Globalization and Localization

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Agenda

• Part I – The Basics
  - Background
  - Defining the terms
  - Basic approaches to localization of web sites
• Part II – ASP.NET example
  - ASP.NET 2.0 Globalization features
  - Globalization examples
• Q & A
Part I

The Basics

Some Definitions

What is Internationalization?

- Internationalization (I18N)
  - I18N - end to end product development process -- adaptable to regional users needs.
  - I18N - two discreet, highly interrelated activities:
    • World Readiness
    • Localization (L10N)
Where’s Globalization?

- World Readiness has two components
  - Globalization (G11N)
  - Localizability
- Development & Design’s responsibility
  - *The earlier, the better!*

The High-level View

Internationalization

World-Readiness

Globalization

Development & Design’s responsibility

Localization

Localizability
What do they mean?

• **Globalization:**
  Developing program core with features and code design not solely based on single language or locale.

• **Localizability:**
  Software code designed -- base code + resources
  Result: Program can be localized into different languages without any changes to base code.

• **Localization:**
  Adapting applications for specific markets, content translation, feature customization, independent of compiled source.

Globalization Example
Locale/ Culture

- Language and cultural environment
- International Standards Organization (ISO) Conventions
  - Language Code: ISO 639-1 (i.e., en, fr, es)
  - Country Code: ISO 3166 (i.e., CA, EC)
  - Together, they identify culture (i.e., en-US)
  - See RFC 3066 – Tags for identifying languages
- Custom cultures are sometimes necessary

Storing Localized Content

- Deployment architecture affected by location of localized content
  - Resources, file system, database, external applications
- Choices influenced by application type
  - Microsoft Windows versus Web
- And by business requirements
  - Frequency of culture translations
  - Ease of translation process
  - Frequency of application maintenance
What to Localize for Web Apps?

- Static (hard-coded) application content
  - Menu/control captions, Web content, XML
- Dynamic application content
  - Database, XML, other
- Graphical content
- Filenames, connection strings, queries

Duplicate Site Content
Duplicate Site Content

Web Application Resources

- GlobalWeb.dll
- bin
- Global.asax
- Web.config
- logo.gif
- logo.en-CA.gif
- logo.es.gif
- logo.en-CA
- logo.es

Database Content

- Products
- Products_en-CA
- Products_es

Satellite Assemblies

- GlobalWeb.en.dll
- GlobalWeb.en-CA.dll
- GlobalWeb.es.dll

List Content Base

Web Application Resources

- GlobalWeb.dll
- bin
- Global.asax
- Web.config
- logo.gif
- logo.en-CA.gif
- logo.es.gif
- list.en-CA.xml
- list.es.xml

Database Content

- Products
- Products_en-CA
- Products_es
Part II

ASP.NET 2.0 Globalization Features

Localization Features in 2.0

- Web Forms resource generator
- Improved Resource Editor
- Declarative Localization
- Localization expressions
- Strongly-typed resources – Global resources
- UI Controls & Runtime Support
ASP.NET 2.0 and Resources

- XML Resources (*.resx)
- Generated for master pages, content pages, and user controls
- Accessible through page or control properties, declarative expressions, or other APIs
- Type-safe global resources
- Set multiple localized control properties in a single command

ASP.NET 2.0 and Resources (cont’d)

- App_LocalResources
  - Generated automatically or by hand
  - Per page, control
- App_GlobalResources
  - Manual generation
  - Shared, strongly-typed
- Pre-compile or deploy source files and let the resource build provider handle the rest
Culture Info

- `System.Globalization.CultureInfo`
  - Encapsulates language and region

<table>
<thead>
<tr>
<th>Culture Name</th>
<th>Culture Identifier</th>
<th>Language-Country/Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot; (empty str)&quot;</td>
<td>0x007F</td>
<td>invariant culture</td>
</tr>
<tr>
<td>en</td>
<td>0x0409</td>
<td>English</td>
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<td>0x1009</td>
<td>English - Canada</td>
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<tr>
<td>en-US</td>
<td>0x0409</td>
<td>English - United States</td>
</tr>
<tr>
<td>fr</td>
<td>0x040C</td>
<td>French</td>
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<tr>
<td>fr-CA</td>
<td>0x040CC</td>
<td>French - Canada</td>
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<td>0x0407</td>
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<tr>
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<td>es-EC</td>
<td>0x040A</td>
<td>Spanish - Ecuador</td>
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<td>es-ES</td>
<td>0x040A</td>
<td>Spanish - Spain</td>
</tr>
<tr>
<td>es-MX</td>
<td>0x040A</td>
<td>Spanish - Mexico</td>
</tr>
</tbody>
</table>

ASP.NET Globalization / Localization feature
Resources
• RFC 3066 – Tags for identifying language
• Standard Locale Identifiers and Strings
• Lots of good information here (*training*, *presentations*,
  *reference*, *samples*)
  http://www.microsoft.com/globaldev/default.mspx
• Best Practices for Developing World-Ready Applications
  http://msdn2.microsoft.com/en-us/library/w7x1y988.aspx
• **Don’t Forget Security!**
  Securing ASP.NET Web Sites
• Developing International Software
  *Good book on overall international issue solutions*

Resources (cont.)
• Translation Websites
  http://www.freetranslation.com
  http://world.altavista.com/tr
• Arabic and ASP.NET
  •
Thanks!