



Adrian Phang  
IBM Worklight Leader

# The Future of Building, Connecting, and Running Mobile Applications



# Facebook Uses IBM Mobility Solutions



“.. performance improvements designed to make your messaging experience even better. To do this without killing battery life, we used a protocol called MQTT ... designed to use bandwidth and batteries sparingly... phone-to-phone in hundreds of milliseconds, rather than multiple seconds.”

- Lucy Zhang, Facebook Engineer 10/19/11 [www.facebook.com/lucyz](http://www.facebook.com/lucyz)  
(MQTT used by their 350M mobile users, 475 mobile operators)

## Is this a common sight?





## Mobile users are getting younger...



And younger...



# Global Leaders Outlook



“Mobile is one of the **TOP FIVE INNOVATIONS** that will change the way we live.”

- Global Technology Outlook, IBM

“Mobile is going to be the **NEXT BIG INTERNET PHENOMENON**. It holds the key to greater access for everyone - with all the benefits that entails.”

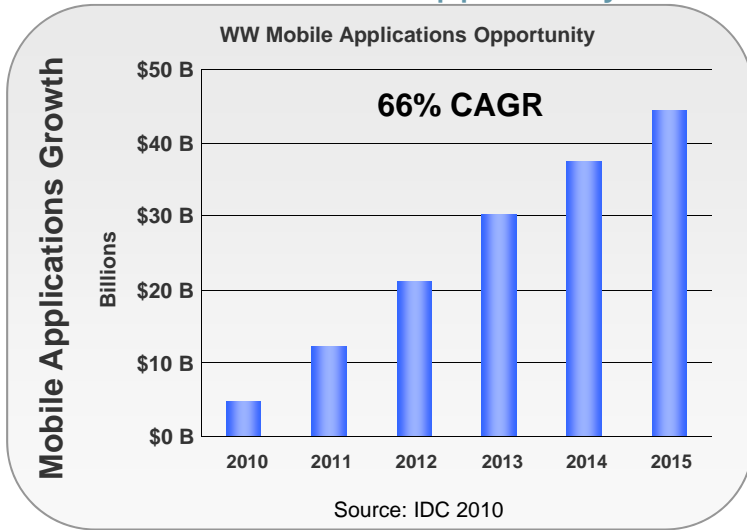
- Eric Schmidt, CEO of Google

“Folks, this is bigger than PCs.”

- Steve Jobs, CEO of Apple

# Mobility is a Game Changer

Just like the internet sparked the growth of the web and e-business, a new frontier of growth and opportunity exists around mobile devices across industries



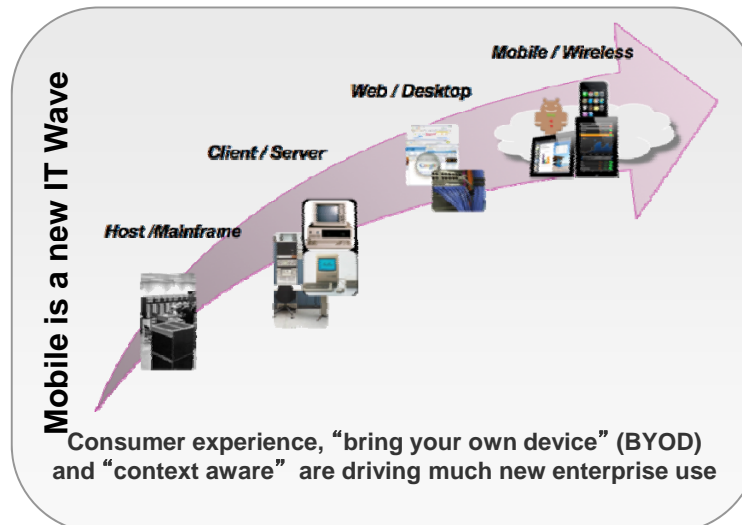
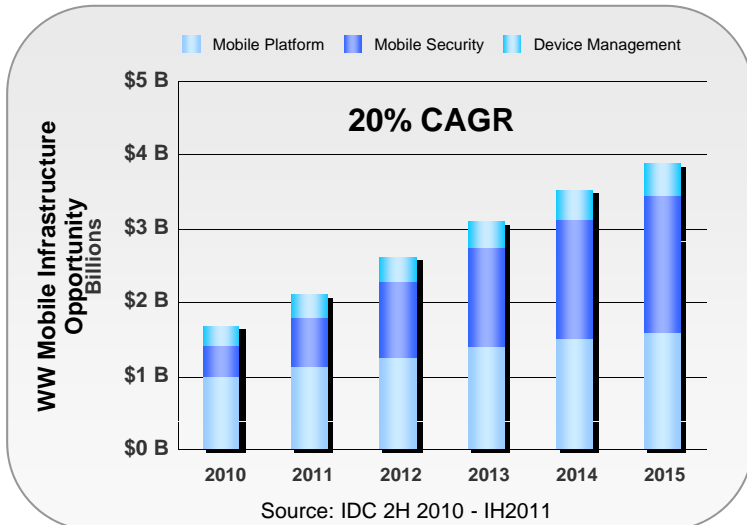
**Mobility is the second area of investment with 74%**

Source: 2011 CIO Study, Q12: "Which visionary plans do you have to increase competitiveness over the next 3 to 5 years?" (n=3,018)

300,000 iOS & 700,000 Android devices activated PER DAY

Gartner: By 2013, mobile phones will overtake PCs as the most common Web access device worldwide

Access to mobile networks is now available to 90% of the world population and 80% of the population living in rural areas. Market opportunity around



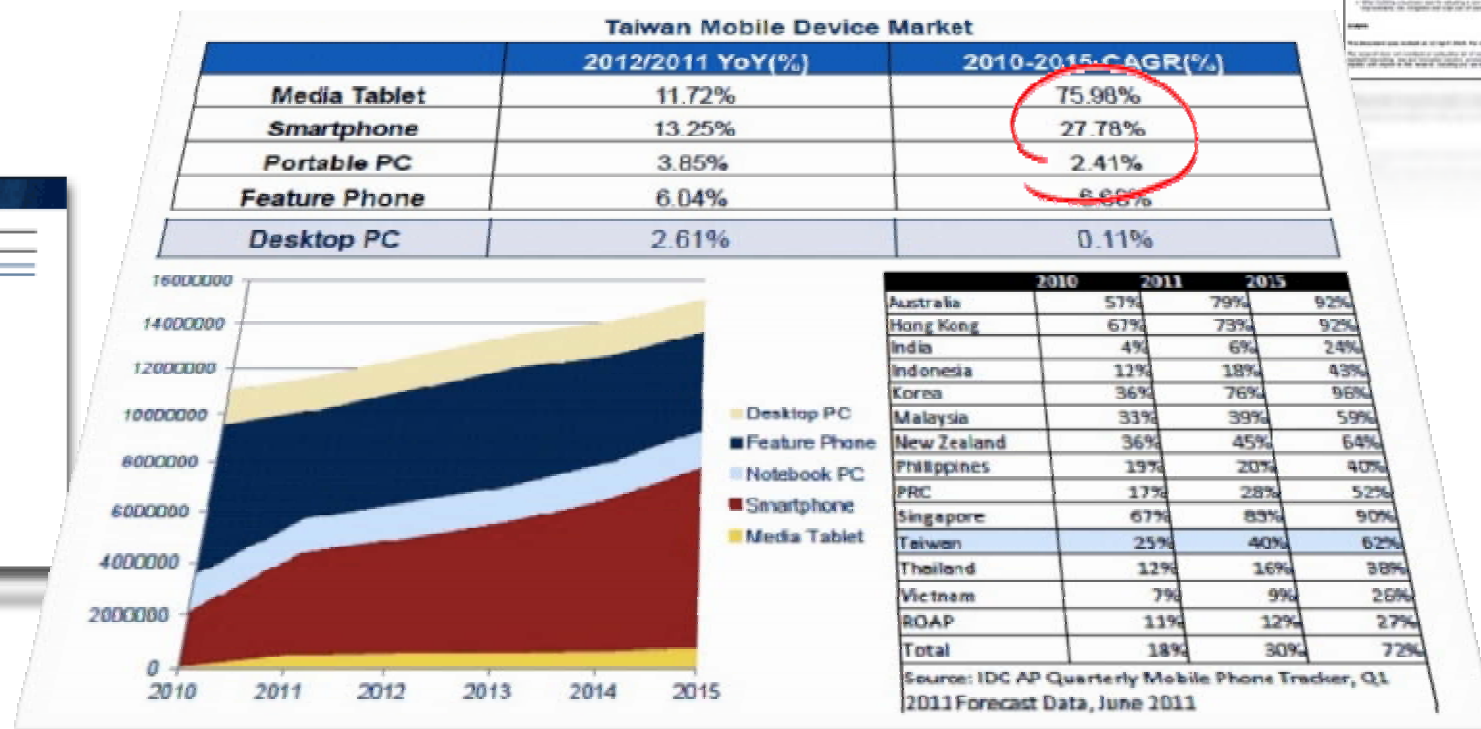
Mobile is adjacent to our business and provides AIM a large & fast growing opportunity to drive Middleware revenue as enterprises extend IT investments to reach customers in new ways and enable workforces with anywhere, anytime access to data and applications



