IBM i and the World of Mobile

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Evolution of User Interface

Traditional in-house …

… rich client or browser …

… mobile
Did you know ....

- Number of Mobile Phone Users 2016
  - 4.8 Billion

- Projected by 2020
  - 5.7 Billion

- Smart phone users in US
  - 349.9 Million

- 4G Smart Phone users in China
  - 836 Million

- Percentage of searches from Mobile in US
  - 58%

- Number of times a typical user touches their smart phone -
  - 2617 time per day

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Changing How We Work - Green Screen

Joe – Warehouse worker

- Gets his work from a terminal in the warehouse
- Selects options
- Gets print out
- Picks parts
- Updates the terminal with results
Joe – Warehouse worker

- Gets his work from a terminal in the warehouse with a cool easy to use interface
- Selects options
- Gets print out
- Picks parts
- Updates the terminal with results on the cool easy to use interface

Gains?
• More intuitive interface
• Slightly better accuracy
  • Drop downs
  • Better error checking
Joe – Warehouse worker

- Gets his work from tablet on his folk lift
- Orders selected based on current warehouse location & Priority
- Gets print out
- Picks parts
- Updates on the mobile interfaces as he works – real time
The Difference?

- New easy to use interface
- Keep the data in the hands of the worker
- Greatly improved accuracy
- Less training of workers
- Increased productivity
- Decreased costs

- System of Engagement connected directly to the System of Record
Mobile apps go far deeper than front-end UI

- **30%** of the value and effort is visible (mobile UI)
- **70%** of the value and effort lies under the surface

- Front-end app development
- User engagement
- Security
- Operations
Mobile apps go far deeper than front-end UI

User engagement
- Short time to market
- Web? Hybrid? Native?
- Teamwork
- Industrialize app dev
- Integrate with SDLC
- App responsive-ness
- Efficient and flexible push notifications
- Track and leverage location
- Offline availability
- B2E app distribution

Security
- User authentication
- Malware detection
- Push security upgrades
- Data protection
- Manage and enforce app versions
- Track problems that affect UX
- Ensuring continued support in a quick-changing landscape

Operations
- Front-end app development
- Ensuring continued support in a quick-changing landscape
Anthony Squires employs mobile technology as cutting edge as the suits they sell.

Gain **competitive advantage** with the ability to check stock and transfer garments from store to store while the customer waits. Fewer queries being directed to HQ means **improved productivity** at both HQ and at the stores.

**IBM Solution**
Provide a user interface on iPhones designed for **intuitive** access with minimal keying and navigation. **Protect** the Power Server and application infrastructure. **Secure the access** using standard IBM i integrated security.

16% increase in sales in the first 6 months
Closer look at Mobile on IBM i

Tools and environments for Engaging Mobile on IBM i

Applications for your Mobile Device and IBM i

Plumbing – How to interact With Mobile and IBM i
## Closer look at Mobile on IBM i

### Tools and environments for Engaging Mobile on IBM i
- PHP / Zend
- Node.JS
- ProfoundLogic
- LookSoftware
- BCD
- Lansa
- CNX
- Rocket
- System Method
- Many Others

### Applications for your Mobile Device and IBM i
- iAccess Mobile
- DB2 Web Query
- IBM Traveler
- ACS

### Plumbing – How to interact With Mobile and IBM i
- Open Access
- Web Services
  - REST
  - SOAP
- XML Service
  - REST
- XJ Service
  - JSON
Plumbing

- RPG Open Access
- XML Service
- XJService
- Web Services – Rest APIs
Rational Open Access: RPG Edition

With no Open Access

RPG Application

WRITE record

program I/O buffer

Other information:
• state
• names
• pointers

RPG Runtime

Display file object
* DSPF

Display Manager

5250 datastream

5250 Screens

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IBM i

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Rational Open Access: RPG Edition
with an Open Access Handler

RPG Application

Handler Defined
WRITE record

Handler code to manage building the interface and proprietary information

program I/O buffer

Other information:
- state
- names
- pointers

RPG Runtime

Display Manager

IBM i
Access IBM i from anywhere – XML Service

Easy access to IBM i data and resources from any where

(similar to IBM ToolBox for Java)

- DB2 for i – SQL and Native
- Program call
- Procedure call
- Data Area
- Data Queue
- Message Queue
- Commands
- System values
- Spool files

http://www.youngiprofessionals.com/wiki/XMLSERVICE
IBM i Integrated Web Services

Enabling RPG & COBOL as Web Services

Now with BOTH SOAP & Rest services!!

http://www-03.ibm.com/systems/power/software/i/iws/

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REST Web Services

*Web Service enable RPG and COBOL Source Code*

What have we done lately?

