Developing Exceptional Mobile and Multi-Channel Applications using IBM Web Experience Factory
Agenda

• Mobile web applications and Web Experience Factory
• High-level tour of Web Experience Factory automation of mobile web applications and mobile web sites
• Deep dive into mobile and multi-channel features of Web Experience Factory
• New Dojo Mobile and client-side features of Web Experience Factory 8.0
• Building hybrid applications using Worklight
• Downloads and additional resources
Mobile application development and web technology

- The world is moving very quickly to a multi-device landscape
- Non-PC Internet-connected devices – smartphones and tablets – are everywhere, and people expect to be able to use them for the same things they do on PCs
- The explosion in mobile devices has made mobility a top priority of CIOs and IT organizations
Mobile application development and web technology

- Building native mobile applications with multiple device SDKs is costly and time-consuming
- Web technologies – HTML/HTML5, CSS, and JavaScript – have come to the rescue for many scenarios
- Smartphone and tablet browsers have very good support for a rich user experience that can have a native look and feel
- This is where Web Experience Factory comes in – it provides a set of highly-automated tools for developing mobile web applications
What is Web Experience Factory?

Model-based development framework for creating web applications and portlets

Out of the box capabilities simplify and speed development

Supports multi-channel web sites and applications

Easier and faster than traditional coding to develop exceptional web experiences

Includes 150+ out-of-the-box builders that accelerate development

Dynamic profiling allows you to write once, deploy to many devices
Web Experience Factory automation of design patterns

- Web Experience Factory features a model-based development approach using *builders*.
- A builder is a tool with a wizard-like configuration UI that automates a design pattern, generating all the necessary application code and artifacts.
- Builders are combined in a *model* and edited using the Web Experience Factory graphical Designer IDE.

**Web Experience Factory code generation engine**

- **Model**
  - Builder 1
  - Builder 2
  - Etc.
- **Application code**
- **Libraries and templates**
It's a full eco-system:

- Extensibility – ability to customize and extend as needed
- Model Based Development
  - Faster learning curve
  - Faster development cycles
- Strong development community
- Extensive Samples/Library and education modules: Eg. Lotus Connections

150+ Builders including:
Rest APIs, Web Services, Databases, SAP, Peoplesoft, Lotus Domino, Siebel, rich user interface patterns
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Web Experience Factory for mobile devices

Create mobile web applications using standard technologies (HTML, CSS, Javascript)

Use model-based automation, eliminating coding and speeding time to market

Leverage Dojo Mobile and a client-side architecture, for a native-looking UI with architectural benefits

Support a multi-channel strategy, to create once and run on multiple devices (iPhone, Blackberry, Android, iPad, etc.)

Leverage all the Experience Factory out-of-the-box features for quickly building exceptional web experiences

Leverage HTML5 for features such as geolocation

Build hybrid applications using Worklight to support additional device features such as camera
Demo – samples of mobile/multi-channel web site and applications built with Web Experience Factory
So, how do I build a mobile-enabled web application with Web Experience Factory?

- Use all the high-level tools of Web Experience Factory to quickly build your data access and user interface pieces.
- Add mobile-enablement features such as the Data Layout builder and mobile UI themes.
- Optionally, use device type profiling to create different variants for different device types.
  
  → *Use the Mobile List & Detail Service Consumer wizard to get started quickly*
Building mobile web applications using a service architecture

Web Experience Factory

Service (provider) model

Provider builders
- SQL Data Services, Web services, REST services, SAP, Domino, PeopleSoft, Siebel, etc.
- Data transforms and schemas
- References to Java classes/libraries

Presentation (consumer) model

Presentation builders
- Service Consumer
- View & Form or Data Services UI
- Data Field Settings

Builders for mobile UI
- Data Layout
- Mobile UI theme

UI customization builders

Service Interface operations and schemas

DB or other back end data source

Desktop

Smartphone

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Demo – build a mobile-enabled web application using a database or web service
Completing and customizing your applications

There is a large and rich set of tools for building out your applications:

- ...for controlling how the UI is generated
- ...for adding all the specific features to meet your requirements
- ...for detailed customization, including using designs from external tools

See the Web Experience Factory for detailed information on the range of tools available and for downloadable samples
Mobile web sites with WebSphere Portal Mobile Experience theme

- With WebSphere Portal, you can build and manage complete *mobile web sites* that include all your applications and content.
- Use the IBM WebSphere Portal Mobile Experience theme to render a mobile-optimized UI.