# Beginning of a new Era

“By **2013**, mobile phones will overtake PCs as the most common Web access device worldwide”

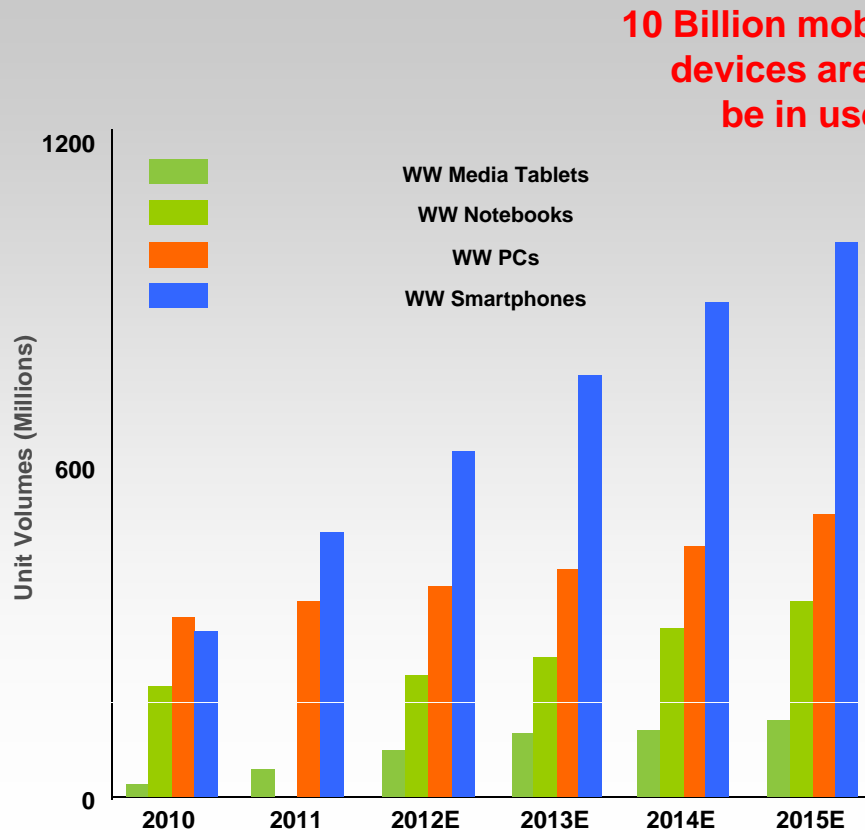
Source: Gartner Highlights Key Predictions for IT Organizations and Users in 2010 and Beyond:





# Mobile has now surpassed PCs.

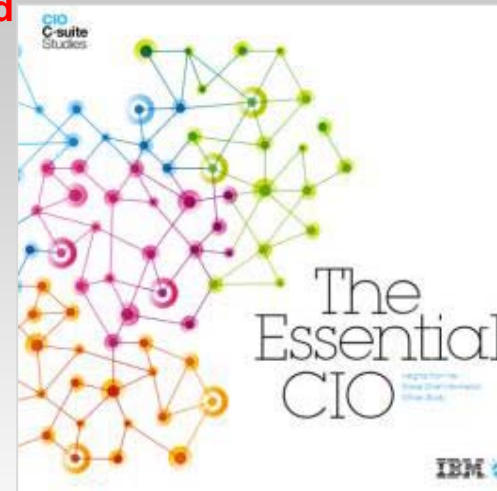
## Growth in Internet Connected Devices



10 Billion mobile connected devices are expected to be in use by 2020.

Source: Wells Fargo Securities, January 23, 2012  
 "Fostering the People: The Shift to Engagement Apps"

## Mobile and Cloud are top spending priorities for CIOs<sup>1</sup>



### Dramatic Growth in Mobile Devices

- Mobile data traffic exceeded voice in 2010<sup>2</sup>
- Shipments of Smartphones exceeded total PC shipments for the first time in 2011<sup>3</sup>
- 10 Billion mobile connected devices are expected to be in use by 2020<sup>3</sup>

<sup>1</sup> 2011 IBM Global CIO Study  
<sup>2</sup> Wireless Industry News, August 26, 2010  
<sup>3</sup> 2011 Economist

# Mobile handset dominance keeps shifting

## 1995 Palm

500,000 units sold in 6mts.  
70% market share



## 2001 Nokia

40% Market share of all  
mobile phones



## 2008 RIM

Fastest growing stock. 56%  
of smartphones, 77% 3yr  
CAGR (19.7% share in 10/11)



## 2011 Apple

Most valuable company in  
the world, 27.3% of  
US smartphones



## 2013+ Android

Has 43.7 of the US  
smartphone market 10/11



# What's next?

Is today's mobile discussion **merely a prelude** to a much larger technical change in computing?



## THE INTERNET OF THINGS



# Mobile apps have moved beyond games



## Business to Consumer



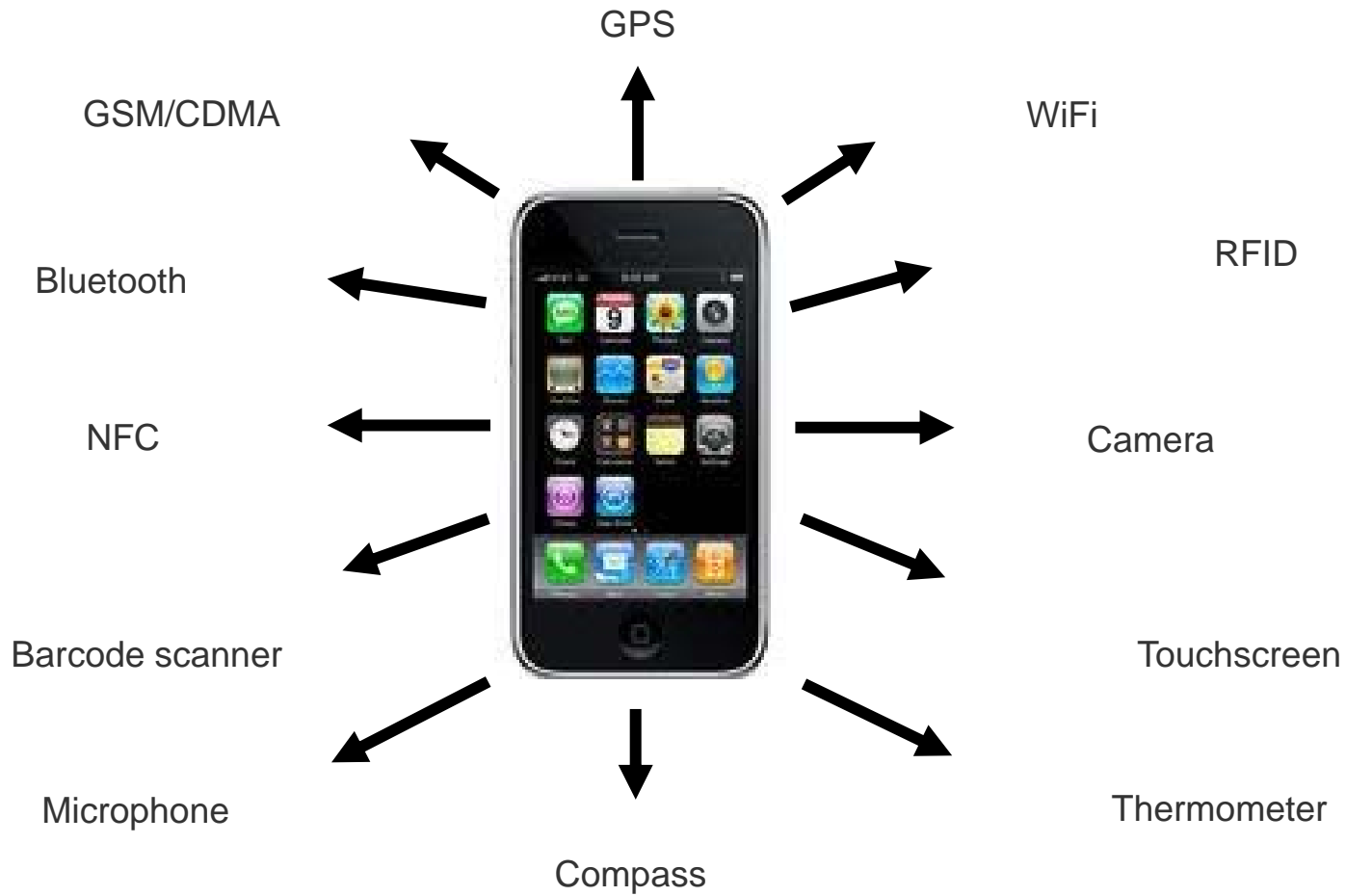
- Improved customer satisfaction
- Deeper customer engagement and loyalty
- Increased sales through personalized offers
- Customer service
- Competitive differentiator
- Improve brand perception
- Deeper insight into customer buying behavior for up sell and cross sell
- Improved buying experience with mobile concierge services

