

Delphi and C++Builder Developer Workshop:

Migrating VCL Applications to FireMonkey

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Agenda

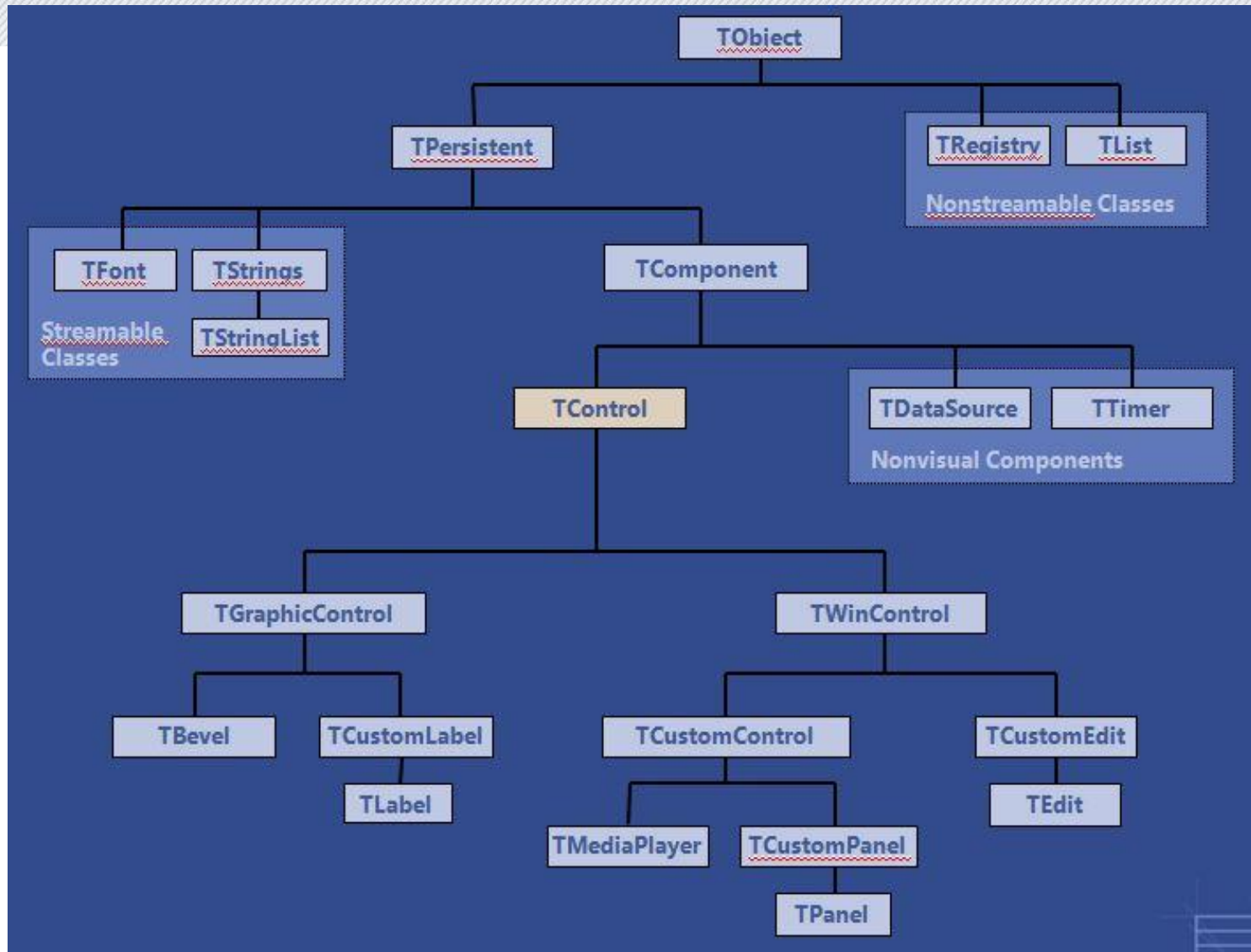
- Comparing VCL and FMX
- Mida Converter
- Demos
- Q&A