Look and feel of the mobile experience

Site navigation using common mobile interactions such as carousel, drill down and scrolling tabs

Page layout for presentation of page portlet navigation
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Web Experience Factory tools for building mobile web applications

- **Mobile List & Detail Service Consumer wizard** for creating great-looking mobile and multi-channel applications in minutes

- **Data Layout builder** for scrolling lists with configurable options such as thumbnail images and multi-line text with multiple styles

- **Page Navigation builder** for native-looking navigation tabs and lists

- **Geolocation builder** for access to device geolocation without coding

- **Mobile UI themes** for smartphone-optimized look and feel, including optional “slide in” effect

- **Mobile Rich Data Definition library** for automatic support of mobile UI controls such as selectable lists, numeric keypad input, phone numbers, etc.

- **Mobile Device Type** profile set for multi-channel support
Mobile List & Detail Service Consumer wizard

- Builds a mobile-enabled model using View & Form builder
- Optionally profile-enables the mobile features
Data Layout builder

- The Data Layout builder morphs a table view into a variety of list layouts and patterns
- Supports thumbnail images and multi-line text
- A variety of layouts for both mobile and desktop devices are provided
- You can easily create new reusable layouts, by providing a simple HTML fragment and some CSS
- You can specify different layouts for different mobile device types
Page Navigation builder

- Page Navigation builder creates navigation lists or tabs
- Optionally adds “back” navigation to target pages
- Choose from provided styles or apply your own CSS
Using HTML5 geolocation

- The Geolocation builder provides access to location data without coding
- Location data can be accessed in client Javascript or in server actions
- Apply the Geolocation builder to a page, then add an event handler for GeoLocationClient or GeoLocation event
Web Experience Factory mobile UI themes

- UI themes provide central control of all the “look and feel” of applications:
  - Themes control CSS styles, page layouts, data layout rules, paging controls, and more
  - UI themes work with styles in the Portal theme
- You can easily create new themes to automate your desired look and feel
- Several mobile and desktop themes are provided
- Note: These themes control the look and feel within portlets; different than the Portal mobile themes that control navigation and UI of the containing Portal and web site
Using device type profiling for multi-channel rendering from a single code base

- With profiling, a single model can render differently based on the requesting device type.
- Builders can be enabled and disabled by profile, or builder input values can be profiled.
- Profiling for devices is extensible – it can use Portal's device classification database, a properties file, or other mechanisms.
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New in Web Experience Factory 8.0: client-side architecture and Dojo Mobile support

• Models can optionally use a client-side web architecture based on HTML/JS +REST/JSON

• Dojo Mobile can be used for building engaging mobile experiences
  – Slide-in/out effects, scrollable panes, new mobile widgets

• Client-side mode can provide performance and scalability benefits:
  – Reduced server processing and memory
  – Improved caching on client
  – Reduced size of downloaded data – JSON data is downloaded instead of final HTML

• New client-side wizards and builders generate all the supporting code
Web Experience Factory 8.0 client-side mobile web application architecture

**WEF server generates HTML markup templates (without data) and JS; all data is retrieved from client using REST/JSON services.**

**Server-side and client-side web architecture compared**

**Server-side UI architecture**

- **Client Browser**
  - Rendered HTML
  - WEF JS Ajax Support For partial-page rendering

- **WEF Server**
  - Provider model
    - Web/REST Services, DB, SAP, Domino, etc.

  - Consumer model
    - Generates final HTML markup, including data

**Client-side UI architecture**

- **Client Browser**
  - WEF JS Client Runtime
  - HTML markup templates
  - Application data (JSON)

  - Rendered HTML

- **WEF Server**
  - Provider model
    - Web/REST Services, DB, SAP, Domino, etc.