## Business to Enterprise

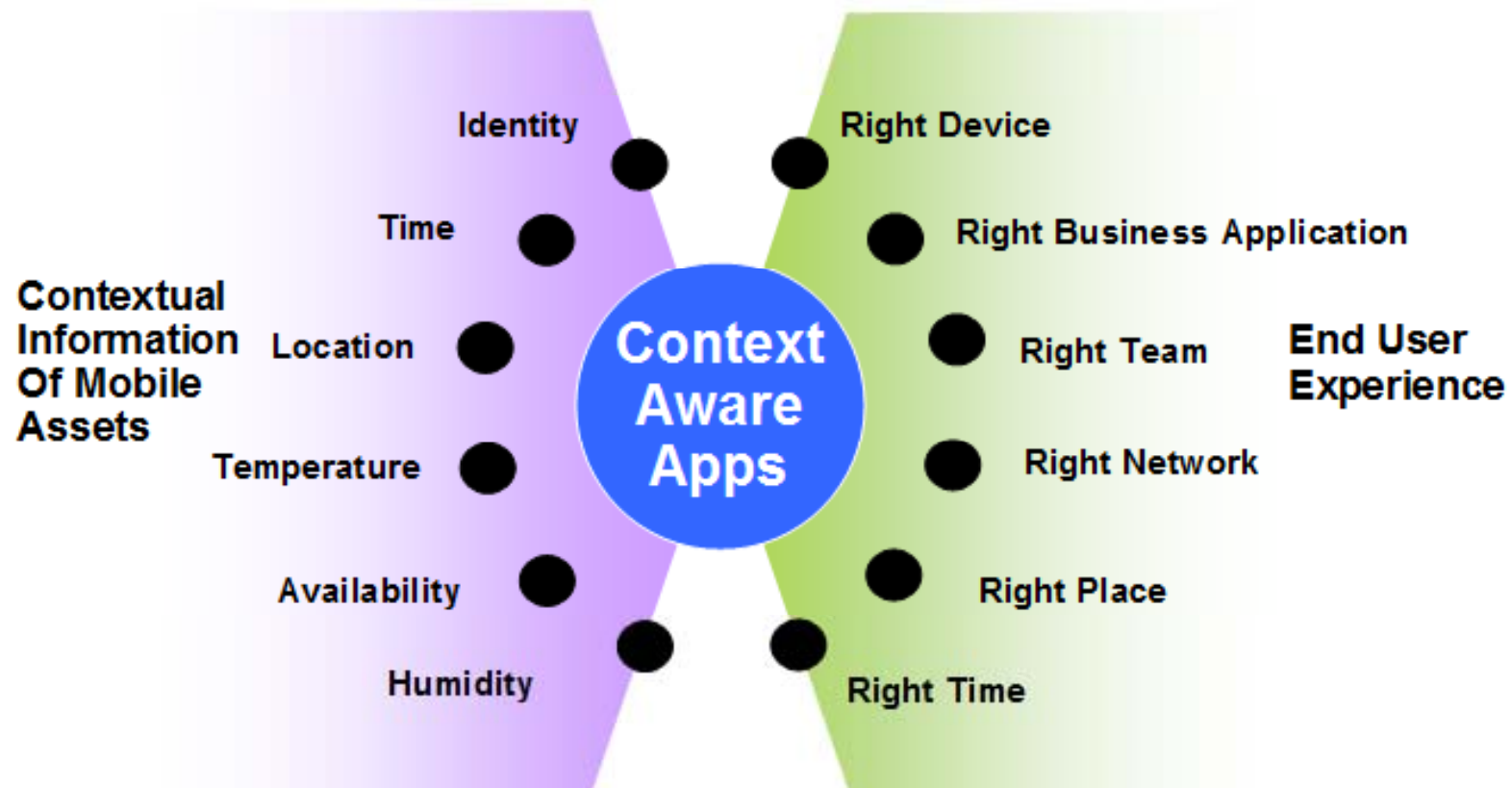


- Extend existing applications to mobile workers
- Increased worker productivity
- Faster business processing
- Increased employee responsiveness and decision making speed
- Reduced fuel, gas, or physical asset maintenance costs
- Increase revenue through sales engagements
- Resolve internal IT issues faster
- Reduce personnel cost (utilizing personal owned instead of corporate issued devices)

# Sensors and Signal Processors: A Major Differentiator between PCs and Mobile Devices



# Do sensors enable a new kind of KILLER APP?



**Dynamically capture and use contextual information from mobile assets to optimize and change communications and business process flow.**



# Mobile also brings business and IT challenges

## Enterprise Business Model Changes

- New business opportunities based upon geolocation
- Anytime, anywhere business transactions
- Importance of social business interactions

## App Development Lifecycle Complexity

- Complexity of multiple device platforms with fragmented Web, native, and hybrid model landscape
- Connecting the enterprise back-end services in a secure and scalable manner
- Unique mobile requirements (user interface, connected/disconnected use, version upgrades, etc.)

## Mobile Security and Management

- Protection of privacy and confidential information
- Use of client-owned smartphones and tablets
- Visibility, Security & Management of mobile platform requirements



## Top Mobile Adoption Concerns:

1. Security/privacy (53%)
2. Cost of developing for multiple mobile platforms (52%)
3. Integrating cloud services to mobile devices (51%)



Source: 2011 IBM Tech Trends Report

<https://www.ibm.com/developerworks/mydeveloperworks/blogs/techtrends/entry/home?lang=en>

## Mobile Apps – Top Challenges



Creating rich, yet cost-effective mobile apps in a fragmented technological landscape.



Connecting the enterprise back-end services in a secure and scalable manner



Controlling the growing portfolio of applications deployed “in the wild”

# IBM Enterprise Mobile platform can help you succeed

Banking Insurance Healthcare Telecom Retail Government Others

## IBM Enterprise Mobile Platform

Business Results

Extending business to mobile customers and workforce

Improve operational efficiencies and reduce costs

Differentiate the customer experience

Enable new services and business models



Workforce Optimization



Product and Service Innovation



Customer Care and Insights



3<sup>rd</sup> Party Mobility Services



Social Collaboration



User Notification



Location Services



Mobile Payments



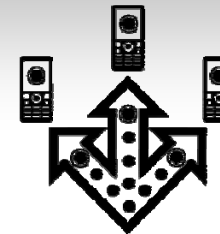
Social Mobile Commerce



**Build** mobile applications  
**Connect** to, and **run** backend systems in support of mobile



**Manage** mobile devices and applications  
**Secure** my mobile business



**Extend** existing business capabilities to mobile devices  
**Transform** the business by creating new opportunities



# Worklight provides open and extensive development and runtime environment

App development using native and/or familiar web technologies:

