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IBM MobileFirst

Put Your Business in Motion

Agenda

- IBM MobileFirst Mobile Enterprise Strategy
- IBM MobileFirst Solution Overview and Demo
- Apple + IBM Partnership

IBM Mobile Enterprise Strategy

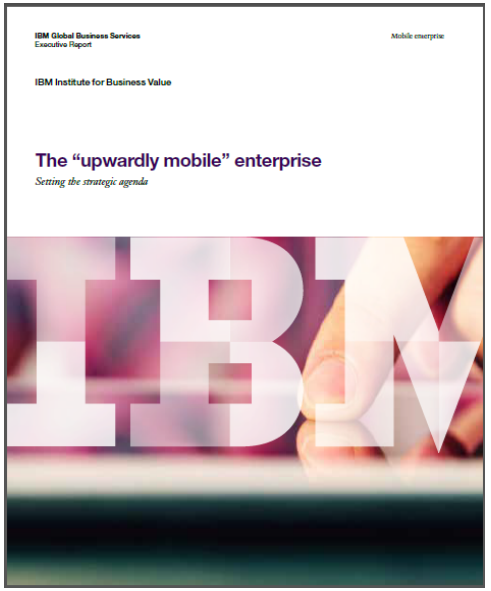
IBM believes that the future or even now of the IT industry is Cloud, Analytics, Mobile, Social and Security (**CAMSS**) collaboration; creates a new inflection point in the value that enterprise applications can provide to the business.

Since 2013, IBM announced the MobileFirst initiatives providing first class mobile enterprise solutions and consulting services to address the enterprise challenges in mobile application development, mobile device & application management, mobile security and mobile analytics to help enterprise start the mobile first journey and manage the mobile application lifecycle.

Image copy from http://www.collaborative.com/blog/talking-smac/

The Characteristics of Mobile Leaders

- **Leaders *build* apps that unlock core business knowledge for mobile uses**:
  - They ***excel 2:1*** at integrating existing systems with mobile and are more effective with app security than non-leaders (82% leaders vs 51% of others).
- **Leaders *protect* and manage the mobile enterprise to optimize performance**:
  - They are more than twice as likely to adopt BYOD programs, and excel at data security (90% leaders vs 55% others), and at ensuring network capacity (80% leaders vs 48% others).



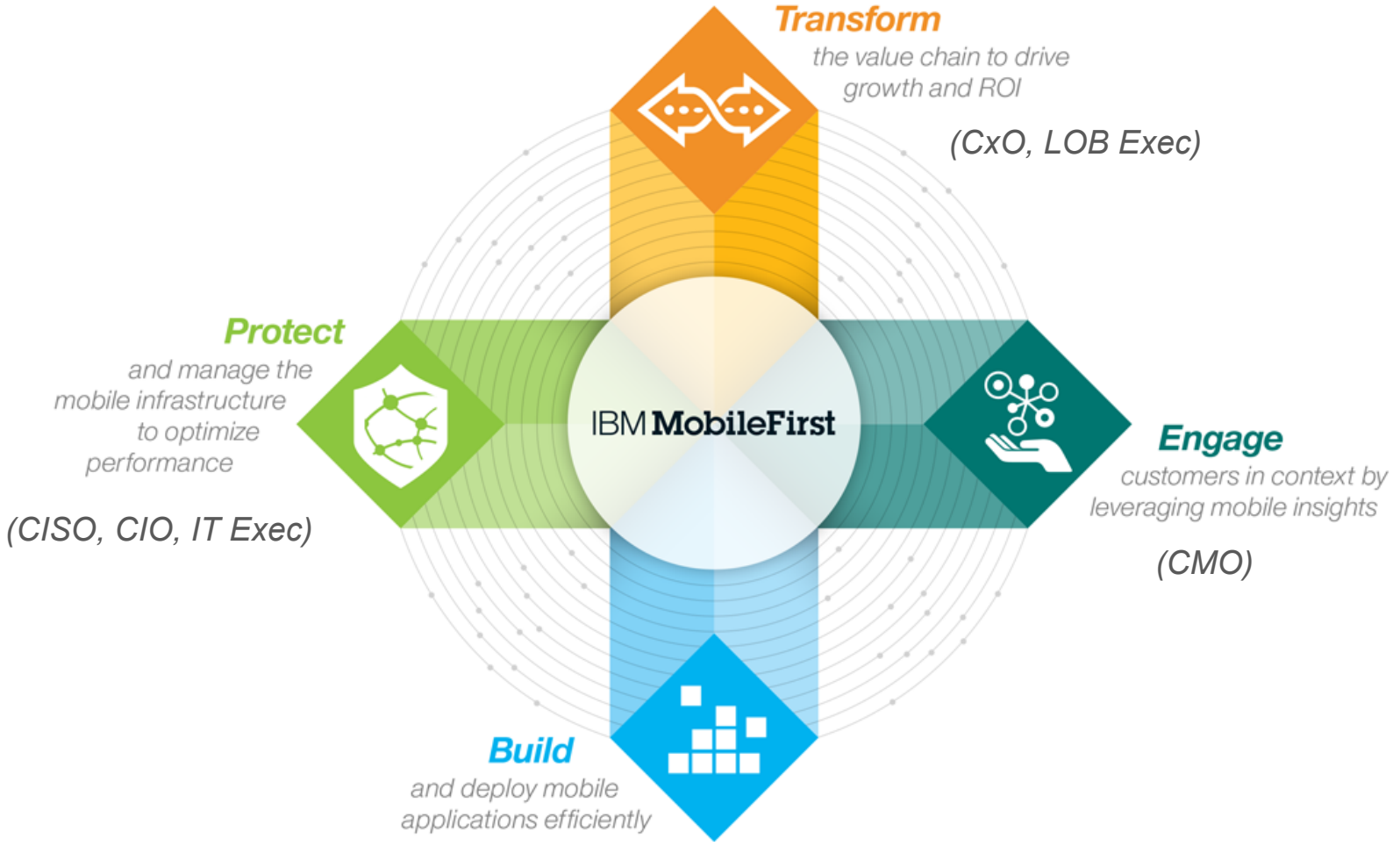
http://ibm.co/ibvmobile

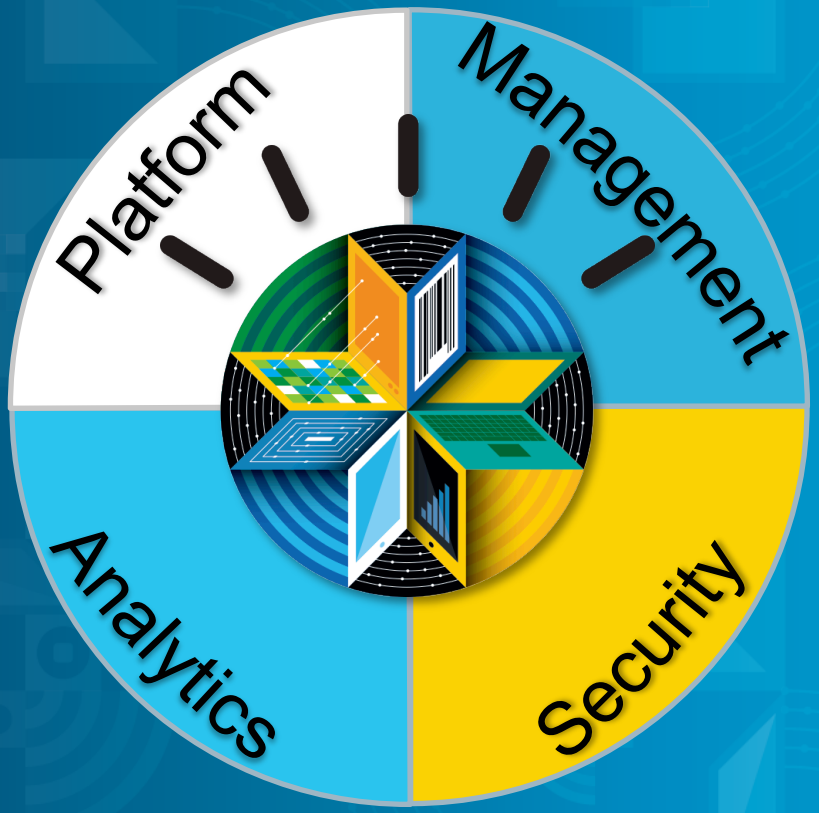
- **Leaders use insights to *engage* their customers wherever they are**:
  - They are ***twice as effective*** at taking action based on mobile data.
- **Leaders are using mobile to fundamentally *transform* the way they do business:**
  - They are ***twice as likely*** to realize ROI from mobile initiatives.

The study represents 601 mobile strategy experts

Research was conducted by IBV and Oxford Economics in 1Q13

IBM MobileFirst Client Imperatives





IBM MobileFirst
Software Product Portfolio

IBM Continuous Innovation of Holistic Mobile First Enterprise Solutions

1H 2012

Worklight

IBM acquired:
Worklight

IBM announced:
Endpoint Manager for
Mobile Devices

1H 2013

urban{code}

IBM acquired:
Urban Code DevOps
Platform

IBM announced:
MessageSight

1H 2014

Cloudant
an IBM® Company

IBM acquired:
Cloudant Database
as a Service

IBM announced:
Cross Industry Ready Apps

tealeaf
an IBM Company

IBM acquired:
Tealeaf Analytics

IBM announced:
Security Access Manager
for Cloud and Mobile

Trusteer

IBM acquired:
Trusteer

MaaS360®
by Fiberlink, an IBM company

IBM acquired:
Fiberlink

xtify

IBM acquired:
Xtify

+ IBM

IBM announced:
Apple+IBM Partnership in
Enterprise Business

2H 2012

2H 2013

2H 2014

IBM's Industry-leading MobileFirst Portfolio

IBM Ready Apps – Industry Specific Go-To-Market Solution

Banking	Retail	Government	Telecom	Healthcare	Industrial	Insurance	Travel and Transport
Retail Bank (B2C)	In-Store Associate* (B2E)	Citizen (B2C)	My Telco (B2C)	Coordinated Care (B2C)	Connected Home (B2C)	Policyholder (B2C)	Flight Crew* (B2E)
Small Business (B2C)	The Engaged Shopper (B2C)	Case Worker* (B2E)	Field Service* (B2E)		Connected Vehicle (B2C)	Agent Care* (B2E)	Freight Workforce* (B2E)
Wealth Management* (B2E, B2C)	Insight Manager* (B2E)	Business Accelerator (B2C)			Asset Troubleshooter* (B2E)	Underwriting – Inspector* (B2E)	The Engaged Traveler (B2C)
Digital Branch* (B2E)		Emergency Engagement (B2C)				Underwriting – Adjuster* (B2E)	

Mobile App and asset package available now

Prototype for sales demo and asset package available now. In development

Prototype for sales demo and asset package available in Q2-Q3. In development

B2C – Business to Consumer
B2E – Business to Enterprise

**Part of MobileFirst for iOS Solutions*

As of August 2014

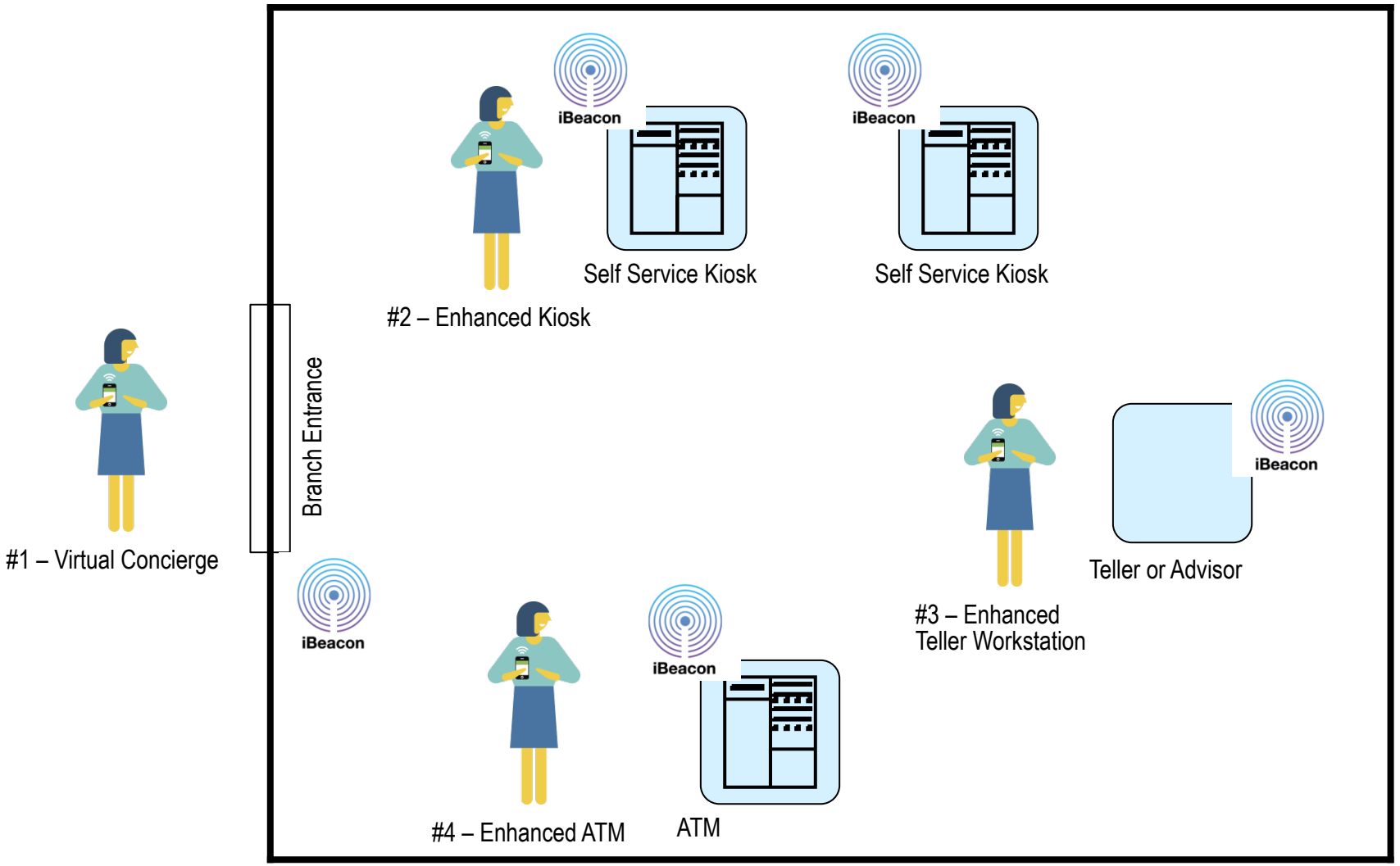
Next Gen Mobile Solution

IBM MobileFirst Platform and Nuance Leverage Biometrics in Next Gen Mobile Solution

iBeacon and Bluetooth Low Energy (BLE)

