WINDOWS 10 ANNIVERSARY UPDATE SUPPORT IN DELPHI

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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

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WINDOWS 10

The fastest growing version of Windows

4

WINDOWS 10, APIS, AND UWP

- 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
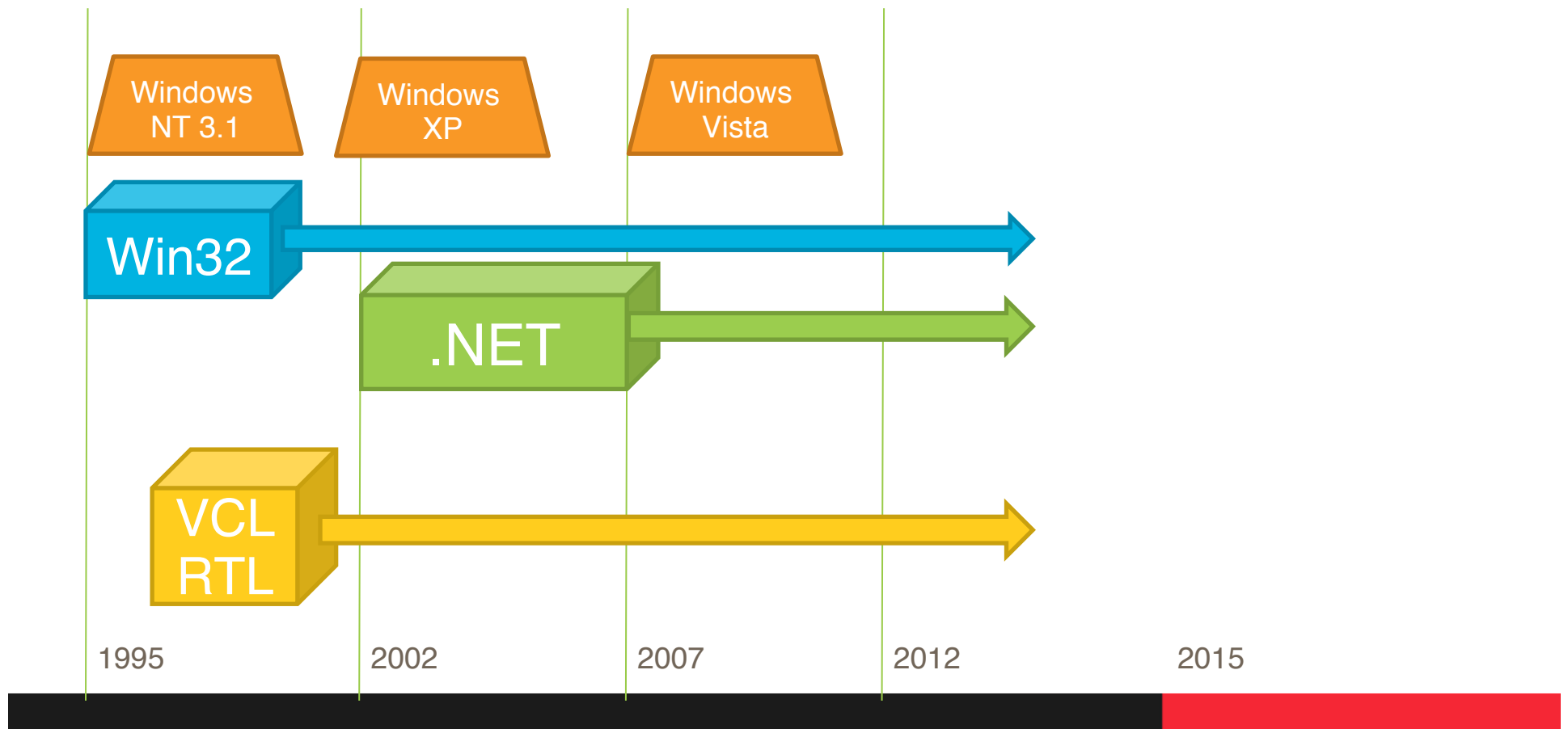 - Generally reserved for WinRT apps
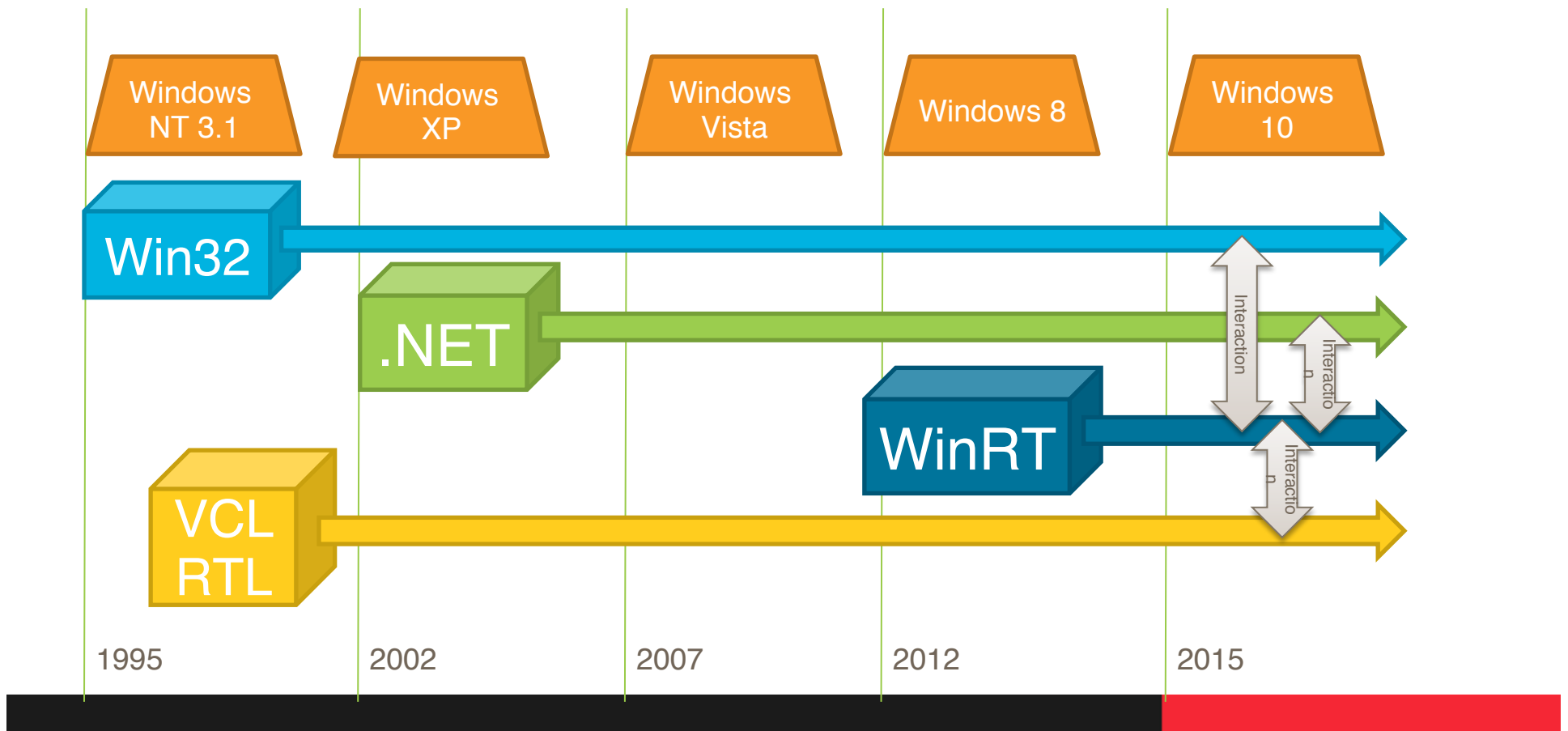
WINDOWS API TIMELINE