- **SWAGGER**
  - Services definition language
  - Plugs into many industry tools for easy ‘consumption’ of Web Services

- Improvements to the REST client support
  - Client APIs are Open – Call REST APIs directly from RPG
  - Use SSL to encrypt the Web Service Call

[http://www-03.ibm.com/systems/power/software/i/iws/](http://www-03.ibm.com/systems/power/software/i/iws/)
REST Web Services

Just out!!!

- 2 Tier Web Services Support
- You can now have your RPG program on a DIFFERENT system then the Web server

http://www03.ibm.com/systems/power/software/i/iws/
Applications for a Mobile World

- IBM Navigator for i
- Access Client Solutions
- iAccess Mobile
- DB2 WebQuery for i
- IBM Traveler
- IBM Domino
- ISV Solutions
IBM i Mobile Access

Access for Web – Mobile
- Based on 5770XH2
- Runs on IBM i 7.1, 7.2, & 7.3
- Simple to set up and use
- Runs on ANY Web enabled mobile device

iPhone 4

Galaxy Nexus
DB2 Web Query for i – Intuitive, Insightful, Extensible

Fast access to business information for query, reporting and analysis

- Providing Analytics and Query/400 Modernization for the IBM i Client
- Low Cost Solution Offering Value Upgrade from Query/400
- Leveraging Best Practice Meta Data Layer Approach
- Leveraging DB2 for i Advanced Query Optimization Technology
- Leveraging features that allow a single report to replace many Query/400 reports

www.ibm.com/systems/i/db2/webquery
Tools for Mobile Device Enablement

- Mobilize your existing 5250 applications
- Create new mobile applications
Why Consider one of these Solutions

• Incorporate features of the mobile device into the backend application
  – Camera, GPS location, Maps, etc
• Write once, deploy to many devices
• Cost effective
  – Compare cost of re-writing vs transforming
• Speed of implementation
  – Transform in days not years
• Intuitive development environment
• Leverage existing IBM i applications
• No need to learn new languages
  – Use existing RPG/COBOL and DDS skills
Quickly & Easily Create Mobile Solutions for IBM i Applications

Deploy mobile apps to “store” or as a Web based solution

My Widget on my App Store
Why HATS?
Achieve fast ROI with low risk

- Quick
- Comparatively easy learning curve
- Comparatively low cost
- Limited risk (non-invasive!)
- Yet powerful
  - Rich Web and mobile refacing
  - Service enabling
- Many endpoint options
  - Mobile
  - Web
  - Web Service
  - Portal
  - Rich Client
œ Build mobile web and/or hybrid apps
œ Use existing RPG/COBOL and DDS skills
œ Harnesses jQuery Mobile

œ Build mobile web and/or hybrid apps
œ Use LANSA’s High Level Language
œ Harnesses jQuery Mobile

œ Build native mobile apps (not mobile web or hybrid)
œ Use existing RPG/COBOL and DDS skills
œ Harnesses device’s native OS GUI toolkit
œ Deploy to Apple (iOS) or Android phones/tablets
œ Available in Apple’s App Store and Google Play
Case Study: Roofing Company

- Commercial Roofing Systems
- Network of Contractors
- Mobile Contractor App
Valence Portal for iOS and Android

- Manage All Aspects of IBM i Mobile User Access and App Deployment
  - Secure login to IBM i
  - Launch and navigate between multiple Valence apps
  - App access based on individual or group authority
  - Works on smartphone or tablets
  - iOS app available on Apple App Store
  - Android app available on Google Play
  - Available in nine languages
Nitro Query App Builder

• A visual development tool in Valence which requires no programming
• Good for dashboards, inquiries, file maintenance and other basic apps
• The developer builds an app thinking about the desktop layout only
• At runtime Valence renders the same app with mobile components appropriate for a smartphone or tablet
• The developer does nothing special for mobile—it just works
Developing Mobile Apps

- Valence includes robust device access APIs
  - Use the camera to take pictures and upload to IFS
  - Scan barcodes with the camera or attached laser scanner
  - Get GPS coordinates
  - Access contacts
  - Full mobile gesture support, such as orientation change, swipe, pinch, shake, etc.
Mobile development made easy

• Intuitive HTML5 development with looksoftware
  - Use your existing RPG and IBM i skills
• Leverage your existing IBM i applications
• Native RPG support for mobile using openlook and Open Access
New Feature: Insights

• Heatmap of IBM i application usage

• Allows developers to visually understand how users spend their time in the application

• Help decide which parts of the application need to be modernized first
Sample Modernization – Mobile Access

Problem
- Sales team remote
- Reservations via phone call
- Not always real time

Solution
- iPad solution built with lookserver
- Increased productivity & satisfaction for field users
Baker Corporation saves, satisfies, solves

Challenge:
• Provide field staff with easy access to information about equipment, customer and inventory
• Improve efficiency and customer service

IBM Solution
Provide Real-time access to IBM i applications using iPads and a solution from looksoftware

