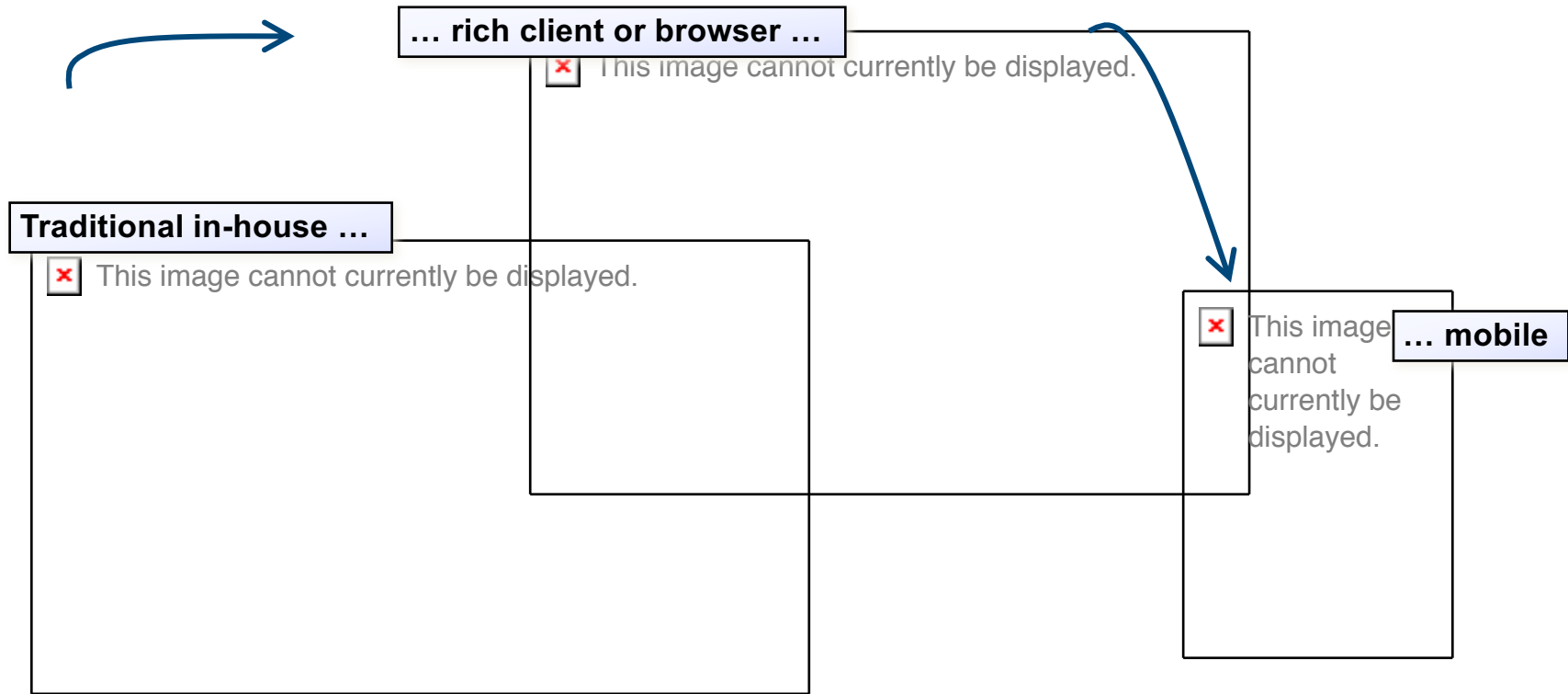


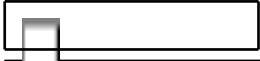
# IBM i and the World of Mobile

**Tim Rowe**  
Business Architect Application Development  
[timmr@us.ibm.com](mailto:timmr@us.ibm.com)



# Evolution of User Interface





## 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


<http://expandedramblings.com/index.php/smartphone-statistics/>

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## Change How We Work

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## Changing How We Work - Green Screen

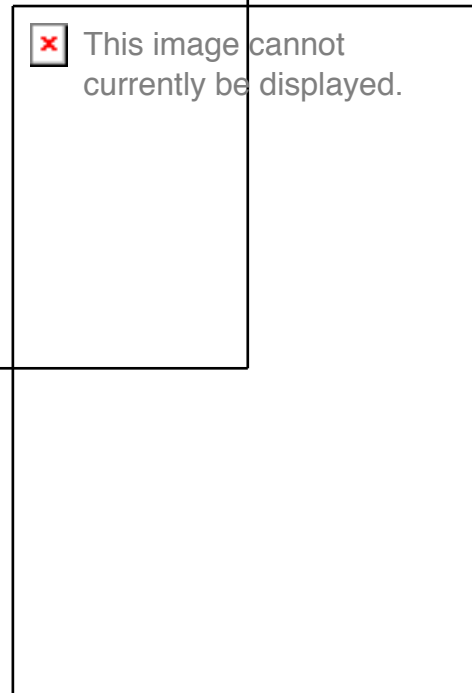
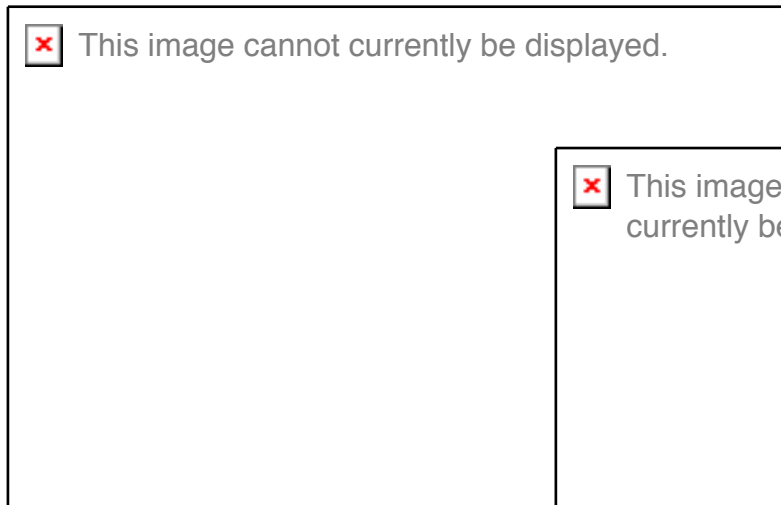
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Joe – Warehouse worker

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

## Changing How We Work - New GUI Interface



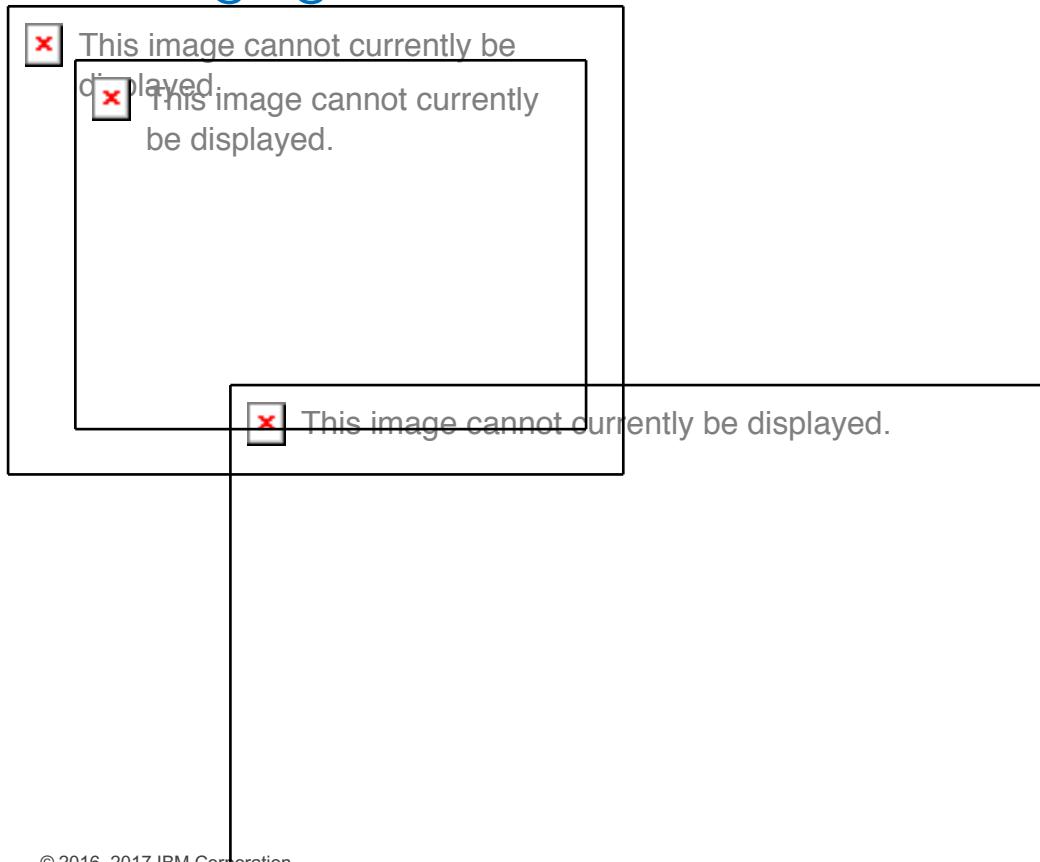
### Joe – Warehouse worker

- 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

## Changing How We Work - New Mobile Interface

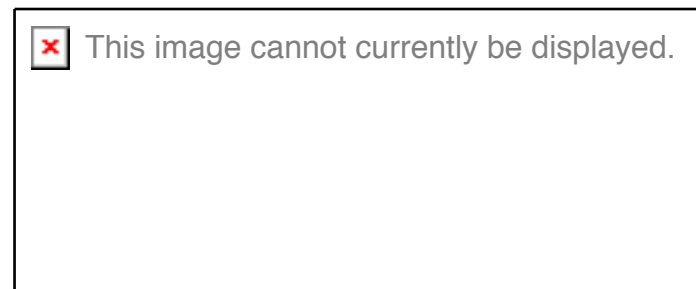


Joe – Warehouse worker

- 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 ?