Comparing VCL and FMX

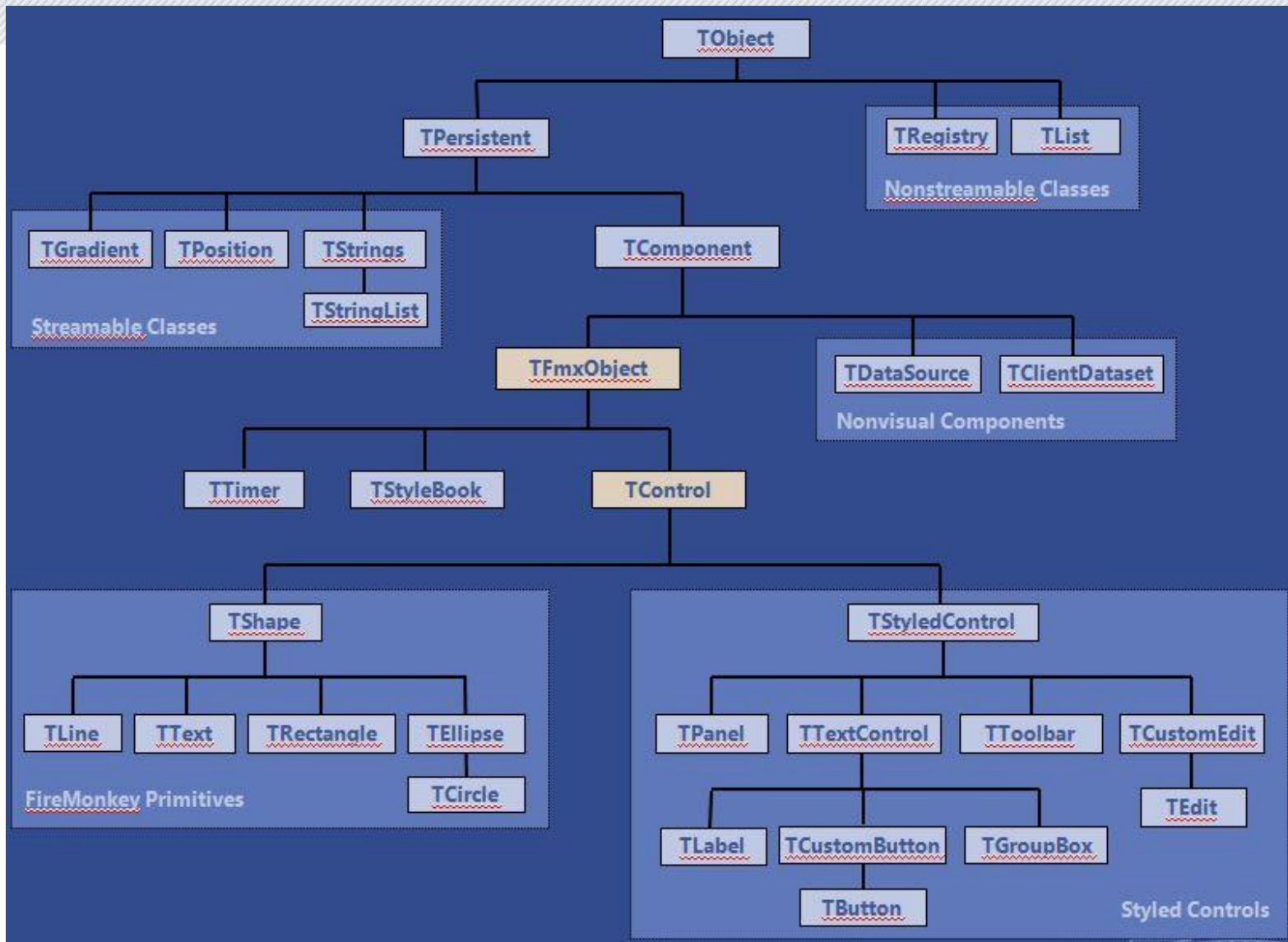
Comparing VCL & FMX

- FMX and VCL share Common Ancestry
- TObject
 - TPersistent
 - TComponent
- After TComponent dramatically different...
- Ray Konopka CodeRage 6 talk
 - <http://cc.embarcadero.com/item/28566>

VCL



FMX



Comparing VCL & FMX

- Event model is the same
- Persistence is shared
- No Component Messages in FMX
- Coordinate System
 - Origin is upper left
 - VCL – Integer
 - FMX – Floating-point
- Property changes
 - Caption → Text (except for TForm)
 - Left, Top → Position.X, Position.Y

Comparing VCL and FMX

- Concept of Ownership is the same
- FMX has the notion of Parent, but it is not quite the same as in VCL
- Any control can be the parent of another control
 - Not restricted to container-like controls
 - e.g. a TEdit can be the parent of a TLabel
- Child objects share attributes of parent
 - Coordinate space
 - Visibility & Opacity
 - Rotation & Scale