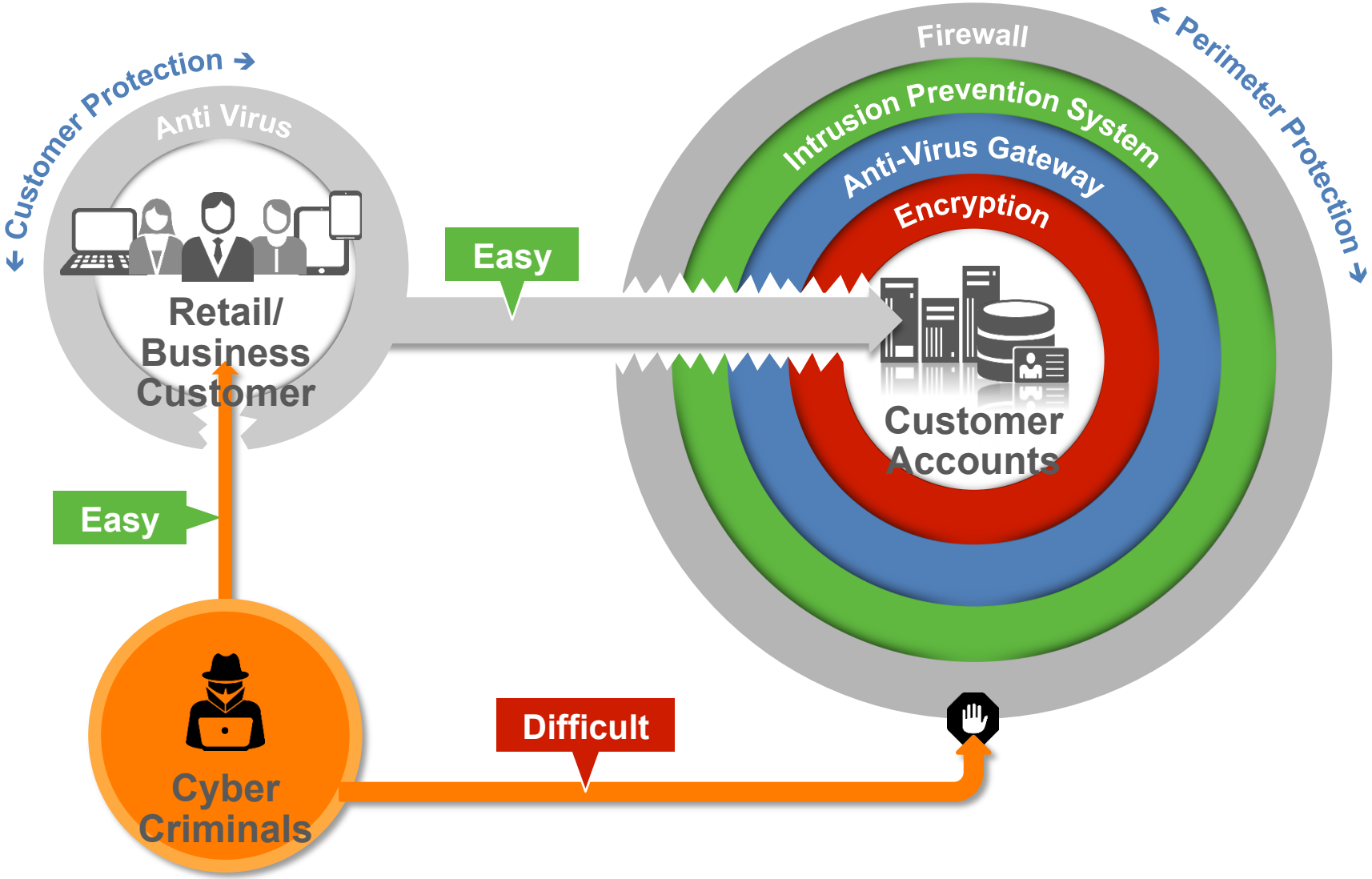
- iBeacons is a term coined by Apple as “a new class of low-powered, low-cost transmitters that can notify nearby mobile devices of their presence”
  - Not just iOS – available on Android, Windows Phone, Blackberry
  - 90% of Bluetooth-enabled smartphones by 2018 (Bluetooth SIG)
- Micro-location and Interaction Context are the two key features of iBeacons
- Bluetooth Low Energy (BLE), or Bluetooth Smart
  - Considerably reduced power consumption with a similar communication range as “classic” Bluetooth, introduced by Nokia in 2006, merged into the main Bluetooth standard in 2010 with the adoption of the Bluetooth Core Specification 4.0

Other iBeacon Use Case: Micro-location of Insurance's Customer Service



IBM MobileFirst Security

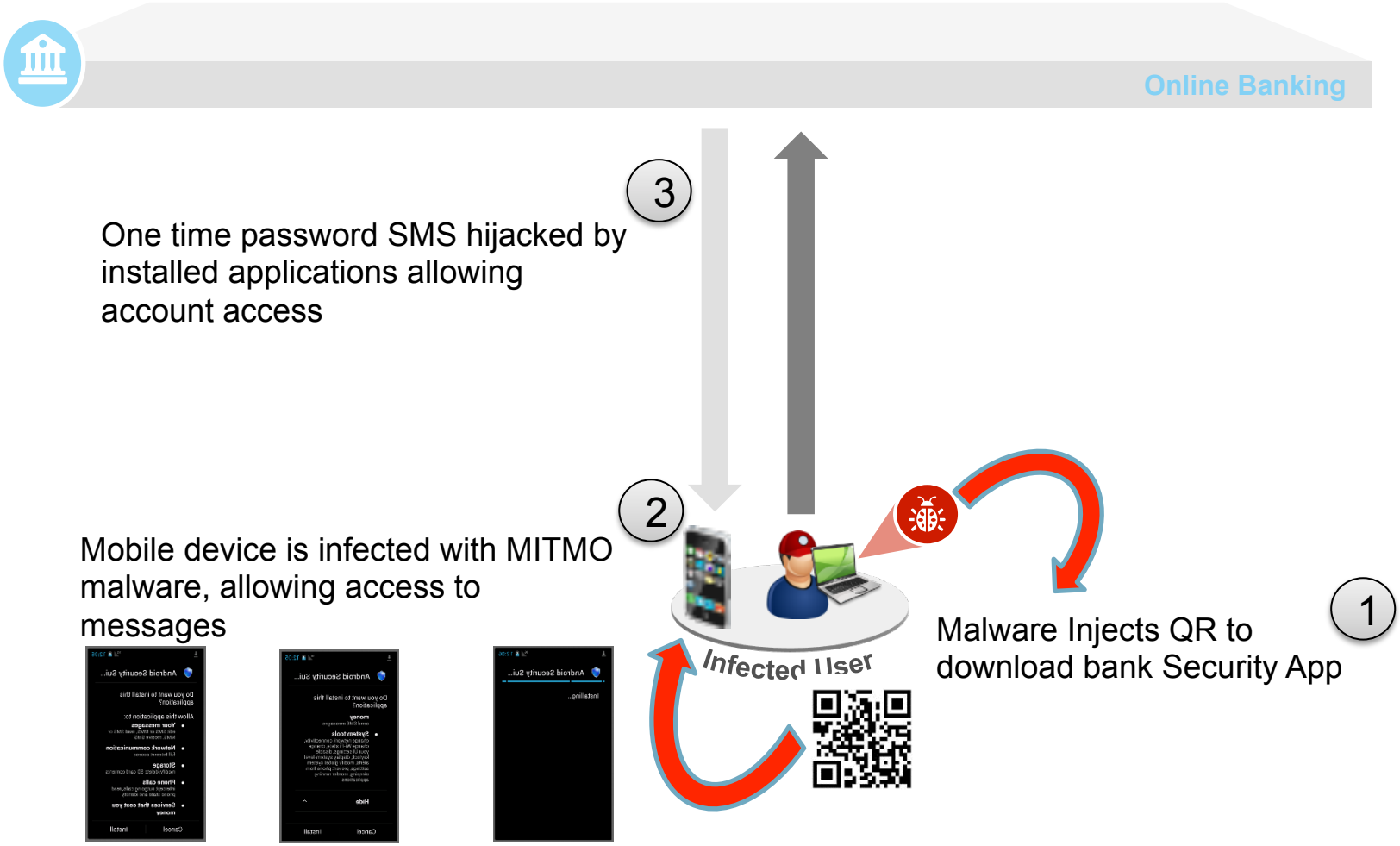
Criminals Attack the Weak Link



IBM Multi-layer Mobile Security Strategy

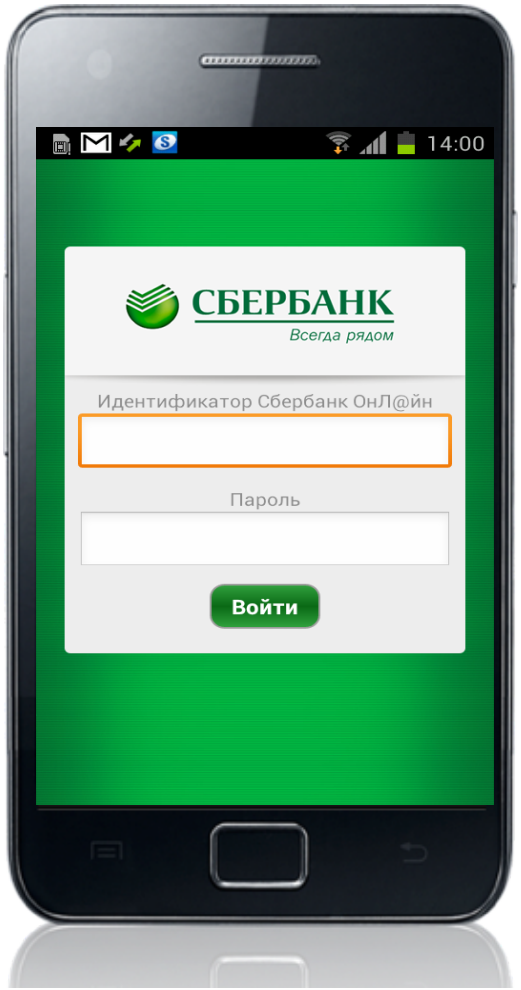
Device Security	Content Security	Application Security	Transaction Security
• Enroll, provision and configure devices, settings and mobile policy • Fingerprint devices with a unique and persistent mobile device ID • Remotely Locate, Lock and Wipe lost or stolen devices • Enforce device security compliance: passcode, encryption, jailbreak / root detection	• Restrict copy, paste and share • Integration with Connections, SharePoint, Box, Google Drive, Windows File Share • Secure access to corporate mail, calendar and contacts • Secure access to corporate intranet sites and network	**Software Development Lifecycle** •Integrated Development Environment •iOS / Android Static Scanning **Application Protection** •App Wrapping or SDK *Container* •Hardening & Tamper Resistance *IBM Business Partner (Arxan)* •Run-time Risk Detection *Malware, Jailbreak / Root, Device ID, and Location* •Whitelist / Blacklist Applications	**Access** •Mobile Access Management •Identity Federation •API Connectivity **Transactions** •Mobile Fraud Risk Detection •Cross-channel Fraud Detection •Browser Security / URL Filtering •IP Velocity
Security Intelligence			
Advanced threat detection with greater visibility			

Man in the Mobile (MITMO) and ZITMO, CITMO, SPITMO …

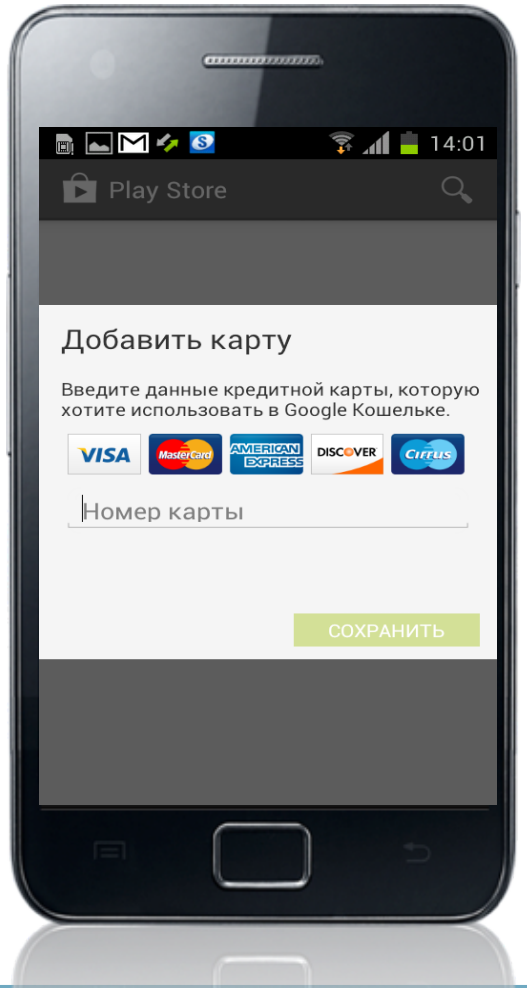


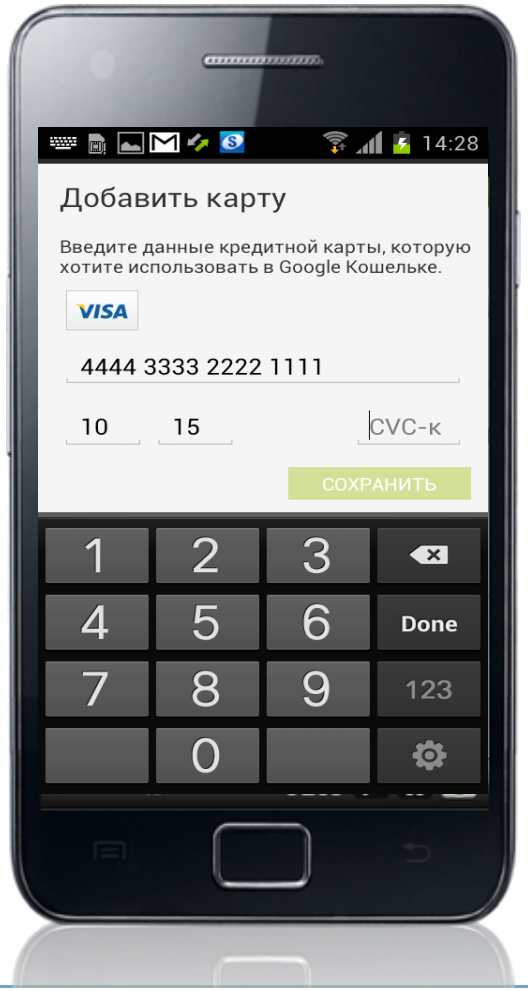
Screen “Injection”