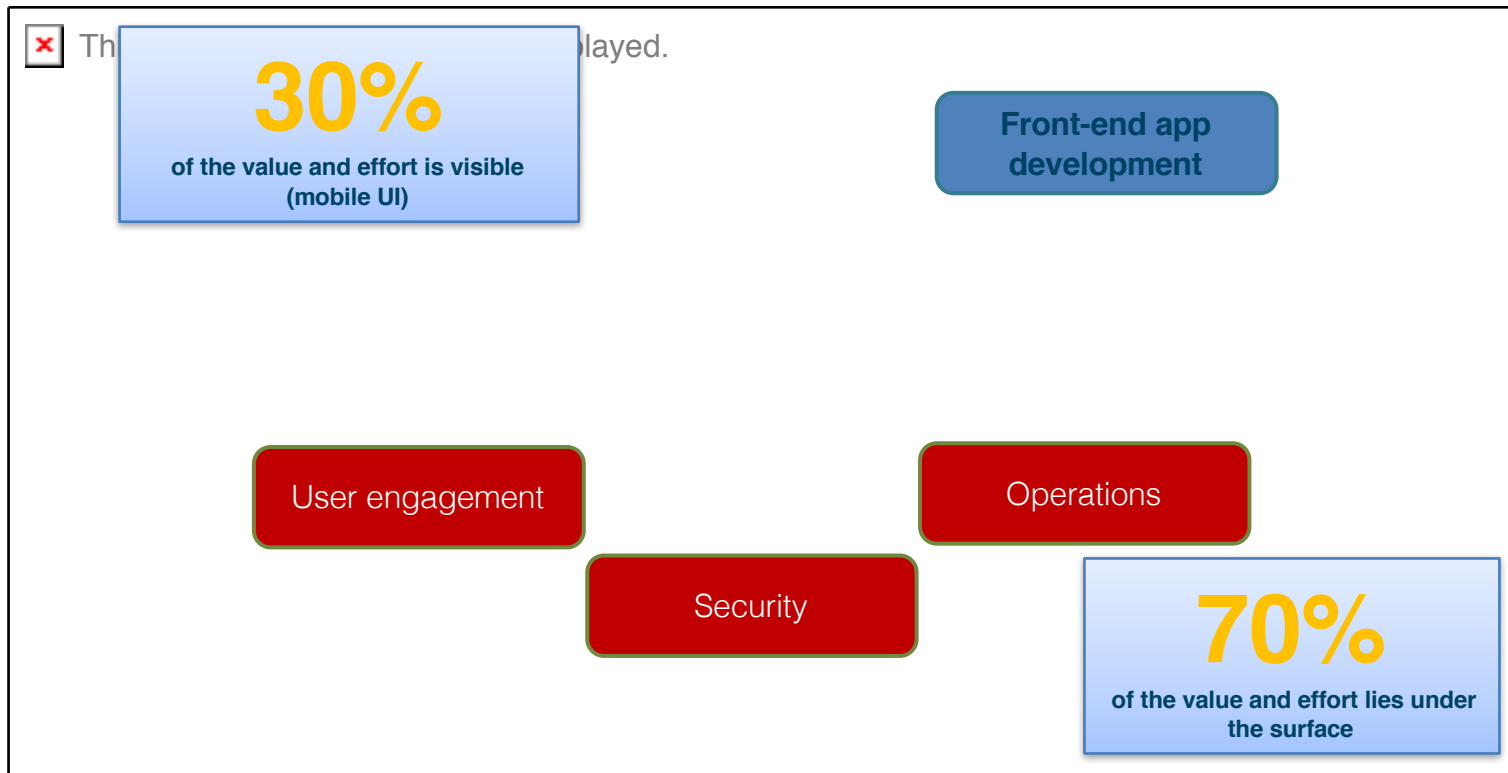
- New easy to use interface
- Keep the data in the hands of the worker
- Greatly improved accuracy
- Less training of workers
- Increased productivity
- Decreased costs



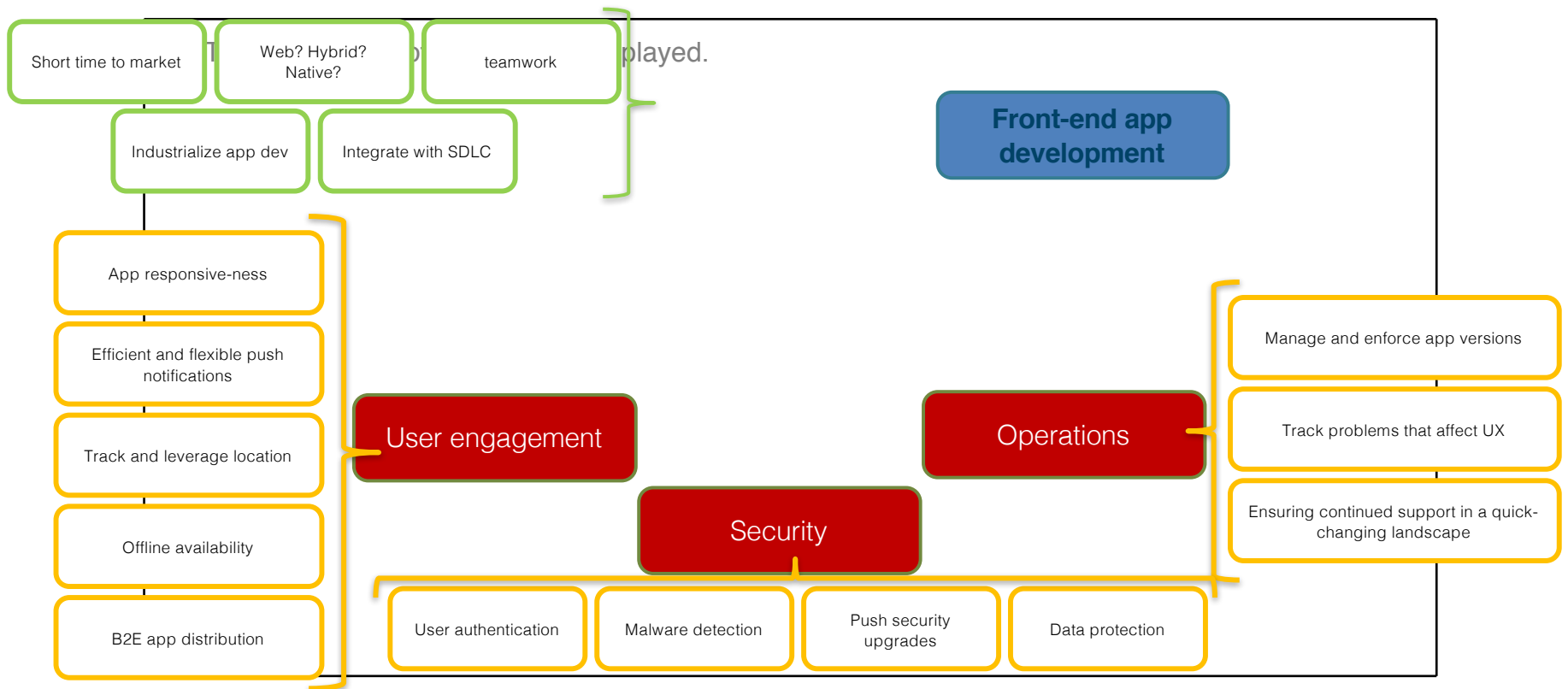
- System of Engagement connected directly to the System of Record




## Mobile apps go far deeper than front-end UI




# Mobile apps go far deeper than front-end UI



## Anthony Squires employs mobile technology as cutting edge as the suits they sell

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**16%** increase in sales in the first 6 months

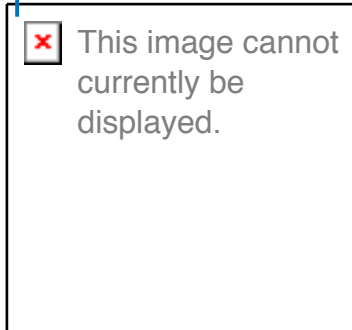
Gain **competitive advantage** with the ability to check stock and transfer garments from store to store while the customer waits.  
Fewer queries being directed to HQ means **improved productivity** at both HQ and at the stores

### 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.

## Closer look at Mobile on IBM i

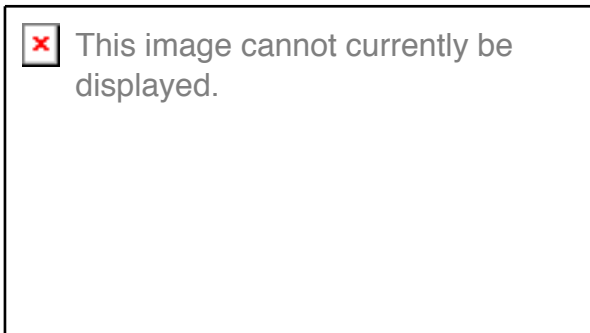
Tools and environments for Engaging Mobile on IBM i



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

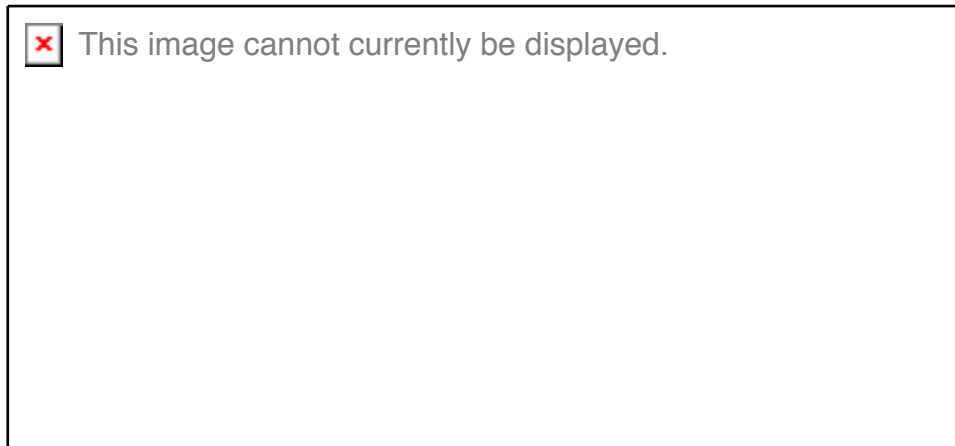
- iAccess Mobile
- DB2 Web Query
- IBM Traveler
- ACS

### Plumbing – How to interact With Mobile and IBM i

- Open Access
- Web Services
  - REST
  - SOAP
- XML Service
  - REST
- XJ Service
  - JSON

