Unleash the Benefits of IBM Mobile Smarter Process with IBM Business Process Manager and IBM MobileFirst Platform

IBM Redbooks Solution Guide

Mobile Smarter Process helps organizations to reinvent how business is performed by using Mobile technologies. The goal is to fundamentally change how an organization does business by integrating mobile capabilities and processes. Mobile capabilities that provide new context, new ways of engagement, and new ways of gathering input for processes are now available. Now process participants can use mobile capabilities to interact with the process wherever they are. All these new capabilities create more interactions than ever before. Although these interactions add value, they must be harnessed to accomplish an end goal. IBM Mobile Smarter Process combines market leading offerings from IBM Smarter Process suites and IBM MobileFirst Platform offerings. Figure 1 shows that Mobile creates numerous timely interactions that can be harnessed for goal-oriented results with Smarter Process.
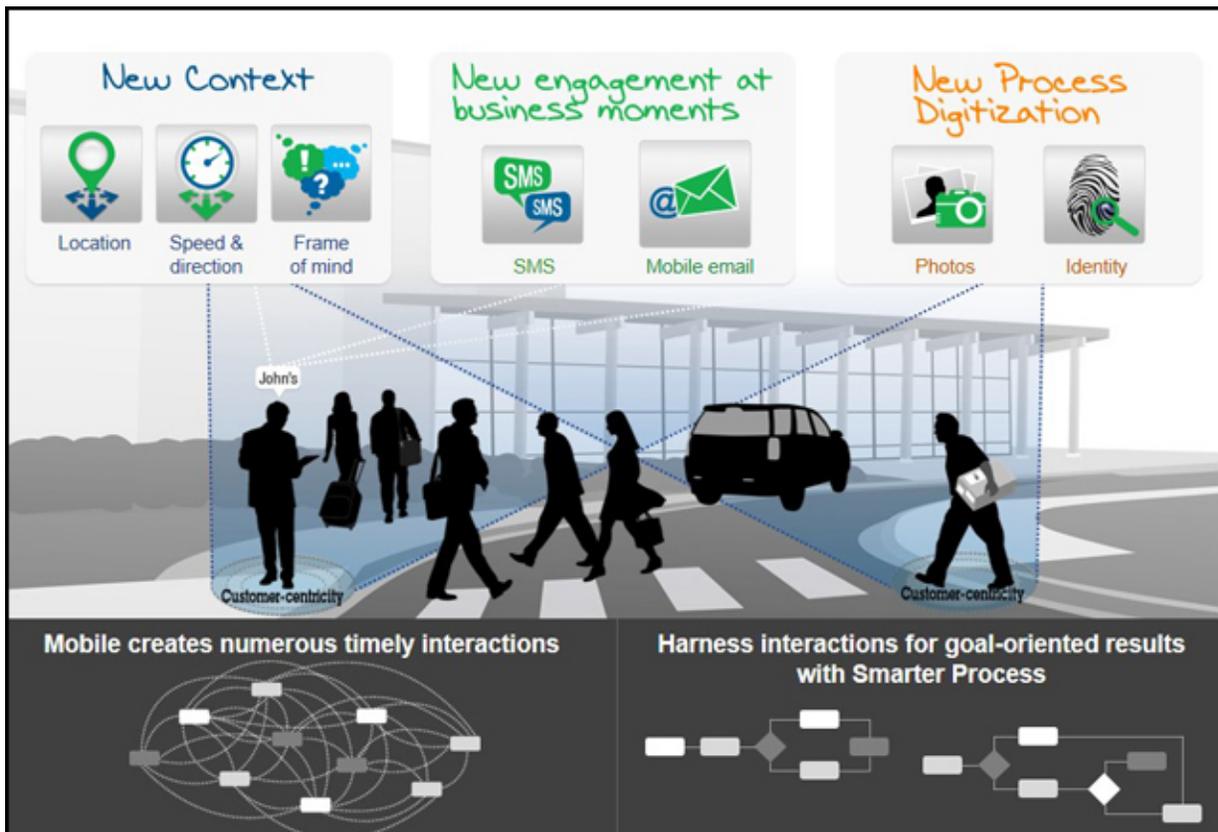

Figure 1. Harnessing Mobile interactions with Smarter Process

Did you know?

Mobile strategy leaders reported that:

- They are using mobile technologies to fundamentally change the ways they do business.
- They are mobilizing their employees. Faster response time to customers is the primary reason for investing in employee use of mobile technologies.
- They are unlocking core business knowledge for mobile uses. Integrating mobile systems with existing systems is the number one challenge faced by organizations.
- They are securing the mobile enterprise by protection of data, securing connectivity, device management threat detection, mobile app security, and user security.
- They are getting results. They have seen measurable return on investment (ROI) from their mobile initiatives.