Overlay on Russian Bank Login Screen

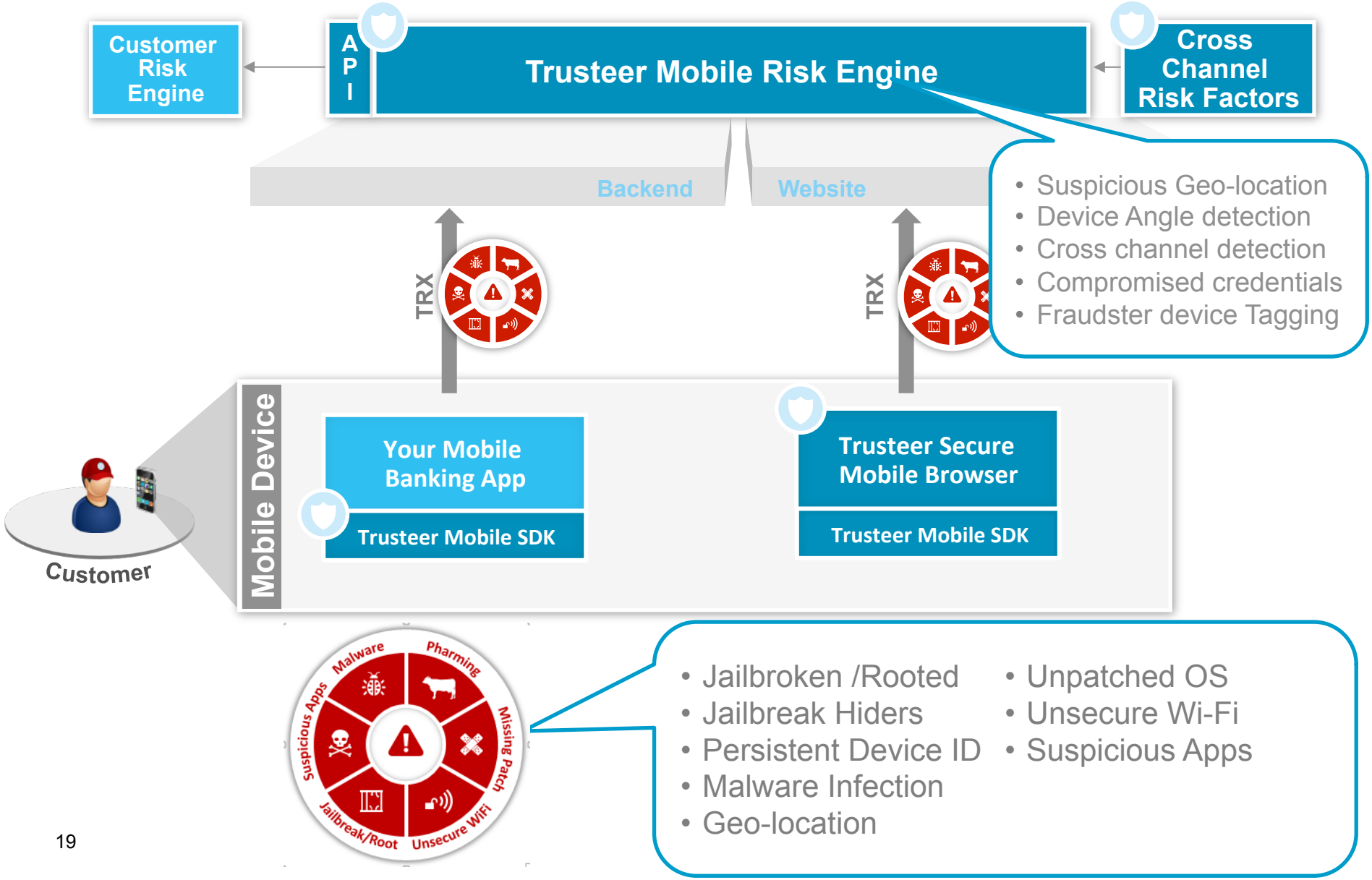


Overlay on Google Play





Trusteer Mobile Security Solutions



IBM is the World's Top 3 Provider of Security Software after Acquiring Cybersecurity Firm Trusteer

IBM Security Framework

Trusteer
*new threats, **new thinking***

IBM Enters Web Fraud Protection
leading web fraud capabilities assists IBM's financial services and web commerce customers

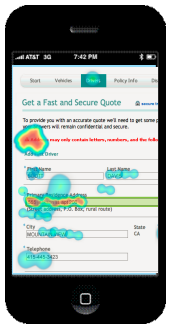
Strengthens IBM Mobile Security
as part of IBM MobileFirst, Trusteer enables secure transactions from devices to the back office

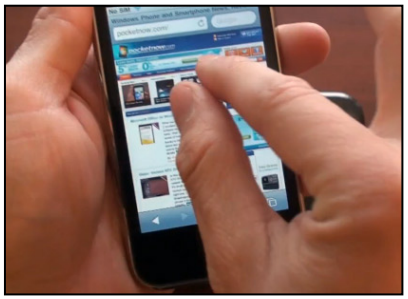
Extends Advanced Threat Protection
provides a unique endpoint solution to help identify and prevent Advanced Threats

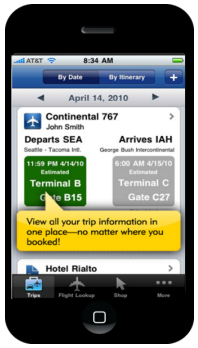
Security-as-a-Service
cloud-based deployment enables rapid adoption and real-time updates

IBM MobileFirst Analytics

IBM Tealeaf CX Mobile Provides Visibility and Value







User Behavior
- Screens viewed, Referring screen
- Text field, Text Field value
- Touches, Motion
- App launched, Entered background

Environmental
- App version, iOS/Android version,
- Device Model
- Device orientation, IP, Memory
- Connectivity
- Carrier, GPS

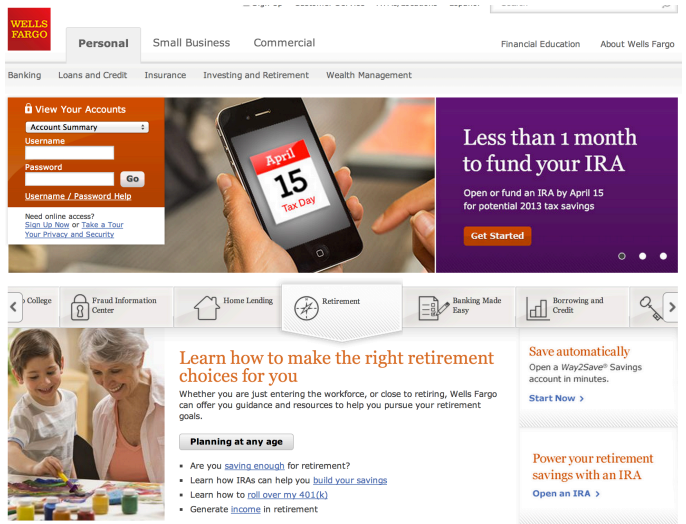
Application Health
- Exception, Crash
- Server connection success / error

- **Detect customers struggling to change reservation or order**
- **Isolate by application version, by error, by input**
- **Quantify users impacted**
- **Analyze customer behavior – sequence of events, screen logs, server calls**
- **Search to find other impacted users**

Why Customer Experience Management is important?

Tealeaf Solutions Let You Fully Experience your Customers via Multi-channel

Web



HTML5

Mobile Site

Tablets

Native Apps

Hybrid Apps

Mobile

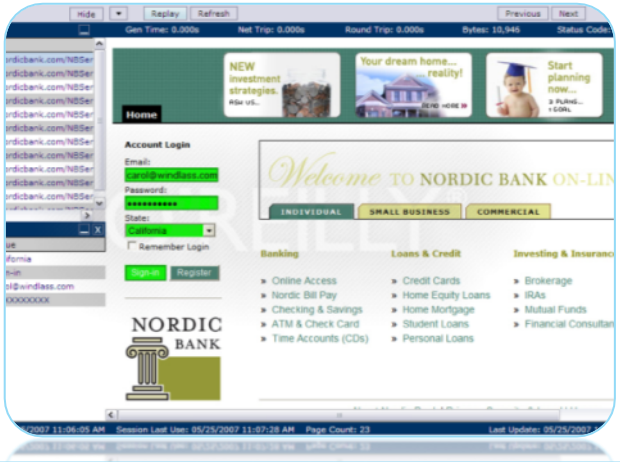
Experience Your Customers

- **Real-time Experience Capture**
- **Struggle Detection**
- **Revenue Impact Analysis**
- **Experience Replay**
- **Customer & Revenue Recovery**

Blending quantitative and qualitative digital analytic capabilities leads to vastly improved customer experiences

Quantitative digital analytics ("What, Where, and How")

Qualitative digital analytics ("Why")

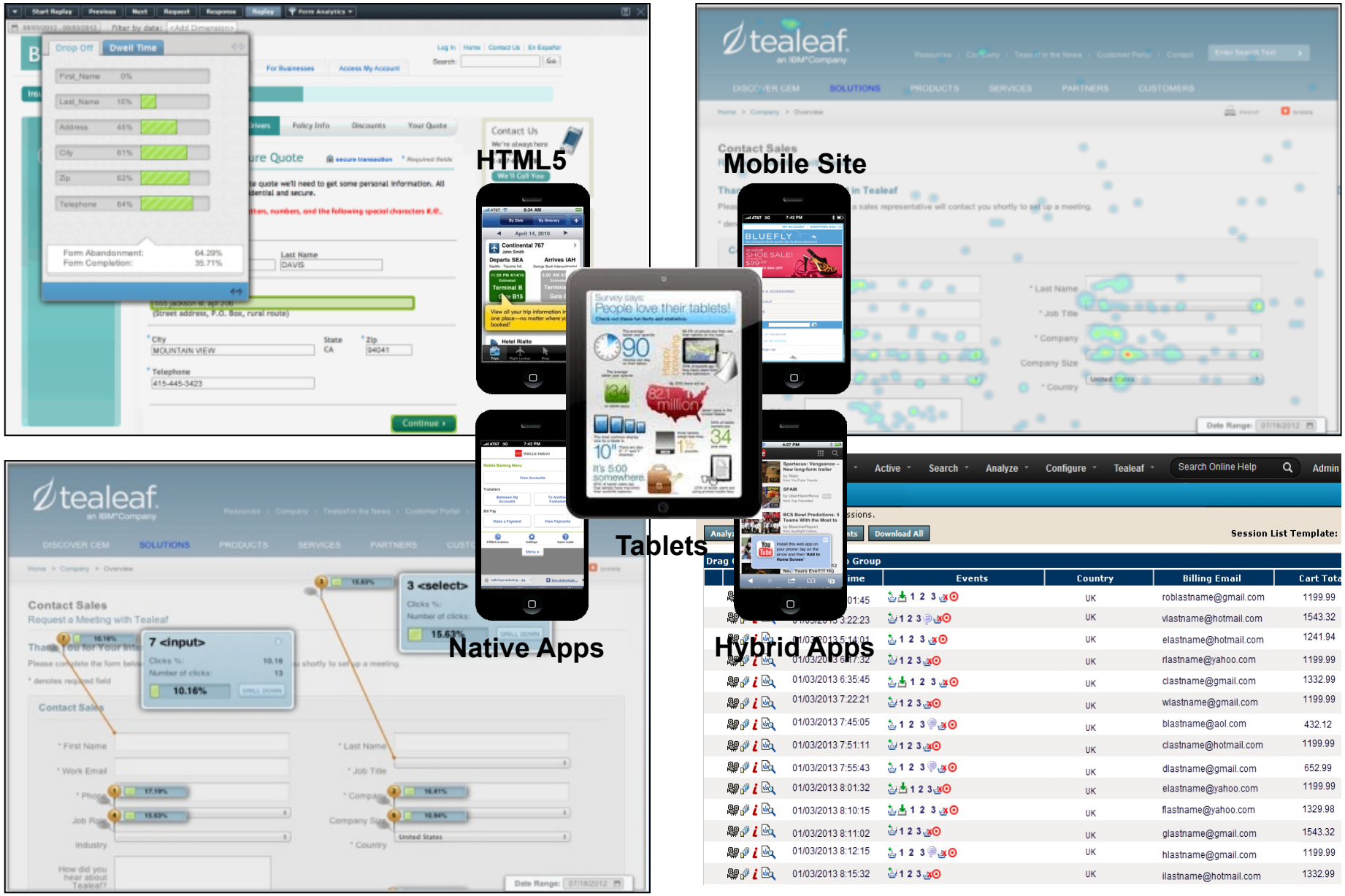


Quantitative digital analytics highlights where site/mobile design is succeeding or failing and captures those users interactions

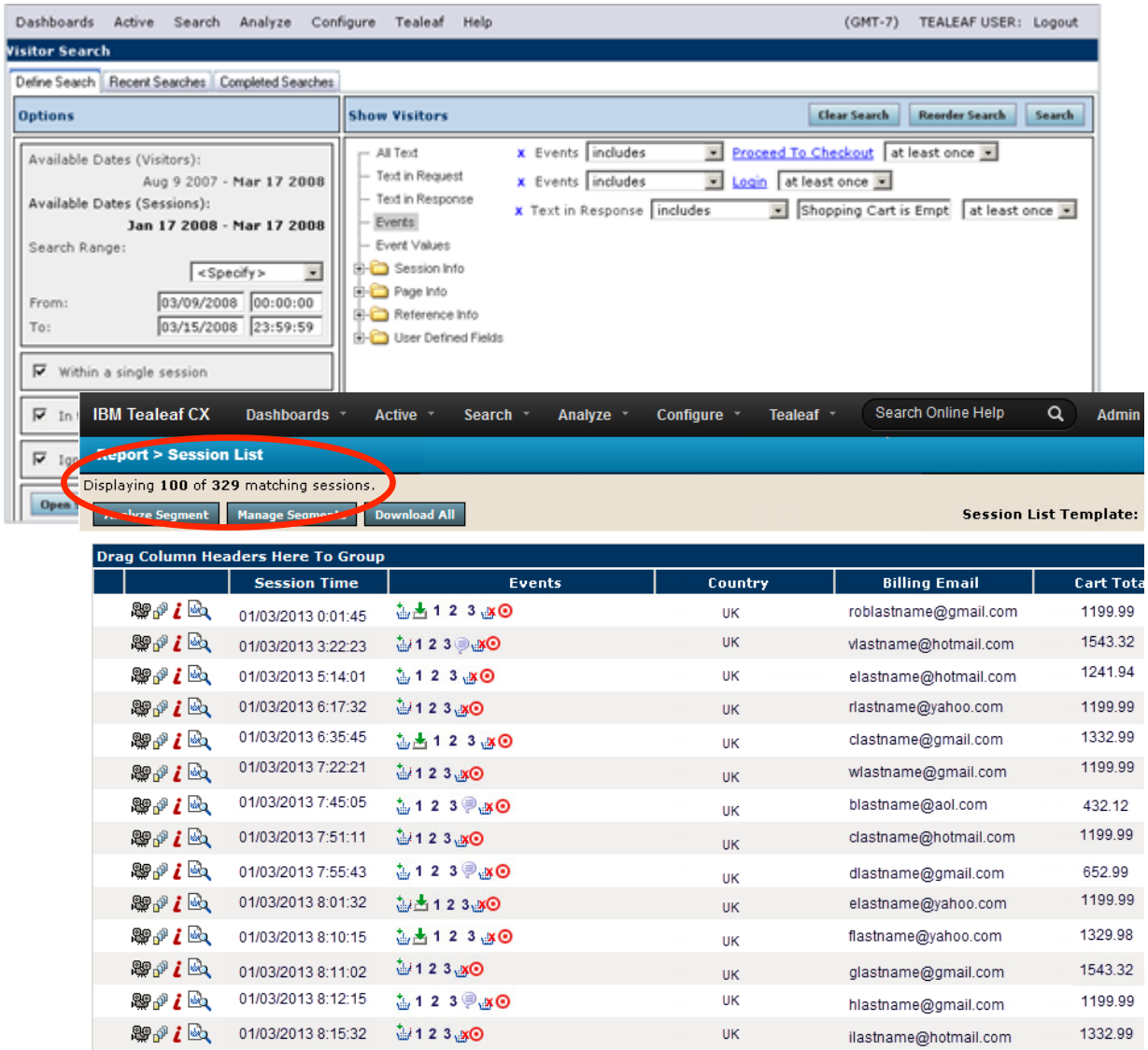
Qualitative analysis replays the each user interaction in context and helps visualize and analyze UI improvements

An optimized customer experience
improved online experience blending the most compelling and relevant content/ offer elements with the easiest ways to interact

Tealeaf – Customer Experience Management



Tealeaf CX Mobile Rule-based User Session Search and Replay



Whether you utilize search, or drill-down from a dashboard, IBM Tealeaf solutions can help you identify other customers who experienced the same account registration problem

IBM Tealeaf CX Mobile's Unique Capabilities

```
[AppEnv]
DeviceModel=iPhone
DeviceType=iPhone3,3
UserID=f5af5c7e1a9abbbfa7afaf3e5fc3cacb
iOSVersion=5.0.1
AppID=com.tealeaf.loggingframework
AppVersion=0.1.3

[MobileEnv]
SessionID=ec18cc240e87d047e489999a38416b19
SessionStart=1326411987696677
BatteryLevel=-100.000000
BatteryState=Unknown
HostName=mjuans-iPhone.local
```

