SmartComponent Library

The OpenEdge Application Modernization Framework

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Consultingwerk Ltd.

- Independent IT consulting organization
- Focusing on OpenEdge and related technology
- Located in Cologne, Germany
- Customers in Europe, North America, Australia and South Africa
- Vendor of tools and consulting programs
- 26 years of Progress experience (V5 … OE11)
- Specialized in GUI for .NET, OO, Software Architecture, Application Integration

http://www.consultingwerk.de/
OpenEdge® application modernization solutions

- WinKit
- SmartComponent Library
- Dynamics4.NET

- Tools can be used together or separately
- Share common code base
Agenda

- Overview
  - Developing Business Logic
  - Developing GUI for .NET Frontends
  - Telerik Mobile Integration
  - Kendo UI/Angular JS
  - Migration and Modernization Options
  - DataDirect Integration
Key Application Modernization drivers

Data Visualization

Optimization of operational cost

UI/UX
Key Application Modernization drivers

- **UI and UX**
  - Attractive to users and competitive
  - Available on those devices used by users
  - Desktop, Web, Mobile

- **Data Visualization**
  - Support business decisions

- **Optimization of operational cost**
  - Maintainability of applications
  - Availability of skilled professionals
  - Availability and scalability
SmartComponent Library

- Developer Framework aimed to increase Developer productivity and flexibility
- Reduce or avoid repeating tasks
  - Tools (code generation and round-trip dev.)
  - Integration with existing Progress tools (OpenEdge, Telerik, BPM, Corticon, …)
  - Application Framework
- Allow integration with existing Applications and Frameworks (3rd party or home grown)
- Allow usage of individual framework components as needed (not all or nothing)
SmartComponent Library

- Provide Best Practices (object-orientation, ABL, OERA = OpenEdge Reference Architecture)
- Don’t force developer in a certain direction, remain flexible for different requirements
- Backend business logic as the application “gold”
- Support for UI flexibility
  - Multiple UI’s for the same application
  - UI of the month…
- Optional use of Application Framework (Security, Menu, Localization, …) or existing
SmartComponent Library

- „eat your own dog food“
- Most of our tools are written using our own libraries and tools, 99.9% ABL code
- Full source code shipped to customers
- Weekly incremental releases (48 releases/year)
- Allow legacy code integration (call in/out)
- Designed with customization in mind
- don’t understand “best practices” as the “only right way”
Main Milestones and Building Blocks

- Telerik
  - .NET Rad Controls
  - Kendo UI
  - NativeScript
- SmartComponents.Web2
- Future Roadmap
- CCS
- SmartFramework
  - Application Framework
- SmartComponents.Web
- Xamarin MonoTouch
- OpenEdge Mobile Rollbase
- OERA Backend
- Business Entity Designer
- GUI for .NET Frontend Class Library
OpenEdge Version support

- 10.2B07, 10.2B08
- 11.3.2, 11.3.3 – 11.6
- First day support for 11.6
- 32 bit/64 bit
- Classic AppServer/WebSpeed
- PASOE
- …
Application Framework Features

- Authentication, including client-principal support and multi-tenancy
- Flexible authorization (menu, toolbar, business logic, custom tokens, …)
- Localization (full UI translation)
- Definition based referential integrity
- Batch scheduler
- Enhanced Unit testing framework
- …
Common Component Specification

- Initiative by Progress Software, Partners and Customers
- Goal is to define **common understanding** and **architectural patterns** to allow **interoperability** of **framework components** from different vendors
- Reduce risk of vendor lock in
- Ensure future compatibility with Progress Software roadmap
- Ensure interoperability with Progress new UI toolkit
Common Component Specification

- Consultingwerk founding member of CCS
- Team leader of Business Entity spec-team

- Containing the term „Component“ in the product name since 9 years – since product launch
- Framework was designed to allow interoperability with 3rd party components
- Framework fully compatible with CCS-ARCH1, CCS-SSS and CCS-BE specs
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Backend Overview

- The SmartComponent Library provides a flexible OERA Backend Architecture
- **OpenEdge Reference Architecture**
- Business Entities, Data Access Objects are a key component
- Tools to help developers to stay in line with the architecture
- Business Tasks, including ability for scheduled or async processing
- Common Infrastructure Components
Business Logic Design Process