Business value

Mobile Smarter Process enables organizations to realize the following business value:

- Increase ROI on mobile projects by:
    - Reducing cost for developing mobile projects.
    - Streamlining processes across multiple systems.
    - Orchestrating manual and automated tasks.
    - Attracting and retaining customers.
- Improve customer experience by:
    - Engaging the customer using their device of choice.
    - Providing a personalized experience based on customer history, real-time information, and industry trends.
    - Providing social capabilities for better collaboration.
    - Providing real-time performance visibility and process agility to process managers.
- Improve workforce productivity by:
    - Dynamically assigning tasks based on employee location and availability.
    - Using device services to gather and share all the information related to a task in the correct place at the correct time.
    - Making employees more responsive to customer needs by providing them with the flexibility and information they need, when and where they need it.
    - Sending timely notifications to employees to enable them to handle situations that otherwise would have been missed.
    - Providing management real-time process visibility to proactively respond and make adjustments.
- Maximize the value of the partner ecosystem by:
    - Engaging with the appropriate partners through sensors or people when and where an organization needs them.
    - Accelerating time to market, improving partner training and support, and shortening the sales cycle.

Solution overview

Figure 2 provides an example of how Mobile Smarter Process works. This example shows a Smarter Process already in place in an organization that can be exposed through multiple channels, including different types of mobile devices.
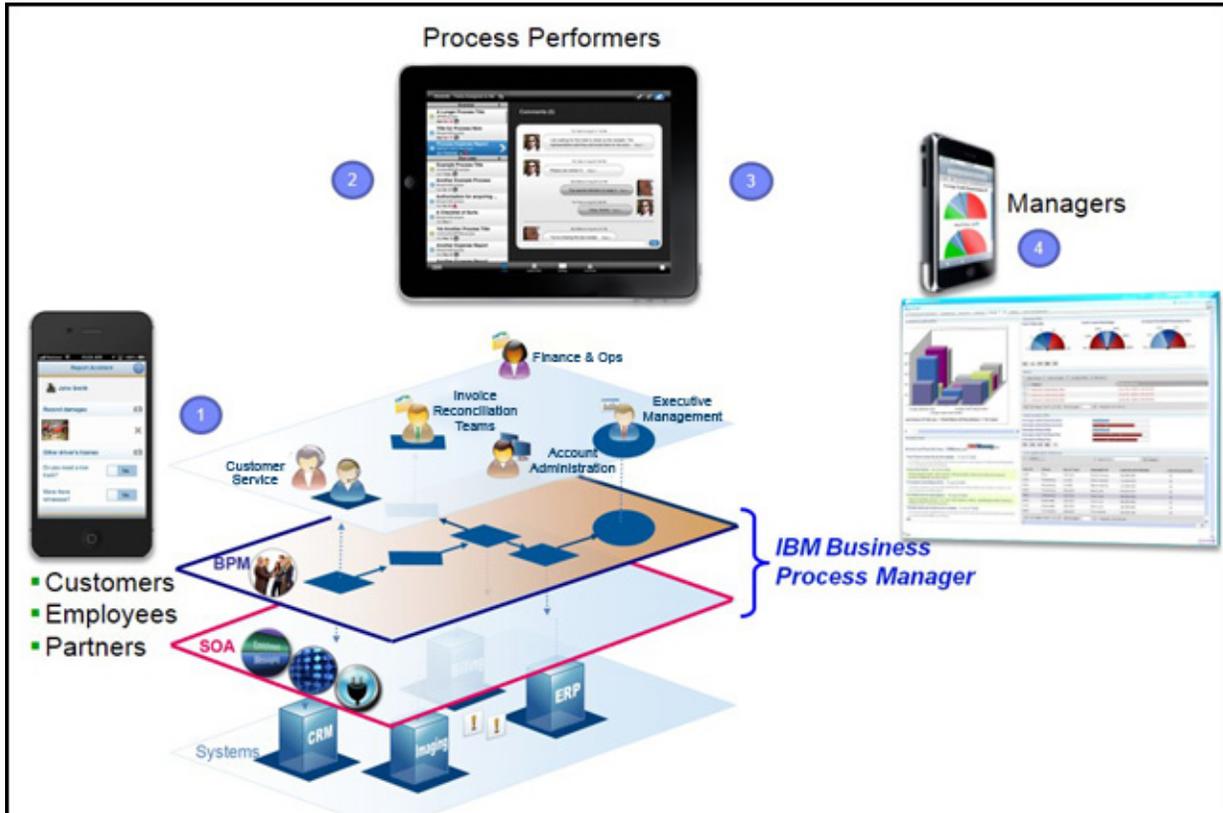

Figure 2. Mobile Smarter Process at work

The illustrated process provides these advantages:

1. Customers, employees, and business partners want to interact with the organization using their device of choice to instantiate a process or check on the status of a process they previously started. For example, in an insurance company scenario, by instantiating a claim, customers start a process that can use the geolocation information available on their device, device services such as the camera to take a picture of a damaged car and upload it, and the information stored in multiple back-end systems.