“The users are not only saving significant time, they love using the new application.”
– Denise Brunner, Director of Telecom & Wireless Solutions

Every user SAVES an hour a day!
Rapid New Responsive Web Development

Node.js, PHP or ILE
(Templates for Rapid Development)
B2B eCommerce (PHP and Responsive)

• Hosted on IBM i

• Customers can order products from anywhere and any device

• Integrates with existing IBM i applications & processes
B2B eCommerce (PHP and Responsive)

- Hosted on IBM i
- Replace Windows-based web application
- Online presence important for competitiveness
- Integrates with existing IBM i applications & processes

https://www.bangersusa.com/
Offline and Signatures

- Service technicians service scales in the field
- Complete work orders offline
- Sync to IBM i
- Capture Signature, create invoice as PDF and sent email to customer
Dashboards on IBM i (Responsive Mobile)
Presto 7 New Feature: Responsive
Profound UI 5.8

• Instant access to IBM i data from anywhere
• Improved customer communication and satisfaction
• Increased end user productivity
• Decreased complexity and effort to acquire and enter data
• Only 100% IBM i centric solution – runtime & development tools

Learn more at: http://www.profoundlogic.com/mobile
Profound UI 5.8

• EJS Templating
  – Available in HTML and AJAX Container widgets
  – Allows for JavaScript to be embedded within the content of these containers
    • Access to bound variables
    • Access to any numeric indicators
    • Access to subfile data
  – Allows for creation of any type of dynamic text content
  – Useful for creating HTML markup
• **Relative Positioning**
  - Elements in the Visual Designer can be positioned relatively
  - Replace fixed values with percentages
  - Fonts sized with `em` instead of `px`
  - Use layout widgets to group content and control flow
San Diego Regional Center

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San Diego Regional Center

- One of 21 non-profit organizations serving the developmentally disabled in the state of California
- SDRC supplies the software for the entire state
- Software “evolved” over the course of the last 30 years
- Recently transformed their UI to Mobile
- Features include - scheduling services, performing assessments, and obtaining employment for their clients
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On December 2\textsuperscript{nd}, 2015 our sister center, the Inland Regional Center, was attacked by terrorists.

The San Bernadino Department of Health had rented out a room at the center for their Holiday party. One of the employees of that department and his wife were the attackers.

The attack left 14 dead and 22 injured.

Law enforcement quarantined the building and the 608 employees that worked out of the Inland Regional Center were not allowed to return to their place of employment for the next month.
San Diego Regional Center

- The Service Coordinators at the center had just been trained on the new mobile applications

- Tablet rollout was expedited to all coordinators

- The disabled community was able to continue to receive support, help and treatment even without access to their building.
Quickly & Easily Create Mobile Solutions for IBM i Applications

Zend Studio 10

Deploy mobile apps application market places!

iOS, Android, Windows Phone, & more

IBM i XML Service

Zend Server for IBM i Version 6

http://www.youtube.com/watch?v=t4nmRO9-gN4&feature=plcp
• Zend Server for i
  – Preloaded with IBM i
  – One year of Silver Support from Zend

• Zend Server Development edition
  – Reduced cost – include Z-Ray and other dev tools

• Zend Server for i
  – Available from Zend

• Zend Studio for i
  – Eclipse-based development environment
  – One year of Silver support from Zend

• Zend DBi
  – MySQL implementation for IBM i
  – DB2 Storage Engine enables data storage in DB2
Corvette America  Customer Loyalty, Fueled by Superior Web Experience when purchasing aftermarket classic Corvette parts & accessories

• Corvette America challenges:
  – Support 3000 dealers worldwide with 24/7 catalog access, ordering, and status
  – Develop a dealer-facing website that integrates with and extends their core business applications
  – Automate manual processes; eliminating steps & delays
• Responded quickly with an integrated cost effective solution:
  – Power 520 with IBM i 6.1, Infor XA, PHP on i, Custom Application code
  – In the process of moving:
    To Power 720 with IBM i 7.1
    Functions off non-dealer Retail website, running on x86, to IBM i

• 24/7 Self-Reliant Dealer Web Interface:
  – Closing business faster, less time, fewer steps, improved customer service
  – Developed & deployed in 9 months
  – Investment protection with full access to ERP Business knowledge & rules with up-to the-minute data
  – Eliminating dealer phone calls, emails, faxes to determine product price, availability, order status, UPS-FedEx tracking
  – Redeploy sales representatives to be proactive with tailored selling & support of Dealer Network
  – Positioned for growth & new requirements

“One of the chief reasons we chose Zend PHP on IBM i is the ease with which we could quickly develop our new dealer web interface, with full integrated access to our existing core applications -- our business DNA, value, & differentiator.”

Pete Sultatos, IT Director, Corvette America
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Revised September 26, 2006
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