Event Logging

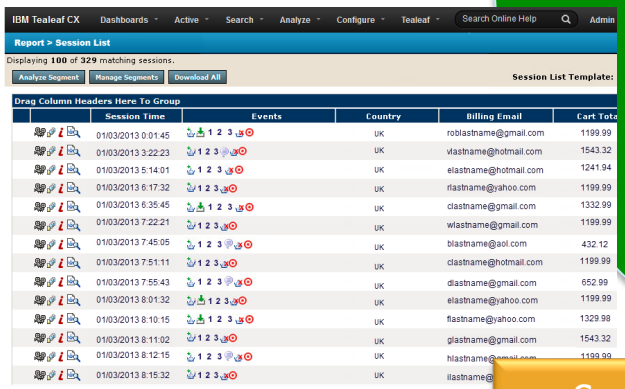
Replay

Log of Mobile Web and App Events

In Field & In App Analytics

All Network HTTP Traffic

Fine Grained Behavioral Analysis

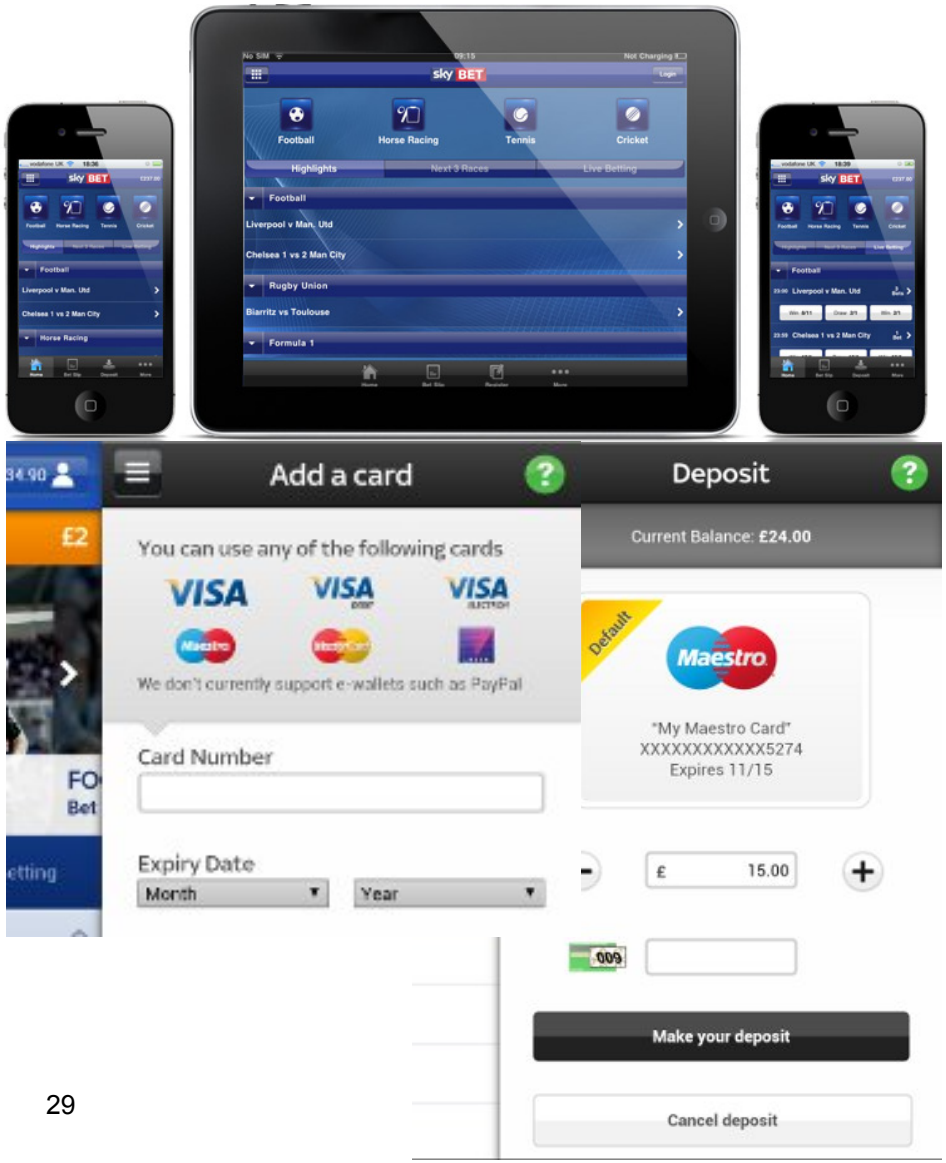



```
Mar 28 16:38:57  lockdownd[25] <Notice>: 00484000 set_response_error: handle_get_value GetProhibited
Mar 28 16:38:57  lockdownd[25] <Notice>: 00484000 special_case_get: MGCopyAnswer(kMGQReleaseType) returned
NULL
Mar 28 16:38:57  lockdownd[25] <Notice>: 00484000 special_case_get: MGCopyAnswer(kMGQSDIOProductInfo)
returned NULL
Mar 28 16:38:57  lockdownd[25] <Notice>: 00484000 special_case_get: MGCopyAnswer(kMGQSDIOManufacturerTuple)
returned NULL
Mar 28 16:38:57  lockdownd[25] <Notice>: 00484000 special_case_get: MGCopyAnswer(kMGQBasebandBoardSnum)
returned NULL
Mar 28 16:38:57  lockdownd[25] <Notice>: 00484000 special_case_get: MGCopyAnswer(kMGQWirelessBoardSnum)
returned NULL
Mar 28 16:39:00 HackeriPhone MobileStorageMounter[550] <Error>: Looking into: /Developer/Library/
LaunchDaemons
Mar 28 16:39:00 HackeriPhone MobileStorageMounter[550] <Error>: ignoring: /Developer/Library/LaunchDaemons
Mar 28 16:39:00 HackeriPhone MobileStorageMounter[550] <Error>: Loading /Developer/Library/LaunchDaemons/
```

Session Level Search

App Crashes Before and After

Case Study: Sky Bet steamlines Login & Betting Processes for Mobile Customers



Challenge

Sky Bet launched new mobile site and apps, where one third of their users now place bets. They received poor reviews on Apple app store and needed to quickly identify and resolve mobile user struggles

Solution

IBM Tealeaf CX Mobile provided evidence of user struggles during registration, user preferences in bet placement, and adverse changes in user behaviors. Tealeaf enabled the customer to quantify business impact of customer challenges across both web and mobile channels

Benefits

- Identified HTTP500 error that disabled several hundred users a day from registering.
- Increased mobile user conversions by 5.7%
- Enabled the Sky Bet to significantly improve bet placement and monitor user experiences

IBM MobileFirst Platform

Mobile Application Development Lifecycle

Mobile Apps Go Deeper than Front-end UI

Short time to market

Web? Hybrid? Native?

Teamwork

Industrialize dev

Integrate with SDLC

30% of the value and effort is visible (mobile UI)

Front-end

Back-end

70% of the value and effort lies under the surface

User engagement

- Connect to back-end
- Efficient and flexible push notifications
- Track and leverage location
- Offline availability
- B2E app distribution

Security

- Push upgrades
- User authentication
- App security
- Data protection

Operations

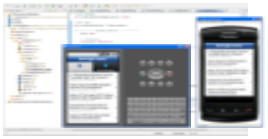
- Manage and enforce app versions
- Track problems that affect UX
- Ensuring continued support in a quick-changing landscape

The New IBM MobileFirst Platform (Worklight)

Integrated Mobile App Development with Continuous Delivery

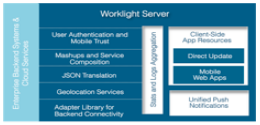
Build *and deploy mobile applications efficiently*

Development



Studio
Leading tools for native and hybrid development that maximize code reuse, accelerate development, and promote team work

Delivery



Server
Gateway for engagement, security and analytics

Runtime
Client APIs for native, hybrid and web apps

Operational Console
UI for deployment, management, and real-time operational analytics, push notifications

Application Center
A non-MDM, cross platform private mobile application store

Scan & Certify

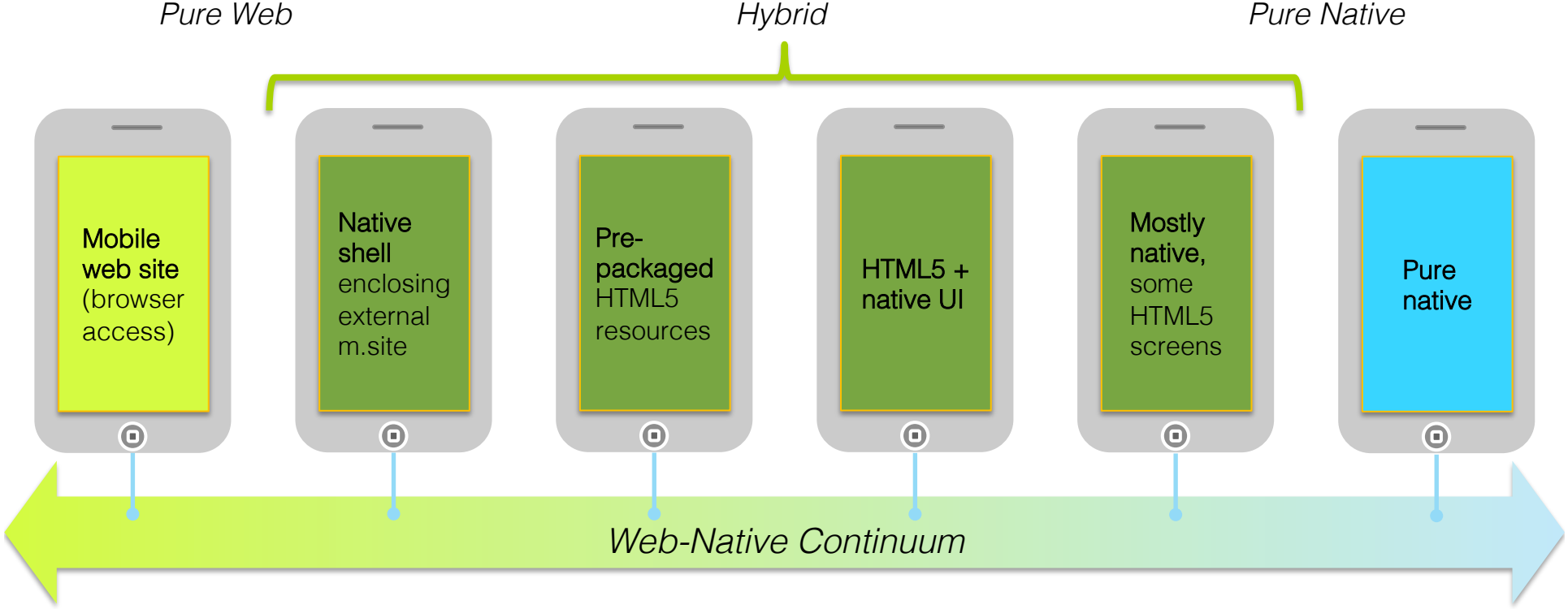
App Scan
Detect code vulnerabilities at the time of development

Test

Quality Assurance
Collect beta test feedback, crashes and analyze user sentiment

Development → **Continuous Delivery**

Worklight Supports Spectrum of Development Approaches



- HTML5, JS, and CSS3 (full site or m.site)
- Quicker and cheaper way to mobile
- Sub-optimal experience

- HTML5, JS, and CSS
- Usually leverages Cordova
- Downloadable, app store presence, push capabilities
- Can use native APIs

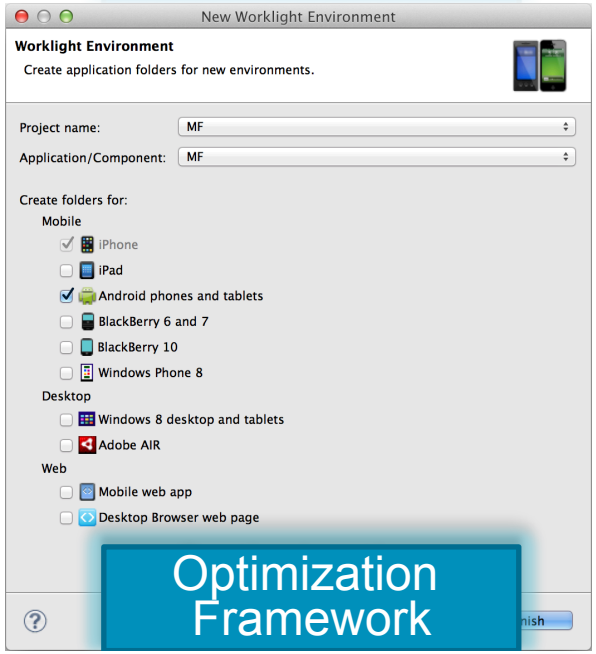
- As previous
- + more responsive, available offline

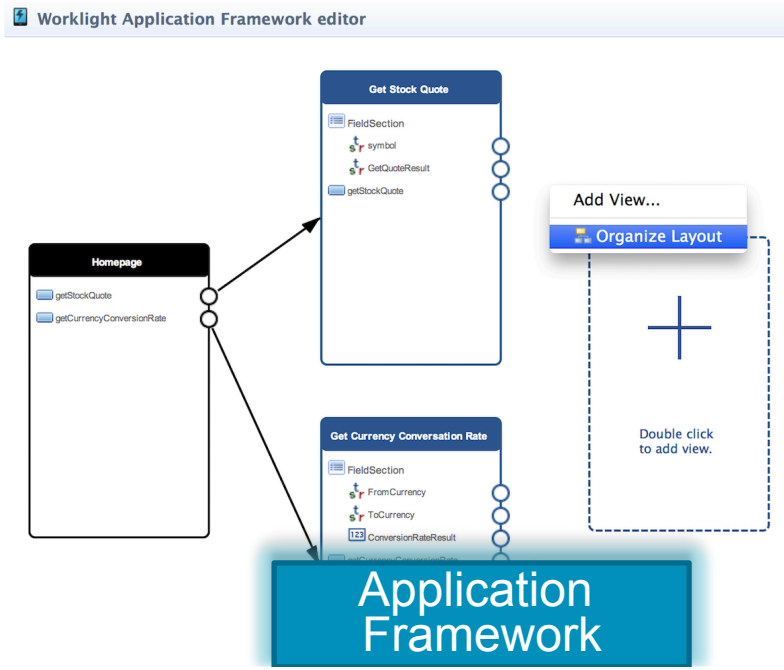
- Web + native code
- Optimized user experience with native screens, controls, and navigation

- App fully adjusted to OS
- Some screens are multi-platform when makes sense

- App fully adjusted to OS
- Best attainable user experience
- Unique development effort per OS, costly to maintain

Worklight Studio – Accelerated Development





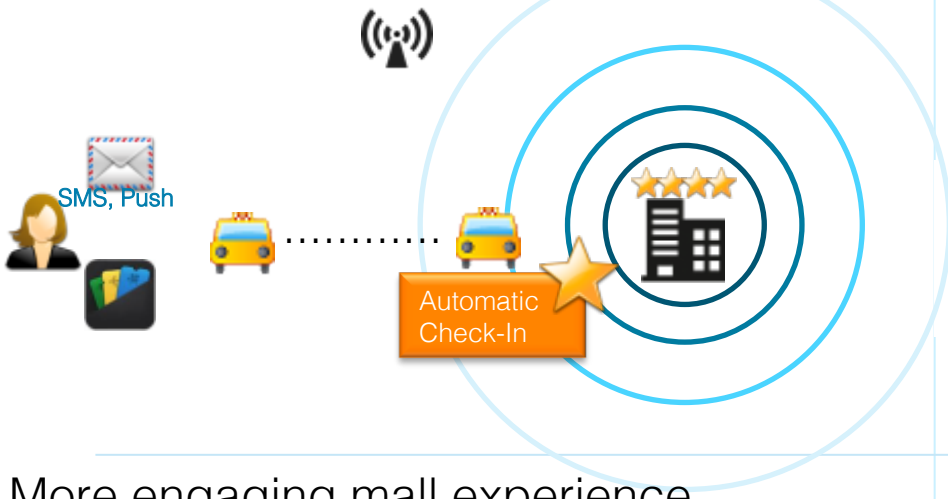
Worklight Studio – Accelerated Development