2. A process can involve many different roles to complete it. Smarter Process uses coaches or forms that streamline the activities of the process performers and work across any mobile devices with different form factors. A Mobile Smarter Process allows for process performers to use social collaboration to deliver a better customer experience. Integration with multiple back-end systems might be necessary to complete the process that is enabled by service-oriented architecture (SOA).

3. If the process requires human input, it can send a notification to the appropriate people and they can always be reached through their mobile devices. The business process is not going to be hindered by someone not having access to a web site or not being logged in.

4. Processes do not always occur as planned. As the global economy, the global workforce, and mobility expand, it is even more important to give managers process visibility and agility to make quick

changes. Otherwise, organizations risk losing customers. A Mobile Smarter Process gives managers the visibility and agility they need to make fast adjustments to improve performance using their device of choice.

In summary, this simple example shows these advantages:

- Mobile extends the reach of a business process beyond the traditional channels to where the knowledge workers (customers, employees, business partners, managers) are. Knowledge workers always have access to the business process, and the business process can reach them when required. For example, if the process requires an approval, a notification is sent to the approver's mobile device to alert them that the process is waiting for their approval.

- By adding mobility to the smarter process, Mobile Smarter Process allows manager to gain instant visibility so they can adapt to changes in the market by making faster adjustments and making decisions quicker on a device of their choice. The mobile smarter process has constant access to decision makers, and decision maker can interact with the business process at all times.

Solution architecture

IBM MobileFirst reference architecture is a collection of architectural artifacts that describe how to deliver enterprise mobile solutions using the IBM MobileFirst software portfolio. The artifacts include definitions for platform and application development, mobile security, mobile device management, and mobile analytics. The reference architecture defines a set of capabilities that should be considered when developing an enterprise mobile solution as shown in Figure 3.
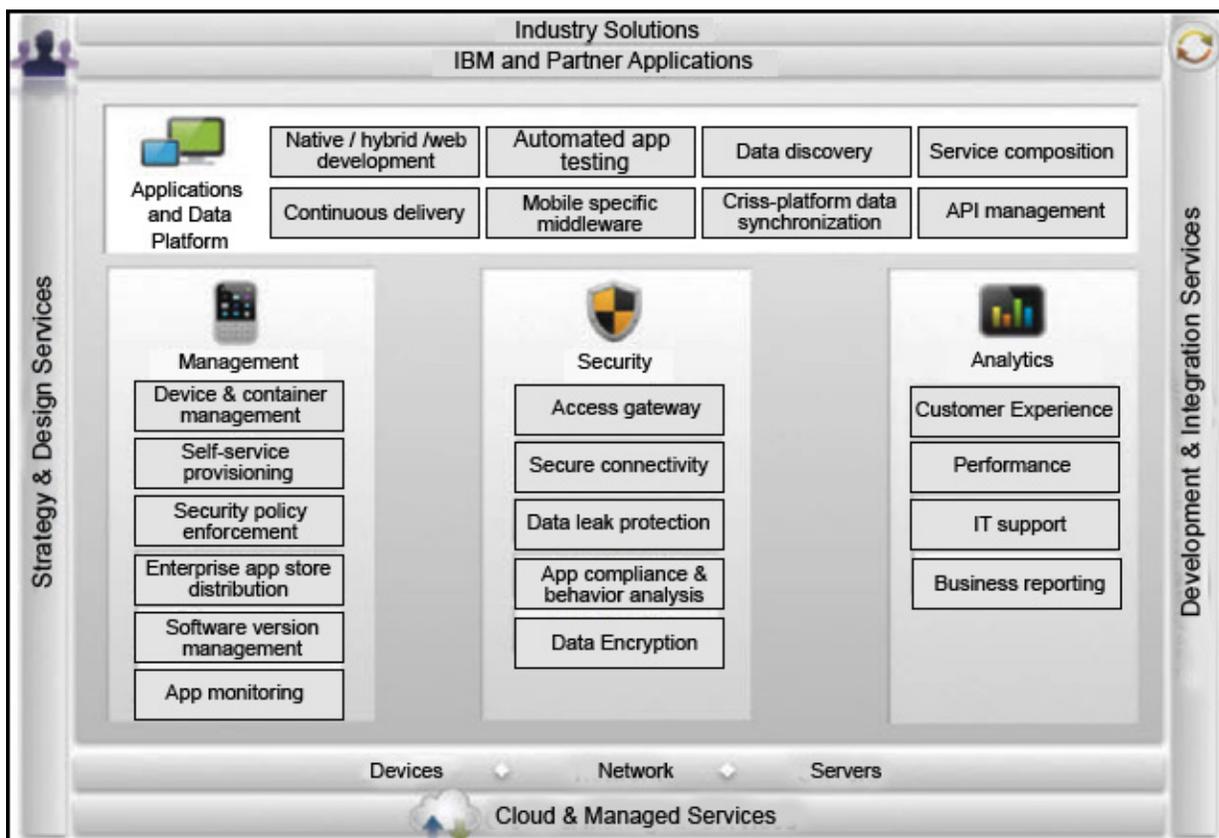

