Beehive Mobile server via BlackBerry® Enterprise Server for MDS Applications. There is a secure tunnel between the Blackberry device and BlackBerry® Enterprise Server for MDS Applications. BlackBerry® Enterprise Server for MDS Applications provides a connection service that enables us to create a communication channel between the Beehive Mobile client on devices and the Beehive Server.

Beehive Mobile push service is used to do real-time alerts to trigger syncs when changes to email, calendar, tasks, and contacts occur.

BlackBerry Infrastructure

BlackBerry® Enterprise Server for MDS Applications is typically deployed behind the corporate firewall. Outbound port 3101 needs to be open as the server uses port 3101 to contact the NOC/SRP server, through which it can establish a secure end-to-end communication channel with Blackberry devices. Data flow is bi-directional but only BlackBerry® Enterprise Server for MDS Applications can initialize the connection.

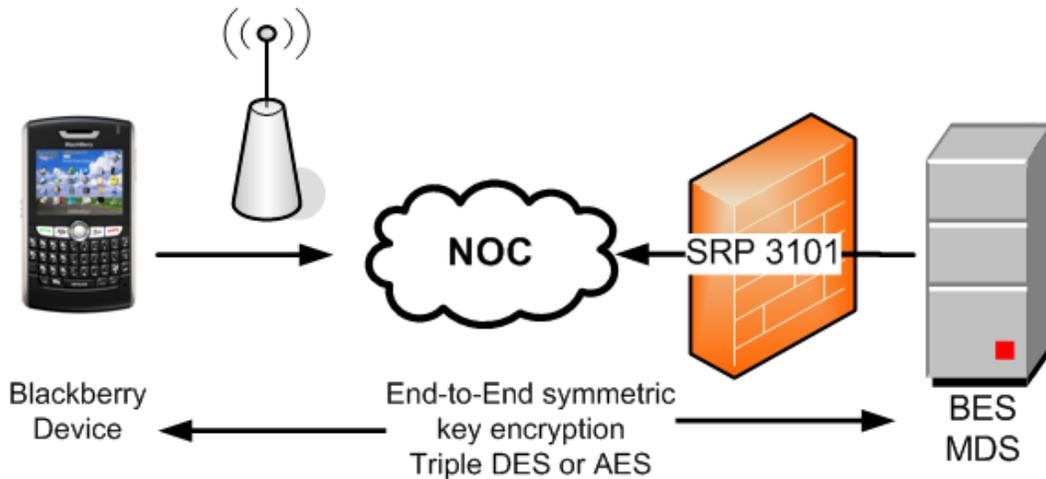


Figure 2. BlackBerry® Enterprise Server for MDS Applications Typical Deployment

BlackBerry® Enterprise Server for MDS Applications is designed to maintain a constant, direct outbound TCP/IP connection to the wireless network over the Internet through the firewall on port 3101

The system administrator must set your organization’s firewall or proxy to permit the BlackBerry Enterprise Server to initiate and maintain an outbound connection to the BlackBerry Infrastructure on TCP port 3101.

BlackBerry® Enterprise Server for MDS Applications is designed so that data remains encrypted at all points between the BlackBerry device and the BlackBerry Enterprise Server. Only the BlackBerry Enterprise Server and the BlackBerry device can access the data that they send between them. Thus, third-parties, including service providers, cannot access potentially sensitive organization information in a decrypted format.

BlackBerry® Enterprise Server for MDS Applications uses either the Triple DES or the AES algorithm for standard BlackBerry encryption. By default, the BlackBerry Enterprise Server is set to use the strongest common symmetric key encryption algorithm, of either Triple DES or AES, which both the BlackBerry Enterprise Server and the BlackBerry device support.

BlackBerry Enterprise Activation

The BlackBerry device and BlackBerry® Enterprise Server for MDS Applications use symmetric encryption to maintain a secure communication channel between each other. To do that, both ends need to know a shared secret, the encryption key. The way that Research in Motion implements this is to use email to transfer the secret key from device to server.