- HTML5
- CSS3
- JavaScript



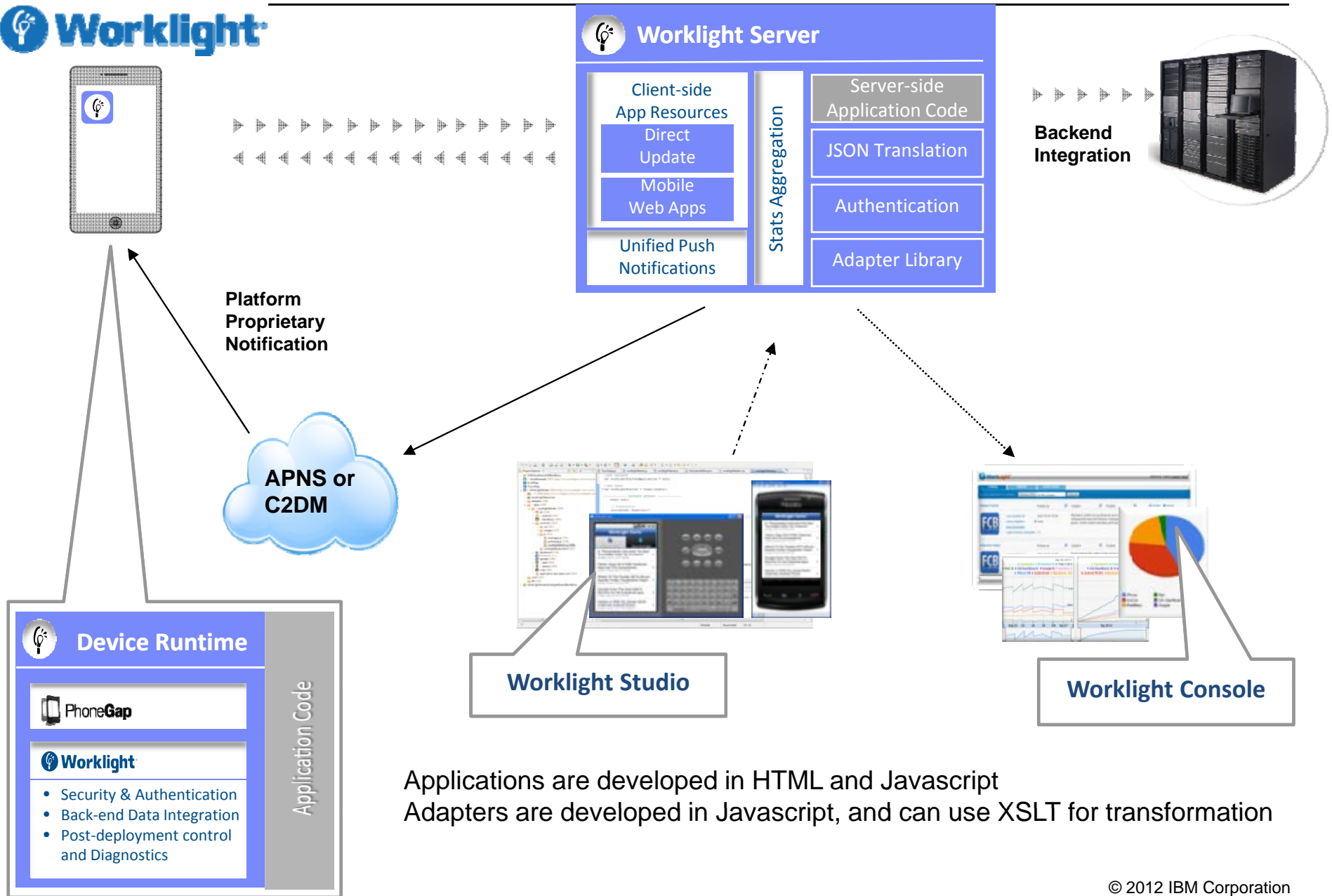
App delivery in variety of forms:

- Mobile Web app
- Hybrid app
- Native



Compatible with prominent HTML5 libraries and tools:



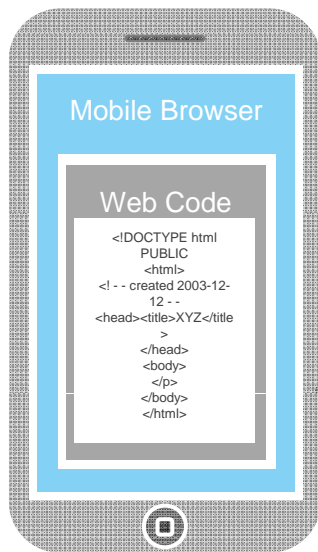


Applications are developed in HTML and Javascript  
 Adapters are developed in Javascript, and can use XSLT for transformation

# Worklight Application Types

## Browser Access

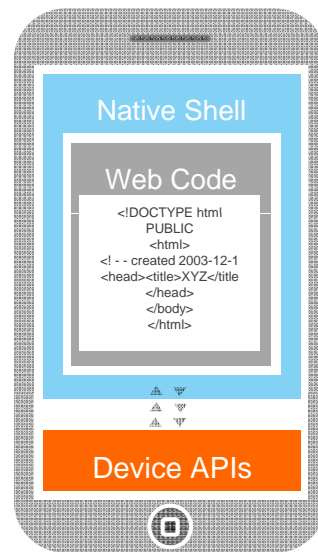
Written in HTML5 JavaScript and CSS3. Quick and cheap to develop, but less powerful than native.



Browser Access

## Hybrid Apps - Web

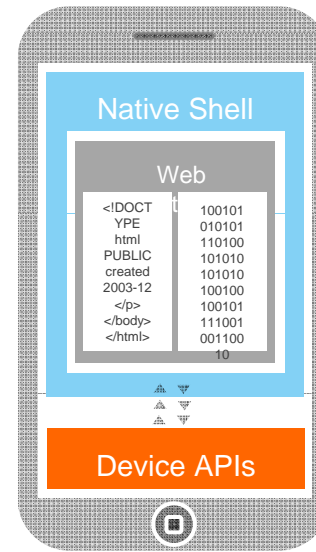
HTML5 code and Worklight runtime libraries packaged within the app and executed in a native shell.



Downloadable

## Hybrid Apps - Mixed

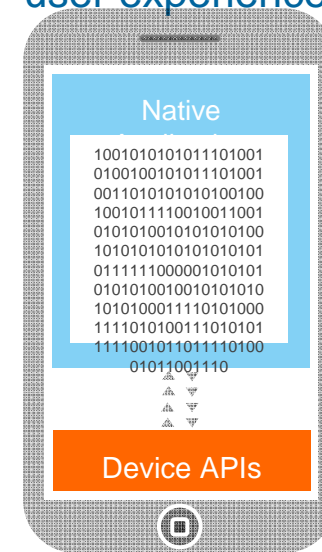
User augments web code with native language for unique needs and maximized user experience.



Downloadable

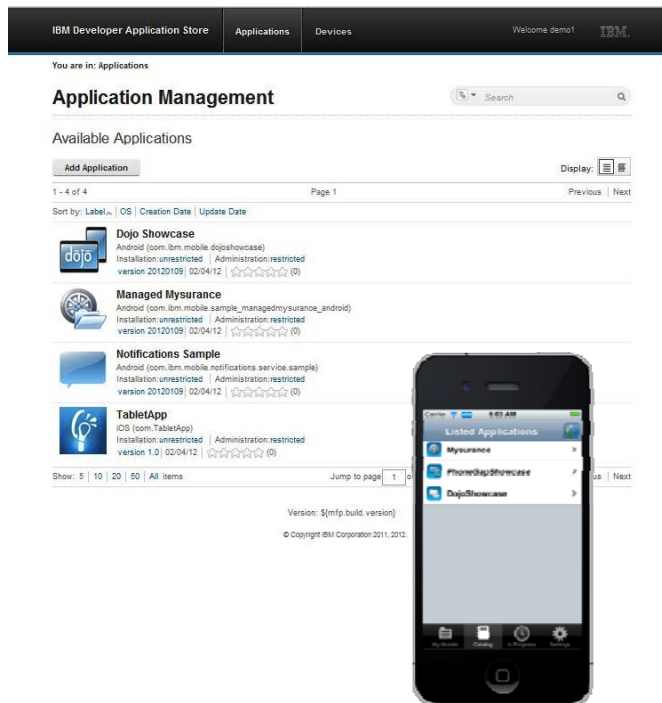
## Native Apps

Platform-specific. Requires unique expertise, pricy and long to develop. Can deliver higher user experience.