Figure 3. IBM MobileFirst reference architecture capabilities

From the reference architecture perspective, the architectural aspects related to the direct runtime path from mobile apps to the IBM BPM engine and integration with enterprise applications include:

- Security:
    - Access gateway
    - Security connectivity
- Applications and Data Platform:
    - Mobile-specific middleware
    - Service composition
- Cloud and managed services

An enterprise mobile architecture can be represented at a high level as a stack of layers that follow the pathway of interaction between the mobile application and enterprise systems as shown in Figure 4. To support both customer-facing mobile applications and staff-facing mobile applications, the architecture covers a range of device types that include smartphones, tablets, and Internet of Things (IoT)-based devices such as embedded devices and smart appliances.
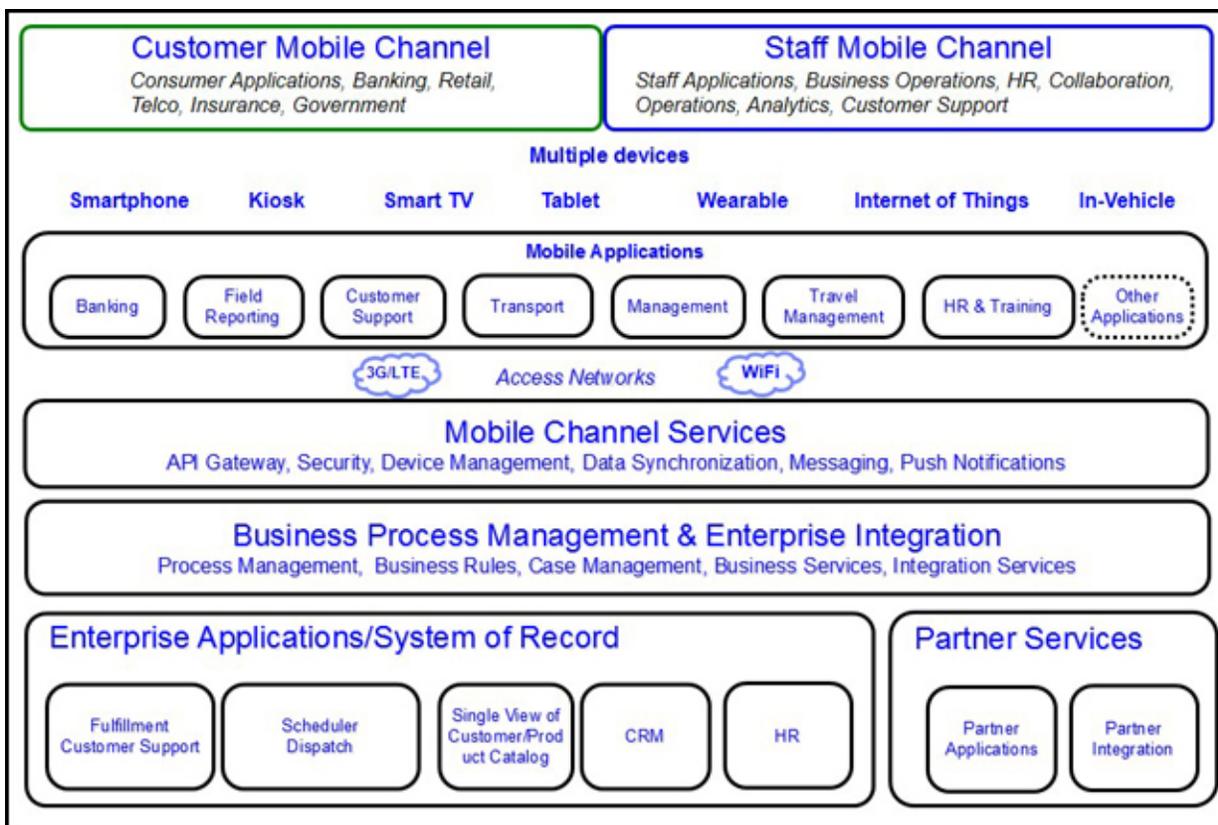

Figure 4. Enterprise mobile architecture

For more information about the architectures, deployment topologies, and Mobile and IBM BPM integration patterns, see *Extending IBM Business Process Manager to the Mobile Enterprise with IBM Worklight*, SG24-8240.

