AGENDA

- Windows 10, APIs, and UWP
- VCL Foundations Revisited
  - What’s new in the VCL for Windows 10
- Using WinRT APIs in Delphi
- Bridging Win32 and WinRT with the Windows Desktop Bridge (aka Centennial)
- What’s Cooking in our “Centennial Lab”
VCL is the best library for Windows desktop development and fully embraces Windows 10
WINDOWS 10
The fastest growing version of Windows
Windows 10 is getting fairly popular
  • But Windows 7 has still very high business adoption

Windows 10 includes three core API
  • Classic Windows API (kernel, user, GDI, etc.)
  • WinRT API
  • The additional .NET framework layer

UWP apps = Universal Windows Platform apps
  • Indicates first class Windows 10 applications
  • Generally reserved for WinRT apps
WINDOWS API TIMELINE

1995

- Windows NT 3.1
- Win32
- VCL
- RTL
WINDOWS API TIMELINE

1995: Windows NT 3.1
2002: Windows XP
2007: Windows Vista
2012: Windows 8
2015: Windows 10

Win32

.NET

VCL

RTL

WinRT

Interaction
VCL FOUNDATIONS REVISITED

- VCL is the best OOP component library encapsulating Win API
  - Microsoft has MFC, WinForms
- VCL has deep and smooth COM integration
- Now VCL has first class support for the new WinRT API
  - Can mix and match with WinAPI code
  - UWP / WinRT solutions require Win8/10, new code
VCL AND WINDOWS 10
WHAT’S NEW IN THE VCL FOR WINDOWS 10

- **Styling**
  - Windows 10 specific styles

- **New VCL Components**
  - 5 components introduced in 10 Seattle
  - Implemented in VCL, work also on Win7
  - Look like WinRT counterparts, but no dependency

- **WinRT support and components**
  - Require Win10
WINDOWS 10 VCL STYLES

Choose from three Windows 10 Modern UI VCL styles or create your own with the included templates.
VCL ANIMATED ACTIVITY INDICATOR

- TActivityIndicator in Vcl.WinXCtrls
- Similar to FMX TAniIndicator
- Customizable
  - Three indicator types
  - Four sizes
  - Two colors
  - Adjustable frame delay
VCL RELATIVE LAYOUT PANEL – TRELATIVEPANEL

- Controls position based on relative position
- Set position via ControlCollection
- Find child control with IndexOf()
- Or at design time use properties
  - Align[xx]WithPanel: Boolean
  - Above: [Sibling]
  - Align[xx]With: [Sibling]
  - LeftOf: [Sibling]
VCL SEARCHBOX - TSEARCHBOX

- Includes search indicator
- Text and Audio indicators
- Has OnInvokeSearch event
- Used to manually search or filter other controls
VCL SPLIT VIEW – TSPLITVIEW

- Similar to FMX MultiView
- Adjustable behaviors, placements and style
- Can contain any other controls
- Animated expand and collapse
VCL TOGGLE SWITCH - TTOGGLESWITCH

- Similar to FMX TSwitch
- Custom captions
- Custom colors
- Reizable elements
- Disabled and Read-Only
- Property State: tssOn or tssOff
- Function IsOn: Boolean
WINDOWS RUNTIME IN TECH TERMS

▪ An object-oriented API
▪ Asynchronous (no blocking > 50 ms)
▪ COM based
  • Different type system, objects construction and lifetime management
▪ Not .NET, not managed code
  • A Native Code API, compiled code, no GC
THE RTL WINDOWS RUNTIME INTERFACE

- Helpers ease creation of objects
  - Abstracts dealing with the class factories
- Over 40 new WinApi.* units
- New TWindowsString type
  - For new native HString type
- Much less code required to interface with WinRT than with C# or MSVC++
## WINDOWS RUNTIME API INTERFACES
(MOSTLY FOUND IN SOURCE\RTL\WIN\WINRT FOLDER)

