Getting started with Embedded Windows
An introduction into WinKitLE

http://www.consultingwerk.de/winkitle/

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PUG Challenge Americas 2011, Westford, MA
Consultingwerk Ltd.

- Independent IT consulting organization
- Focusing on OpenEdge and .NET
- Located in Cologne, Germany
- Vendor of tools and consulting programs
- 21 years of Progress experience (V5 … V10)
- GUI for .NET early adaptor (since 10/2006)
- Just started with iPhone/iPad app development

http://www.consultingwerk.de/
Consultingwerk Ltd.

- Customers in Germany, Europe, USA
- Working with small to large Progress Partners and direct end users
- Supporting some of the largest Progress Partners in Germany, Belgium, The Netherlands, Austria and UK with application modernization and user interface technologies
- Network of partnering consultants, like ic4b for Web UI’s, Whitestar Software, DBAppraise

http://www.consultingwerk.de/
Solutions for the OpenEdge GUI for .NET

- **WinKit**
- SmartComponent Library
- Dynamics4.NET

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

- Overview OpenEdge GUI for .NET
- Adoption challenges
- Adoption strategies using WinKit
- WinKit Features
- Customer Examples
- Hands-On Labs
Agenda

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OpenEdge GUI for .NET

A Microsoft® .NET™ based Windows graphical user interface that can replace or be integrated into an existing OpenEdge GUI application.
OpenEdge GUI for .NET

- State-of-the-art UI on the Windows desktop
- Integrated feature of OpenEdge 10.2A and 10.2B
- Supported by both GUI clients
  - fat client, prowin32.exe
  - WebClient
- No separate license required
  - Deployment
  - Development
- Access and use any .NET control

WinKit – Window Integration Toolkit
Agenda

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Adoption Challenges

- Need to support pre-10.2A users as well
- Not every Progress partner has SCM strategy that supports parallel development on two versions of the same application
- Thousands of existing screens
  - Progress isn’t used to build small applications
- Many Progress applications haven’t adopted latest language features at all

WinKit – Window Integration Toolkit
Adoption Challenges

- Training requirements
  - OO fundamentals (new programming paradigm)
  - .NET fundamentals
  - Infragistics controls (or any other vendor)
  - OpenEdge 10.0: ProDatasets etc.
- New tool: OpenEdge Architect
Adoption Challenges

- How much modernization is possible without a rewrite?
- What are our architecture requirements?
- Where’s a reference implementation of that new target architecture?
- Our application depends on a tailored framework and templates – how can we migrate that framework?
Agenda

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GUI for .NET adoption using WinKit

- Consultingwerk’s best practice approach to GUI for .NET adoption
- WinKit is based on Embedded Windows
- ABL Windows embedded into .NET Forms
- Core feature of OpenEdge 10.2A and 10.2B
- Contents of Window will be embedded into a .NET control
GUI for .NET adoption using WinKit

- Original source code used in the context of GUI for .NET
- Just minor modifications that typically remain code compatibility with previous Progress releases
- No architectural change required
- Existing application framework or templates used
- Developers may continue to use AppBuilder for maintenance of existing screens

WinKit – Window Integration Toolkit
GUI for .NET adoption using WinKit

- Original intention was mixed mode MDI
- Upgrading the appearance of ABL application by using .NET controls (menu, toolbar, Explorer bars, dockable panes, lookups with UltraGrid, …)
- Step-by-step introduction of additional (Infragistics) controls to increase users productivity
- Active X controls contained on the window are well supported (documented in K-Base)
GUI for .NET adoption using WinKit

- WinKit simplifies the integration of ABL windows into the OpenEdge GUI for .NET using
  - Enhancements to existing programs, templates and the framework using include files
  - An API / SDK that simplifies embedding and enhancing existing windows
  - Templates for GUI for .NET designs that can be adjusted to a customers demand
Demo