Usage scenarios

Example 1 is a cable TV installation service company. The company in this scenario receives installation requests from external customers and assigns those requests to field technicians. The field technicians use a mobile application to manage the work orders. In the context of mobilized business processes, this

scenario illustrates how to use IBM Worklight, IBM Business Process Manager, and IBM Bluemix to develop the solution.

Example 1 use case is centered around how to mobilize business processes managed by the IBM BPM server. This use case has these requirements:

- The IBM BPM server must be able to receive a new customer service request and manage the process until the work is completed.
- The field technicians must be notified when new work orders are available.
- The field technicians must be able to securely update the work order status when they are working offline and network connectivity is not available.
- The cable TV service company must be able to track the location of the technicians in the field

The solution architecture consists of the following components:

- A Worklight hybrid mobile application that enables the field technician to manage work orders.
- Worklight Server to support the mobile application including the integration with the IBM BPM server.
- IBM BPM server to capture the customer work order and manage the overall process.
- IBM Bluemix as the platform to implement various supporting processes including fulfillment, order scheduler, and customer master data management (MDM) functions.

Figure 5 shows a high level architecture overview diagram for Example 1. Starting from the left, the diagram shows a field technician using a Field Service app that interacts with the Worklight Server. The Worklight Server has adapters that call both the IBM BPM REST API and the location service exposed by Bluemix. The Worklight Server receives notification requests from IBM BPM and submits those requests to the push notification vendors (for example, Google and Apple). The IBM BPM server also calls Customer MDM, Scheduler and Fulfillment REST services in Bluemix.
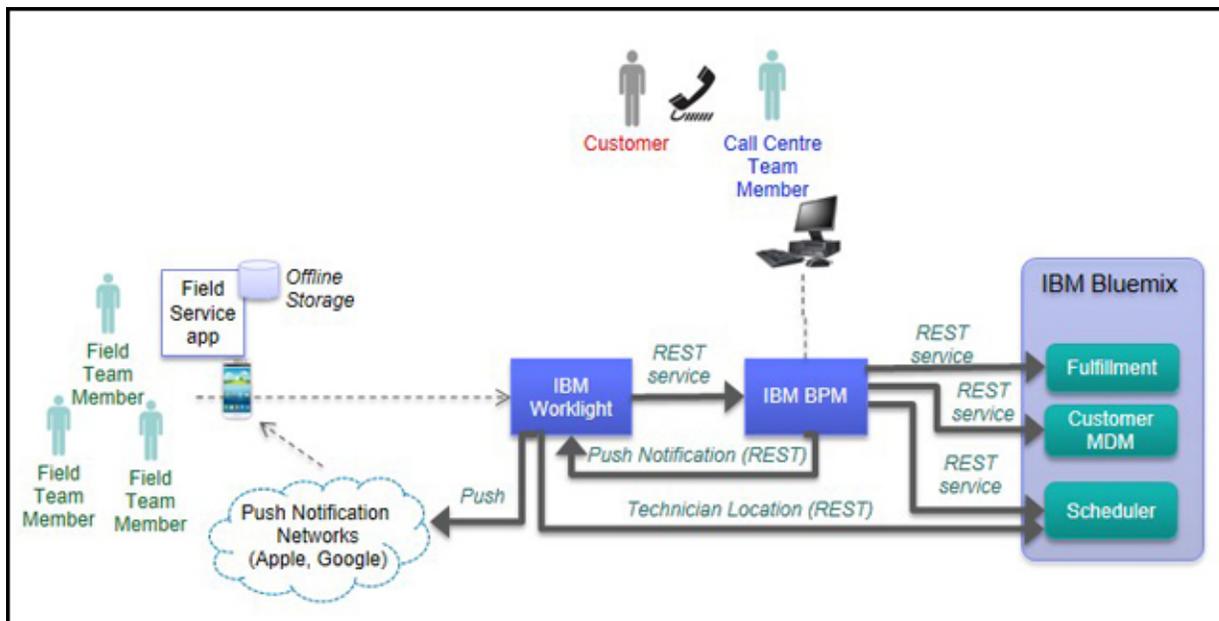

Figure 5. Example 1 architecture overview

Example 1 is designed to use the architectural pattern Headless BPM pattern. This pattern does not use any UI elements (coach forms) in the IBM BPM workflow. Instead, the UI components are externalized (in this case in the Worklight application). The Worklight application externally starts an IBM BPM workflow and manages it until completion.