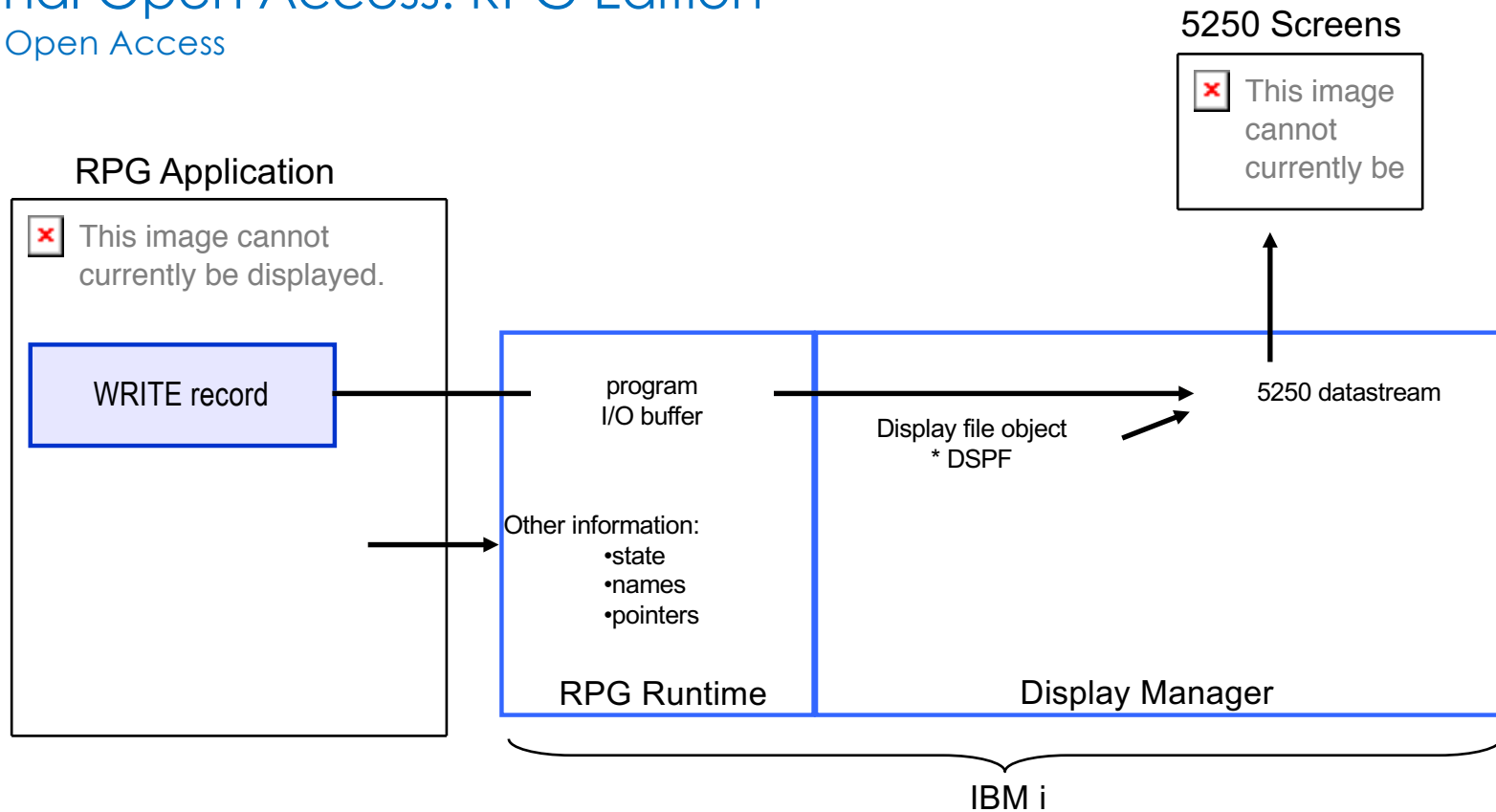
## Plumbing

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



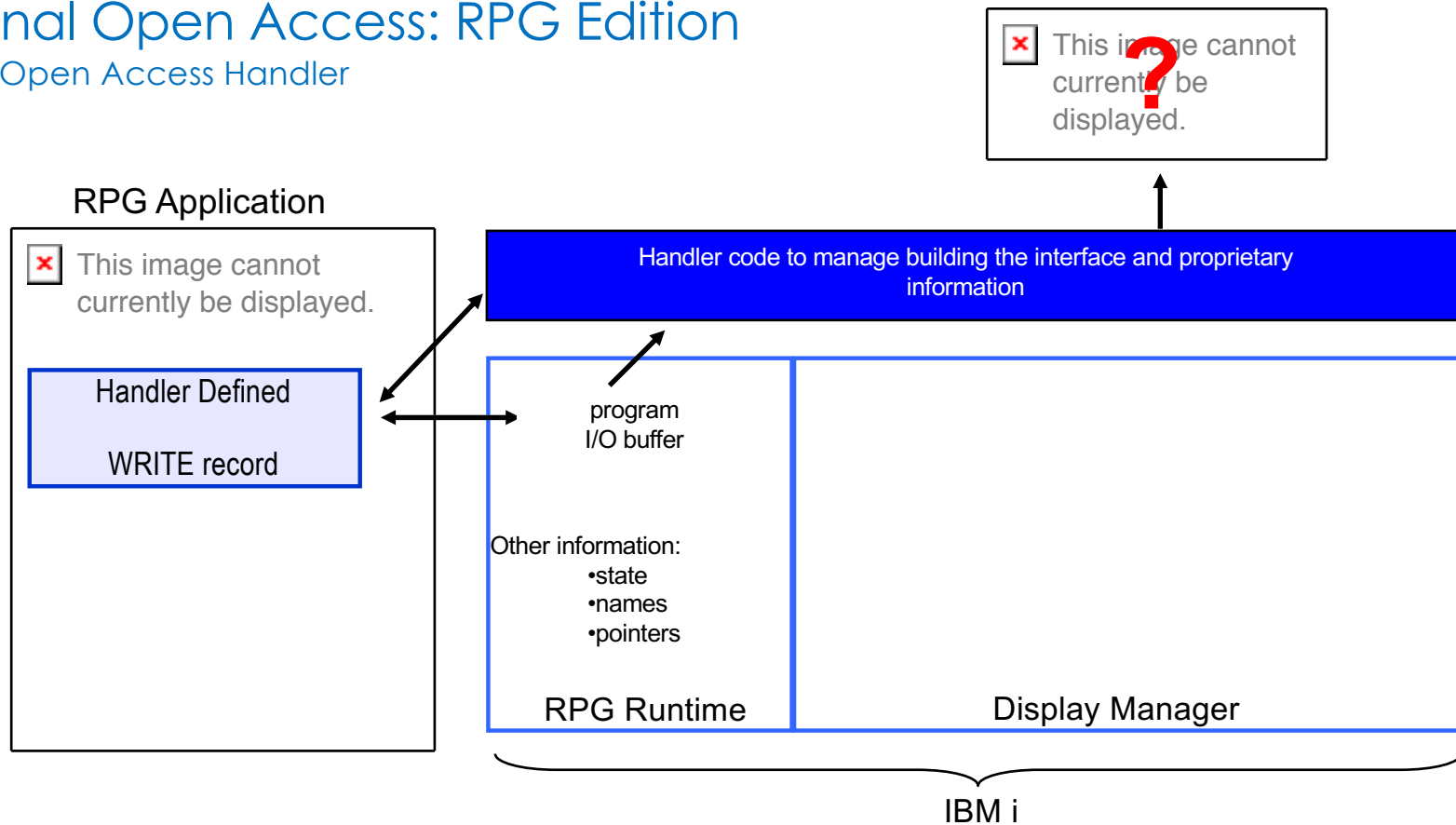
# Rational Open Access: RPG Edition

With no Open Access



# Rational Open Access: RPG Edition

with an Open Access Handler







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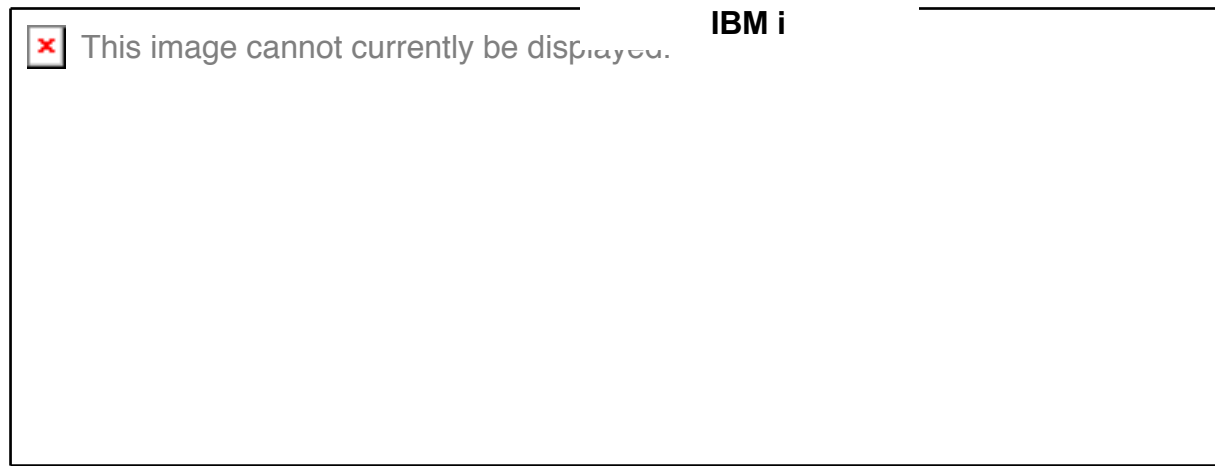