Windows NT 3.1

Win32

Interaction

VCL
RTL

1995

WINDOWS API TIMELINE

Windows NT 3.1

Windows XP

Windows Vista

Win32

.NET

VCL RTL

1995

2002

2007

2012

2015

WINDOWS API TIMELINE

Windows NT 3.1

Windows XP

Windows Vista

Windows 8

Windows 10

Win32

.NET

WinRT

VCL RTL

Interaction

Interactio n

Interactio n

1995

2002

2007

2012

2015

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
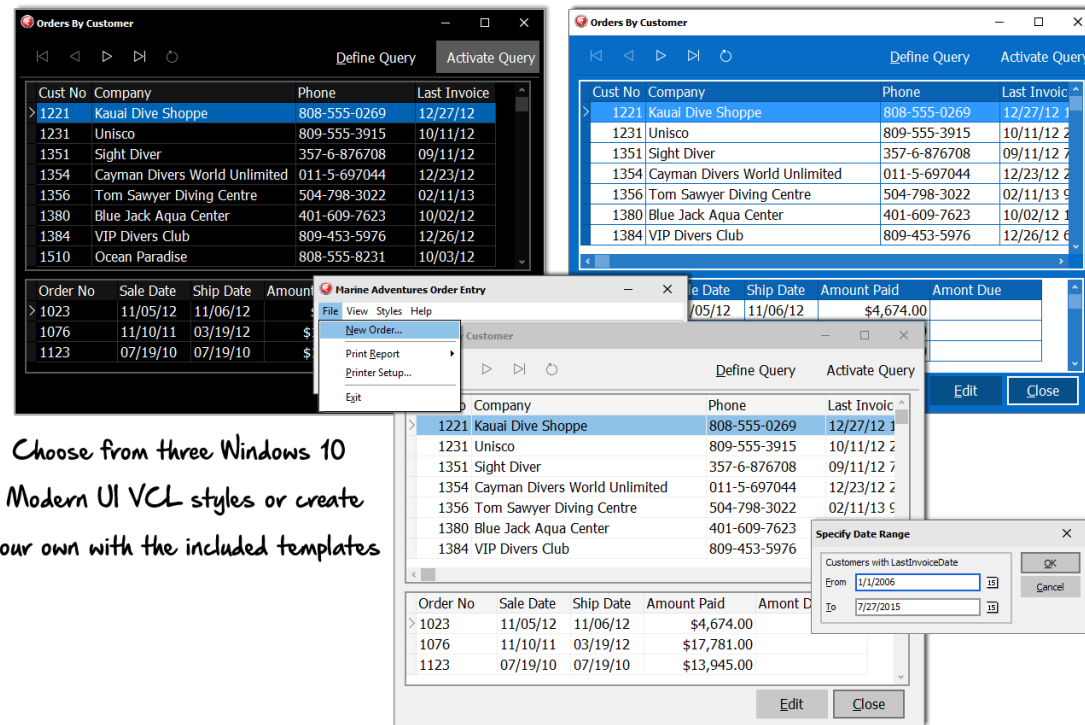 - UWP / WinRT solutions require Win8/10, new code

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
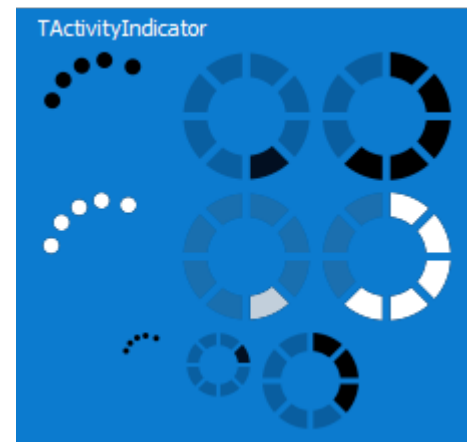- WinRT support and components
  - Require Win10