>>> Live Demo

- Create Worklight Mobile App in 10 Minutes
- Simulate Geo-location based Service in Mobile Browser Simulator

Geo-location Scenarios

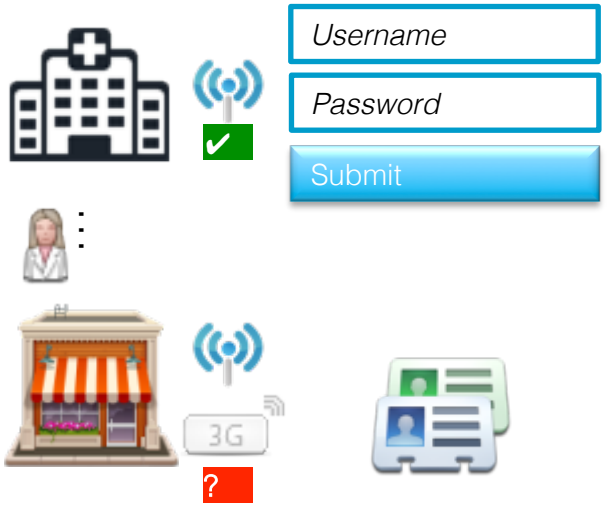
Automated hotel check-in



Routing trucks arriving at warehouse

More engaging mall experience

Location-aware security for hospital app



Geo-location API Framework

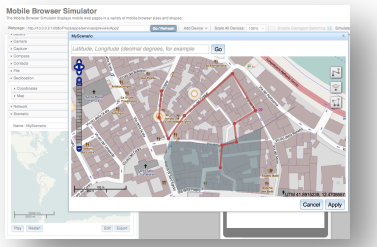
Collect and *use* on the mobile device

- Efficient, controlled acquisition of GPS, triangulation, and Wi-Fi coordinates in background and foreground
- Define points of interest and geo-fences
- Trigger actions based on location changes
- Store while offline, Efficiently send to server

Use on the server

- Store
- Integrate context information with business processes
- Handle business events
- Perform analytics

API Availability
- Hybrid: iOS, Android, Windows Phone 8
- Native: iOS and Android



Scenarios debug-able with Worklight's Mobile Simulator

Worklight Studio – Accelerated Development

>>> Live Demo

- Create Worklight Mobile App in 10 Minutes
- Simulate Geo-location based Service in Mobile Browser Simulator

Worklight Enterprise Adapter

Run time

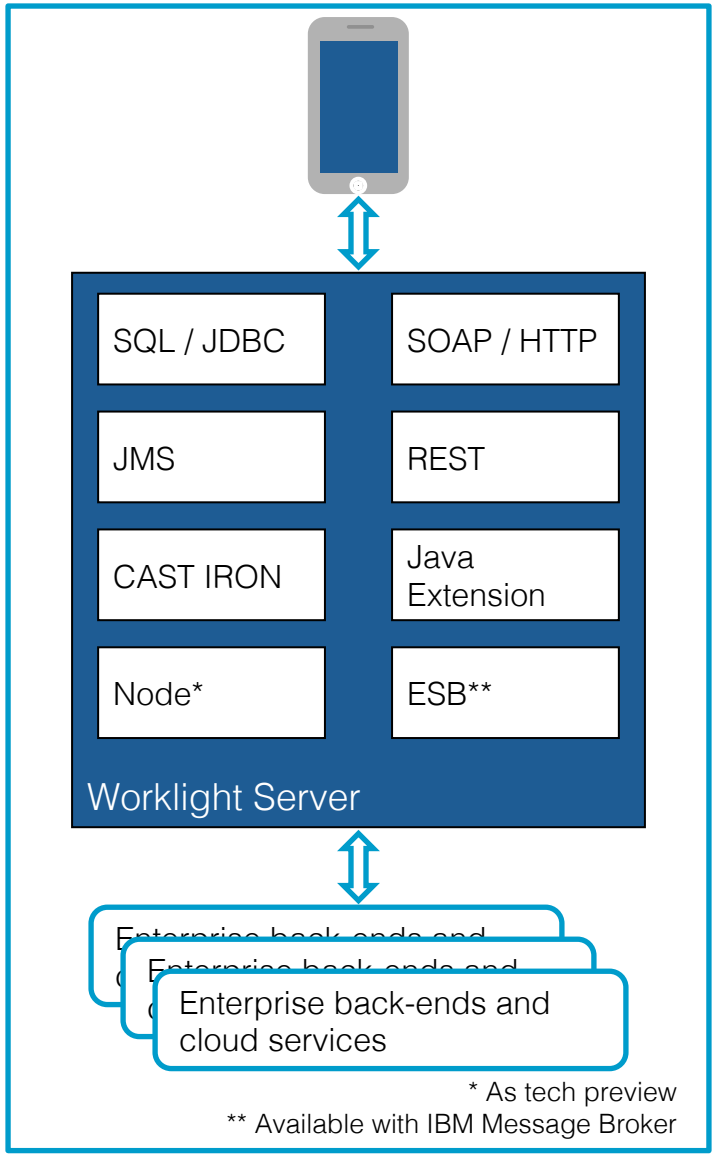
- Lightweight server-side logic to expose systems of records in a mobile-friendly way
  - Automatic JSON transformation of enterprise data for quick transport and ease of consumption by mobile developer
  - Server-side service composition to reduce number of requests over slow mobile network
  - XSLT to reduce fat SOAP responses
- Security
  - Automatic enablement of server-side authentication control and audit
- Analytics
  - Automatic collection of user actions and device and app properties
- Data Sync
  - Enables synchronization with on-device JSON Store
- Data Compression
  - JSON data returned from an adapter is compressed by default thereby reducing the overall time taken to extract back-end data
- Mobile user engagement
  - Push notifications and geo-based event management

For the Server Developer

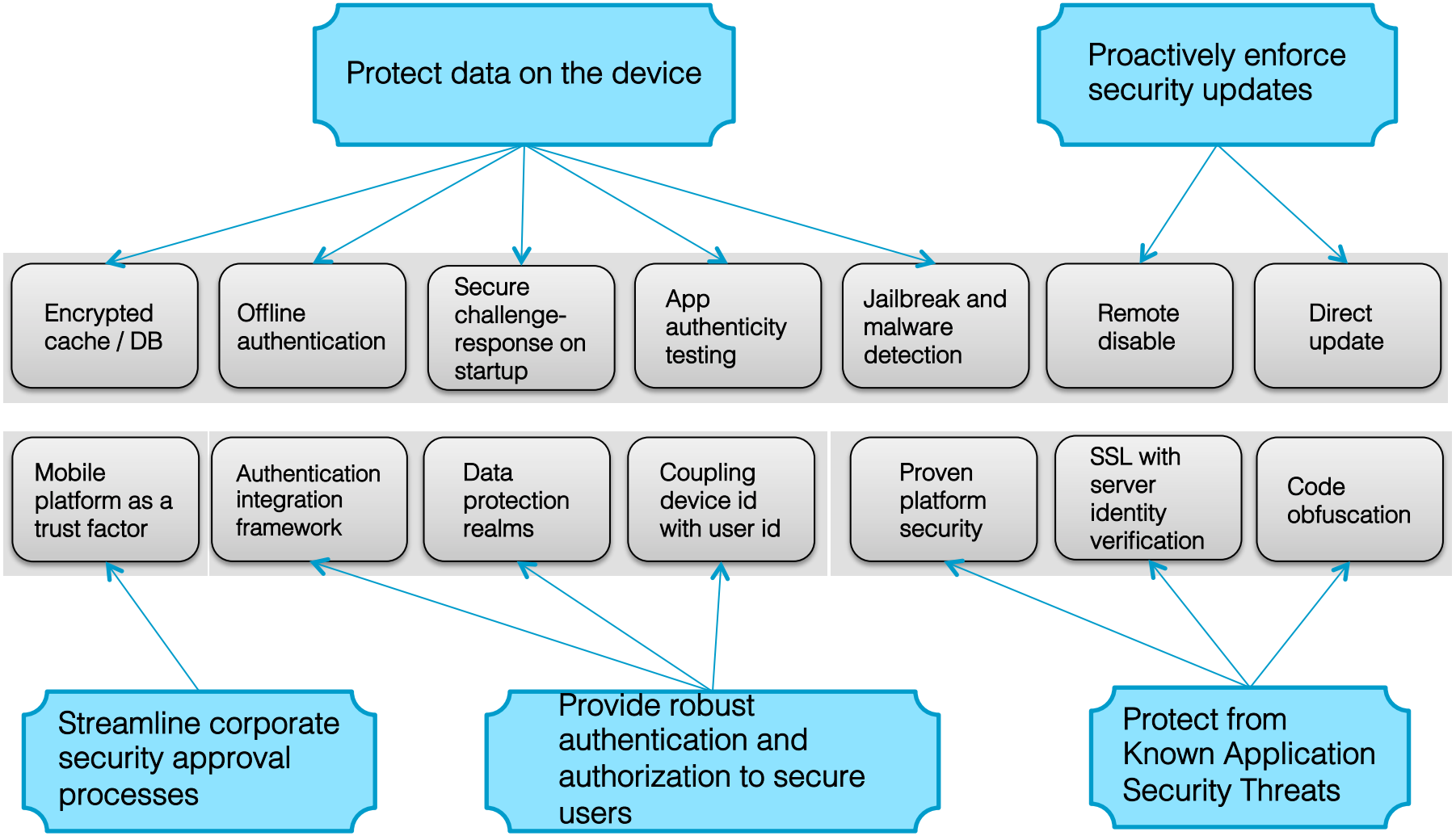
- JS anywhere: Simple APIs for server-side JavaScript development
- Extensibility: Java API for custom adapters

For the Client Developer

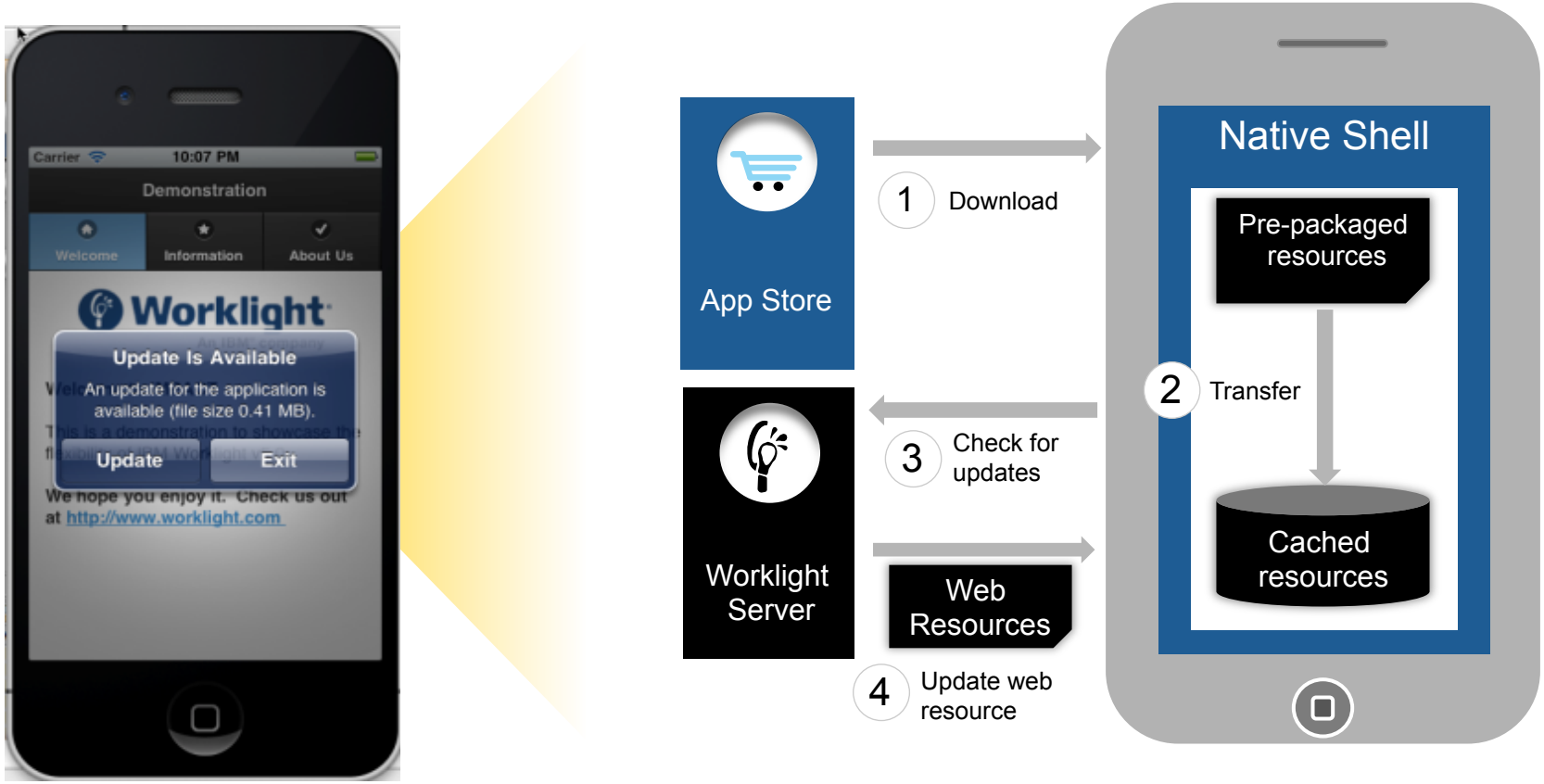
- Easy-to-use, consistent client-side API to call any back-end system