## Access IBM i from anywhere – XML Service

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

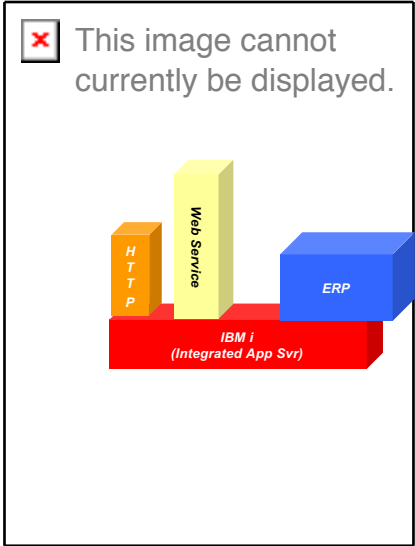
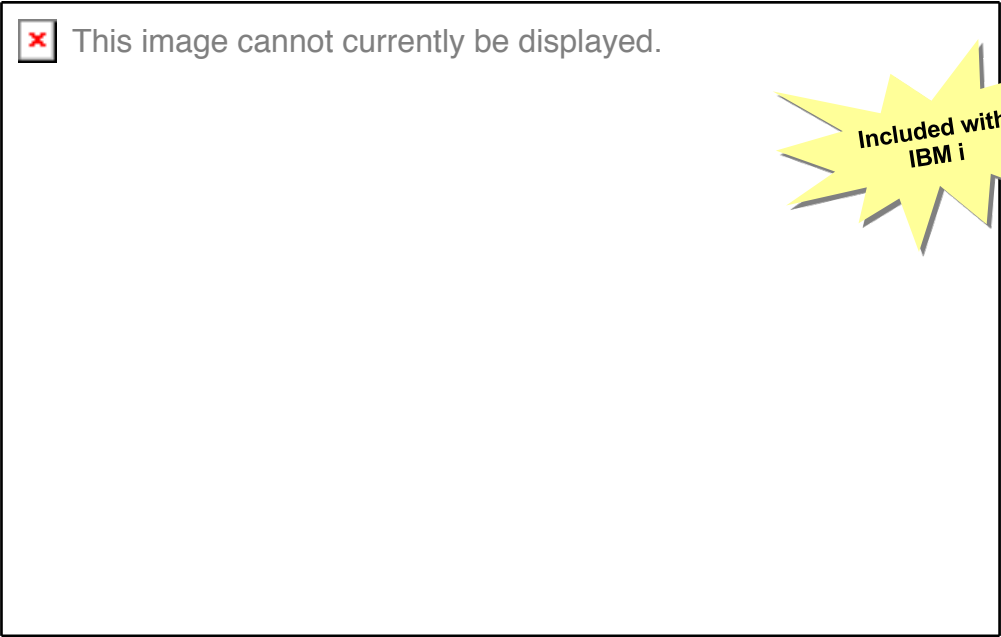


<http://www.youngprofessionals.com/wiki/XMLSERVICE>

# 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/>



## REST Web Services

### *Web Service enable RPG and COBOL Source Code*

What have we done lately ?

– SWAGGER

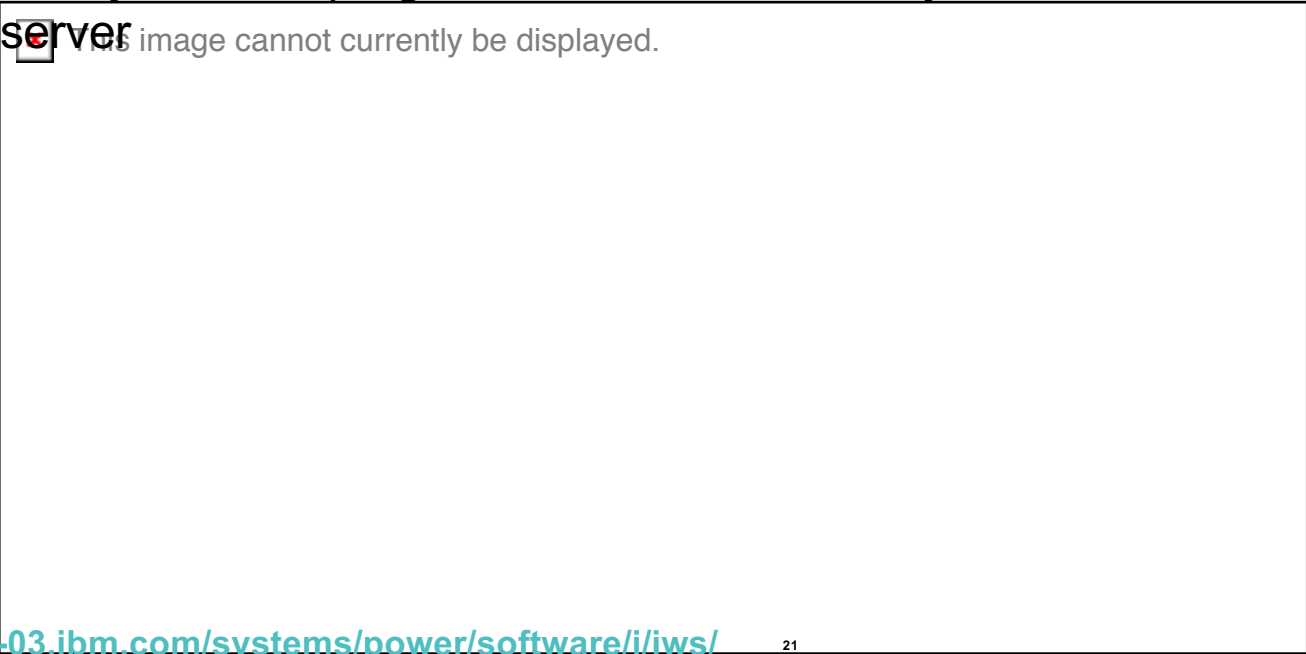
- Services definition language
- Plugs into many industry tools for easy ‘consumption’ of Web Services
  
- Improvements to the REST client support
  - Client APIs are Open – Call REST APIs directly from RPG
  - Use SSL to encrypt the Web Service Call



## REST Web Services

Just out!!!

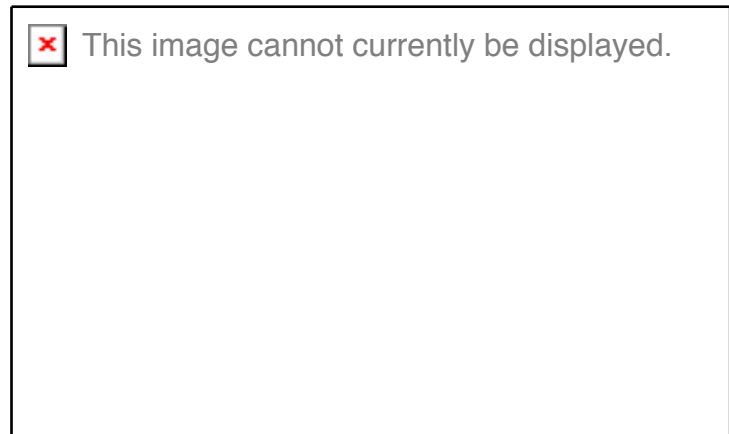
- 2 Tier Web Services Support
- You can now have your RPG program on a DIFFERENT system then the Web server





## 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

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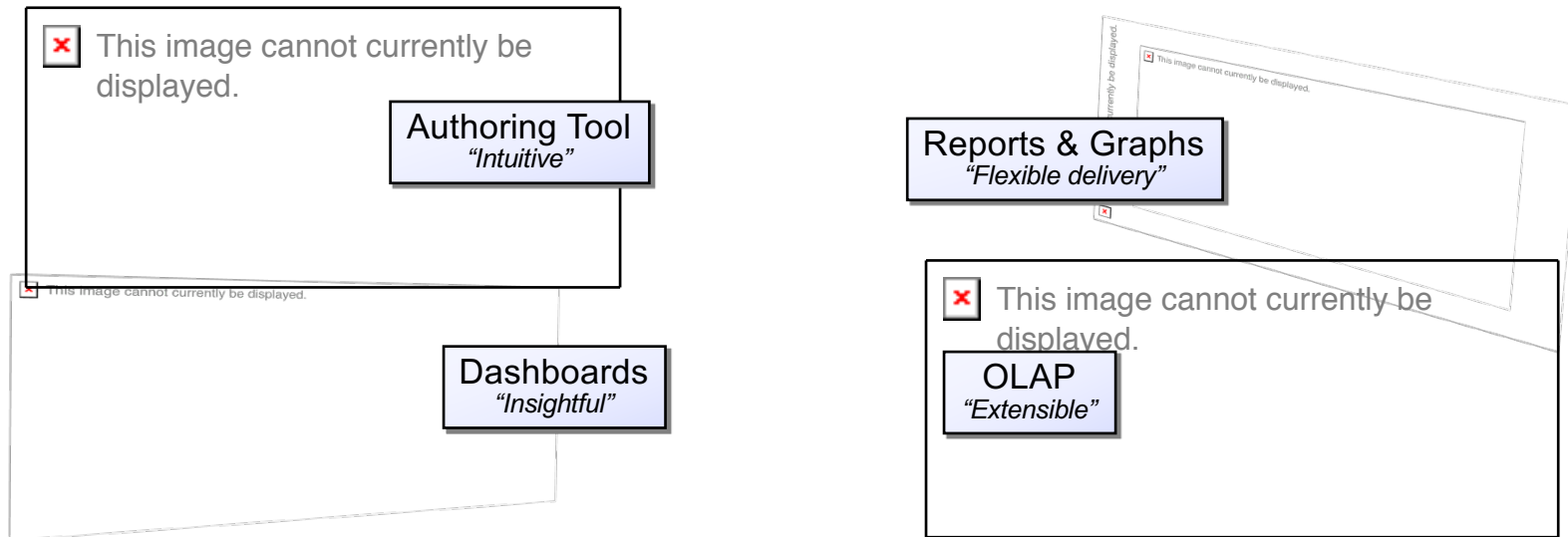
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Galaxy Nexus



## DB2 Web Query for i – Intuitive, Insightful, Extensible

*Fast access to business information for query, reporting and analysis*



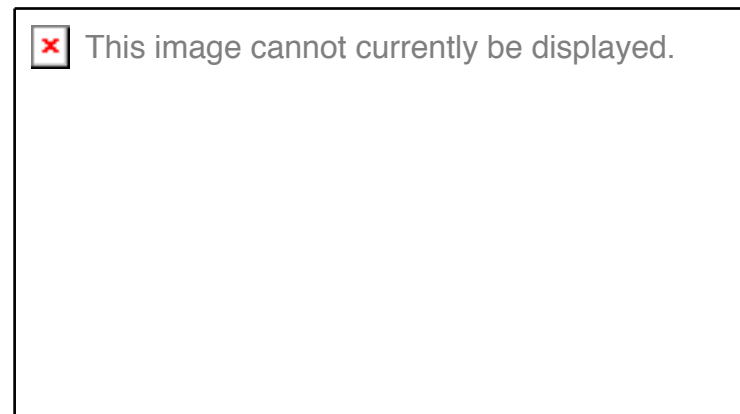
- Providing Analytics and Query/400 Modernization for the IBM i Client
- Low Cost Solution Offering Value Upgrade from Query/400
- Leveraging Best Practice Meta Data Layer Approach
- Leveraging DB2 for i Advanced Query Optimization Technology
- Leveraging features that allow a single report to replace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