Example 2 extends scenario 1 by adding more requirements. In Example 1, the field technicians use a mobile application to manage the work orders. In example 2, the use case is extended by adding a service parts order mobile application called Parts app. Furthermore, the customer in example 1 can order cable installation service over the phone. In example 2, the customer can fill and sign a new order agreement to request TV services.

Therefore, the following are the additional requirements in Example 2:

- Customers must be able to submit a new order agreement form to request TV services.
- Field technicians must be able to order parts needed to complete a work order from their mobile devices. To enhance the user experience, the field technician should be able to log in only once across mobile applications (single sign-on feature). For accountability, the new part order must reference the corresponding work order number in which the part will be used.

Example 2 extends Example 1 by enabling the customer to fill and sign a new order agreement form to request cable service. In addition, a new Parts app is introduced. This mobile application uses a new service parts database in Bluemix. Figure 6 shows a high level architecture overview diagram for Example 2. The diagram shows (on the left) the field technician using both the Field Service app and the Parts app. The top of the diagram shows the customer ordering a cable service by filling and signing a new order agreement form and then sending an email with the new order agreement.
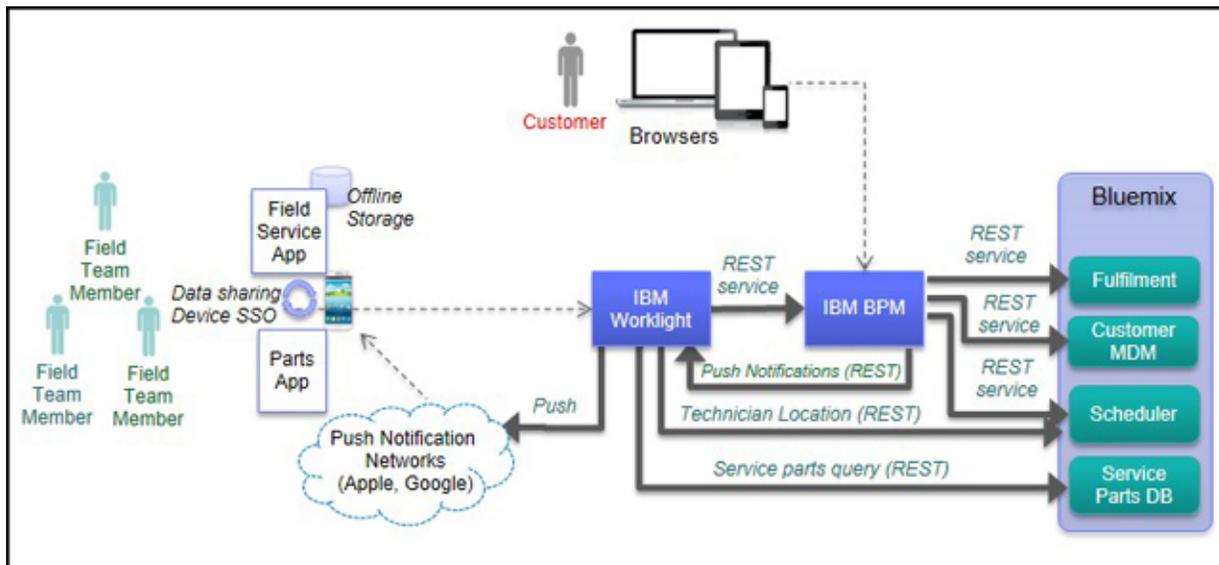
Figure 6. Example 2 architecture overview

From an IBM BPM perspective, this scenario introduces these additions:

- A use case where customers can submit new order forms to request services. The submission of the files acts as a trigger to start a case type, using the case management capabilities of IBM BPM.

- Responsive coach design techniques so that a coach form can be written once and used on multiple device form factors, such as tablets and smartphones.

- A technique to expose an IBM BPM service that is called from a Worklight application.

This scenario is designed to use the architectural pattern *Headless BPM* pattern. This scenario also includes a new use case, IBM BPM case management, that uses the architectural pattern *IBM BPM Process Portal*.