Security Features Mapping



Application Version Enforcement: Direct Update

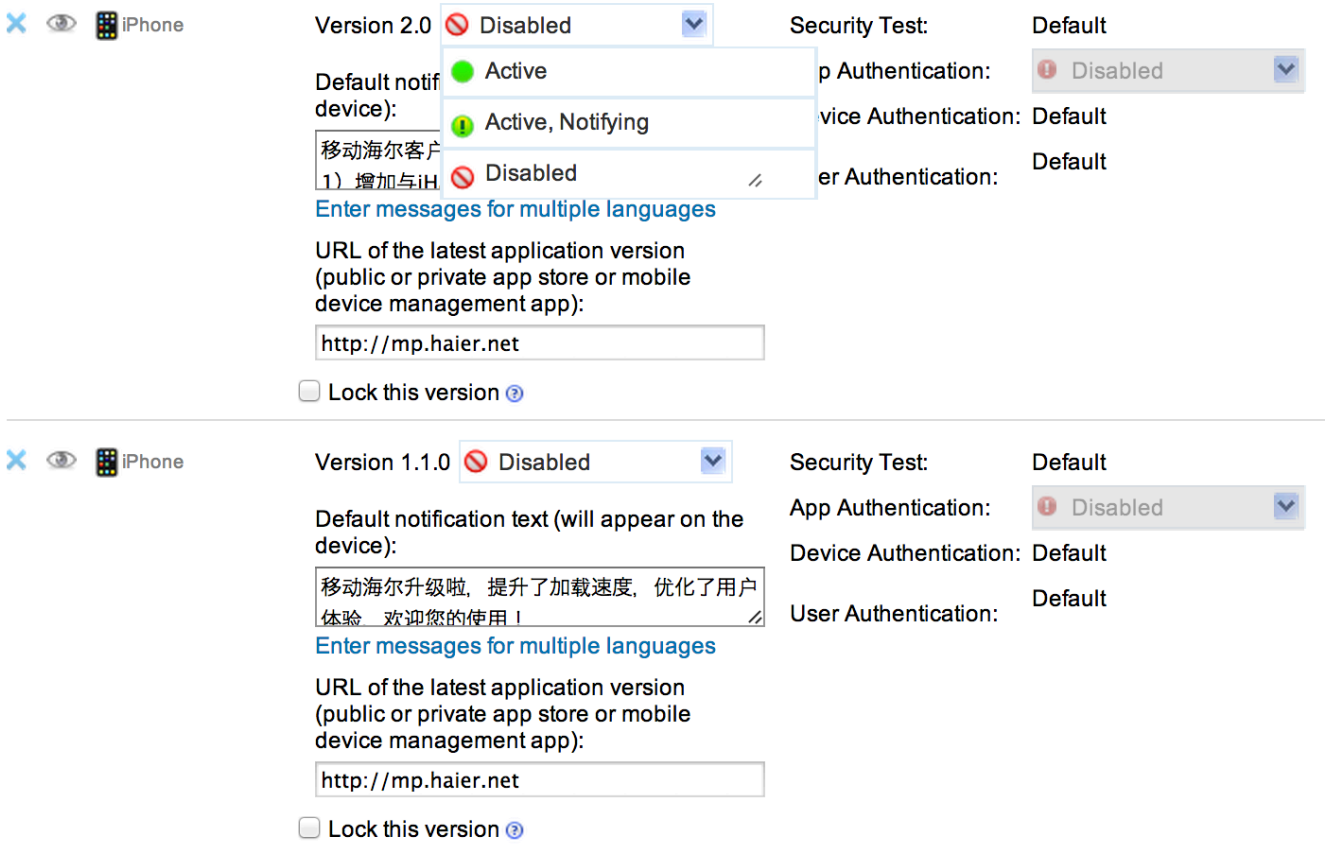


1. Web resources packaged with app to ensure initial offline availability
2. Web resources transferred to app's cache storage
3. App checks for updates on startup and foreground events
4. Updated web resources downloaded when necessary, with user confirmation or silently

Application Version Enforcement: Remote Disable

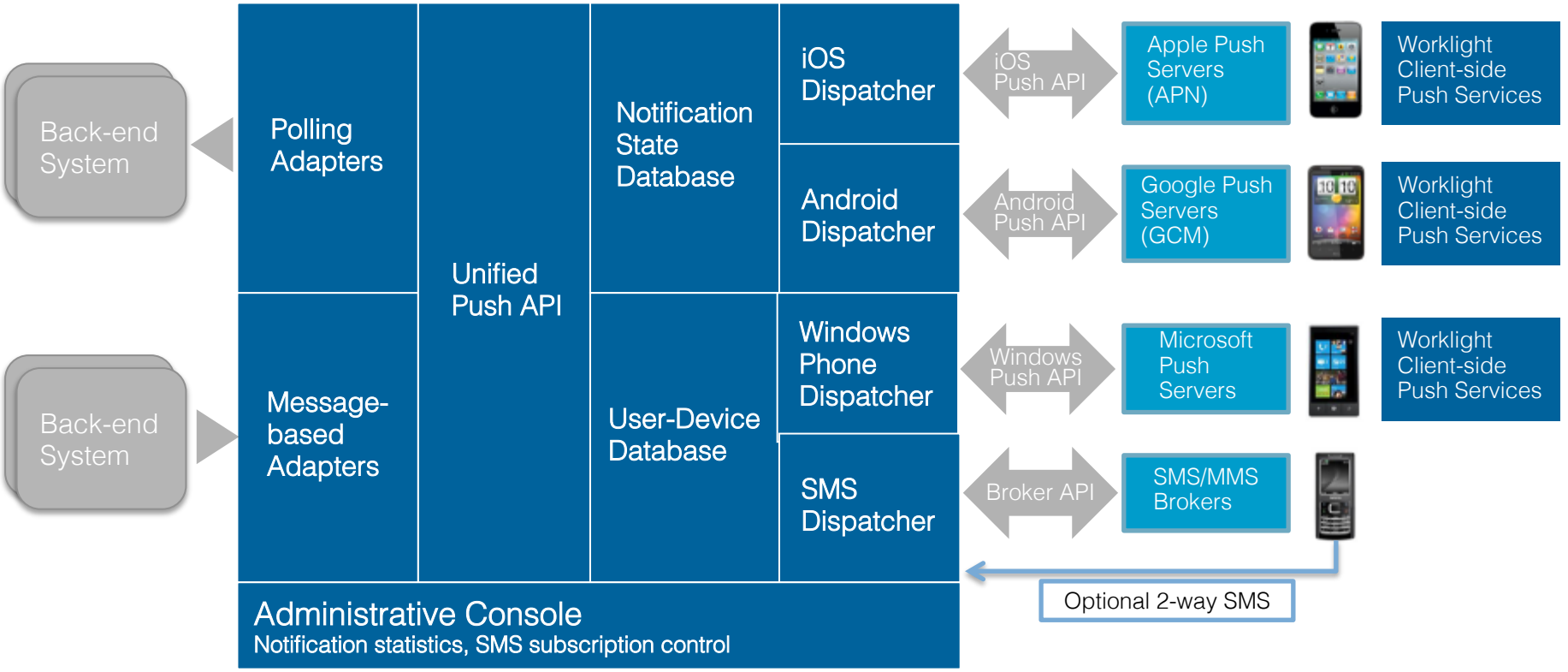
Remote Disable: Deny access to an app of a specific version on a specific environment

- Ensure users use the latest security fixes
- Avoid using previously installed old versions that are no longer supported



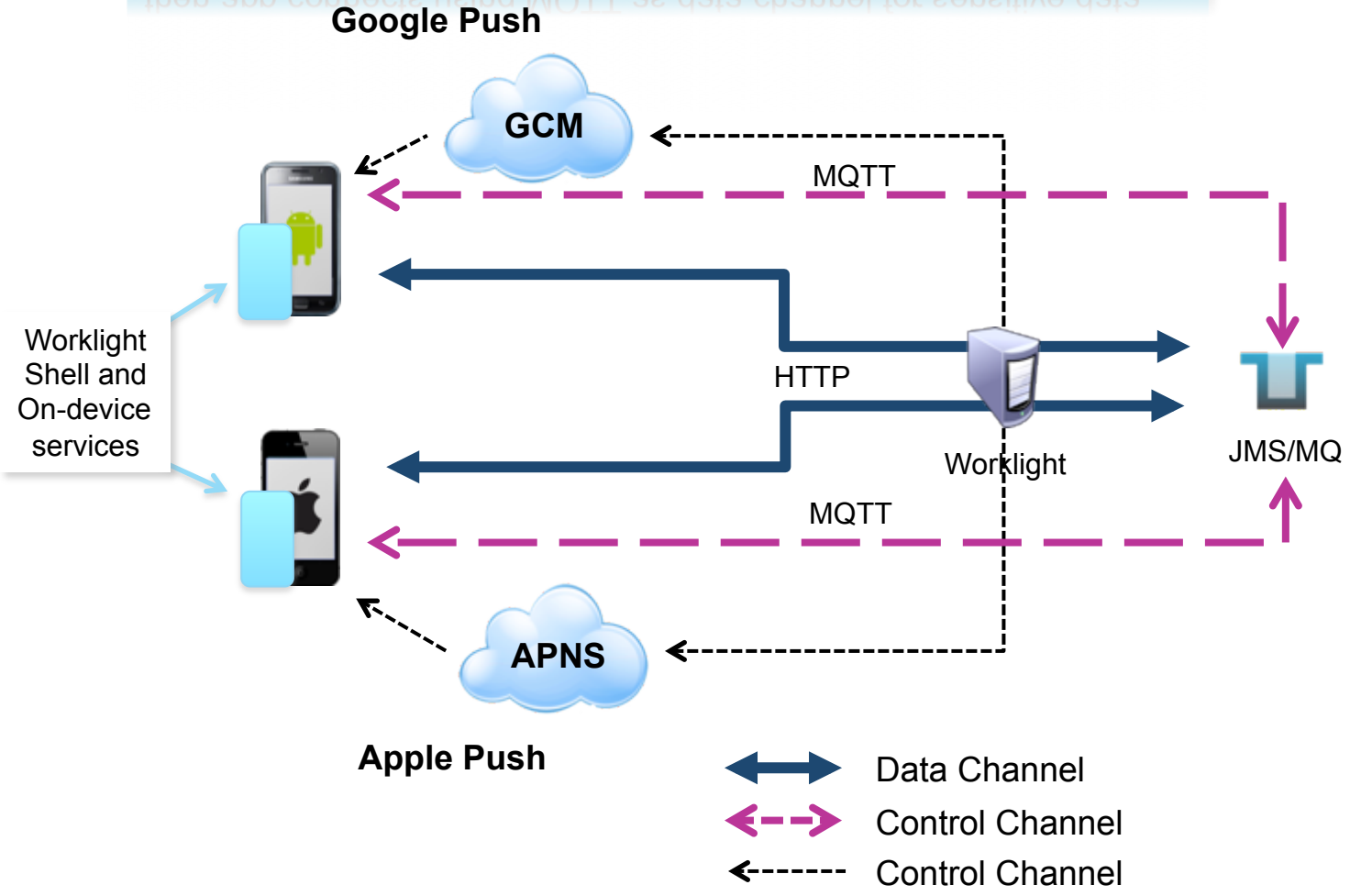
Unified Push Notification

- Uniform access to push notifications providers
  - Register for, notify, and receive a notification via Worklight APIs or SMS
- Register for and send SMS based notifications
  - E.g., for feature phones



MQTT Integration for Secure and Guaranteed Push

MQTT for efficient exchange when connected.
When not connected, APNS/GCM control channel for “shoulder tap”, then app connects using MQTT as data channel for sensitive data



Mobile Test Workbench

Automated Mobile App Functional Testing

Client Benefits

- **Continuous, automated testing of mobile app functionality** from the device to systems of record

Features/Business Value

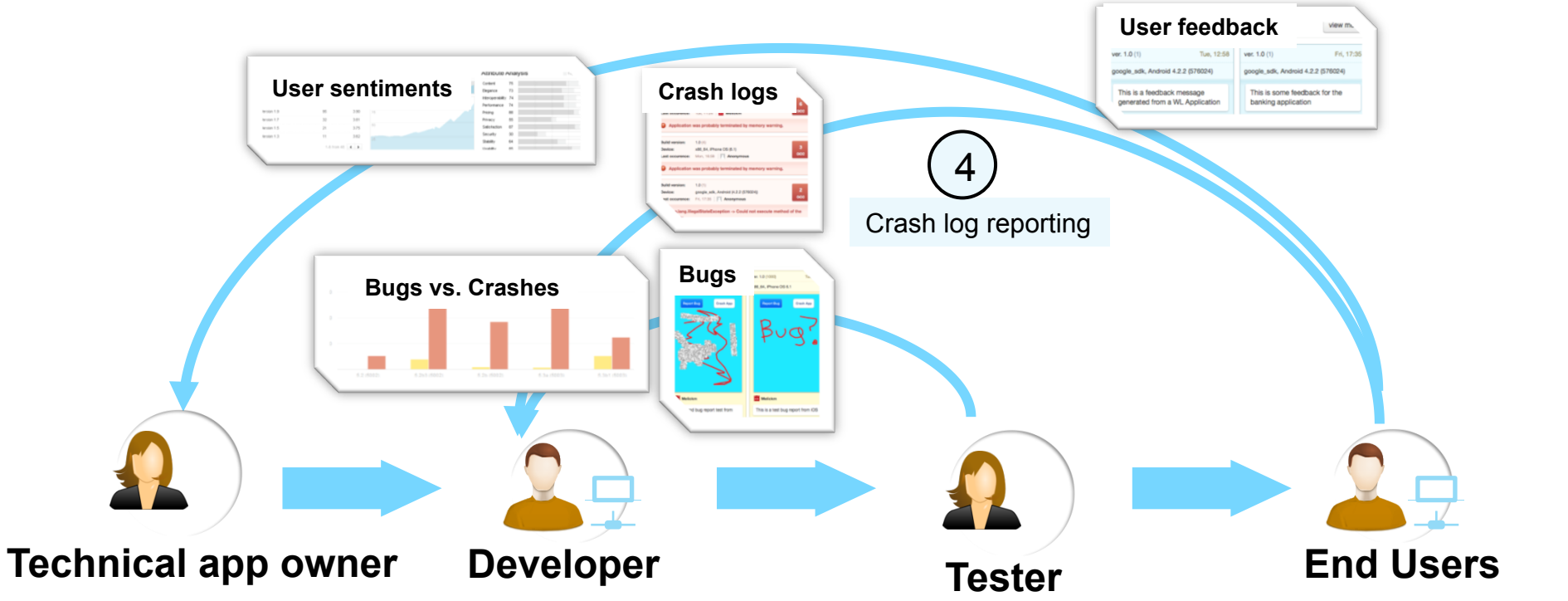
- **Record, edit, and run** on mobile devices for Android and iOS: Native, Hybrid and Web
- **Record once, run on many devices** using the same tests across multiple devices and platforms
- **Leverage production-like environments** using virtualized services for early app testing in context
- **Natural language scripts** for developers and non-developers alike

Mobile Test Workbench

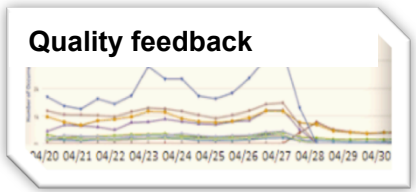
>>> Live Demo

IBM Mobile Quality Assurance

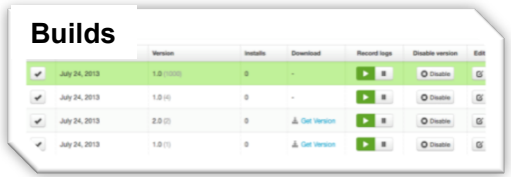
Continuously Delivering High Quality Mobile Applications