- WinKit Sample MDI container showing various embedding scenarios
  - AppBuilder view
  - Embedded view (runtime)
  - MDI Childs with Toolbar
  - Independent Windows with ribbons
  - Turning ADM2 Tabfolder into dockable panes
  - Overlaying ABL Browse Widget with UltraGrid control
Agenda

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  - WinKit Features
  - Customer Examples
  - Hands-On Labs
WinKit Features

- prebuild GUI for .NET Templates that simply embedding and enhancing of ABL Windows
- functional .NET MDI container
- integration into GUI for .NET by adding 3 include files into program windows
- very often these include files can be added to existing framework without modification of .w files
- menu and toolbar rendering to Infragistics UltraToolbarsManager
WinKit Features

- All program logic remains in the .w file (procedural code)
- .NET event handlers execute ABL triggers as needed
- ABL triggers enabled to cancel processing of .NET events like Form- or Window-Closing
Toolbar- and Ribbon Designer

- Developer utility that allows to modify the generated Infragistics menu and toolbar structures using a Visual Studio like UI Designer
- Add Images, change menu structure, use additional UltraToolbarsManager controls
- Turn Menu and Toolbar into a Ribbon!
WinKit Features

- Further enhancements of ABL windows, like
  - integration of DatePopups
  - replacement of selected ABL Widgets with .NET Controls
  - replacement of ABL Browse with UltraGrid
  - integration of SplitContainer, UltraTabFolder or Dockable Panes
  - changes to colors and fonts used
  - ...
WinKit Migration Tool

- automated migration of ABL Windows
- based on AppBuilder, AppBuilder API
- integration of required include files
- integration of hooks into existing program logic to refresh .NET UI when required
- removes Windows Icon
- process a single file at a time or a list of files
Demo

- Order maintenance
  - ABL UI
  - Embedded, basic features
    - Toolbar and menu rendered
    - Browser replaced with UltraGrid
  - Embedded, advanced features
    - SplitContainer, UltraTab
    - Ribbon
Agenda

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Reference I: Update Texware / Germany

- ERP for textile producers of a German Progress partner
  - AppBuilder view
  - Runtime GUI for .NET
- Own framework, developed in V7/V8
- Transition to multi-window application
- Challenge with pessimistic locking and large transactions
- 10 days of research, customization of customers' framework and WinKit

WinKit – Window Integration Toolkit
Reference I : Update Texware / Germany
Reference I: Update Texware / Germany

Firma: Progress
Bezeichnung: Progress
Steuernummer: 123123123345
Umsatzsteuer-Identnr.: DE1234567890
ILN-Nummer:
Zollnummer:

<table>
<thead>
<tr>
<th>Firma Bezeichnung</th>
<th>Nation</th>
<th>Sprache</th>
<th>Währung</th>
</tr>
</thead>
<tbody>
<tr>
<td>Progress</td>
<td>DE</td>
<td>K</td>
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<td>Mustermandant</td>
<td>DE</td>
<td>D</td>
<td>EUR</td>
</tr>
</tbody>
</table>
Reference I: Update Texware / Germany
Reference I: Update Texware / Germany

- Case study available at:
- http://www.consultingwerk.de/update-texware/
Reference II: Shuttleworth / UK

- UK-based Progress Partner
- Huge ERP system for printing industry
- V8 style framework (ADM1-like)
- Clear vision of Outlook look-and-feel
- Browse windows as MDI children
- Data windows as separate windows
  - Similar to Outlook where Emails and Appointments are opened separately
- Majority of changes in existing framework
- Minor changes to existing screens
### Menu Toolbar & Browse Window

#### SBS403 DEV

<table>
<thead>
<tr>
<th>File</th>
<th>Navigate</th>
<th>Reporting</th>
<th>Tools</th>
<th>Import</th>
<th>Export</th>
<th>Window</th>
<th>Help</th>
</tr>
</thead>
</table>