<table>
<thead>
<tr>
<th>Category</th>
<th>Windows Runtime API Interfaces</th>
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<tbody>
<tr>
<td>WinAPI.ApplicationModel.Background</td>
<td>WinAPI.GraphicsRT</td>
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<tr>
<td>WinAPI.ApplicationModel.Core</td>
<td>WinAPI.Management</td>
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<td>WinAPI.ApplicationModel.DataTransfer</td>
<td>WinAPI.Media</td>
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<td>WinAPI.ApplicationModel</td>
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<td>WinAPI.CommonTypes</td>
<td>WinAPI.Networking.NetworkOperators</td>
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<td>WinAPI.DataRT</td>
<td>WinAPI.Networking</td>
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<td>WinAPI.Devices Enumeration</td>
<td>WinAPI.Networking.Sockets</td>
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<td>WinAPI.Security.Cryptography</td>
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<td>WinAPI.Gaming</td>
<td>WinAPI.Storage</td>
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<td>WinAPI.UI.ViewManagement</td>
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<td>WinAPI.UI.WebUI</td>
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<td>WinAPI.UI.Xaml</td>
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<td>WinAPI.WebRT</td>
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<td>System.Win.WinRT</td>
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LOW LEVEL WINRT CALLS

- Referenced by Interface for automatic reference counting
- Helpers like TWindowsString in System.Win.WinRT unit
- Many classes have default parameterless constructors
- Use .Factory to access other constructors
- Use .Statics to access static members of class
WINRT BASED COMPONENTS

- Share Contracts
  - TSharingContract (VCL)
  - TShareContract (RTL)

- Notifications

- Bluetooth LE
  - Starting with Berlin 10.1
WINDOWS DESKTOP BRIDGE (AKA CENTENNIAL)
THE WINDOWS DESKTOP BRIDGE (AKA CENTENNIAL)

- The “bridge” packages Win32/Win64 applications as Universal Windows Platforms app
  - APPX installation in Anniversary Update
  - Windows Store going to be opened up soon
- The technology: single ZIP file with entire distribution, one click install and uninstall, file system and registry virtualization
  - Mostly like mobile, Mac
BUILDING AN APPX

- Package app
  makeappx.exe pack /f mapfile.txt /p myrssclient.appx

- Sign it with your certificate
  SignTool.exe sign -f mctempcer.pfx -fd SHA256 -debug
  myrssclient.appx

- Install certificate on machine
  Certutil -addStore TrustedPeople <testcert.cer>

- Enable SideLoading (security, developers)
CROSSING THE BRIDGE OR STAYING ON IT?

- Win8: very limited WinRT adoption
- Microsoft started “bridges” for desktop and mobile to increase app ecosystem
- Microsoft touting Centennial as a migration step (a bridge to go to WinRT-land)
  - Microsoft recommended app architecture is dual: APPX shipping with Win32 + WinRT app combined
Distribution on Windows store likely a game changer for the platform

- Not immediate, only Windows 10 Anniversary clients will be supported
- Parallel enterprise distribution
- Still not available... to the public

⚠️ Package acceptance validation error: Your developer account doesn’t have permission to submit apps converted with the Desktop App Converter at this time.
WHAT’S COMING
WHAT’S COOKING IN OUR “UPDATE 2 LAB”

- New VCL Calendar control
  - Additional WinRT look-alike control implemented in native VCL
- IDE-based Windows Store deployment support
  - APPX generation, like for mobile platforms
  - Packages all assets, runtime packages, DB DLLs...
  - Will require Win10 SDK for packaging and code signing
NEW CALENDAR CONTROL
FURTHER, GENERAL VCL PLANS

- Additional Win10 look-alike VCL controls
  - But also some extra VCL controls, not Win10 related
- (Unrelated) Improvements in VCL designers
- VCL Quality focus
SUMMARY: VCL, FMX AND WINDOWS 10

- Microsoft making Win32/64 first class, *again*
- VCL remains the best Windows client library
  - Enhanced with Windows 10 UI controls and WinRT APIs and components
  - FireMonkey also enjoys this support, more focused on cross-platform requirements
- Embarcadero committed to keep Delphi focused on the (evolving) Windows 10 platform
WHAT ABOUT GETTING READY BY BUYING TODAY?

- Special 10% “Update 1” discount*
- Buy Delphi Professional, receive **Mobile Add-On Pack** for free*
- Bonus pack with Konopka controls, Radiant Shapes, Object Pascal Handbook*
- *Valid until September 30th
THANKS!

Any questions?

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