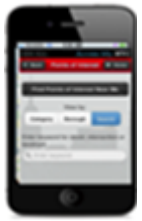
1 Quality feedback



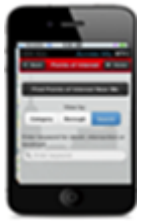
2 Over the air build distribution



3 In app bug reporting



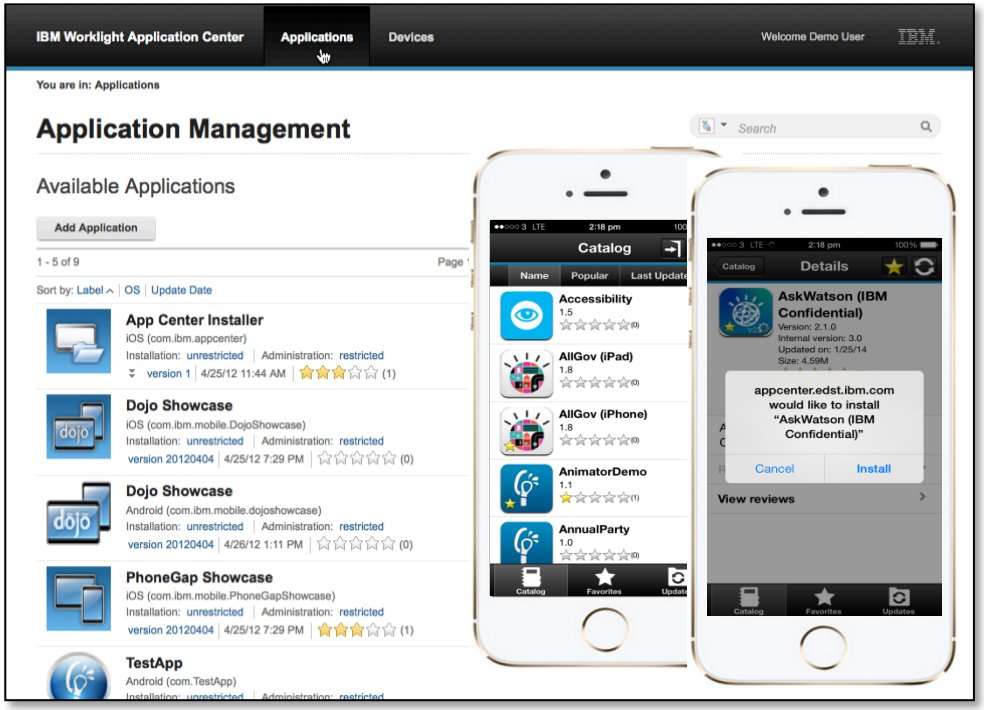
5 In app user feedback



IBM Mobile Quality Assurance

>>> Live Demo

Enterprise Private AppStore



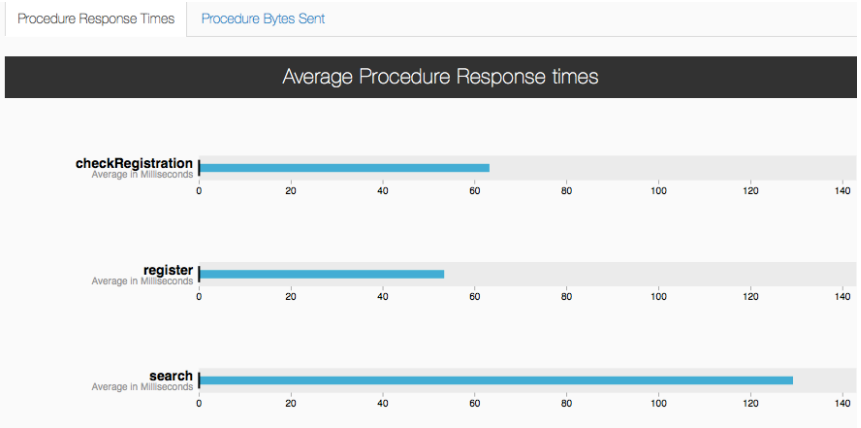
- A cross platform private mobile application store similar to public app stores but focused on the needs of an organization or a team
- Key Capabilities:
  - delivers distribution and management of mobile applications within a company / teams
  - easy distribution of iOS, Android, Blackberry and Windows Phone 8 apps for employees
  - provides versioning and updates
  - controls who can modify or install an application

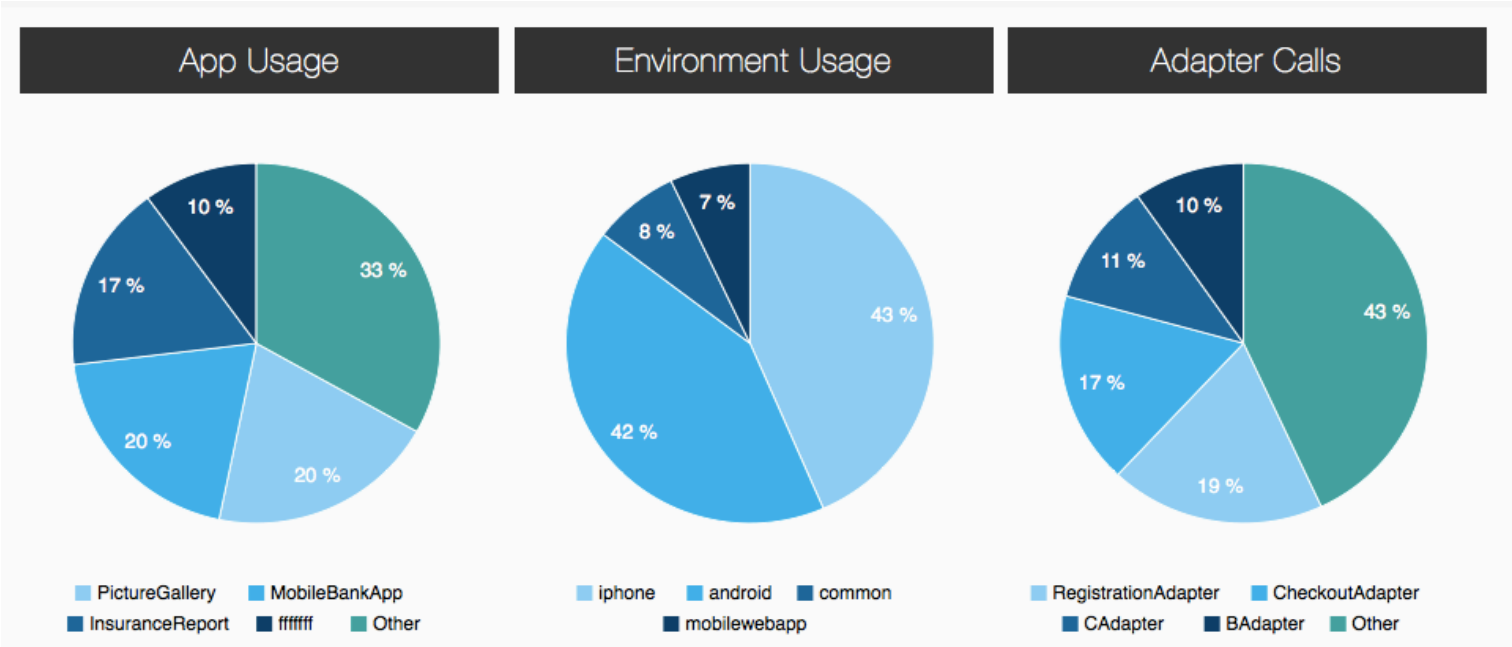
Enterprise Private AppStore

>>> Live Demo

Unified Client and Server Analytics

- Out-of-the-box analytics address the following:
  - User adoption, device and app properties
  - User actions and called adapter procedures
  - Performance and data usage information
  - Exceptions, crashes, logs, response time
  - Geolocation data





CLI Commands – Mobile Deployment Automation

- wl create

[?] What do you want to name your project? **MyProj**

Project 'MyProj' created

- cd MyProj
- wl add api

[?] What do you want to name your native API? **MyIosApi**

[?] What platform do you want to target?

Android
› iOS
Java ME
Windows Phone 8

Native api for 'ios' created

Project Name

Application Name

Target Support OS Platform

Context Aware Builds

- wl build
- wl deploy

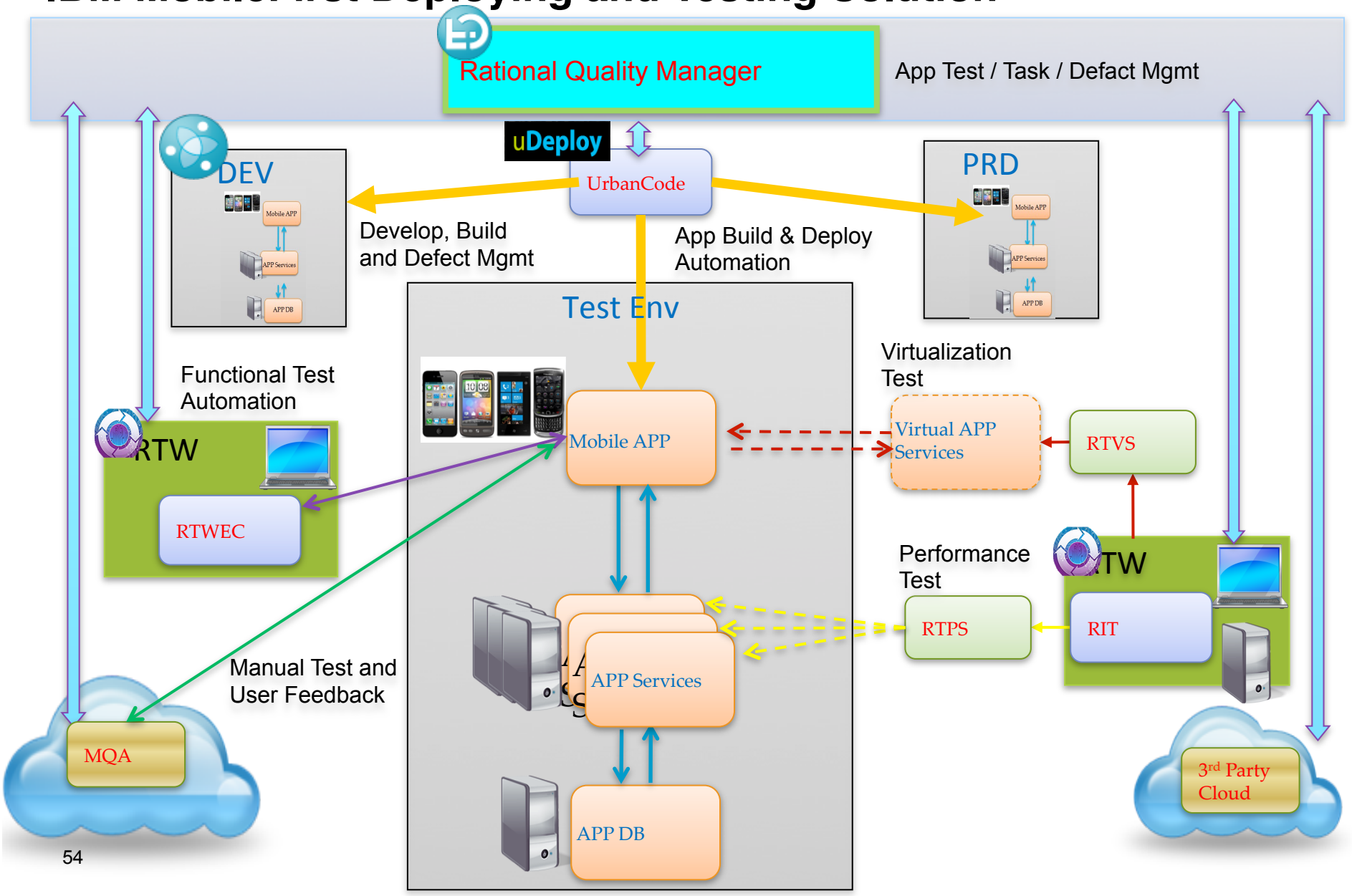
Build and Deploy Worklight App and Enterprise Adapters

Embedded Worklight Server Control

- wl run
- wl start
- wl console
- wl stop

Worklight Server Runtime Life-cycle Management

IBM MobileFirst Deploying and Testing Solution



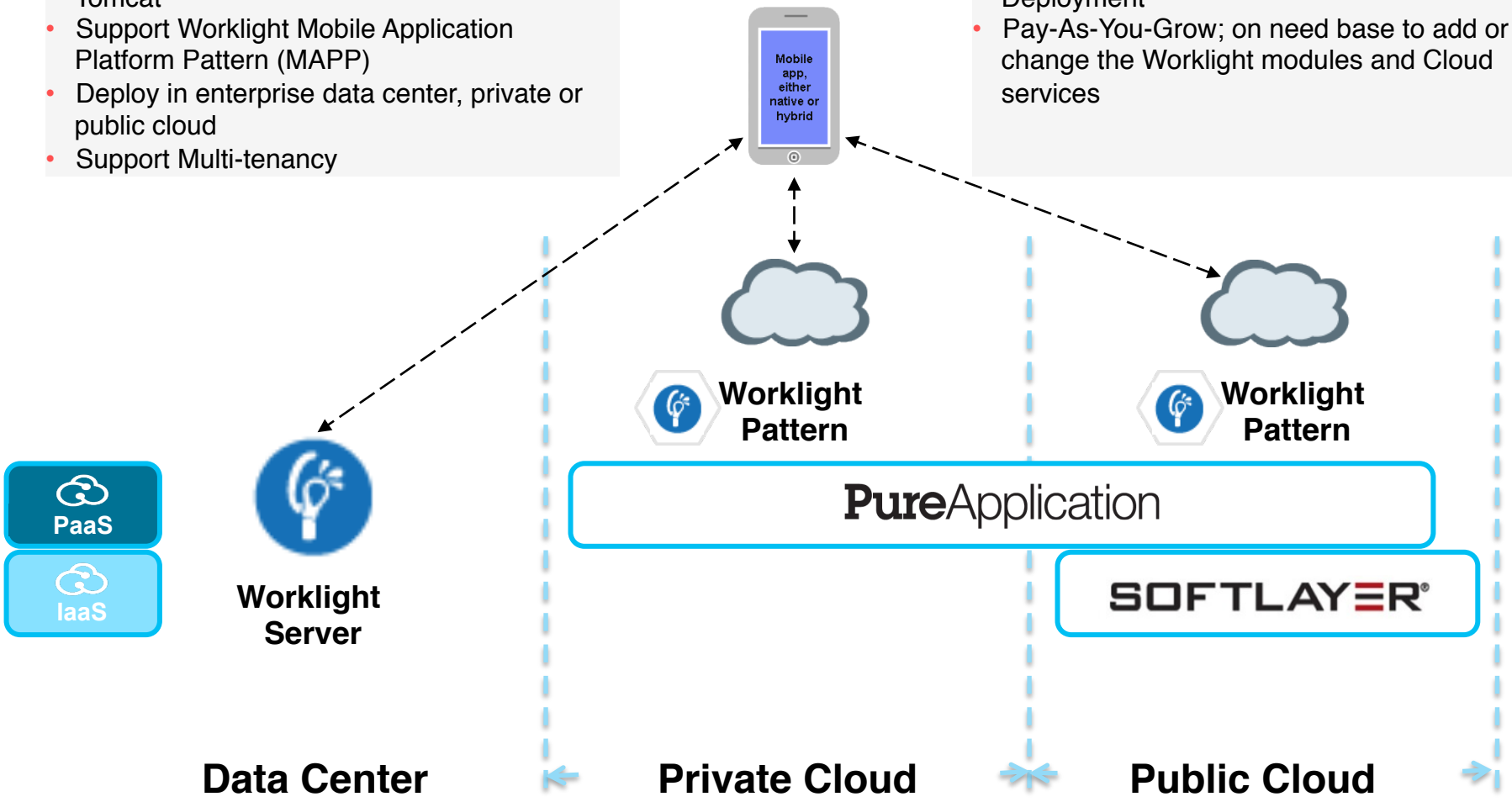
Extensibility of Worklight Deployment

Flexible Deployment

- Support WebSphere Application Server or Tomcat
- Support Worklight Mobile Application Platform Pattern (MAPP)
- Deploy in enterprise data center, private or public cloud
- Support Multi-tenancy

Extensibility

- Instant System Expansion with Cloud Deployment
- Pay-As-You-Grow; on need base to add or change the Worklight modules and Cloud services



IBM MobileFirst Platform resolves mobile technology challenges in Enterprise

Lack of Mobile App Development Experience	MobileFirst Platform **Accelerated Development**
Mobile App Variation: HTML5/Native/Hybrid	Mobile App Development **Flexibility and Choice**
Mobile App integration with backend like Oracle & SAP	Enterprise Adapter **Integrates** with various backends
Ease to Extend with other solutions and systems	MobileFirst Platform **Extensibility** with other IBM products and 3rd party solutions
User Experience and Information Security Balance	Reduce the Risk with **Multi-layer Mobile Security**
Support Heterogeneous Devices: iOS/Android/WP8	Mobile Apps run in **Cross Mobile OS Platform**