Downloadable

# Application Management – Application Center



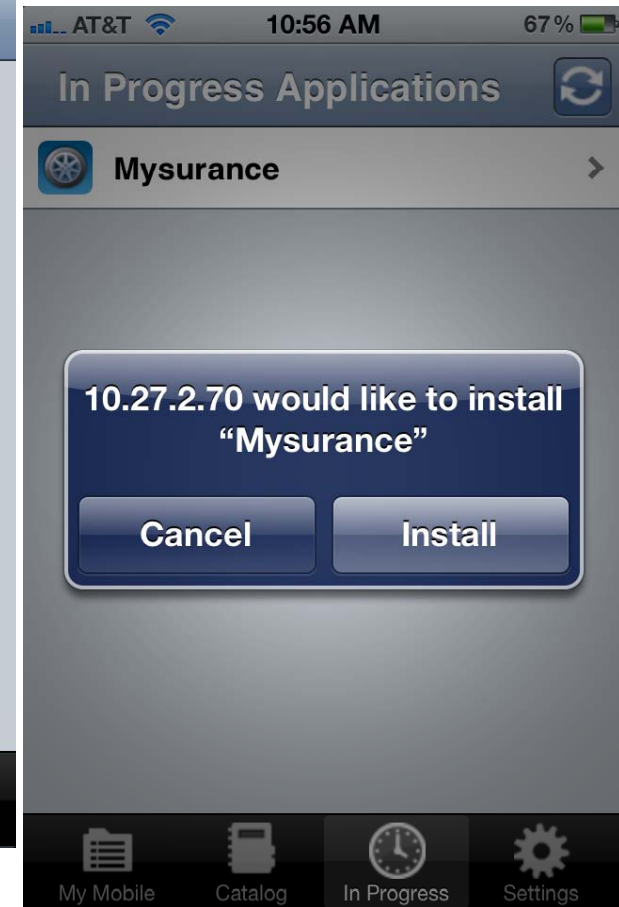
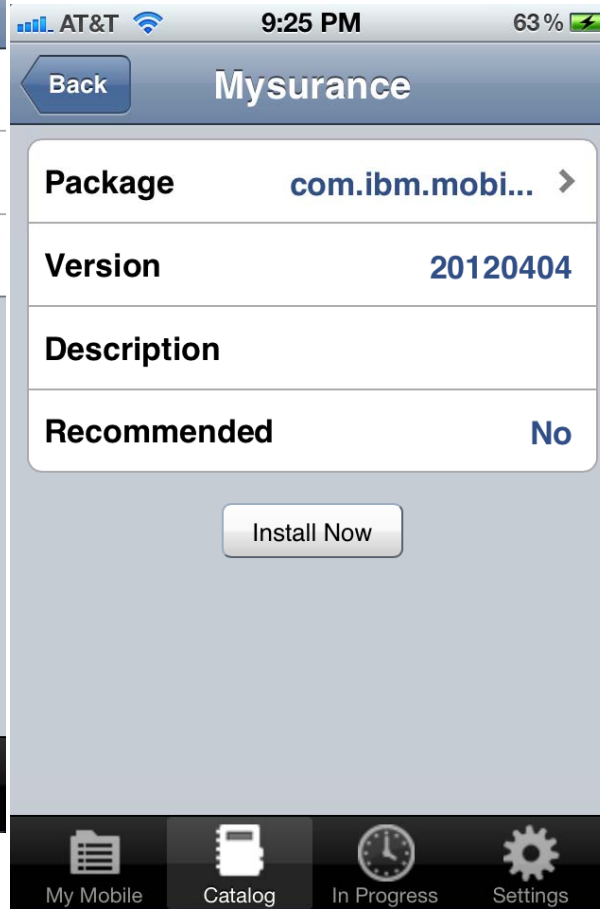
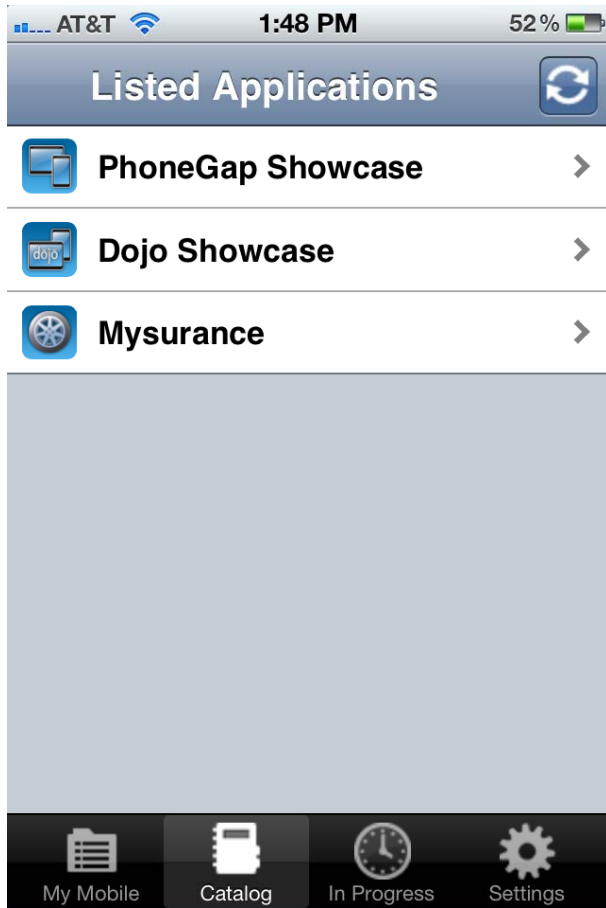
A cross platform private mobile application store similar to public app stores but focused on the needs of an organization or a team

Key capabilities:

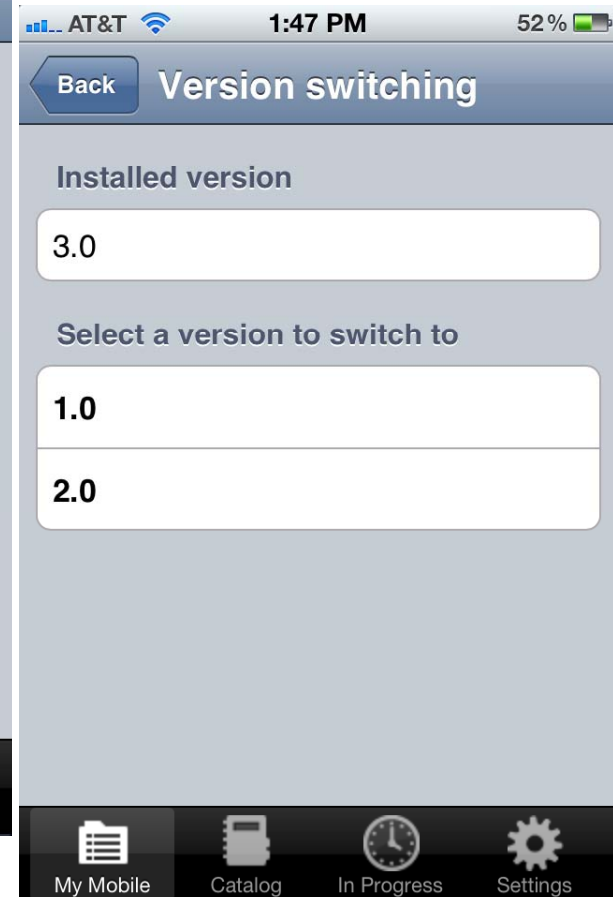
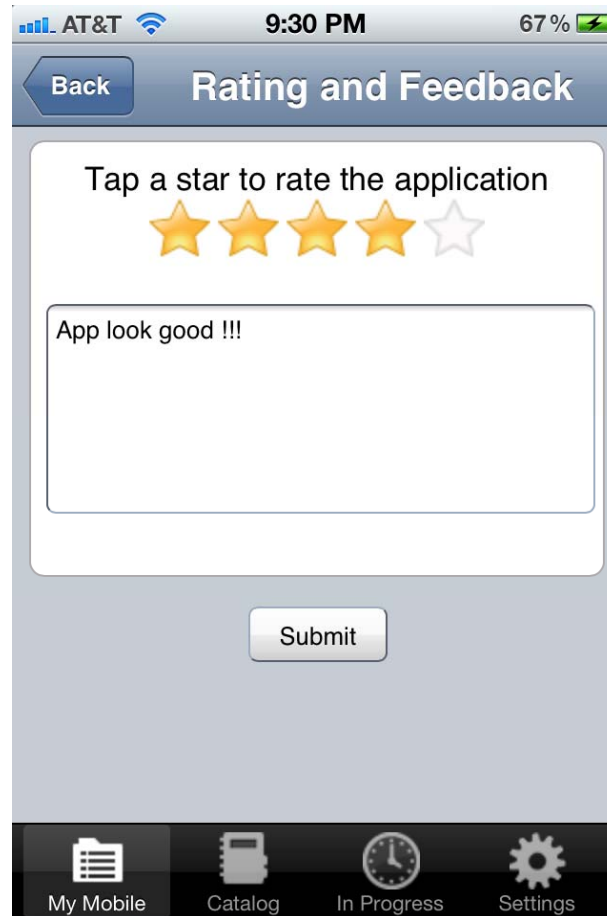
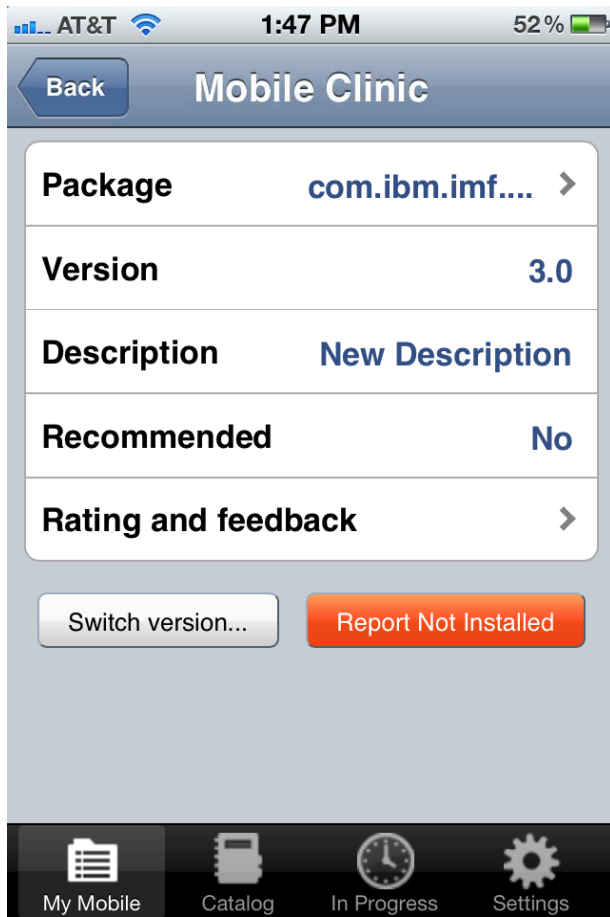
- delivers distribution and management of mobile applications within a company / teams
- easy distribution of iOS and Android apps within a team
- provides versioning and updates
- centralizes rating and feedback information
- controls who can modify or install an application
- easy to install and simple to run



