ONLINE FORMS DISCUSSION
Agenda

• Dynamic Forms Considerations
• Technical Solution Options
• Technical Solution Options – Pros & Cons
• Solution Overview
• Dynamic Forms
Dynamic Forms Considerations

• Problems to Solve
  • Reduce Form Design and Development Time
  • Allow Authorized Business Users to Update Form Content (near real-time)
  • Support Configurable Rules & Workflows
  • Maximize Form Reuse from State to State

• Problems to Avoid
  • High Development & Maintenance Costs
  • Limited Access to Support Resources
  • Technology Obsolescence
Technical Solution Options

• Native Microsoft .NET MVC
  • Standards Based & Tested
  • Native MVC Page Life Cycle

• Custom .NET Form Engine
  • Custom Design & Code
  • Custom Page Life Cycle
# Technical Solution Options – Pros

<table>
<thead>
<tr>
<th>Native Microsoft .NET MVC</th>
<th>Custom .NET UI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highly Flexible &amp; Feature Rich Web Page Design Capabilities</td>
<td>Less HTML Coding</td>
</tr>
<tr>
<td>Lower Development &amp; Maintenance Costs for Complex Forms</td>
<td>Lower Development &amp; Maintenance Costs for Simple Forms</td>
</tr>
<tr>
<td>Standards Based &amp; Tested Framework</td>
<td>Single Code Base for Page Rendering &amp; Processing</td>
</tr>
<tr>
<td>Easier and More Robust Integration with Business Rules and Workflow</td>
<td>Enhanced Flexibility for Real-time Form Display/Content Changes</td>
</tr>
<tr>
<td>Higher Application Performance</td>
<td>Reduced Reliance on IT Staff for Basic Form Design &amp; Development</td>
</tr>
<tr>
<td>Broad Support by Microsoft, Third Party Solutions, and the .NET Development Community</td>
<td></td>
</tr>
<tr>
<td>Greater Support for Automated Testing</td>
<td></td>
</tr>
<tr>
<td>Increased Opportunity for Form Reuse from State to State</td>
<td></td>
</tr>
</tbody>
</table>
## Technical Solution Options – Cons

<table>
<thead>
<tr>
<th>Native Microsoft .NET MVC</th>
<th>Custom .NET UI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable Design &amp; Code Time per Form</td>
<td>Higher Development &amp; Maintenance Costs for Custom Dynamic Forms Code Base</td>
</tr>
<tr>
<td>Dependency on .NET Developers for Form Design and Development</td>
<td>Dependency on Skilled Staff to Support Custom Dynamic Forms Code Base</td>
</tr>
<tr>
<td>Reduced Flexibility for Real-Time Form Display/Content Changes</td>
<td>Complex and Limited Integration with Business Rules and Workflows</td>
</tr>
<tr>
<td>More HTML Coding</td>
<td>Limited HTML Design &amp; Third Party Integration Capabilities</td>
</tr>
<tr>
<td></td>
<td>Reduced Application Performance</td>
</tr>
<tr>
<td></td>
<td>Susceptible to Technology Obsolescence</td>
</tr>
<tr>
<td></td>
<td>Limited Microsoft and .NET Development Community Support</td>
</tr>
<tr>
<td></td>
<td>Limited Form Reuse from State to State</td>
</tr>
</tbody>
</table>
Native Microsoft .NET MVC

- Broad Support by Microsoft, Third Party Solutions, and the .NET Development Community
- Lower Development & Maintenance Costs for Complex Forms
- Increased Opportunity for Form Reuse from State to State
Technical Solution – Application Tiers

User/Browser

Presentation
- Controllers
  - Views
  - Models

Business
- Business Managers
  - Rules
  - Data Access
    - Workflow

Data
- Repository Service
  - Entity Framework
    - RBDMS DB

Data Transport Objects
- Logging Service
- Other Services
### Native Microsoft .NET MVC - Dynamic and/or Configurable Elements

<table>
<thead>
<tr>
<th>Presentation</th>
<th>Business</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Web Page Labels, Text, Pre-Defined Content</td>
<td>Rules</td>
<td>Repository Type</td>
</tr>
<tr>
<td>Web Page Logo, Fonts, Colors, &amp; other Style Properties</td>
<td>Workflow</td>
<td>Configuration Settings</td>
</tr>
<tr>
<td>Form Validation &amp; Display Formatting</td>
<td>PDF Form Rendering</td>
<td></td>
</tr>
<tr>
<td>Form Sections &amp; Display Order</td>
<td>Configuration Settings</td>
<td></td>
</tr>
<tr>
<td>Configuration Settings</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Native Microsoft .NET MVC – Static Elements