WINDOWS 10 VCL STYLES

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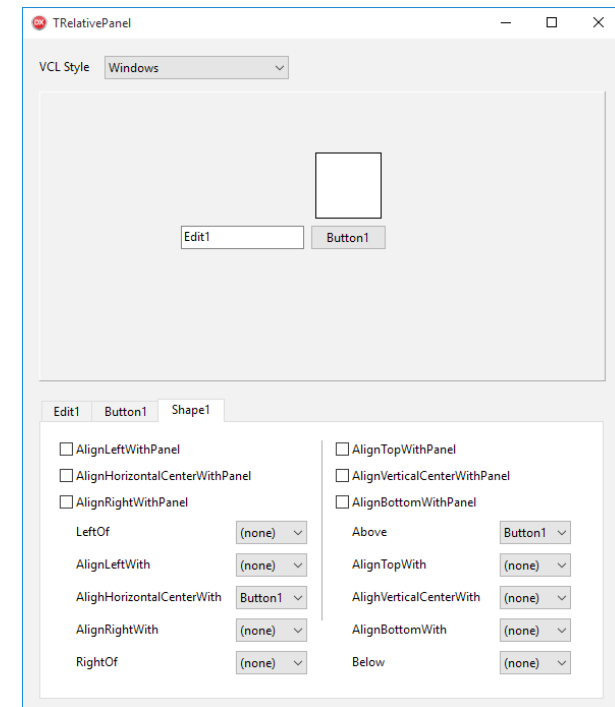your own with the included templates

VCL ANIMATED ACTIVITY INDICATOR

- TActivityIndicator in Vcl.WinXCtrls
- Similar to FMX TAniIndicator
- Customizable
  - Three indicator types
  - Four sizes
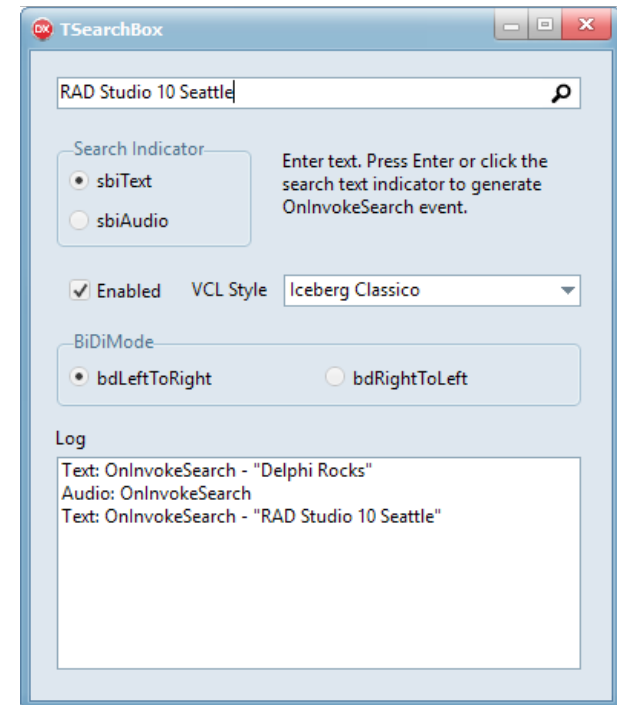 - Two colors
  - Adjustable frame delay

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]`
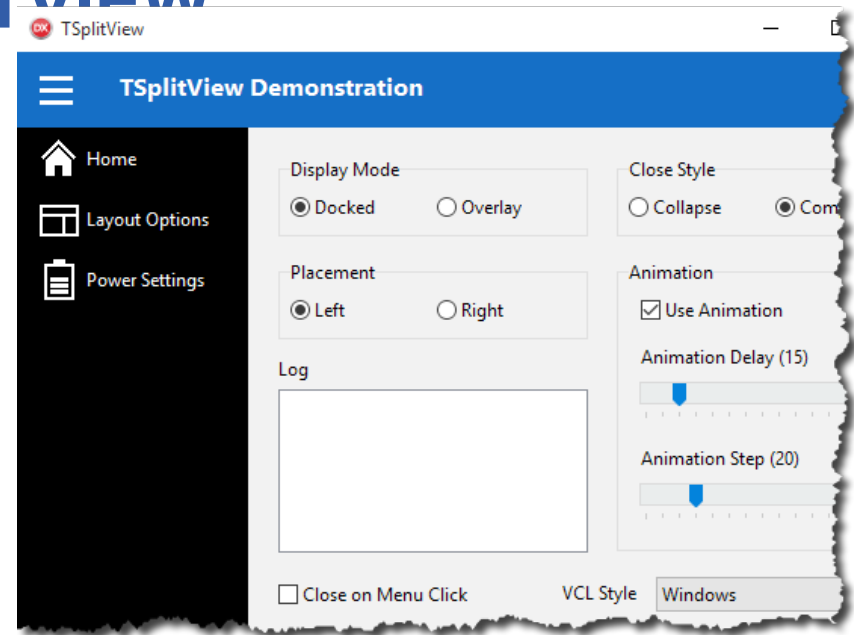 - `Align[xx]With: [Sibling]`
  - `LeftOf: [Sibling]`