[www.ibm.com/systems/i/db2/webquery](http://www.ibm.com/systems/i/db2/webquery)

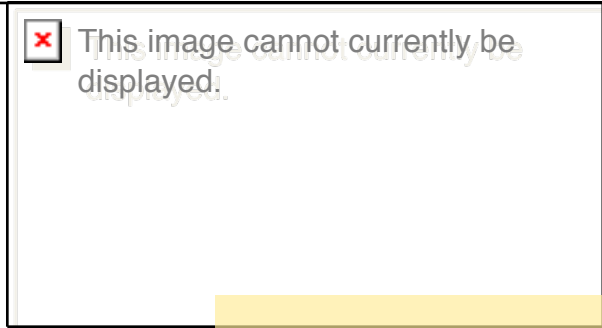


## Tools for Mobile Device Enablement

- Mobilize your existing 5250 applications
- Create new mobile applications

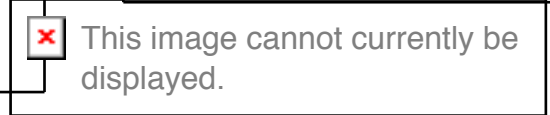
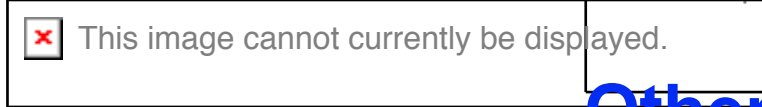
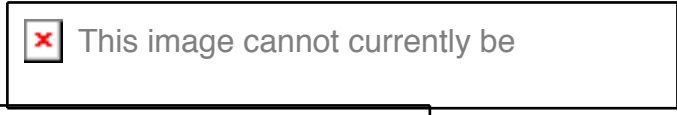
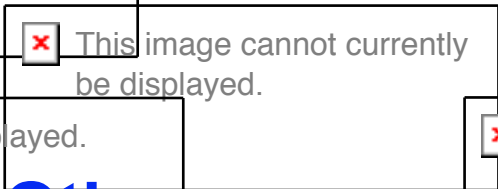
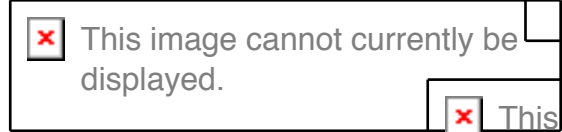
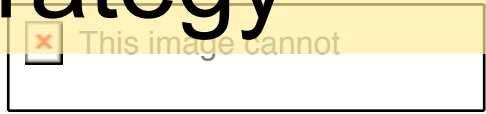
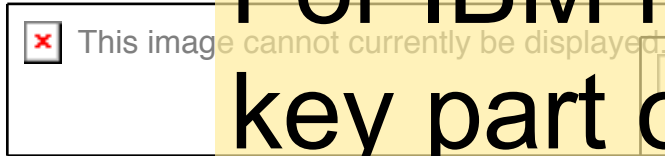
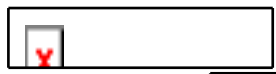






**For IBM i our ISVs are a key part of our strategy**

**HATS**

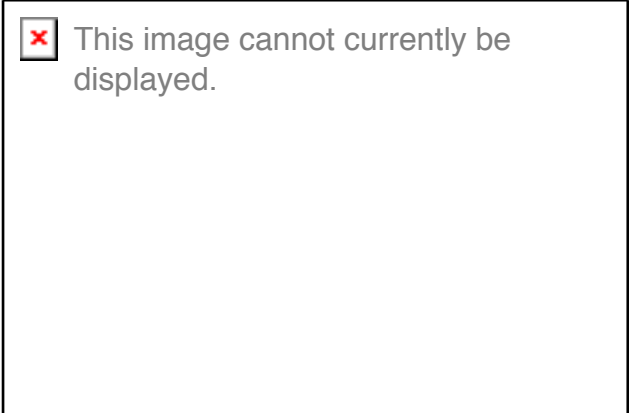


**Others.....**

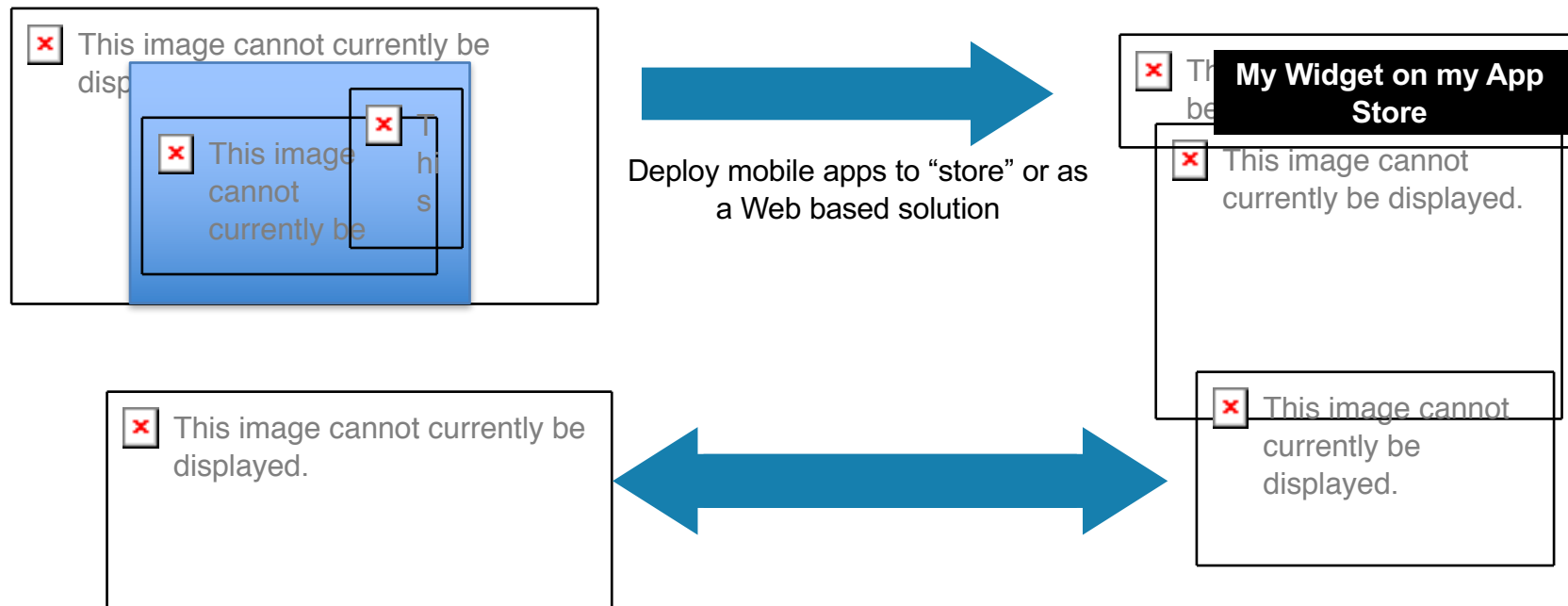


## Why Consider one of these Solutions

- 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






## 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


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- Build mobile web and/or hybrid apps
- Use existing RPG/COBOL and DDS skills
- Harnesses jQuery Mobile

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- Build mobile web and/or hybrid apps
- Use LANSAs High Level Language
- Harnesses jQuery Mobile

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 Thi

- Build native mobile apps (not mobile web or hybrid)
- Use existing RPG/COBOL and DDS skills
- Harnesses device's native OS GUI toolkit
- Deploy to Apple (iOS) or Android phones/tablets
- Available in Apples App Store and Google Play

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# Case Study: Roofing Company

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Commercial Roofing Systems

Network of Contractors

Mobile Contractor App

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# Case Study: Roofing Company

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Commercial Roofing Systems

✓ Capture Photos

✓ Network of Contractors  
Better Project Visibility

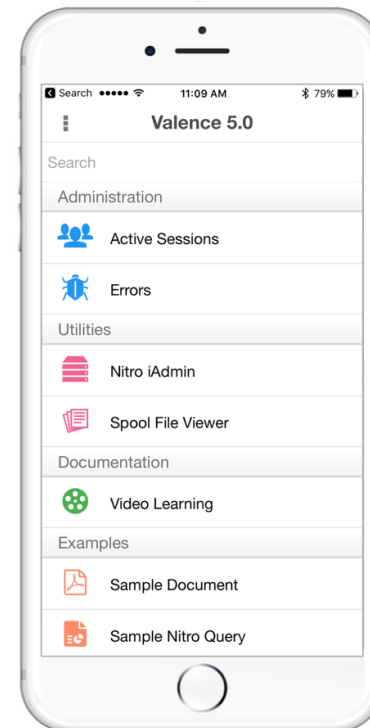
✓ Ir Mobile Contractor App

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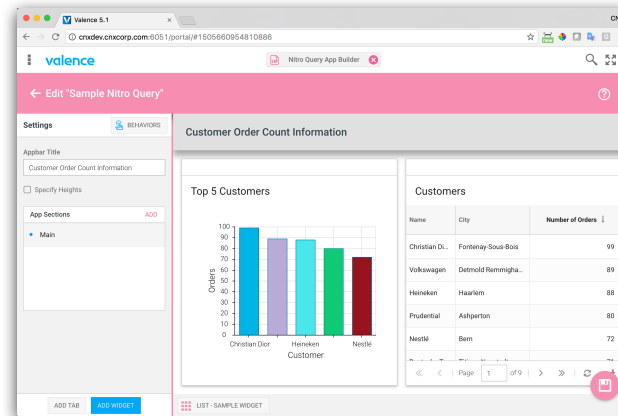
# Valence Portal for iOS and Android