- Main Business Logic Components are
  - **Business Entities**: High level business rules
  - **Data Access Objects**: Data retrieval and update
  - **Business Task objects**
- Multiple programming paradigms
  - object-oriented
  - **ProDataset based or object-relational**
  - procedural
Business Logic Design Process

- Template based, Visual Design using Diagrams
- Flexible source code generator
  - Customizable templates
  - Customizable code generator (ABL class)
- Plugin Infrastructure (integrate your own ABL code)
  - Influence automatic naming and design process
  - Add and enhance code generation
- Query custom repositories during design phase
- Ad-hoc based Business Entity Test utility
Demo 1

- Create SalesRep Business Entity
- Review in Progress Developer Studio
- Add „CustomDescription“ and „AverageQuota“ Calculated Fields
Demo 2

- Create Customer Business Entity
- Query Customer using DatasetModel
- Add Validation on Name
- Update using DatasetModel
- Add custom method to Business Entity
  - Put Customer On Hold
- Invoke custom method using Model Method
Business Logic reuse – write once use in:

- OpenEdge GUI for .NET
- OpenEdge GUI/TTY/Batch
- Telerik Kendo UI
- Telerik Mobile and NativeScript
- WebSpeed
- OpenEdge BPM
- Native Mobile Applications (Xamarin Studio)
- Progress Rollbase
- Web Services and REST Services
- Sonic ESB
- DataDirect ODBC
- Unit Testing frameworks
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- **Developing GUI for .NET Frontends**
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GUI for .NET Frontend overview

- GUI for .NET client infrastructure
- Extension to OpenEdge UltraControls / Infragistics NetAdvantage for .NET Controls
- Other Control sets may be used
- Tightly Integrated into the .NET Visual Designer
  - configuration of behavior and design in a single and intuitive place
  - no restrictions to the way .NET Controls are used
  - wizards and property sheets for repetitive tasks
User Interface Design Process

- Screen design based on rich foundation classes
- Compose Forms by adding rich SmartComponents and standard .NET Controls
- Connect and parameterize SmartComponents using property grid and Wizards
- Data centric design process: Achieving UI Design productivity similar to the AppBuilder
User Interface Design Process
Tight integration with Control libraries

- Infragistics NetAdvantage .NET Controls / Infragistics WinForms
- OpenEdge UltraControls

- Following Progress‘ acquisition of Telerik we are implementing optional support for Telerik RadControls (available late 2016)
Demo

- Use Business Entity Designer to generate UI
- Open in Visual Designer
- Add Salesrep Lookup in Visual Designer
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Support for Progress/Telerik Mobile

- SmartComponent Library Backend and Progress/Telerik Mobile and Web Options = perfect match!
- Full support for complete JSDO functionality

JSDO  Consultingwerk likes this.
Support for Progress/Telerik Mobile

- Generic REST Service Interface for JSDO based clients
  - Full CRUD support
  - Invoke-Methods
- No need to redeploy new REST application for every single application
- Direct access to any Business Entity or Business Task that the current user is authorized for
Demo Telerik Mobile Platform

- Create a new hybrid mobile project in Telerik Mobile platform using Wizard
- Add access to SalesRep Business Entity
- Leverage same Business Entity in Web and Desktop

- Recorded version of the demo: https://www.youtube.com/watch?v=m-63Wzpjs9c
Demo Telerik Mobile Platform

- Business Entity Designer plugin to generate UI Views
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SmartComponents.Web2

Kendo UI
THE ART OF WEB DEVELOPMENT

AngularJS
by Google
SmartComponents.Web2

- Angular JS is a MVVM framework for browser based applications
- Binding Data to UI Elements
- Separate Data, View and Code
- Kendo UI provides Angular JS integration
- SmartComponents2.Web2 implements similar programming model as in GUI for .NET
- Configurable data sources and communication between UI components
Demo Kendo UI

- AppServer Backend
- Generate Kendo UI Grid Screen
- Server-side filtering, sorting
Demo

```html
<div ng-controller="simpleCtrl" style="background-color: white;">
  <h1>Salesreps</h1>
  <div class="row">
    <div class="col-md-28">
      <smart-data-source
        smart-object-name='salesrepDataSource'
        smart-entity-table="eSalesrep"></smart-data-source>
      <smart-grid
        smart-object-name='salesrepGrid'
        smart-data-source='salesrepDataSource'
      ></smart-grid>
    </div>
    <div class="col-md-20">
      <smart-toolbar
        smart-object-name='salesrepToolbar'></smart-toolbar>
      <smart-viewer
        smart-object-name='salesrepViewer'
        smart-data-source='salesrepDataSource'
        smart-tableio-source='salesrepToolbar'
      ></smart-viewer>
    </div>
  </div>
</div>
```
Progress UI flexibility strategy