<table>
<thead>
<tr>
<th>Presentation</th>
<th>Business</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Web Page Client Code – HTML, Javascript, etc.</td>
<td>Rule Processing Engine</td>
<td>Data Access Framework</td>
</tr>
<tr>
<td>Web Page Server Code – Models, Controllers, etc.</td>
<td>Workflow Processing Engine</td>
<td>Microsoft .NET Framework</td>
</tr>
<tr>
<td>Microsoft .NET &amp; MVC Framework</td>
<td>PDF Rendering Engine</td>
<td></td>
</tr>
<tr>
<td>Third Party Web Control Software</td>
<td>Microsoft .NET Framework</td>
<td></td>
</tr>
</tbody>
</table>
Dynamic Forms & Native Microsoft .NET MVC

- Form Profile
  - Profile Name/ID
  - Rule Metadata
  - Workflow Metadata
- Section (1 or more per Form)
  - Section Name/ID
  - MVC View
  - Display Order
  - Rule Metadata
- Element (1 or more per Section)
  - Name/ID
  - Html Element Name
  - Value
  - Rule Metadata
Form Profiles & Reusable Sections

Form Section Library

- Applicant Information
- Operator Information
- Well Information
- Bond Information
- Cement Information
- Casing Information

Form Profile #1
Form Profile #2
Form Profile #3
Form Profile #4
Profile/Section Example – Utah Permit to Drill

1. Application Information
   - Type Info
   - Applicant Info
   - Attachments
   - Signature & Date

2. Operator Information
   - Name and Address

3. Well Information
   - Name
   - Location Info
   - Other Data

4. Casing Information
   - Size, Grade, etc.

5. Cement Information
   - Type, Quantity, Yield, etc.
Profile/Section Example – Application Info

- **Section #1**
  - ✓ Type of Work
  - ✓ Type of Well

- **Section #2**
  - ✓ Attachments

- **Section #3**
  - ✓ Applicant Name
  - ✓ Applicant Title
  - ✓ Applicant Signature & Date
Profile/Section Example – Operator Info

- Section #1
  - ✓ Name
  - ✓ Address
  - ✓ Phone Number
Profile/Section Example – Well Info

- **Section #1**
  - Location
  - Name & Number
  - Other Info

- **Section #2**
  - Field & Pool
  - QTR/QTR, Section, Township, Range, Meridian
  - County & State

- **Section #3**
  - Proximity Distance & Acreage

- **Section #4**
  - Depth & Elevations
  - Bond Description
  - Approximate Start & Duration
Profile/Section Example – Casing Info

- Section #1
  - Hole Size
  - Casing Size, Grade & Weight (per foot)
  - Setting Depth
Profile/Section Example – Cement Info

- Section #1
  - Cement Type
  - Quantity
  - Yield
  - Slurry Weight

<table>
<thead>
<tr>
<th>APPLICATION FOR PERMIT TO DRILL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1A. TYPE OF WORK: DRILL □ REENTER □ DEEPEN □</td>
</tr>
<tr>
<td>1B. TYPE OF WELL: OIL □ GAS □ OTHER □</td>
</tr>
<tr>
<td>2. NAME OF OPERATOR:</td>
</tr>
<tr>
<td>3. ADDRESS OF OPERATOR:</td>
</tr>
<tr>
<td>4. LOCATION OF WELL (FOOTAGE):</td>
</tr>
<tr>
<td>5. DISTANCE TO NEAREST PROPERTY OR LEASE (FEET):</td>
</tr>
<tr>
<td>6. NUMBER OF ACRES IN LEASE:</td>
</tr>
<tr>
<td>7. NUMBER OF ACRES ASSIGNED TO THIS WELL:</td>
</tr>
<tr>
<td>8. PROPOSED DEPTH:</td>
</tr>
<tr>
<td>9. APPROXIMATE DATE WORK WILL START:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PROPOSED CASING AND CEMENTING PROGRAM</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIZE OF HOLE:</td>
</tr>
<tr>
<td>CASING SIZE, GRADE, AND WEIGHT PER FOOT:</td>
</tr>
<tr>
<td>SETTING DEPTH:</td>
</tr>
<tr>
<td>CEMENT TYPE, QUANTITY, YIELD, AND SLURRY WEIGHT:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ATTACHMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAME (PLEASE PRINT):</td>
</tr>
<tr>
<td>TITLE:</td>
</tr>
<tr>
<td>SIGNATURE:</td>
</tr>
<tr>
<td>DATE:</td>
</tr>
</tbody>
</table>

(See Instructions on Reverse Side)