- 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

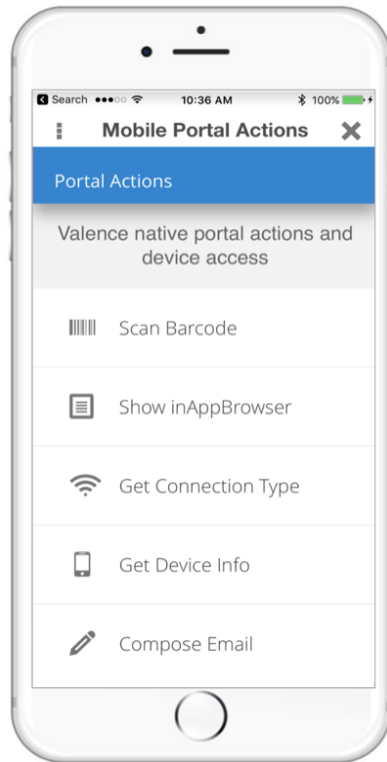


# Nitro Query App Builder

- 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



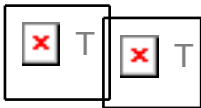
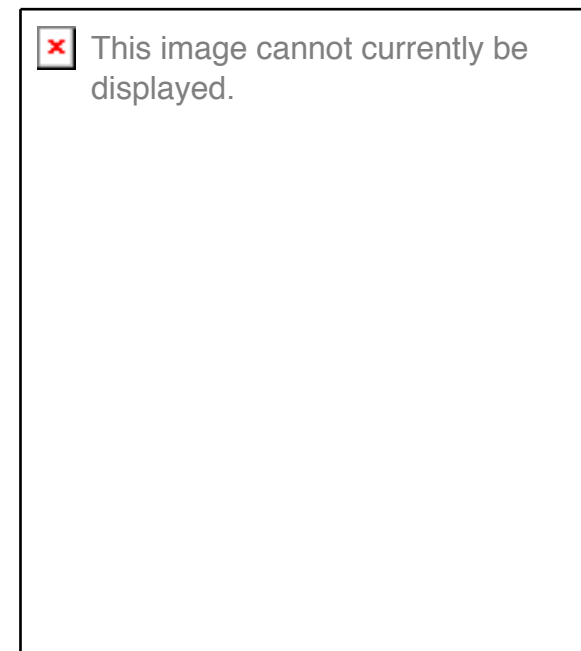
- Valence includes robust device access APIs
  - Use the camera to take pictures and upload to IFS
  - Scan barcodes with the camera or attached laser scanner
  - Get GPS coordinates
  - Access contacts
  - Full mobile gesture support such as orientation change, swipe, pinch, shake, etc.



## Mobile development made easy

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- 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

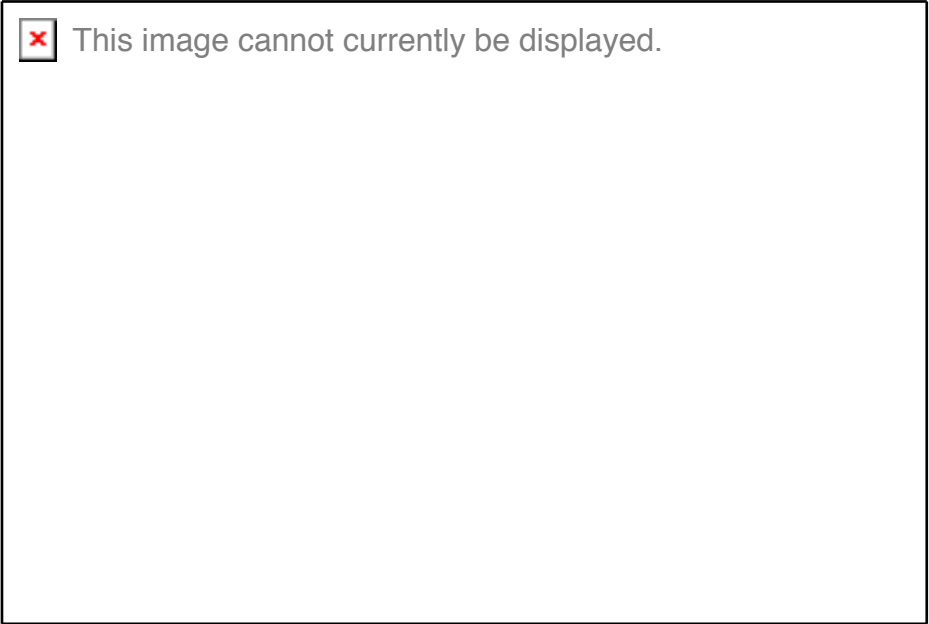


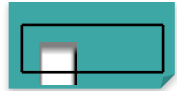


# New Feature: Insights

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- 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





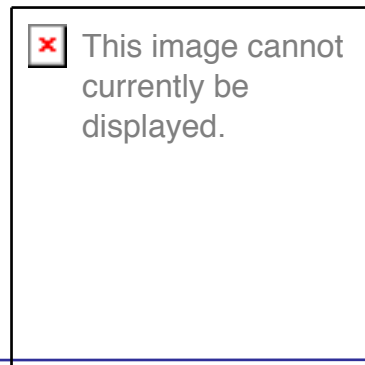
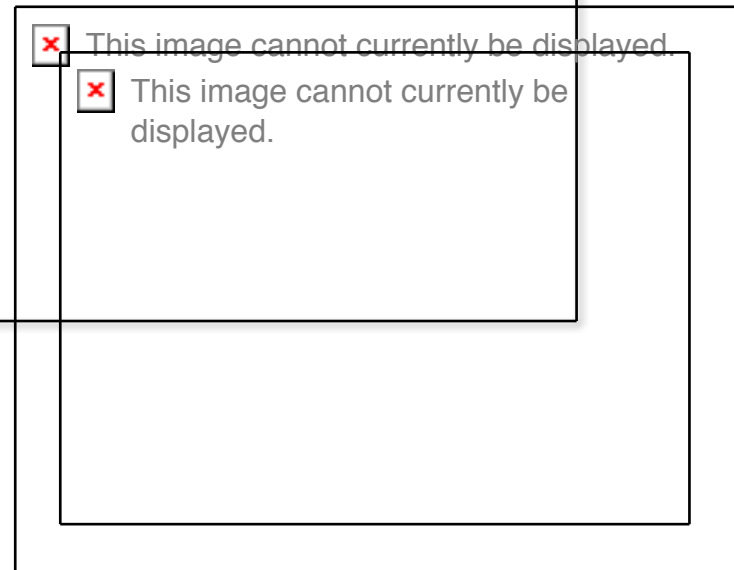
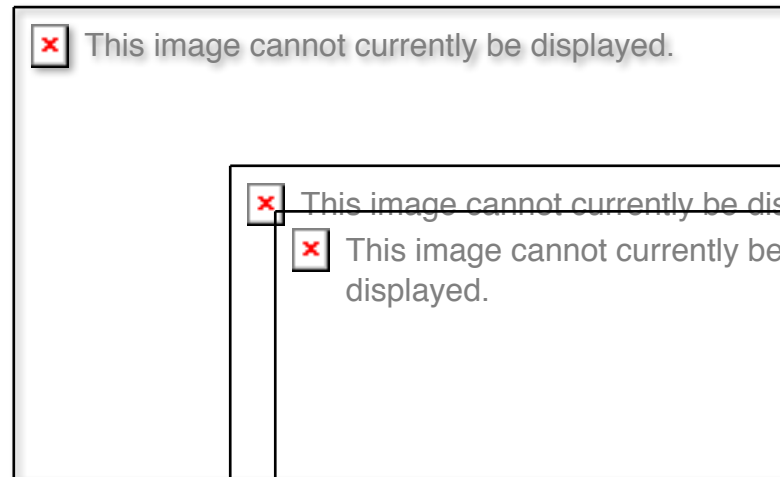
# Sample Modernization – Mobile Access

## 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

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## Challenge:

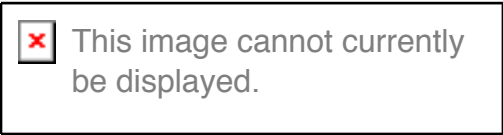
- Provide field staff with easy access to information about equipment, customer and inventory
- Improve efficiency and customer service

## IBM Solution

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

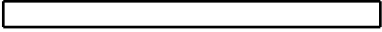
*“The users are not only saving significant time, they love using the new application.”*

*– Denise Brunner, Director of Telecom & Wireless Solutions*



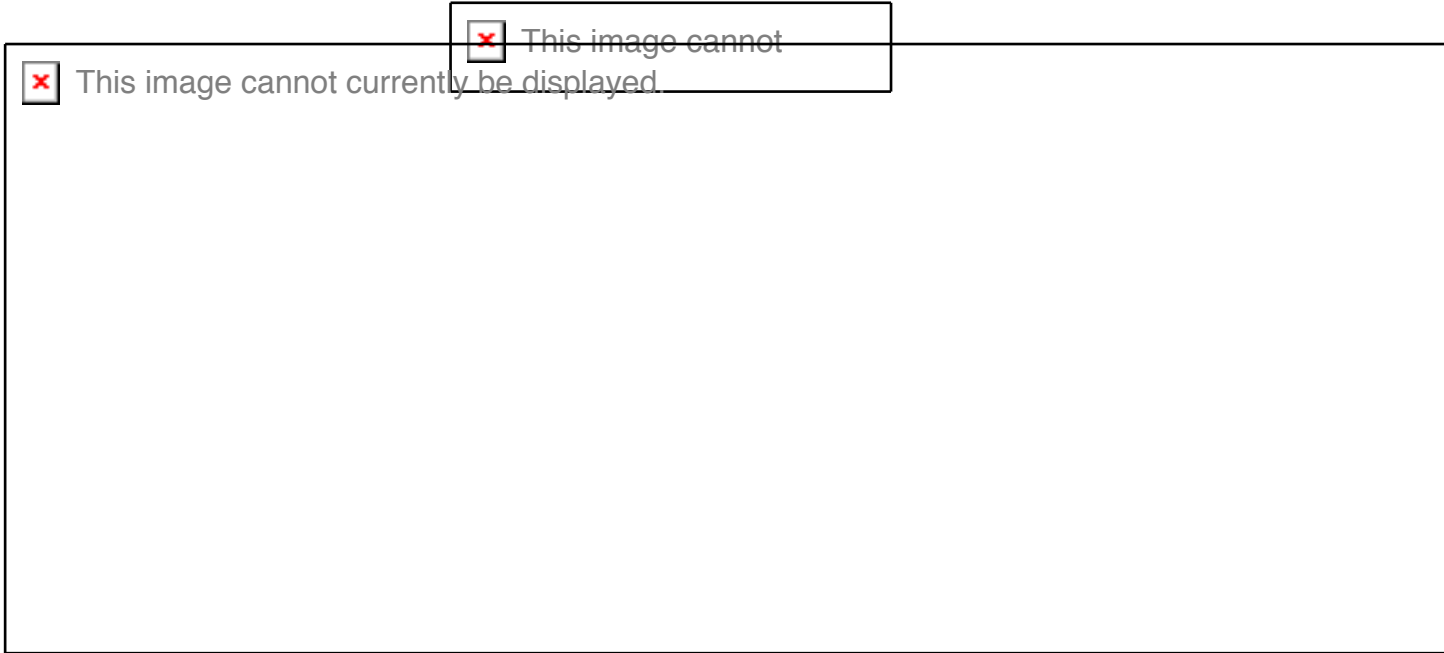
**Every user SAVES an hour a day!**





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# Rapid New Responsive Web Development