Integration

From an IBM product offering perspective, IBM Smarter Process is a set of business process enhancement and optimization tools that work together to improve the outcomes of business processes. The core product to implement Smarter Process is IBM Business Process Manager. The following IBM software products for Smarter Process can be integrated to enhance the solution:

- IBM Operational Decision Manager
- IBM Integration Bus, formerly known as the IBM WebSphere Message Broker family
- IBM Case Manager software
- IBM Infosphere product set
- IBM Business Monitor
- IBM Big Data and Analytics portfolio

The IBM MobileFirst portfolio provides an end-to-end solution for organizations implementing a Mobile strategy. There are products available from the IBM MobileFirst solution to support management, security, analytics, and development of the application and data platforms in a mobile environment. Additionally, IBM also provides services for strategy and design, cloud and managed services, and development and integration services to support mobile activities. There are several aspects to consider for a cost-efficient and secure Mobile environment. The IBM MobileFirst portfolio includes products and services in the following areas:

- Develop, test, and deploy applications (Build):
  - o IBM MobileFirst Platform Foundation
  - o IBM Mobile Quality Assurance
  - o IBM MobileFirst Application Platform Management Services
  - o IBM Rational Test Workbench
  - o IBM UrbanCode Deploy
  - o IBM Application Management Services
  - o IBM Exceptional Digital Experience solutions
- Integrate data, services, apps:
  - o IBM mobile services for Bluemix
  - o IBM MessageSight
  - o Cloudant, an IBM company
- Manage, visualize, and optimize:
  - o IBM MobileFirst Network Services
  - o IBM MobileFirst Device Procurement and Deployment Services
- Support bring your own device (BYOD):
  - o IBM MobileFirst Managed Mobility Services
- Security:
  - o IBM Security Access Manager for Mobile
  - o IBM Trusteer
  - o IBM Security AppScan
  - o IBM WebSphere DataPower
  - o IBM Mobile Virtualization Services
- Gain insights through analytics:
  - o IBM Tealeaf CX Mobile
  - o IBM Presence Zones

Supported platforms

IBM Business Process Manager Standard Version 8.5.5 is supported on the following operating systems:

- AIX 6.1 and 7.1
- Linux: Red Hat Enterprise Linux (RHEL) 5 and 6
- SUSE Linux Enterprise Server (SLES) 10 and 11

- Solaris 10 and 11
- Windows 7, 8, Windows Server 2008, 2012

For more information about the supported operating systems and versions, see "IBM Business Process Manager Standard detailed system requirements" at http://www-01.ibm.com/support/docview.wss?uid=swg27023007.

IBM Business Process Manager Express Version 8.5.5 is supported on the following operating systems:

- Linux: Red Hat Enterprise Linux (RHEL) 5 and 6
- SUSE Linux Enterprise Server (SLES) 10 and 11
- Windows 7, 8, Windows Server 2008, 2012

For more information about the supported operating systems and versions, see "IBM Business Process Manager Express detailed system requirements" at http://www-01.ibm.com/support/docview.wss?uid=swg27023008.

IBM Business Process Manager Advanced Version 8.5.5 is supported on the following operating systems:

- Linux: Red Hat Enterprise Linux (RHEL) 5 and 6
- SUSE Linux Enterprise Server (SLES) 10 and 11
- Solaris 10 and 11
- Windows 7, 8, Windows Server 2008, 2012

For more information about the supported operating systems and versions, see "IBM Business Process Manager Advanced detailed system requirements" at http://www-01.ibm.com/support/docview.wss?uid=swg27023005.

IBM Worklight Version 6.2 supported server operating systems:

- AIX V6.1 and V7.1 on IBM POWER
- Solaris 10 on x86-64 and SPARC
- Red Hat Enterprise Linux (RHEL) 6 Server editions on x86-64, IBM POWER, System z, and VMware ESXI V5.0
- Red Hat Enterprise Linux (RHEL) 5 Update 6 Advanced Platform on x86-64, IBM POWER, System z, and VMware ESXI V5.0
- SUSE Linux Enterprise Server (SLES) 10 and 11 on x86-64, IBM POWER, System z, and VMware ESXI V5.0
- Windows Server 2008 R2 Enterprise and Standard editions on x86-64 and VMware ESXI V5.0

IBM Worklight Version 6.2 supported desktop operating systems:

- Ubuntu 12.04 LTS x86-32 and x86-64
- RHEL Workstation 6 x86-32 and x86-64
- SUSE Linux Enterprise Desktop (SLED) 11 on x86-32 and x86-64
- Windows 7 on x86-32 and on x86-64
- Windows 8 on x86-32 and on x86-64
- Macintosh OS X 10.8, and 10.9 on x86-32 and on x86-64

IBM Worklight Version 6.2 supported mobile device operating systems:

- Android 2.3.3, 4.0, 4.1, 4.2, 4.3, and 4.4
- iOS 5, 6, 6.1, 7.0, and 7.1
- BlackBerry 6.0, 7.0, 7.1, 10.1, and 10.2
- Windows Phone 8.0
- Windows 8.0 and 8.1
- Windows RT

Ordering information

Table 1 shows the ordering information for IBM Worklight Version 6.2 and IBM Business Process Manager Version 8.5.5.