- SmartComponents.Web2 built to fit with Progress UI strategy
- Built around UI meta data
  - Annotations in code
  - Repository Database
  - Generated code
- Common Component Specification compliant
- Progress Kendo UI Builder designer will fit greatly into our Web strategy
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SmartComponent Library and WinKit

- **SmartComponent Library** and **WinKit** are part of our GUI for .NET adoption and migration strategy
  - WinKit: Enhancement of existing screens
  - SmartComponent Library: New functionality
- Shared framework foundation classes
- Compatible directory and project structure
- Used side by side in customer projects
- Over 40 different WinKit implementations already
- WinKit included in SmartComponent Library
### Order Maintenance

**Order Num:** 1  
**Ordered:** 23/01/09

**Order Status:** Shipped

- **Shipped:** 28/01/2009
- **Promised:** 28/01/09
- **Cust Num:** 53  
  **Name:** Offside Hockey
- **Carrier:** FlyByNight Courier  
  **Terms:** Net30  
  **PO:**

- **Orderlines**
- **Customer Detail**

#### Order Lines

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<th>Item Num</th>
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<th>Qty</th>
<th>Price</th>
<th>Extended Price</th>
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**Line Num:** 1

- **Item Num:** 54
- **Item Name:** Canoe
- **Price:** 4.86
- **Qty:** 30  
  **Extended Price:** 131.22

**Discount:** 10%

**Order Line Status:** Shipped
Migration and Modernization options

- Enhance and extend existing applications
  - SmartComponent Library integrates with existing applications and frameworks
  - SmartComponent Library functionality can be accessed from existing code
  - SmartComponent Library can access existing code, typically of any kind
    - direct execution or through adapters
    - custom service or component implementations
    - Don’t worry about SHARED VARIABLES etc…
Alternative

- Migration of existing Applications
Migration and Modernization options

- Source code migration
- Options vary based on current code
- Strong usage of Proparse for analyzing source code, importing into Business Entity Designer
- Migration of any kind of applications
  - custom
  - ADM1, ADM2 or Dynamics
- Template based migration of UI components
- API for ABL Widget abstraction
Demo

- Migration of ABL Browse Widget
  - Rewrite of Calculated Field
  - Creation of matching Business Entity
  - Test from MS-Excel
- Migration of ABL GUI for .NET Frame
  - Implement ABL Widget abstraction
- Migration to Angular JS View
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DataDirect OpenAccess for OpenEdge

- Access your OpenEdge business logic from standard desktop applications such as Crystal Reports, Qlik View, MS Office
- Turn ABL business logic into standard ODBC data sources
- Provide BI access to application data and business logic not just the SQL database
- Use ABL code to create reporting views
DataDirect OpenAccess for OpenEdge

- Use ABL data access and data utilization
- Reuse of existing ABL code possible
- Manipulate query string from the ABL
- Leverage existing application security when accessing data
- Leverage existing validation logic when processing data updates, including support for database trigger!
- Access your data in LAN and via Internet
One-click integration with OpenAccess

- Expose Business Entities as ODBC data source
- Define result set properties and generate all required assetts
Demo

- Access SalesRep Business Entity with migrated Quota Field from Excel

- Review interface procedure and JSON Catalog
Feature review

- One-click interface generation through wizard
- Template based
- Join multiple Business Entity tables into a single result table
- Calculated field support
- Define execution limits (number of rows and number of seconds)
- Query manipulation support
Don’t miss our other presentations

- Monday 11:00: CCS Deep Dive (Mike)
- Tuesday 11:00: OO-Oh (Mike)
- Tuesday 13:00: Application Modernization using the SmartComponent Library (Mike and Marko)
- Tuesday 16:45: REST in Peace (Mike)
- Wednesday 11:00: CCS BoF (all CCS)
- Wednesday 11:00: Angular JS for OpenEdge programmers (Marko)