Comparing VCL and FMX

- TCanvas differences
 - More abstract in FMX than in VCL
 - *i.e. not a direct wrapper around device context*
 - Fills and Strokes handled by separate calls
 - *FillRect*
 - *DrawRect*
 - Text displayed using FillText
 - *Draws text and fills with specified TBrush*
 - *Allows gradient fills in text*
 - However, rarely use TCanvas directly
 - *Use primitives instead.*

Comparing VCL and FMX

- FireMonkey (FMX) - Windows, Mac, iOS
- Visual Component Library (VCL) - Windows only
- Run-Time Library (RTL)
 - System
 - System.SysUtils
 - System.IOUtils
 - System.Classes.
- Freely use the RTL in VCL and FireMonkey applications
- Cannot directly use VCL in a FireMonkey application
 - <http://blogs.embarcadero.com/stephenball/2011/10/10/writing-a-firemonkey-dll-for-use-with-a-vcl-application/>
 - <http://blogs.embarcadero.com/stephenball/2011/11/01/vcl-to-firemonkey-video/>

Comparing VCL and FMX

- Checkboxes
 - Use the OnChange event to react to checked-state changes instead of OnClick
 - Checked state - FMX uses IsChecked, not the VCL Checked .
- FireMonkey colors
 - Alpha (Opacity) component in addition to RGB
 - Colors are represented by types TAlphaColor and TAlphaColorRec.
 - Color constants are in FMX.Types and prefixed with "cla" instead of "cl".
- Other constants like modal results and virtual key codes
 - Moved from VCL.Controls to System.UITypes

Comparing VCL and FMX

- Controls units
 - VCL controls are in the `Vcl.StdCtrls` unit,
 - FireMonkey controls are in `FMX.Controls`.
- Control positioning
 - VCL control uses `Top` and `Left`, FireMonkey uses `Position`
 - FireMonkey uses `Width` and `Height` (and `Depth`) for size
- Caption property
 - Form – same for FMX and VCL
 - `TLabel`, `TButton`, etc : `Caption` -> `Text`
- Font sizes
 - FMX expressed in *device-independent pixels* (DIPs), 96 per logical inch
 - VCL expressed in points, 72 per logical inch.
 - Text using the same `Font.Size` is smaller in FireMonkey.

Components you can use with VCL and FMX

- Non-Visual Components
 - dbExpress, IBX, DataSnap, Indy, etc
- Data Module – ClassGroup “pseudo property”
 - Determines the framework affinity for the data module - either framework-neutral or is to work with a specific framework
 - *System.Classes.TPersistent*, the default setting, indicates framework neutrality and includes only RTL elements that are not framework-specific.
 - *Vcl.Controls.TControl* - sets the VCL framework, including RTL elements that are not framework-specific.
 - *FMX.Types.TControl* - sets the FMX framework, including RTL elements that are not framework-specific.
 - *FMX.Types.TControl* - sets the FMX iOS framework, including RTL elements that are not framework-specific.
- LiveBindings
 - Supported for VCL and FMX

Mida Converter

<http://www.midaconverter.com>

Mida Overview

- Mida Embarcadero XE2 Edition v2.5.2
 - IDE Plug-in
 - Access from Tools menu
 - Generates a conversion log - MIDA_log.txt
 - <http://cc.embarcadero.com/Item/28943>
- Mida Pro and Mida Studio v2.5.2
 - Stand-alone application
 - Mida.exe
 - Generates a conversion log - MIDA_log.txt
 - <http://www.midaconverter.com/>

Mida Basic vs Mida Pro vs Mida Studio

Descriptions	BASIC	PRO	STUDIO
Convert standard Embarcadero components	✓	✓	✓
Convert hundreds of components of Third Party (TMS,JVCL,DevExp...)		✓	✓
Custom conversion for your Components		✓	✓
Mida Pack for FireMonkey - Set of components for FMX		✓	✓
Mida Pack for FireMonkey - Set of components for FMX - Full source code			✓
Tables with Class conversion Online (always updated)		✓	✓
StyleBook (Font color, background color, font name)		✓	✓
LiveBindings Basic (TDbEdit..)	✓	✓	✓
LiveBindings Advanced (TDbLookUpComboBox..)		✓	✓
Pascal Source Code converter		✓	✓
Image converter (png,jpg,bmp..)		✓	✓
Class Analyzer			✓
Mida Application (Basic is a Plugin-IDE)		✓	✓
Email Support		✓	✓

Mida Support for FireMonkey StyleBook

- VCL includes “style-like” properties
 - Font Size, Font Name and Font Color (e.g. TLabel)
- Mida Pro
 - Seamlessly and automatically moves this information to FMX StyleBook

Data aware components

- **FireMonkey**
 - LiveBindings to make any component/property data aware.
 - Does not support the VCL way (specific data aware components like TDBEdit etc)
- **Mida (all versions)**
 - Converts VCL data aware components into FireMonkey components
 - Creates LiveBindings automatically for you!