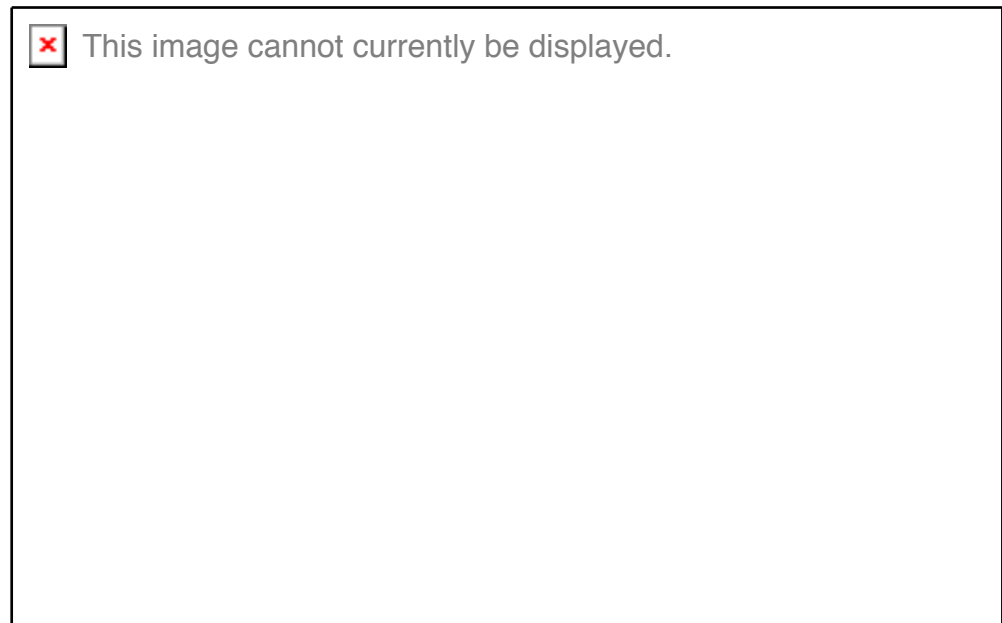


**Node.js, PHP or ILE**  
(Templates for Rapid Development)

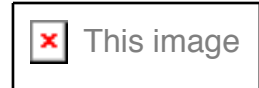
## B2B eCommerce (PHP and Responsive)



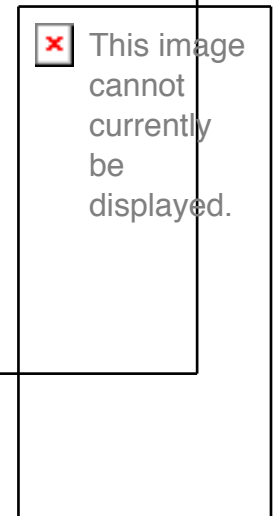
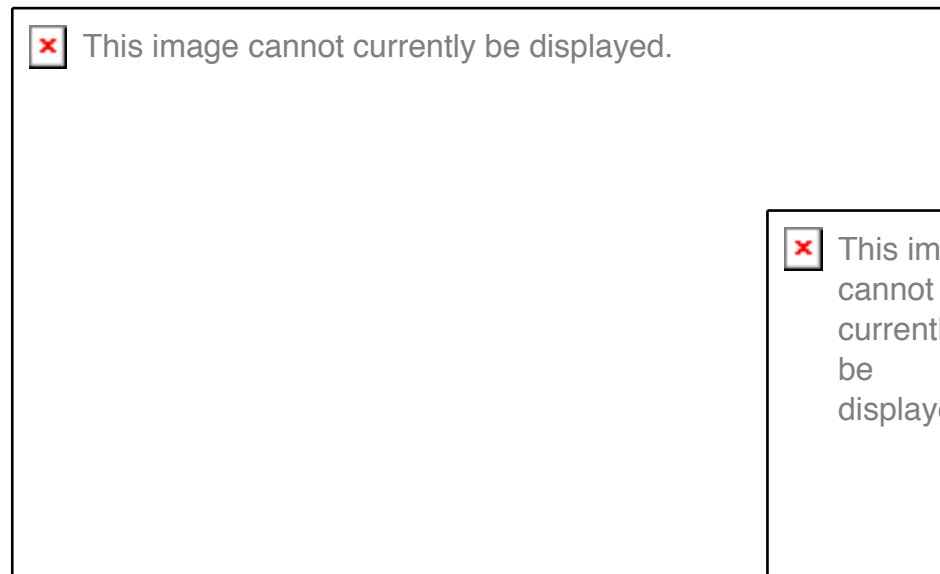
- Hosted on IBM i
- Customers can order products from anywhere and any device
- Integrates with existing IBM i applications & processes



# B2B eCommerce (PHP and Responsive)

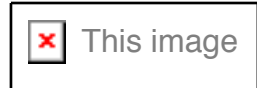


- Hosted on IBM i
- Replace Windows-based web application
- Online presence important for competitiveness
- Integrates with existing IBM i applications & processes

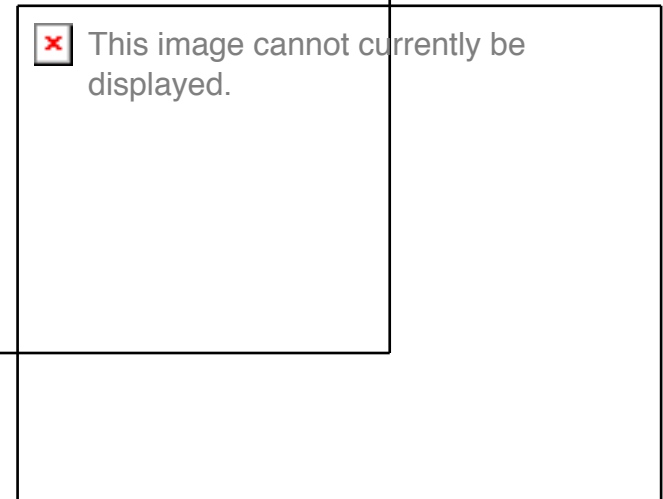
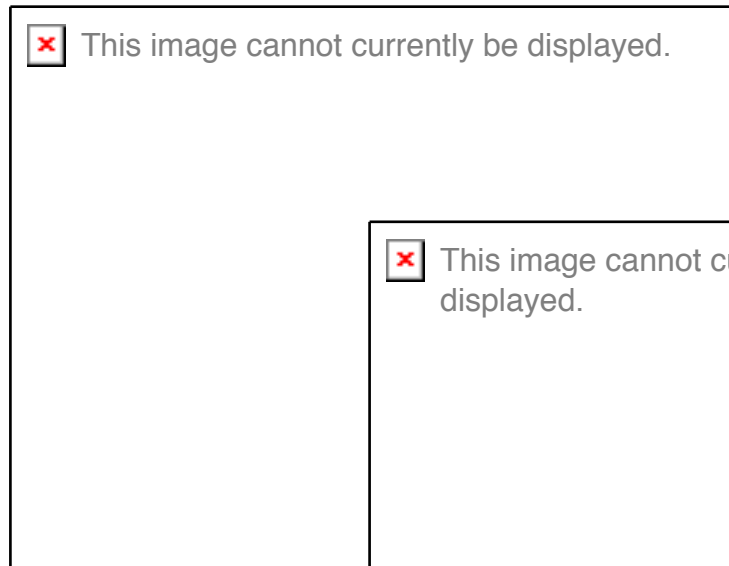