Table 1. Ordering part numbers and feature codes

Program name	PID number	Charge unit description
IBM Worklight V6.2	5725-I43	Client Device Install Application Virtual Server
IBM Business Process Manager Advanced V8.5.5	5725-C94	Processor value unit (PVU)
IBM Business Process Manager Standard V8.5.5	5725-C95	PVU
IBM Business Process Manager Express V8.5.5	5725-C96	PVU
IBM Business Process Manager Tools and Add-Ons V8.5.5	5725-C97	Authorized User Application Instance

Related information

For more information, see the following documents:

- IBM Redbooks: *Extending IBM Business Process Manager to the Mobile Enterprise with IBM Worklight*, SG24-8240:
  http://www.redbooks.ibm.com/abstracts/sg248240.html

- IBM MobileFirst Platform Foundation (formerly known as IBM Worklight) product page:
  http://www-03.ibm.com/software/products/en/mobilefirstfoundation

- Solutions from IBM MobileFirst:
  http://www.ibm.com/mobilefirst/us/en/offerings/

- IBM Worklight V6.2 announcement letter:
  http://www-01.ibm.com/common/ssi/rep_ca/4/897/ENUS214-124/ENUS214-124.PDF

- IBM Business Process Manager product page:
  http://www-03.ibm.com/software/products/en/business-process-manager-family

- IBM Business Process Manager V8.5.5 announcement letter:
  http://www-01.ibm.com/common/ssi/cgi-bin/ssialias?subtype=ca&infotype=an&appname=iSource&supplier=897&letternum=ENUS214-141

Notices

This information was developed for products and services offered in the U.S.A.

IBM may not offer the products, services, or features discussed in this document in other countries. Consult your local IBM representative for information on the products and services currently available in your area. Any reference to an IBM product, program, or service is not intended to state or imply that only that IBM product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any IBM intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any non-IBM product, program, or service. IBM may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to:

IBM Director of Licensing, IBM Corporation, North Castle Drive, Armonk, NY 10504-1785 U.S.A.

The following paragraph does not apply to the United Kingdom or any other country where such provisions are inconsistent with local law : INTERNATIONAL BUSINESS MACHINES CORPORATION PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some states do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you. This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. IBM may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

Any references in this information to non-IBM Web sites are provided for convenience only and do not in any manner serve as an endorsement of those Web sites. The materials at those Web sites are not part of the materials for this IBM product and use of those Web sites is at your own risk.IBM may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you. Information concerning non-IBM products was obtained from the suppliers of those products, their published announcements or other publicly available sources. IBM has not tested those products and cannot confirm the accuracy of performance, compatibility or any other claims related to non-IBM products. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products. This information contains examples of data and reports used in daily business operations. To illustrate them as completely as possible, the examples include the names of individuals, companies, brands, and products. All of these names are fictitious and any similarity to the names and addresses used by an actual business enterprise is entirely coincidental.

Any performance data contained herein was determined in a controlled environment. Therefore, the results obtained in other operating environments may vary significantly. Some measurements may have been made on development-level systems and there is no guarantee that these measurements will be the same on generally available systems. Furthermore, some measurement may have been estimated through extrapolation. Actual results may vary. Users of this document should verify the applicable data for their specific environment.

COPYRIGHT LICENSE:

This information contains sample application programs in source language, which illustrate programming techniques on various operating platforms. You may copy, modify, and distribute these sample programs in any form without payment to IBM, for the purposes of developing, using, marketing or distributing application programs conforming to the application programming interface for the operating platform for which the sample programs are written. These examples have not been thoroughly tested under all conditions. IBM, therefore, cannot guarantee or imply reliability, serviceability, or function of these programs.

This document was created or updated on December 16, 2014.

Send us your comments in one of the following ways:
- Use the online **Contact us** review form found at:
  ibm.com/redbooks
- Send your comments in an e-mail to:
  redbooks@us.ibm.com
- Mail your comments to:
  IBM Corporation, International Technical Support Organization
  Dept. HYTD Mail Station P099
  2455 South Road
  Poughkeepsie, NY 12601-5400 U.S.A.

This document is available online at http://www.ibm.com/redbooks/abstracts/tips1244.html .

Trademarks