#### Selector - Company

<table>
<thead>
<tr>
<th>Company</th>
<th>Sales Ledger Code</th>
<th>Purchase Ledger Code</th>
<th>Prospect</th>
<th>Customer</th>
<th>Supplier</th>
<th>Active Customer</th>
<th>Active Supplier</th>
</tr>
</thead>
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<td></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Abbey</td>
<td>ABG01</td>
<td></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td></td>
</tr>
<tr>
<td>ABC Printing &amp; Company</td>
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<tr>
<td>aks company</td>
<td>aka01</td>
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<td></td>
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</tr>
<tr>
<td>another new company</td>
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<tr>
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<td>Yes</td>
<td>Yes</td>
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<td>Bens company</td>
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<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Bob the supplier</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

[Image of the GUI interface with company selector and table details]
### Entities

- **Home**
- **Company**
- **Event**

#### Navigation

- **Company**
- **Event**

#### Company Filter:

- Prospective Customers
- Customers
- Suppliers

#### Drag a column header here to group by that column:

<table>
<thead>
<tr>
<th>Company</th>
<th>Pros</th>
<th>Activ</th>
<th>Acti</th>
<th>Main Site</th>
<th>Post Code</th>
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</tr>
<tr>
<td>Butlin and Co.</td>
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</tr>
<tr>
<td>Dave</td>
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<td></td>
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<tr>
<td>Dave 2</td>
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<td>Eastpoint</td>
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<td>Halifax</td>
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<td>HBOS pic</td>
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<td>highland company</td>
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<tr>
<td>Imported Company 1</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

**New Group**

**New Group**
Menu Toolbar & Browse Window

ABL Frame

The Shutlworth System <Selector - Company>
**Shuttleworth: Data Window**

![Data Window Screenshot]

### Company - ABC Printing & Company

#### Company Details:
- **Main Representative:** Mark Bradley
- **Market:** England
- **Vat Code:** None
- **Vat Registration Number:** ABC135798642
- **Accounts System:** Company 1
- **Sales Ledger Code:** Jones
- **Default Sales Nominal:** None
- **Settlement Days:** 0
- **Settlement Discount %:** 0.00
- **Invoice Discount %:** 0.00
- **Default Invoice Template:** Bob Invoice
- **Default Credit Template:** None
- **Default Quotation Template:** None
- **Default Production Delivery Template:** Bob delivery
- **Default Carrier:** Standard UPS UK
- **Default Commodity:**
- **Default Delivery Term:**
- **Default Currency:**
- **Exchange Rate:** 0.00000000
- **Summary Exchange Values:** System Default
- **Default Commodity:**
- **Default Delivery Term:**
- **Default Carrier:** Standard UPS UK
- **Warehousing Charges**

#### Communication Numbers:
- **Default Special Uplift %:** 0.00
- **Default General Uplift %:** 0.00
- **Round Up:** 0
- **Invoice Discount %:** 0.00
- **Default Quote Print Price:** None
- **Default Invoice Template:** Bob Invoice
- **Quote Print Run On Price:** None
- **Default Credit Template:** None
- **Default Quotation Template:** None
- **Default Production Delivery Template:** Bob delivery
- **Default Carrier:** Standard UPS UK
- **Multiple Jobs on Automatic Invoices**
- **Multiple Sop Orders on Automatic Invoices**

#### Customer Details:
- **Customer:**
- **SOP Details:**
- **Other Details:**
- **Reps:**
- **Estimates:**
- **Jobs:**
- **Master Estimates:**
- **Completed Jobs:**
- **Brands:**
- **Charge:**
### Company Details