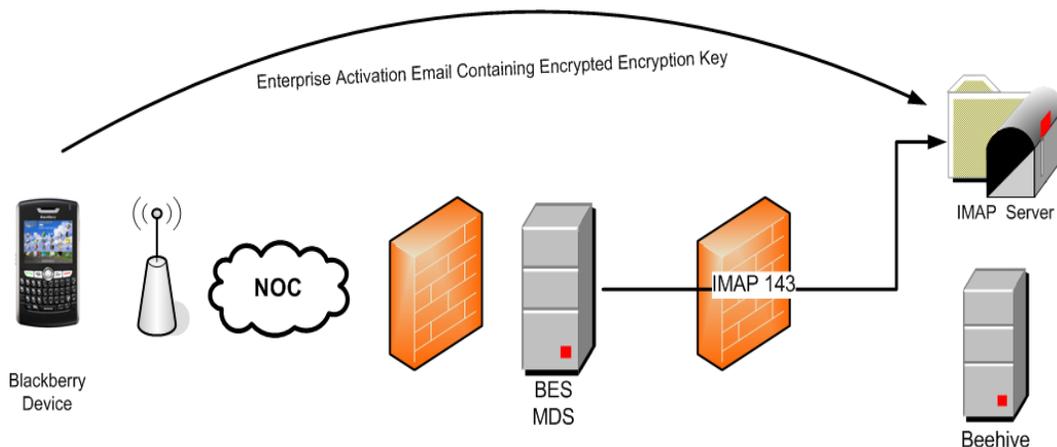


Figure 3. Activation Flow

To start, you need an IMAP account that the BlackBerry® Enterprise Server for MDS Applications can read. The admin creates an account for the user, using their PIN (each

BlackBerry has a unique PIN). They then give this to the user (usually verbally in person or over the phone).

The user then goes into their device, to the Enterprise activation screen, enters an email address (the IMAP account mentioned above) and the password supplied by the admin.

The device then encrypts its local private key using the password entered, that then sends that payload to the email address supplied.

BlackBerry® Enterprise Server for MDS Applications monitors the IMAP account. When an email arrives it reads it and attempts to decrypt it with the password supplied. If it works, it then activates the account, and then starts pushing data to the device using the private key supplied by the device.

BlackBerry® Enterprise Server for MDS Applications therefore needs access to an inbox that stores the device enterprise activation messages. Note that the server only needs to access its own email account, not the end users' email account.

Within Beehive you need to create a unique IMAP account for each BlackBerry® Enterprise Server in your environment (e.g. *bess@yourorg.com*). Configure each IMAP account to send and receive information in plain text. IMAP port 143 needs to be open from BES to Beehive.

Note: Do not use a personal IMAP account for BlackBerry Enterprise Server activations. The BlackBerry Messaging Agent searches the mailbox for unread activation messages; if an activation message is marked as read before the BlackBerry Messaging Agent processes the message, enterprise activation does not complete successfully.

Beehive Mobile Software Deployment

Users must first activate their BlackBerry with BlackBerry® Enterprise Server for MDS Applications. Once activated, they can proceed to the Mobile Center in Oracle Beehive Central. Clicking on *New* allows them to register their BlackBerry with Beehive

Register New Device

A text message will be sent to your mobile device after you enter the device information and click Register. Click the link in this text message to complete the registration process.

Phone Number

Phone number must include the country code and should not have any spaces.
For example: 16501234567

Device Name

SMS Notification Enabled
 Supports Smart Messages
 Smart Messaging splits long messages into multiple parts that are then reassembled into a single message on receipt.

Figure 4. Register New Device Screen

A text message will be sent to their mobile device which contains a link back to the Beehive Mobile Device Management Service. Upon receipt users select the link provided to launch the BlackBerry browser. They are asked to login and a web page is displayed with a link to download the Oracle Beehive Mobile Client for BlackBerry. Users select the link to start the download.

After it has finished downloading it will begin installing automatically, users will need to provide their username and their password. The installer will then present the option to install both the Beehive Messaging client and the Beehive Communicator client. The user should choose to install both.

Upon successful installation the client will be synchronizing emails, meetings, tasks, and contacts.

Requirements

The solution described in this white paper requires the following:

- Oracle Beehive 2.0.1.2+
- BlackBerry® Enterprise Server for MDS Applications 4.1.7
- BlackBerry smartphones running BlackBerry OS 4.2.1 and above

References

BLACKBERRY ENTERPRISE SERVER FOR MDS APPLICATIONS – FEATURE AND TECHNICAL OVERVIEW

http://docs.blackberry.com/en/admin/deliverables/12935/BlackBerry_Enterprise_Server_for_MDS_Applications-Feature_and_Technical_Overview-T305802-967621-1130113534-001-4.1.7-US.pdf

BLACKBERRY ENTERPRISE SERVER FOR MDS APPLICATIONS – INSTALLATION GUIDE

http://docs.blackberry.com/en/admin/deliverables/12936/BlackBerry_Enterprise_Server_for_MDS_Applications-Installation_Guide--967686-1130113712-001-4.1.7-US.pdf

BLACKBERRY ENTERPRISE SERVER FOR MDS APPLICATIONS – ADMINISTRATION GUIDE

http://docs.blackberry.com/en/admin/deliverables/12933/BlackBerry_Enterprise_Server_for_MDS_Applications-Administration_Guide--966846-1130115121-001-4.1.7-US.pdf

Conclusion

To ensure ease of use and user productivity, an enterprise requires a successful mobile device strategy. Oracle Beehive's Mobile Services paired with BlackBerry® Enterprise Server for MDS can be a key part of such a strategy, allowing for secure and manageable mobile collaboration.

For more information about Oracle Beehive, please visit oracle.com/bee hive or call +1.800.ORACLE1 to speak to an Oracle representative.



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November 2011

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