# Download Application over-the-air to the device



# Provide Feedback or switch back



# Worklight Mobile Application Platform - Benefits

## Major Global Retail Bank

Needed to efficiently develop complex app to multiple devices, while adhering to strict security requirements and supporting millions of users

Solution: Integrated its core banking systems with Worklight to provide seamless mobile apps

Results: **Reduced expected development and management costs by over 80%**

## Major Korean credit card provider

Needed to quickly capitalize on 700% growth of mobile use in Korea

Solution: Application finds recharge points, merchants and offers coupons

Results: Developed in two months, Worklight allowed developers to work concurrently on 100s of pages, **reducing time-to-value**; 1M users



# Customer Spotlight – ING Direct France



Leading iPhone banking app in France with a unique user experience

Flexibility: Valued HTML5, but preferred starting native  
 Mobile adaptation of data integration and authentication layers



# Customer Spotlight – Lotte



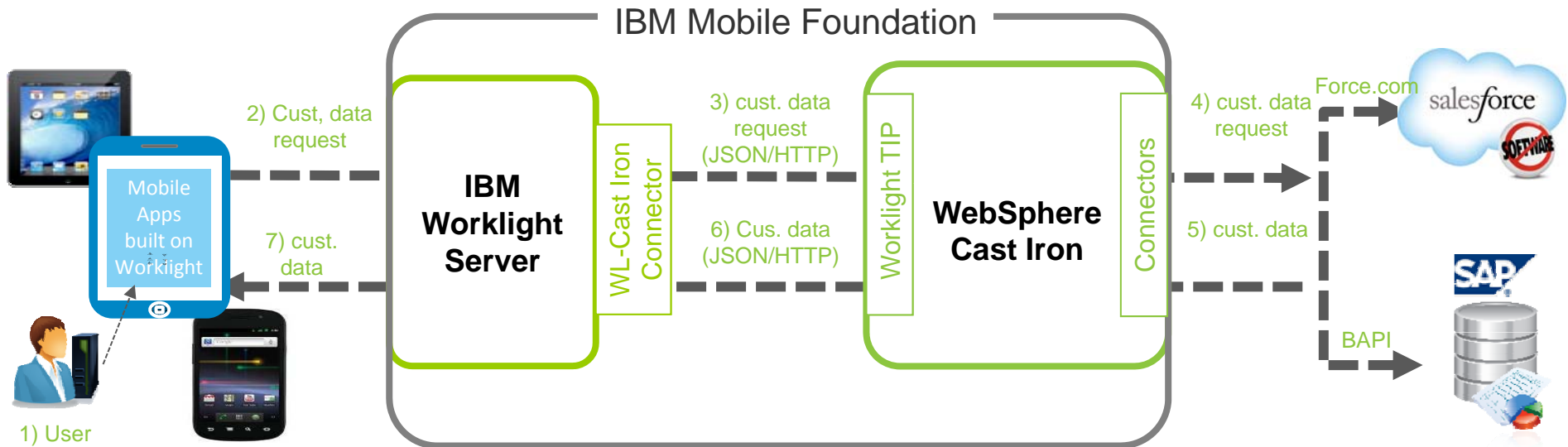
Rich hybrid app with over 100 screens

Native implementation for augmented reality and security

Ported Android to iOS in a 3-4 weeks

# Mobilized CRM / ERP Applications in Days!

Scenario: Worklight Application makes request for enterprise data



## Request from Mobile app for customer data from SAP & salesforce

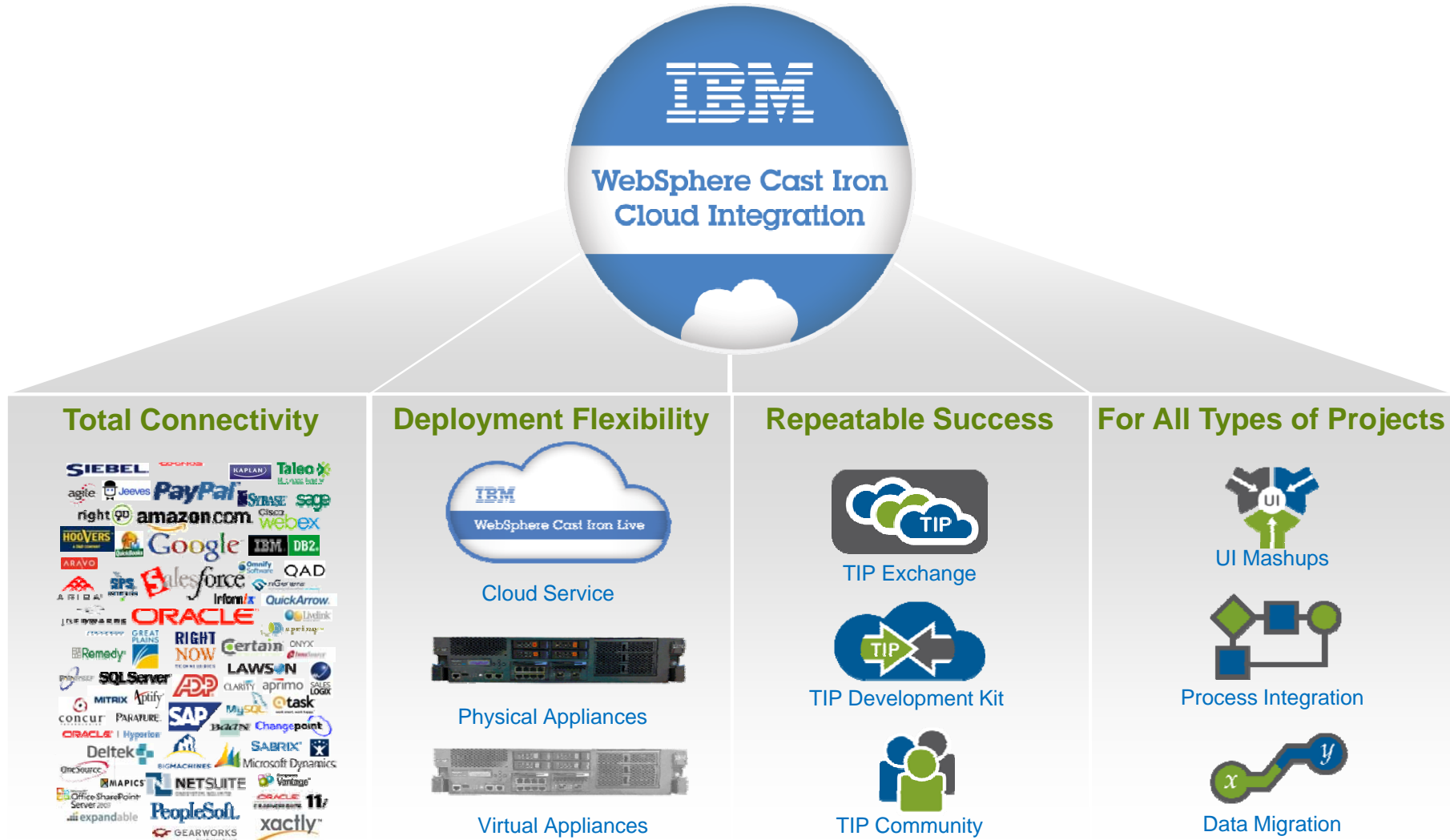
- 1) User invokes action on Mobile application to request data
- 2) Mobile application on client device communicates with Worklight Server
- 3) Worklight Server invokes it's WL Cast Iron connector to send customer data request to CI – JSON/HTTP (Rest)
- 4) Cast Iron TIP receives request (JSON) & invokes connectivity with salesforce.com and SAP to extract customer data