**Main Representative:** Mark Bradley

**Market:** England

**Default Pricing Group:** Martin's test

**Default Special Uplift:** (None)

**Default Special Uplift %:** 0.00

**Default General Uplift:** (None)

**Default General Uplift %:** 0.00

**Default Quote Print Price:** (None)

**Quote Print Run On Price:** (None)

**Company Code:**

**Business Unit:**

**Pecs Code:**

**Pecs Overall Code:**

**Summary Exchange Values:** System Default

**Default Sales Nominal:**

**Vat Code:** (None)

**Vat Registration Number:** ABC13578642

**Accounts System:** Company 1

**Sales Ledger Code:** Jones

**Settlement Days:** 0

**Settlement Discount %:** 0.00

**Invoice Discount %:** 0.00

**Default Invoice Template:** Bob Invoice

**Default Credit Template:** (None)

**Default Quotation Template:** (None)

**Default Production Delivery Template:** Bob del note

**Default Currency:**

**Exchange Rate:** 0.00000000

**Default Commodity:**

**Default Delivery Term:**

**Default Carrier:** Standard UPS UK

**Warehousing Charges:**
ABL Frame
Reference III: CCE / Belgium

- ERP for food industry
  – before
  – after
- Own framework, developed since V8
- ADM1 elements
- WinKit as an intermediate solution
- High demands for added productivity and “demo” features

User Interface modernization
Reference III: CCE / Belgium

Auftrag-Nummer: 2011000034
Bestell-Typ: sr
Filiale: SEGA
Einheit: 1

Lief-Kunde: BART001
Bestell-Kunde: BART001

Art/art: Assortiment

Leverdatum: 09/09/11
Vrijdag

Bestell-Kunde: BART001
Bestell-Typ: FAX
Bestellungsbestätigung: FAX

Art Verkauf: STD
Afhandeling: VRD

Bestelldatum: 28/01/11
Bestätigungdatum: 
Anzahl Bestätigungen: 0

Kontakt: Bart & Van Beversluys
BE 1120 Bruxelles (Neder-Over-Heembeek)

Tel: 09 328 06 691234
GSM: 
Fax: 

BVB-Typ: 
Eindatum: 

Status: ACCP

Belgium
ABL FRAME for Print Selection and Functions

<table>
<thead>
<tr>
<th>Printer:</th>
<th>2</th>
<th>Notepad</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volgorde:</td>
<td>1. code</td>
<td></td>
</tr>
<tr>
<td>Aantal:</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Taal code:</td>
<td>01: Nederlands</td>
<td></td>
</tr>
</tbody>
</table>

**Selectie:**
- Vestiging:
- Magazijn:
  - Alle Artikel
  - Prod. groep
  - Configurator
  - Art. selectie
  - Art. Functie

**Artikel Code:**

**Kenmerk 1:**

**Kenmerk 2:**

**Kenmerk 3:**

**Kenmerk 4:**

**Aankoop km 1:**

**Aankoop km 2:**

**Aankoop km 3:**

**Aankoop km 4:**

**Merk:**

**Status:**
- Uiterste verbruikdatum
- Produktiedatum
- Interne verbruikdatum
- Van:
- Tot:

**Locatie type:**

**Locatie Van:**

**Locatie Tot:**

**Stock unit:**

**Omverpakking:**

**Lotnummer:**

**Extern Lot**

**Fifo order:**

**Leverklant:**

**Selectie van de printer**
Ribbon for Print Selection and Functions
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- Overview
- Adoption challenges and strategies

Running .NET Forms from ABL menus

- Simple embedding
- Embed an ABL window using the WinKit
- Add an Icon to the .NET Form
- Rendering of Toolbars
- Refreshing Toolbars
- Color customization
- Rendering of Browsers
Running .NET Forms from ABL menus

- Requires: The (one and only) WAIT-FOR Statements needs to be .NET style
- Small modification in mainmenu.w program

```plaintext
WAIT-FOR CLOSE OF THIS-PROCEDURE.

/* .NET WAIT-FOR not associated to a .NET Form */

/* Use this method to terminate the WAIT-FOR, e.g from a WINDOW-CLOSE trigger. */
```
Running .NET Forms from ABL menus