VCL SEARCHBOX - TSEARCHBOX

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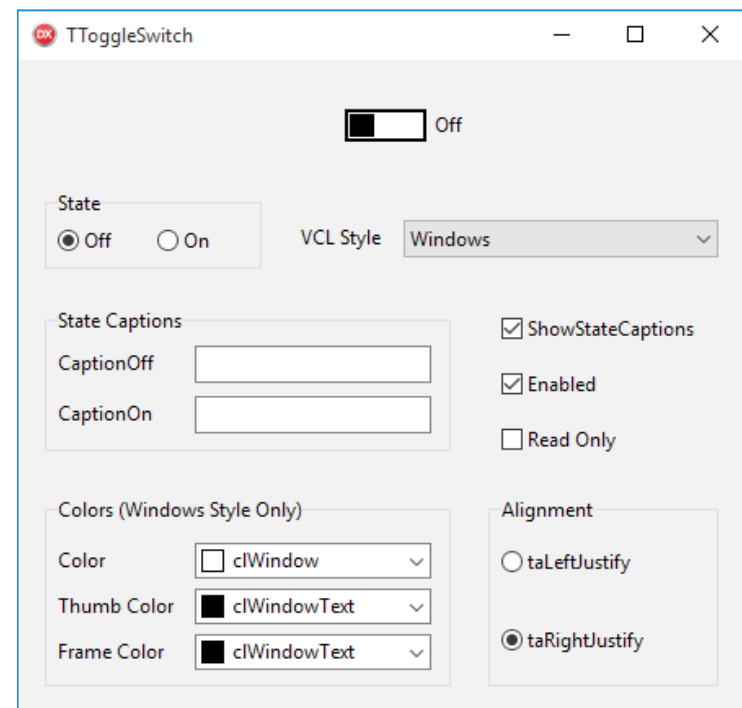
VCL SPLIT VIEW – TSPLITVIEW

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

TSplitView

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)

WinAPI.ApplicationModel.Background
WinAPI.ApplicationModel.Core
WinAPI.ApplicationModel.DataTransfer
WinAPI.ApplicationModel
WinAPI.CommonTypes
WinAPI.DataRT
WinAPI.Devices.Bluetooth
WinAPI.Devices.Enumeration
WinAPI.Devices
WinAPI.Foundation.Collections
WinAPI.Foundation
WinAPI.Foundation.Types
WinAPI.Gaming
WinAPI.Globalization

WinAPI.GraphicsRT
WinAPI.Management
WinAPI.Media
WinAPI.Networking.Connectivity
WinAPI.Networking.NetworkOperators
WinAPI.Networking
WinAPI.Networking.Proximity
WinAPI.Networking.Sockets
WinAPI.Networking.Vpn
WinAPI.Security.Credentials
WinAPI.Security.Cryptography
WinAPI.Security
WinAPI.Storage
WinAPI.Storage.Streams

WinAPI.SystemRT
WinAPI.UI.Composition
WinAPI.UI.Core
WinAPI.UI.Input.Inking
WinAPI.UI.Input
WinAPI.UI.Notifications
WinAPI.UI
WinAPI.UI.Text
WinAPI.UI.ViewManagement
WinAPI.UI.WebUI
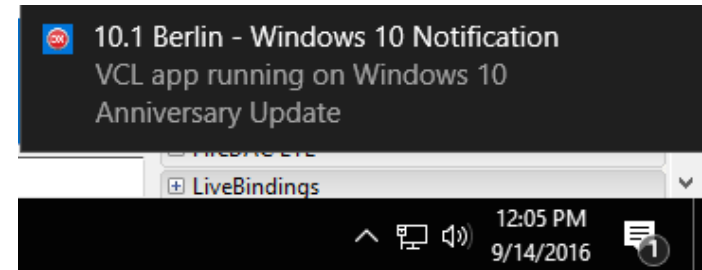WinAPI.UI.Xaml
WinAPI.WebRT
System.Win.WinRT