## Response from Cast Iron

- 5) Cast Iron TIP transforms the data based on requested fields
- 6) Cast Iron TIP converts XML data into JSON format and sends to Worklight Server via HTTP (Rest)

- 7) Worklight Server delivers data to Mobile application on the device

# Flexible: Completely Maps to Your Cloud Strategy

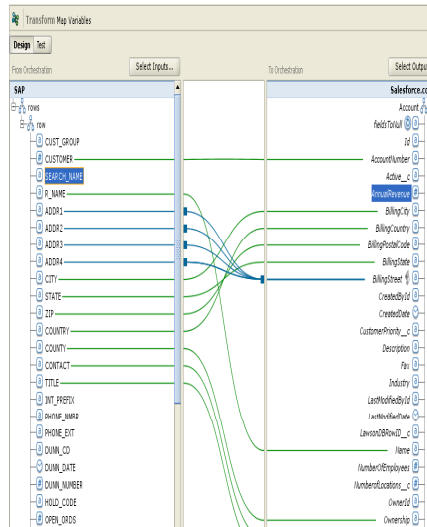


# Simple: “Configuration, Not Coding” Approach


No Coding




Beyond Configuration



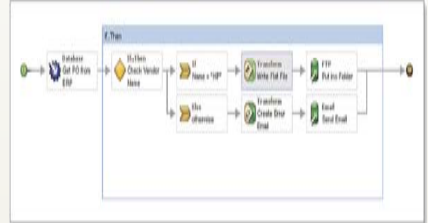
Preconfigured Templates (TIPs)

Configuration-Wizard 



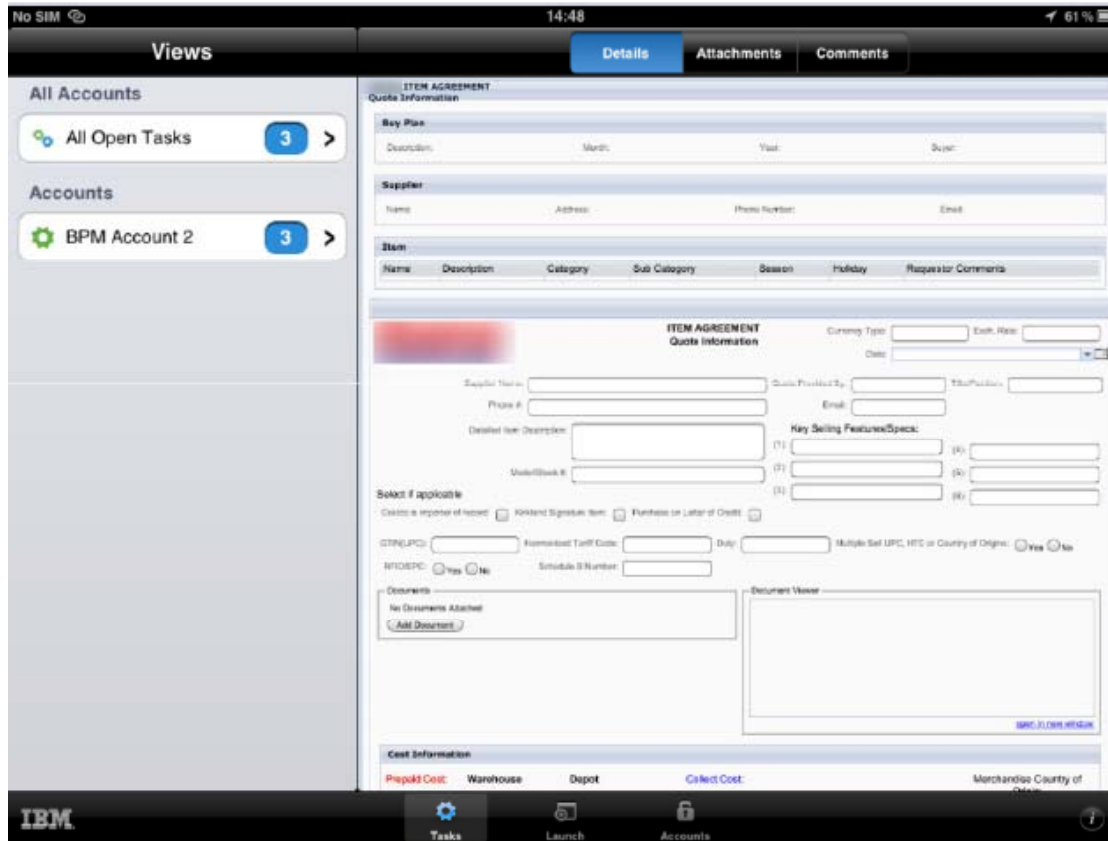
### 1. Introduction

2. Edit Login Information For SAP endpoint.
3. Verify SAP connectivity
4. Extract SAP Customer
5. Complete SAP Connectivity
6. Create Business Rules for data validation
7. Verify Salesforce.com connectivity
8. Map customer data





# Mobilized your Business Processes & Collaborations



Attach supporting documents and images to any process task

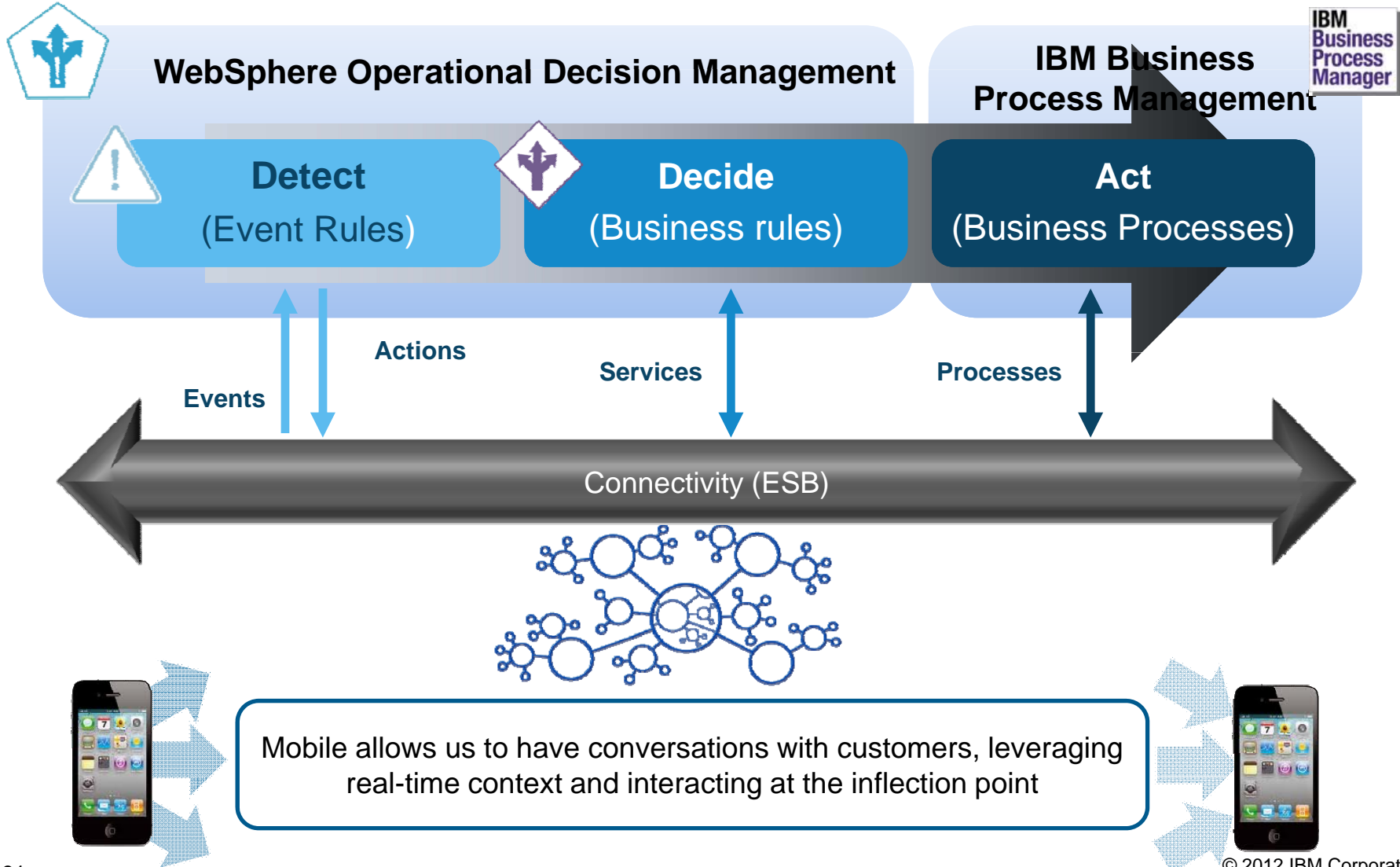


Improve productivity among business stakeholders through dynamic communication of activities - reduce 'back channel' emails, messages, etc.