<https://www.bangersusa.com/>


# 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)

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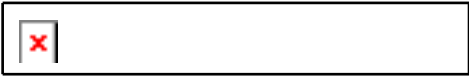
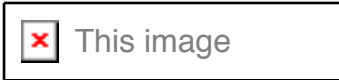
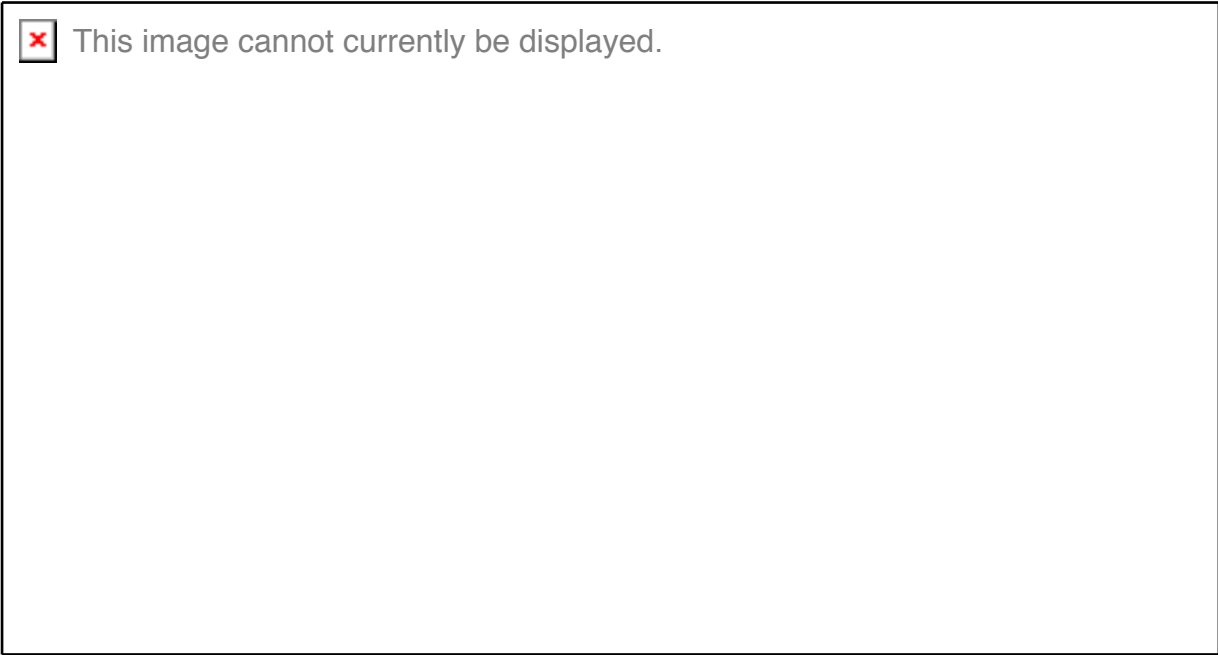
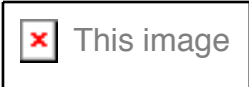
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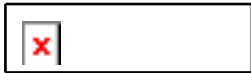
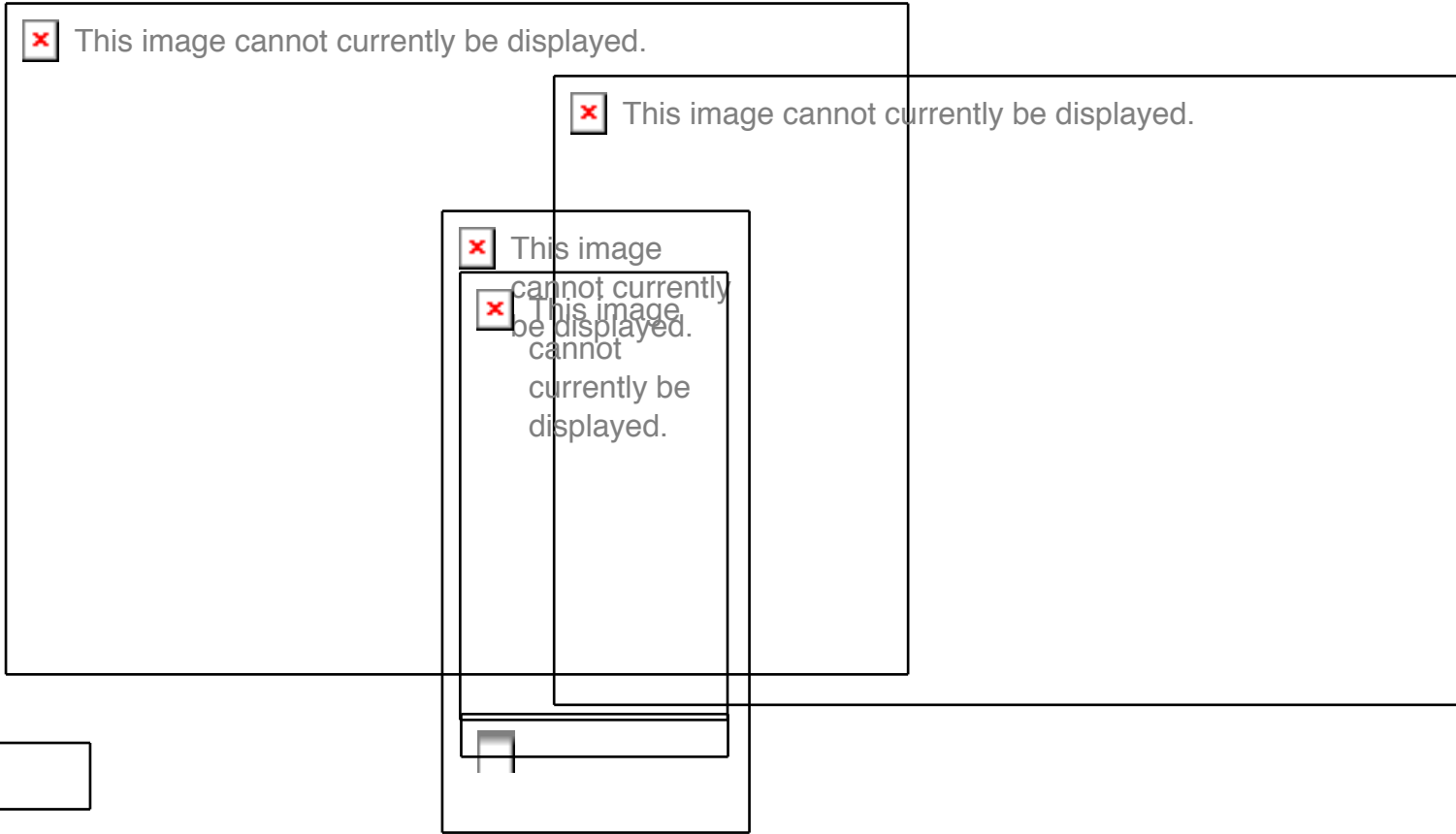
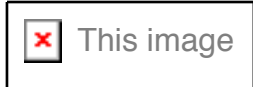
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# IBM i Document Portal

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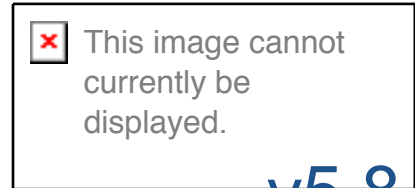
# Presto 7 New Feature: Responsive



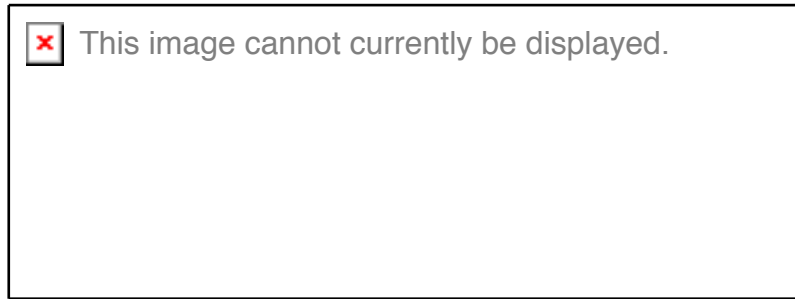


# Profound UI 5.8

- 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



v5.8



Learn more at: <http://www.profoundlogic.com/mobile>

# Profound UI 5.8

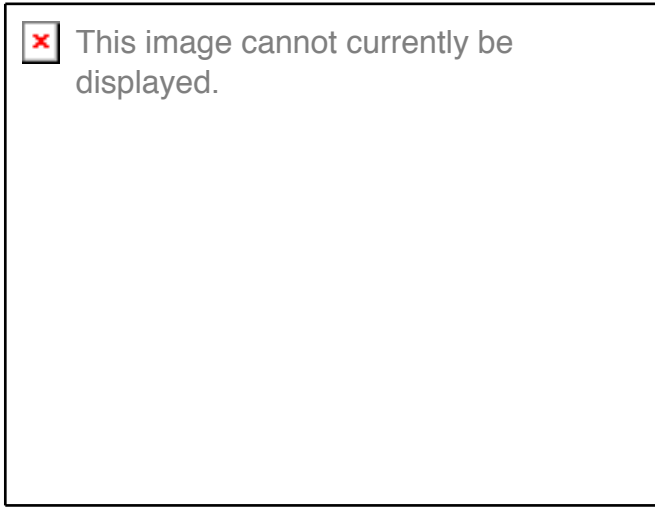
- EJS Templating

- 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



## Positioning in Profound UI Rich Displays

- 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

## San Diego Regional Center

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## San Diego Regional Center

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## San Diego Regional Center

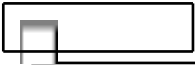
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## San Diego Regional Center

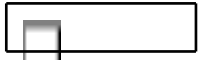
- On December 2<sup>nd</sup>, 2015 our sister center, the Inland Regional Center, was attacked by terrorists.
- The San Bernadino Department of Health had rented out a room at the center for their Holiday party. One of the employees of that department and his wife were the attackers.
- The attack left 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

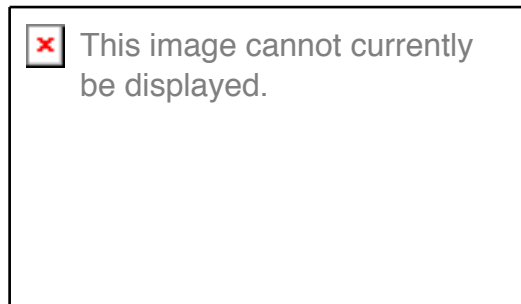
- The Service Coordinators at the center had just been trained on the new mobile applications
- Tablet rollout was expedited to all coordinators
- The disabled community was able to continue to receive support, help and treatment even with out access to their building.



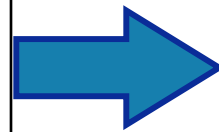
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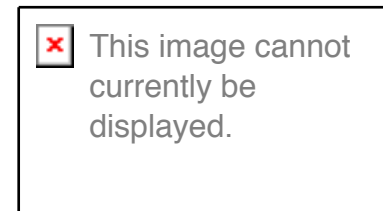
# Quickly & Easily Create Mobile Solutions for IBM i Applications



**Zend Studio 10**



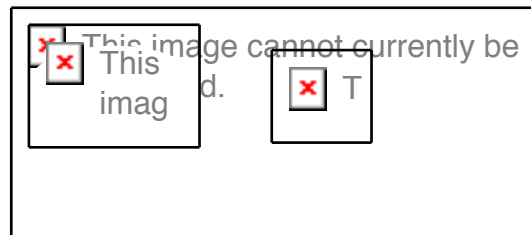
Deploy mobile apps application market places!



iOS, Android, Windows Phone, & more

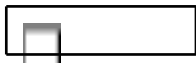


IBM i XML Service

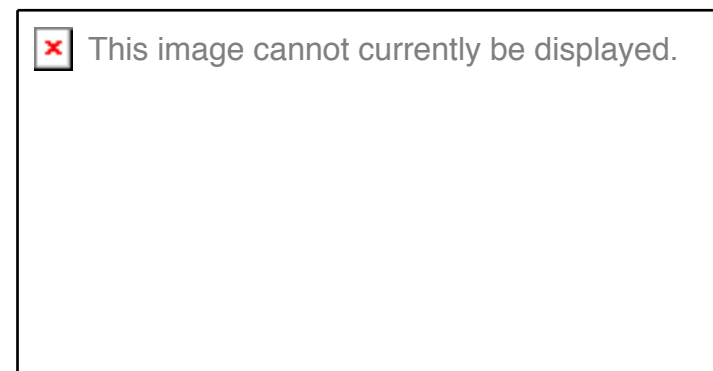


**Zend Server for IBM i Version 6**

<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




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***“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**

- **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

 This image





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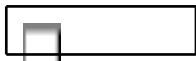
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Revised September 26, 2006



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