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
  - http://community.embarcadero.com/blogs/entry/taskbar-notification-badge-support-in-windows-10-anniversary-update
- 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

WINDOWS STORE

- 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.
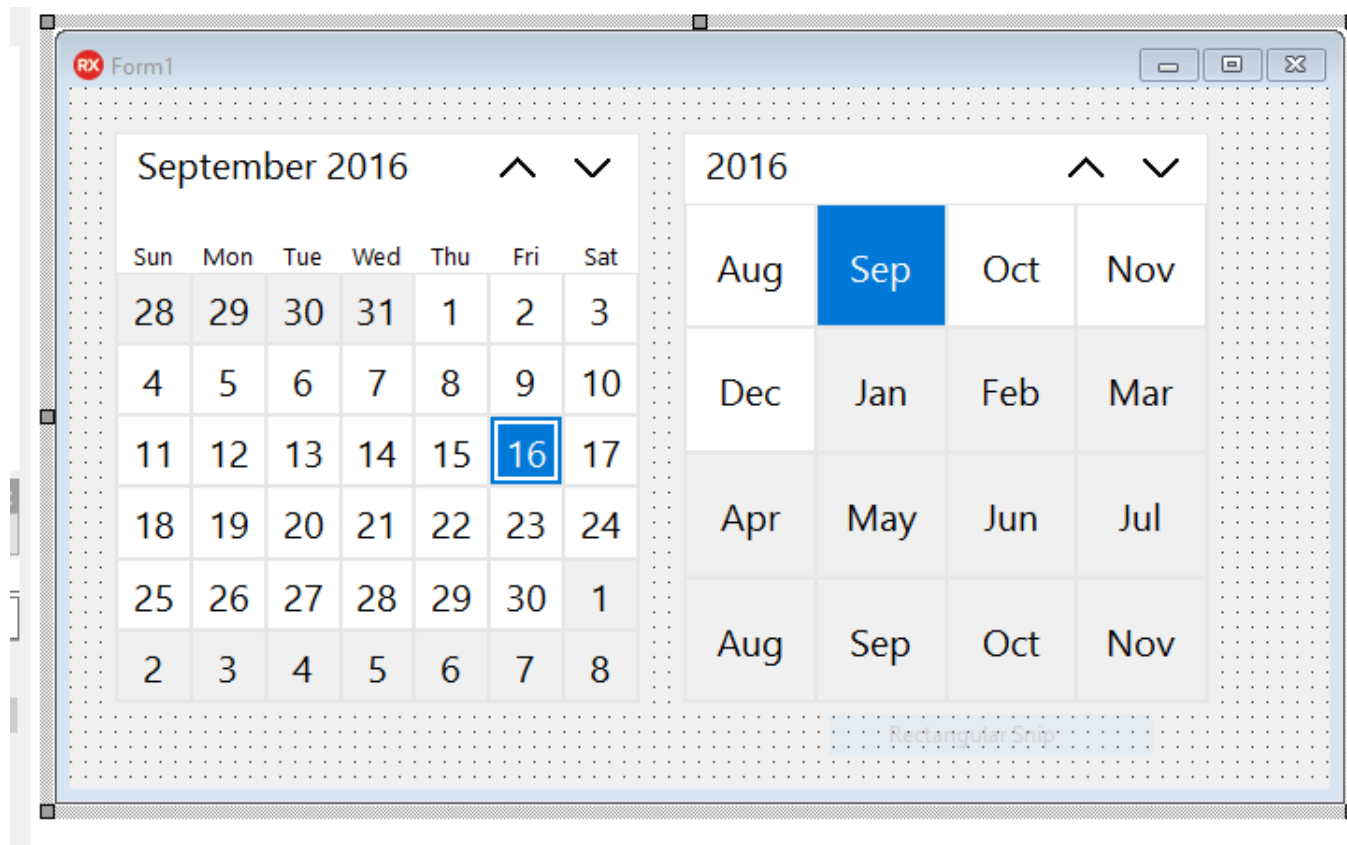
Delete

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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marco.cantu@embarcadero.com