IBM MobileFirst Management

MaaS 360 – Enterprise Mobile Management (EMM)

MaaS360 by Fiberlink

- ✓ **Mobile Device Management**
  - Multi OS Support (Apple iOS, Android, Windows Phones, BlackBerry and Others)
- ✓ **Mobile Application Management**
  - SDK and App-Wrapping
- ✓ **Dual Persona – Containization**
- ✓ **Secure Productivity Suites**
  - Secure Email
  - Secure Browser
- ✓ **Secure Document Share**
- ✓ **Enterprise Mobile App Integration**
- ✓ **Support SaaS Delivery Model**

5000+ Worldwide Customers

Recognized as Market Leader

Industry Recognition – 2013 & 2014 Gartner EMM Magic Quadrant Leader

//CODiE// 2013 SIIA CODiE WINNER

Gartner

CRN 5 STAR PARTNER PROGRAM WINNER 2013

GTRA

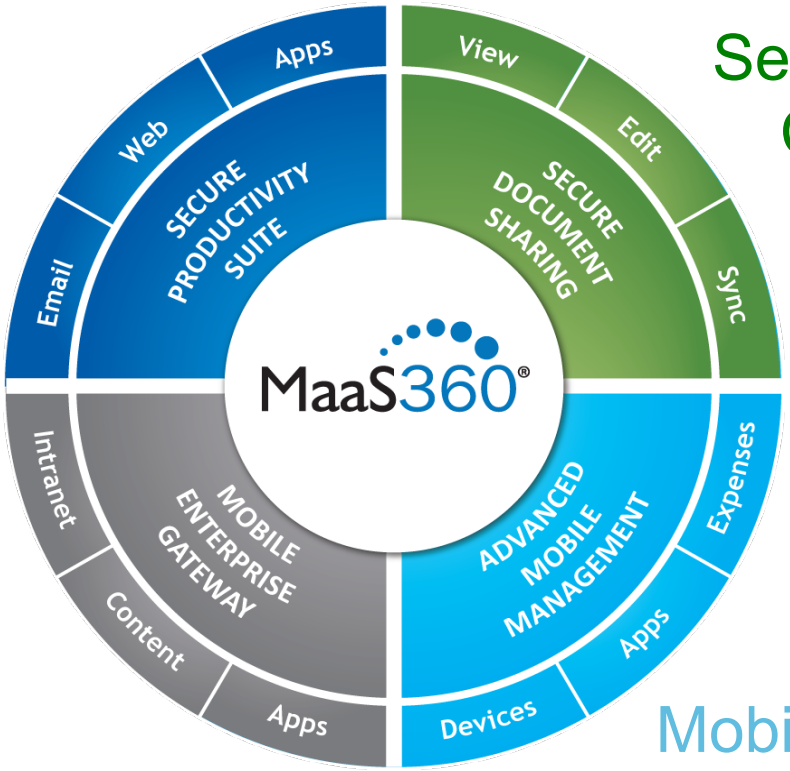
GLOBAL MOBILE AWARDS 2012 WINNER

NETWORKWORLD CLEAR CHOICE TEST

MaaS360 Delivers an Integrated Approach

Secure Mobile Containers

Secure Content Collaboration



Seamless Enterprise Access

Comprehensive Mobile Management

MaaS360 Container
Dual Persona Separating Personal and Enterprise Application

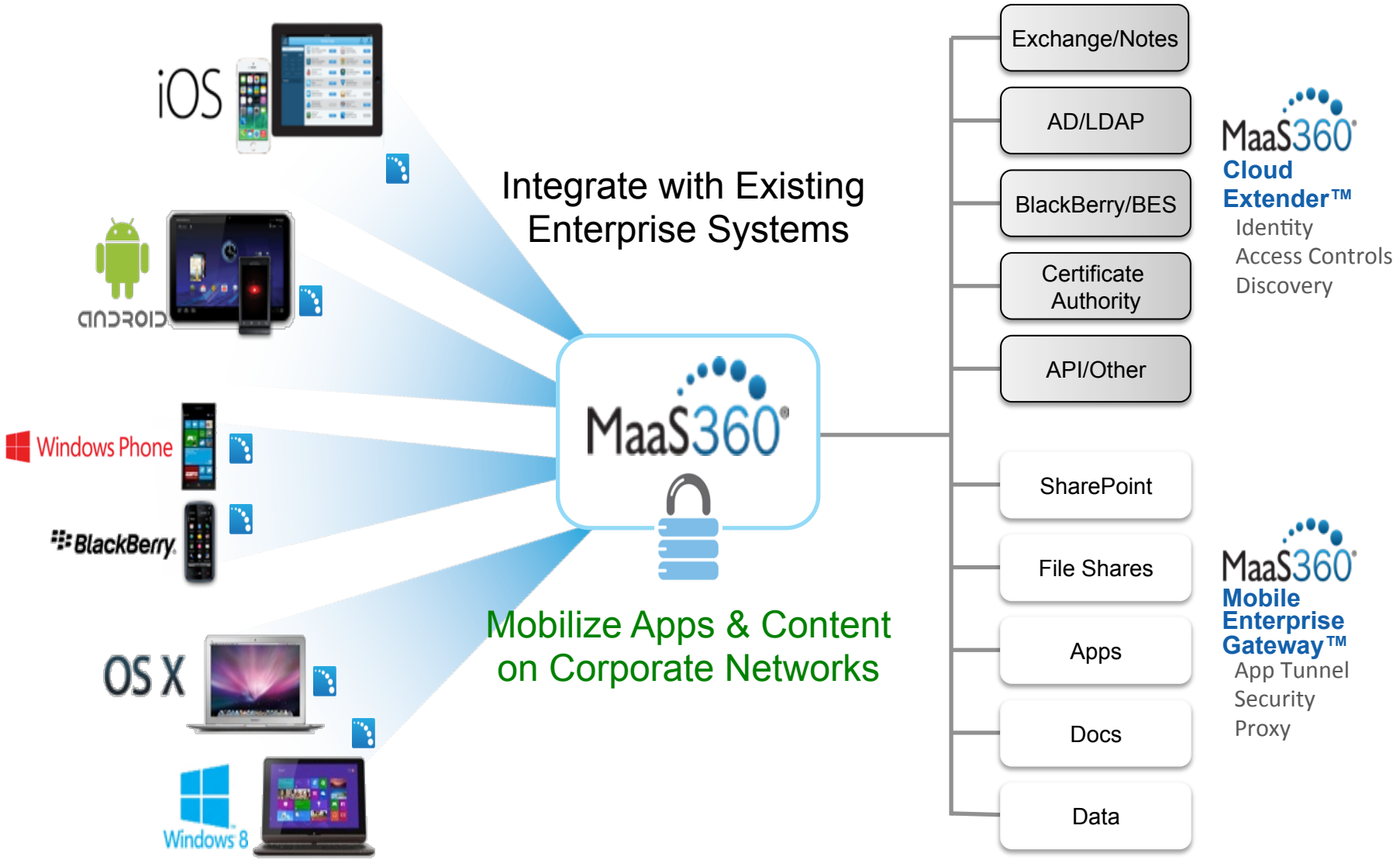
- Data Security
- Enterprise App & Service
- Ease of Management

- Personal User Experience
- Bring Your Own Device
- Data Privacy

Secure Worklight Application in MaaS360 Container

>>> Live Demo

Seamless Enterprise Integration



Full Spectrum of IBM Mobile Management and Security Solution

Requirements for Mobile Management and Security:

Business Span of Control

High — Low

Corporate Owned Assets	Employees w/ BYOD	Task/Temp Workers	Business Partners	Consumer Transactions

Solution Approaches:

- Mobile Device Management
- Containers – App Wrapping and SDKs
- Secure Transactions

IBM / Fiberlink Offerings:

MaaS360 by Fiberlink

IBM Security Access Manager for Mobile

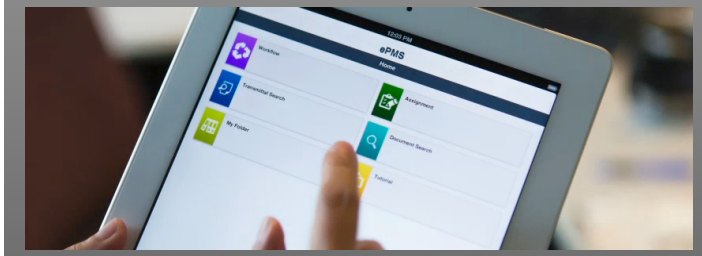
Trusteer an IBM Company

Worklight

Apple + IBM Partnership

Hong Kong's MTR Pursues Smarter Workforce Transformation with IBM MobileFirst Platform

ePMS



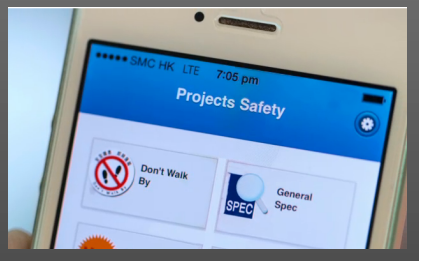
MTR港鐵

iSPOTit

Project Safety

Find My Friends

CSRRU Manual



Challenge

- Mobile First is the top IT priority per new CIO advised (Mobility Driving Force)
- There are more than 100 enterprise applications running on J2EE/.NET needs to be mobilized, for example the e-Project Management System (ePMS), AFC Octopus Clearing System (eWallet), therefore strong security/integration capabilities are critical
- Limited skill sets for native mobile application development (Objective-C/Android Java)

Solution

- MTR selects IBM Worklight as the company standard platform for developing all enterprise mobile applications
- No vendor locking, support third party open sources and framework including JQuery Mobile/Dojo/Sencha and others
- Comprehensive community resources for developers like IBM DeveloperWorks, IBM Redbooks and StackOverflow

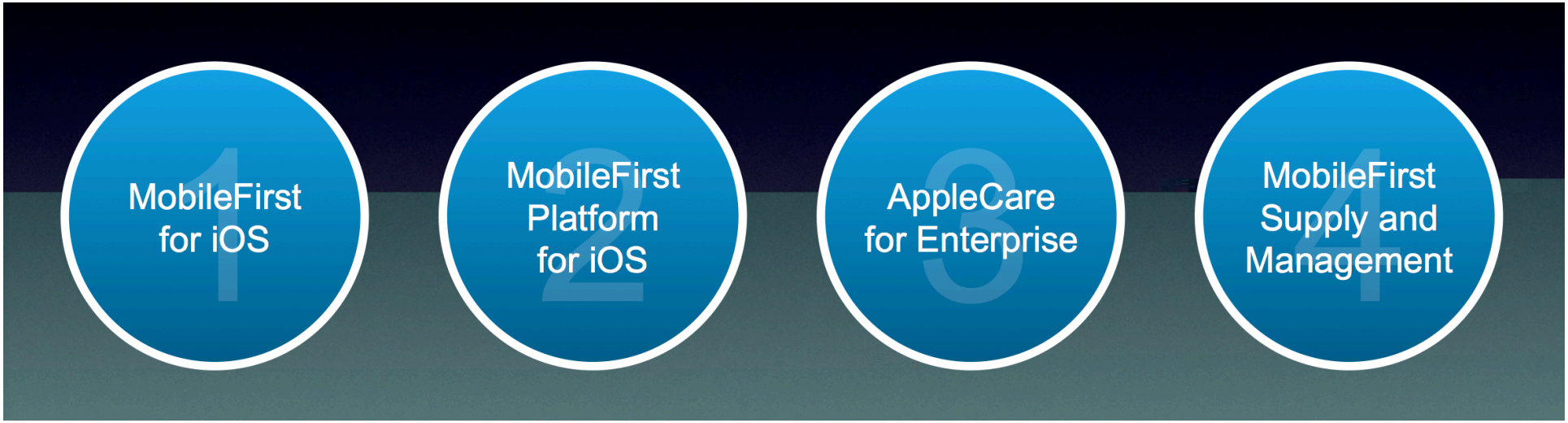
Benefits

- Improved employees productivity and data accurancy
- MTR's employees can work anytime, anywhere with just an iPad or iPhone installed with mobile app
- Traditional paper work/report are no longer needed, latest information/data can be collected in the Mobile App
- Enabled MTR to successfully start the mobile first journey

Apple + IBM Partnership – Offerings for Mobile Enterprise (Overview)

On July 15, 2014, Apple and IBM announced "an exclusive partnership that teams the market-leading strengths of each company to transform enterprise mobility through a new class of business apps — bringing IBM's big data and analytics capabilities to iPhone and iPad."

Apple + IBM Partnership – Offerings for Mobile Enterprise (Overview)



Mobile Discovery Workshop

Workshop Approach

This half or full-day Workshop is designed to assist the CIO and/or Line of Business Executives in understanding current mobile trends, identifying opportunities to use or expand mobility, and determining the next steps to take advantage of these opportunities. Topics covered, but not limited to, including …

- Current State (As-Is) Assessment
- Mobile and Industry Trends
- Strategy Discussions
- Gap Analysis
- Roadmap (To-Be) Alternatives

Who Participates?

Customer Participants	IBM Facilitators
• Line of Business Executives • CMO • CIO/CTO • Director/VP of IT Operations • Director/VP of IT Architecture • Platform Architect – Mobility / Messaging / Collaboration	▪ Software Client Architect(s) ▪ MobileFirst Solution Architect(s) ▪ Brand Technical Specialist(s) ▪ Others as needed

IBM Mobile Discovery Workshop Structure

Preparation

Understand Current State

- History and current mobile implementations
- Application landscape
- Existing strategy and plans
- Major objectives and pain points

Review Data

Identify key discussion topics

Ensure participation of key stakeholders

Workshop

Business and Technical

- Review major objectives and pain points
- Use cases; target populations
- Current vs. target state Architecture
- Components

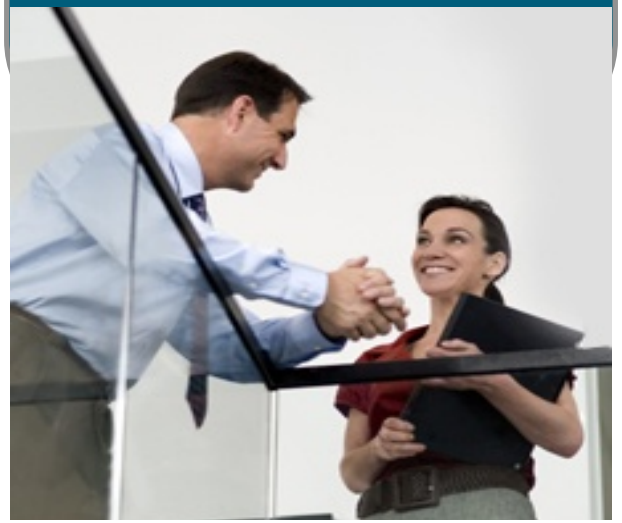
Operations

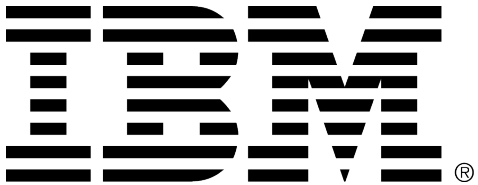
- Security policy and compliance
- Operational impacts

Results

Customer Use-cases Identified

- Pilot scenario identified
- Agreement to move to the next step
- In-depth architecture workshop
- Pilot implementation
- Policy creation workshop
- Application workshop
- etc.



Think Mobile, First

www.ibm.com/mobilefirst