- Requires: The (one and only) WAIT-FOR Statements needs to be .NET style
- Small modification in mainmenu.w program

```plaintext
WAIT-FOR CLOSE OF THIS-PROCEDURE.
/* .NET WAIT-FOR not associated to a .NET Form */
/* Use this method to terminate the WAIT-FOR, e.g from a WINDOW-CLOSE trigger. */
```

Replace WAIT-FOR for .NET support
Running .NET Forms from ABL menus

- Code of MAIN-BLOCK after implementing the .NET WAIT-FOR

```
MAIN-BLOCK:
DO ON ERROR   UNDO MAIN-BLOCK, LEAVE MAIN-BLOCK
   ON END-KEY UNDO MAIN-BLOCK, LEAVE MAIN-BLOCK:
   RUN enable_UI.
   IF NOT THIS-PROCEDURE:PERSISTENT THEN
   /*  WAIT-FOR CLOSE OF THIS-PROCEDURE.*/
END.
```
Running .NET Forms from ABL menus

- Code of CLOSE Trigger to end the session

```ABL
ON CLOSE OF THIS-PROCEDURE DO:
  RUN disable_UI.


END.
```
Running .NET Forms from ABL menus

- Hands on:
  Source converting (keep old ABL menu) (Lab 1)
Agenda

- Overview
- Adoption challenges and strategies
- Running .NET Forms from ABL menus
  - Simple embedding
    - Embed an ABL window using the WinKit
    - Add an Icon to the .NET Form
    - Rendering of Toolbars
    - Refreshing Toolbars
    - Color customization
    - Rendering of Browsers
Simple embedding

- Calling an ABL window from a .NET Form
  Hands on: Lab 2.1

- Embedding ABL windows using the Progress.Windows.MdiChildForm
  Hands on: Lab 2.2
  - Create an include file (makeEmbedded.i)
  - Add the include file to the ABL window code

- Run a .NET Dialog from an ABL window
  Hands on: Lab 2.3
Agenda

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- Color customization
- Rendering of Browsers
Embed an ABL window using the WinKit

- List of include files supplied by the WinKit
  - src/winkit/embedwindow.i
  - src/winkit/embedfinalize.i
  - src/winkit/closewindow.i
Embed an ABL window using the WinKit

- Hands on:
  Lab 3
Agenda

- Overview
- Adoption challenges and strategies
- Running .NET Forms from ABL menus
- Simple embedding
- Embed an ABL window using the WinKit
  - Add an Icon to the .NET Form
- Rendering of Toolbars
- Refreshing Toolbars
- Color customization
- Rendering of Browsers
Add an Icon to the .NET Form

- Set the Icon property of the oFormControl

PROCEDURE finalizeEmbedding :

/* Mike Fechner, Consultingwerk Ltd. 11.11.2010
Load an Icon for the .NET Form */

FILE-INFO:FILE-NAME = "images\window2.ico".

IF FILE-INFO:FULL-PATHNAME > "" THEN
    oFormControl:Icon = NEW System.Drawing.Icon
    FILE-INFO:FULL-PATHNAME).

END PROCEDURE.
Add an Icon to the .NET Form

- Hands on:
  Lab 4
Agenda

- Overview
- Adoption challenges and strategies
- Running .NET Forms from ABL menus
- Simple embedding
- Embed an ABL window using the WinKit
- Add an Icon to the .NET Form

- Rendering of Toolbars
- Refreshing Toolbars
- Color customization
- Rendering of Browsers
Rendering of Toolbars

- Build a Toolbar from the button widgets in the first 1.5 rows of the ABL window
- Move up the window frame to hide the buttonwidgets

Consultingwerk.Util.UltraToolbarsHelper:BuildToolbarFromFrame
  (FRAME {&frame-name}:HANDLE,
   {&window-name}:HANDLE,
   1.5,
   oForm:ToolbarsManager).