Mida Component Conversion

- Examples of VCL to FMX conversions
 - “Standard” controls get converted same “type”
 - Some controls are converted to FMX equivalents
 - *TPageControl / TTabSheet -> TTabControl / TTabItem*
 - *TLabeledEdit -> TLabel + TEdit (you manually parent)*

3rd Party Component Support

- Mida Pro and Studio
 - Supports hundreds of 3rd party components
 - Elevate Software - DBISAM 4.x
 - Elevate Software - EDB 2.x
 - Steema - TeeChart
 - DevExpress
 - TMS Software
 - Sometimes converted into a different FireMonkey component that performs the same functions

VCL Components “Partially Converted”

- TMaskEdit
 - Becomes TEdit without mask (IDE warnings on load)
- TRadioGroup becomes TPanel
 - Manually add Radio Buttons
- TToolBar becomes TPanel

VCL Components Not Converted

- TTabbedNoteBook
 - On todo list
 - Will convert to TTabControl / TTabItem
- Actions / ActionList
- GestureManager
- TImageList
- Recommendation is to manually replace

Mida Component Pack

- Pack of FMX components included with Mida Pro/Studio
- Helps make VCL to FMX conversion seamless
- Includes functional equivalents to:
 - TBitBtn
 - TSpeedButton
 - TPngBitBtn
 - TMS TAdvGlowButton
 - TMS TAdvSmoothButton

Delphi Source Code Conversion (Pro/Studio)

- **Label1.Caption := ...**
 - Label1.Text := ...
- **Label1.Font.Style := [fsBold, fsUnderline];**
 - Label1.Font.Style := [TFontStyle.fsBold, TFontStyle.fsUnderline];
- **CheckBox.Checked := True;**
 - CheckBox.IsChecked := True;
- **Application.MessageBox(...);**
 - Application_MessageBox wrapper in _Mida_FM_Lib
 - Some assembly required
- **Screen.Cursor := crHourGlass;**
 - Screen_Cursor_crHourGlass wrapper in _Mida_FM_Lib

Delphi Source code conversion (Pro/Studio)

- **Application.BringToFront;**
 - Commented out
- **Application.ExeName;**
 - Application_ExeName wrapper in _Mida_FM_Lib (ParamStr(0))
- **Screen.Width**
 - Screen_Width wrapper in _Mida_FM_Lib (Platform.GetScreenSize.X)
- **if Key = VK_F1 then**
 - vkF1 (System.UITypes)

C++Builder Conversions

- Form conversion is supported
- No C++ source code conversion

Demos

- Example (ships with Mida)
 - Basic vs Pro
- GroupBox
- LabeledEdit
- MaskEdit
- PageControl
- SourceCode
 - Some assembly required sometimes
- BiDi
- MasterDetail
 - Some assembly required

Future Plans

- Work has started on Mida 3.0
- Main feature is report conversion
 - VCL QuickReport -> FMX FastReport and ReportBuilder
 - VCL ReportBuilder -> FMX FastReport

Resources

- Mida Converter home page
 - <http://www.midaconverter.com>
- Product page
 - <http://www.midaconverter.com/product.html>
- Mida Basic vs Mida Pro vs Mida Studio
 - <http://www.midaconverter.com/firemonkey/upgrade.asp>
- FAQ
 - <http://www.midaconverter.com/faq.html>
- Blog
 - <http://blog.midaconverter.com/>
- Forum
 - <http://www.midaconverter.com/forum/>
- YouTube Videos
 - <http://www.youtube.com/user/MidaFireMonkey>
- Embarcadero DocWiki
 - [http://docwiki.embarcadero.com/RADStudio/en/FireMonkey Application Platform](http://docwiki.embarcadero.com/RADStudio/en/FireMonkey_Application_Platform)
 - [http://docwiki.embarcadero.com/RADStudio/en/Converting from VCL to FireMonkey](http://docwiki.embarcadero.com/RADStudio/en/Converting_from_VCL_to_FireMonkey)

Q&A

**Thank You ☺
and special thanks to**

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