  - Consumer model
    - Generates HTML markup templates and REST services

**Note:** The profiling features of WEF are supported – any number of variations can be generated from the same source model.
Demo – client-side applications, optionally using Dojo Mobile library
Things to be aware of with client-side support

- Each model is either client-side or server-side (no mixed mode within a model)
- Client-side mode has a subset of builders available
- For this release, client-side mode is focused on mobile devices
- Server-side mode provides complete functionality for mobile or desktop applications
- Server-side mode is the default recommendation for most customers
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Techniques for Creating Mobile Applications

Mobile web applications and multi-channel web sites
- Accessible over the internet without installing software
- Use device browsers to provide native-looking applications
- Built with standard web technologies (HTML5, CSS, JS)

Hybrid applications
- Installed applications that use web rendering components on the device with a native application shell
- Leverage standard web technologies (HTML5, CSS, JS)
- Provide the ability to use native device features

Native applications
- Installed applications built using each device's native SDK
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Use WebSphere Portal and Web Experience Factory for rapid development of mobile web apps
Combine Portal and Web Experience Factory with Worklight to provide hybrid features
IBM WebSphere Portal and Worklight

WebSphere Portal provides the premier framework for building and managing multi-channel web sites

- Can include dozens of applications and services, managed content, targeted and personalized delivery

With Worklight, you can create an installed device experience that combines any of those Portal-managed web site elements with hybrid device functions

- Camera, etc.
Sample WebSphere Portal hybrid application using device camera, built with Web Experience Factory and Worklight

- Hybrid application is built using Worklight and installed on device
- Application displays Portal navigation, content, and portlets, including portlets that access device features such as camera
- Web Experience Factory model-based tools are used to rapidly build views and forms for the portlet application
- Hybrid functions are added using JavaScript that calls Worklight libraries

1. View list and tap “Create” to add a new item
2. Fill out form and tap “Take Picture” to invoke camera
3. Point camera and take picture
4. Review thumbnail and tap “Submit”
5. Picture is uploaded to server along with form values
Web Experience Factory mobile applications: use cases and deployment scenarios

For mobile web applications: Web Experience Factory provides model-based, data-driven tools for ultra-rapid development of applications and user interfaces.

- Use the multi-channel support for multiple device renderings from a single model.
- Rapid data-driven development: from data to multi-channel applications in minutes.

For hybrid applications: Combine Web Experience Factory applications with Worklight to include hybrid features such as camera.

- Use Worklight to create shell application and to provide application access to device features.

For Portal or WAS: Any Web Experience Factory application (pure web app or hybrid) can run on WebSphere Portal or standalone on WebSphere Application Server (WAS).

- Applications in Portal
- Applications standalone on WAS
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How do I get started with Web Experience Factory mobile web application development?

- Go to the Web Experience Factory wiki for the latest links to downloads and resources
- The “Smart Phone and Mobile Device Development” page on the wiki has links to whitepaper, slides, and samples
- Install the free trial download and the samples and try it out!
Key resources for developers

• New – Web Experience Factory Community on developerWorks
  - http://ibm.co/factorycommunity
• Web Experience Factory wiki
  - Includes numerous samples and articles, best practices documents, and links to other resources
• Learning Roadmap from the Web Experience Factory wiki
  - Covers topics from your first installation to advanced topics such as creating builders
• Web Experience Factory forums on developerWorks
  - These are very active and are monitored closely by the Web Experience Factory team
  - Go here for specific questions or if you get stuck on anything
Summary

1) IBM Web Experience Factory has a very rich set of tools for the rapid development of great-looking mobile web applications

2) Use it with IBM WebSphere Portal Mobile Experience to provide a mobile UI for a complete multi-channel web site

3) Use the *dynamic profiling* feature of Web Experience Factory to easily create applications optimized for multiple device types, from a single source model
   - Desktop, smartphone, tablet, etc.

4) Combine Worklight with Web Experience Factory and WebSphere Portal to enable hybrid features such as camera

5) IBM Web Experience Factory is a mature product, with a deep set of tools and a complete developer ecosystem
Questions?
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