oForm:WindowContainerRowOffset = 27.
Rendering of Toolbars

- Hands on:
  Lab 5
Agenda

- Overview
- Adoption challenges and strategies
- Running .NET Forms from ABL menus
- Simple embedding
- Embed an ABL window using the WinKit
- Add an Icon to the .NET Form
- Rendering of Toolbars
  - Refreshing Toolbars
- Color customization
- Rendering of Browsers

WinKit – Window Integration Toolkit
Refreshing Toolbars

- Invoke the RefreshTools method of the UltratoolbarsHelper wherever the state of a button gets changed in code

FINALLY:
END FINALLY.
Refreshing Toolbars

- Hands on:
  Lab 6
Agenda

- Overview
- Adoption challenges and strategies
- Running .NET Forms from ABL menus
- Simple embedding
- Embed an ABL window using the WinKit
- Add an Icon to the .NET Form
- Rendering of Toolbars
- Refreshing Toolbars
- Color customization
- Rendering of Browsers
Color customization

- Set the background color of each frame
- Set the background color of the ABL window

Consultingwerk.Util.WidgetHelper:SetFrameBackgroundColor

({&window-name}, 33, 15, 15).

{&window-name}:BGCOLOR = 33.
Color customization

- Hands on:
  Lab 7
Agenda

- Overview
- Adoption challenges and strategies
- Running .NET Forms from ABL menus
- Simple embedding
- Embed an ABL window using the WinKit
- Add an Icon to the .NET Form
- Rendering of Toolbars
- Refreshing Toolbars
- Color customization

WinKit – Window Integration Toolkit
Rendering of Browsers

- Define reference variable for the RenderedBrowseControl

```
DEFINE VARIABLE oGrid AS
  Consultingwerk.WindowIntegrationKit.Controls.RenderedBrowseControl
  NO-UNDO.
```
Rendering of Browsers

- Create the .NET control

```csharp
oGrid = NEW Consultingwerk.WindowIntegrationKit.Controls.RenderedBrowseControl
  (BROWSE {&browse-name}:HANDLE,
   oForm,
   oForm:ClientArea,
   FALSE,
   THIS-PROCEDURE).
```
Rendering of Browsers

- Implement view and hide logic for the RenderedBrowseControl

```plaintext
IF rs-show = 1 THEN DO:
    VIEW FRAME frame-a .
    HIDE FRAME frame-b .
&IF DEFINED (winkitactive) NE 0 &THEN
    IF VALID-OBJECT (oGrid) THEN
        oGrid:VISIBLE = TRUE .
&ENDIF
END.
ELSE DO:
    HIDE FRAME frame-a .
    VIEW FRAME frame-b .
&IF DEFINED (winkitactive) NE 0 &THEN
    IF VALID-OBJECT (oGrid) THEN
        oGrid:VISIBLE = FALSE .
&ENDIF
END.
```
Rendering of Browsers

- Hands on:
  Lab 8
Questions

http://www.consultingwerk.de/
Don‘t forget to fill out your card!

All visitors of our booth and attendees of our presentations or workshops that have a business card or fill out a short form will enter a drawing for an Apple iPod Touch.

The lucky winner will be announced at the end of the conference.

- Getting started with Embedded Windows,
  A practical introduction into WinKitLE (practical hands-on workshop), Mike Fechner & Marko Rüterbories, Sunday, June 5th, 1:30 – 4:30
- SmartComponent Library: GUI for .NET and OERA the productive way!
  (Commercial presentation), Mike Fechner & Marko Rüterbories, Monday, June 6th, 4:00 – 5:00
- Extending the OpenEdge Architect Visual Designer,
  Mike Fechner, Tuesday, June 7th, 4:00 – 5:00
- Extreme Windows Desktop Integration,
  Mike Fechner, Wednesday, June 8th, 11:15 – 12:15

Visit us at booth 11

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