# Leverage Mobile Decision for maximized ROI

*IBM WebSphere Operational Decision Management and IBM BPM*





How long would it take for you to deploy a  
Enterprise specific mobile solution?



Months?





Weeks?



In eight hours...

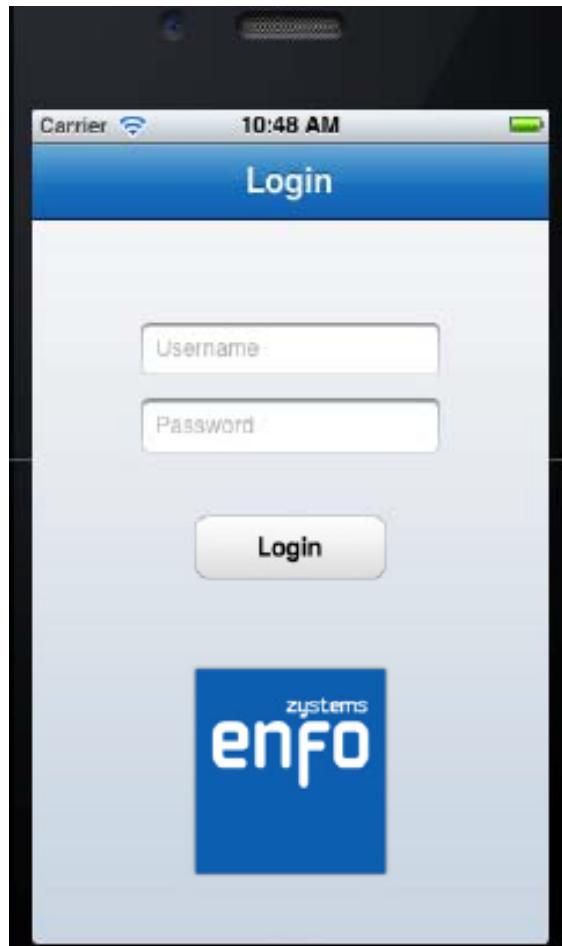
enfo

...we "installed" Cast Iron

deployed the integrations

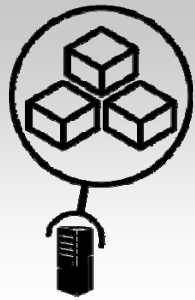
and developed an app for iPhone™

Did I mention that we integrated SAP?



# Proven customer results

## Client Initiatives



**Build** mobile applications  
**Connect** to, and **run** backend systems in support of mobile



Save your money®  
 \*ING Canada

**News Analysis**

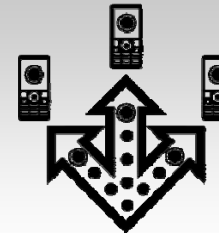
ING Direct praises IBM's WebSphere for role in its mobile banking app



**Manage** mobile devices and applications  
**Secure** my mobile business



Concord Hospital improved patch compliance 50%, reduced software license costs 25%, and has not had a single malware infection since implementation of IBM Endpoint Manager for patch management and core protection



**Extend** existing business capabilities to mobile devices  
**Transform** the business by creating new opportunities



The Wimbledon App transforms the fan experience at the tournament by combining GPS location data with analytics and live-action feeds of all the tennis action

### Key Capabilities

- Mobile web app development
- Enterprise data, service, and application integration
- Mobile Technology Preview features

### Key Capabilities

- Mobile Lifecycle Management
- Device analytics and control
- Secure Network Communications & Management

### Key Capabilities

- Strategy and planning services
- Mobile-enabled solutions including analytics, commerce, and social business
- Implementation and hosting services



# Mobile Traffic Gateway

## REST Service Gateway for Mobile Apps

- SSL offload
- Enforcement point for centralized security policies
  - Authentication, Authorization, Audit
  - Threat protection for XML and JSON
  - Message validation and filtering
- Centralized management and monitoring point
  - Traffic control / Rate limiting
- Routing / Intelligent load distribution to Provider
- RESTful façade to non-REST Provider

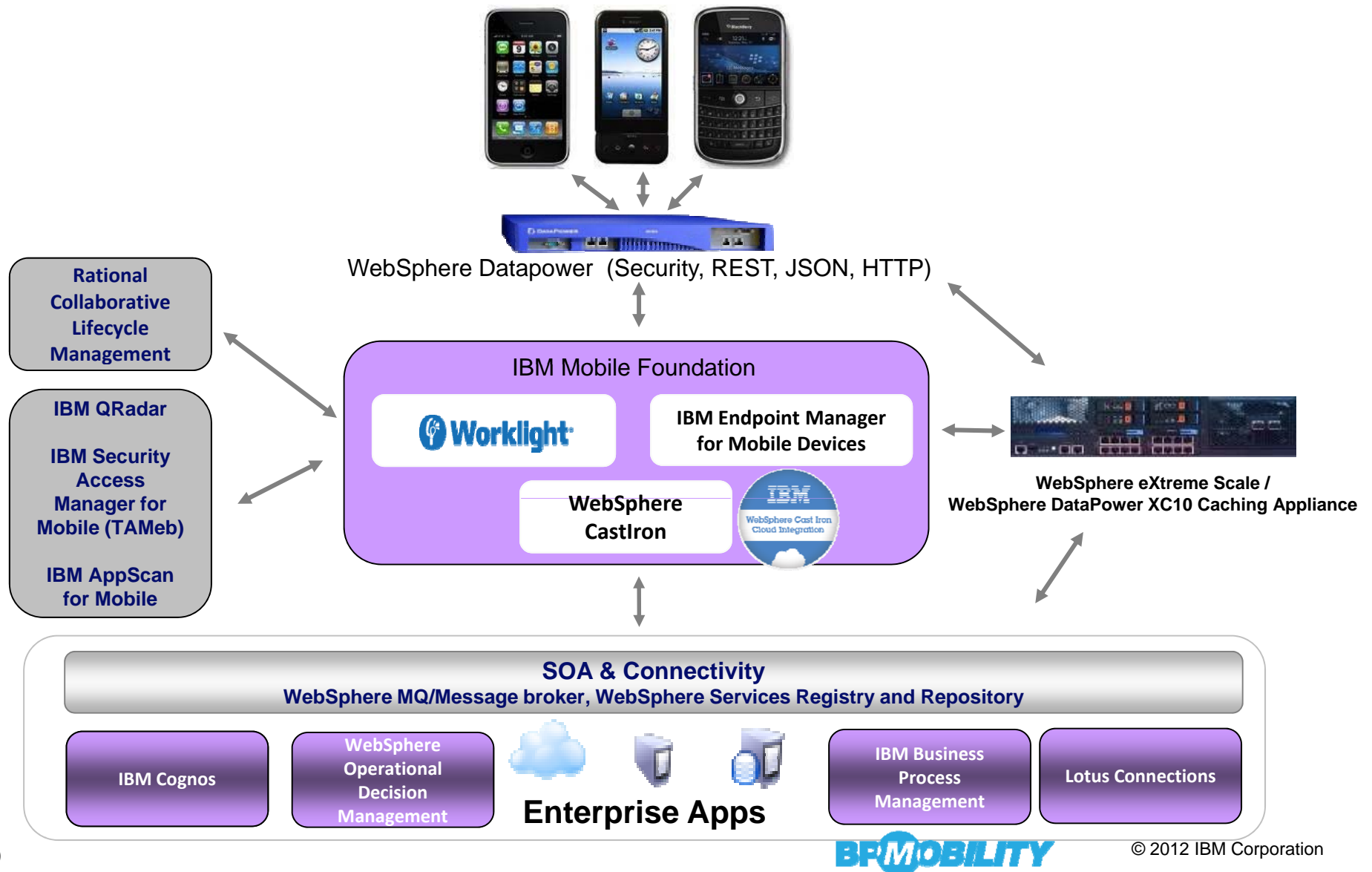


## Application Acceleration for Mobile Apps

- Offload heavy lifting of message transformation from the Provider
- Transform to a format best suited for the requesting Mobile App
  - JSON for native/hybrid app
  - HTML/XHTML for browser based



# IBM Mobile Foundation: Build, Connect, Run & Secure



# IBM Mobile: **Delivering** mobile critical success factors



## Open

standards-based and future ready



## Governed

proactive end-to-end security; centralized deployment, management, maintenance and support for applications, devices and infrastructure



## Integral

business processes and systems are completely integrated from the mobile access points to the back-end systems





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