

Lo Stato e il Futuro di Delphi

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Your Presenter:



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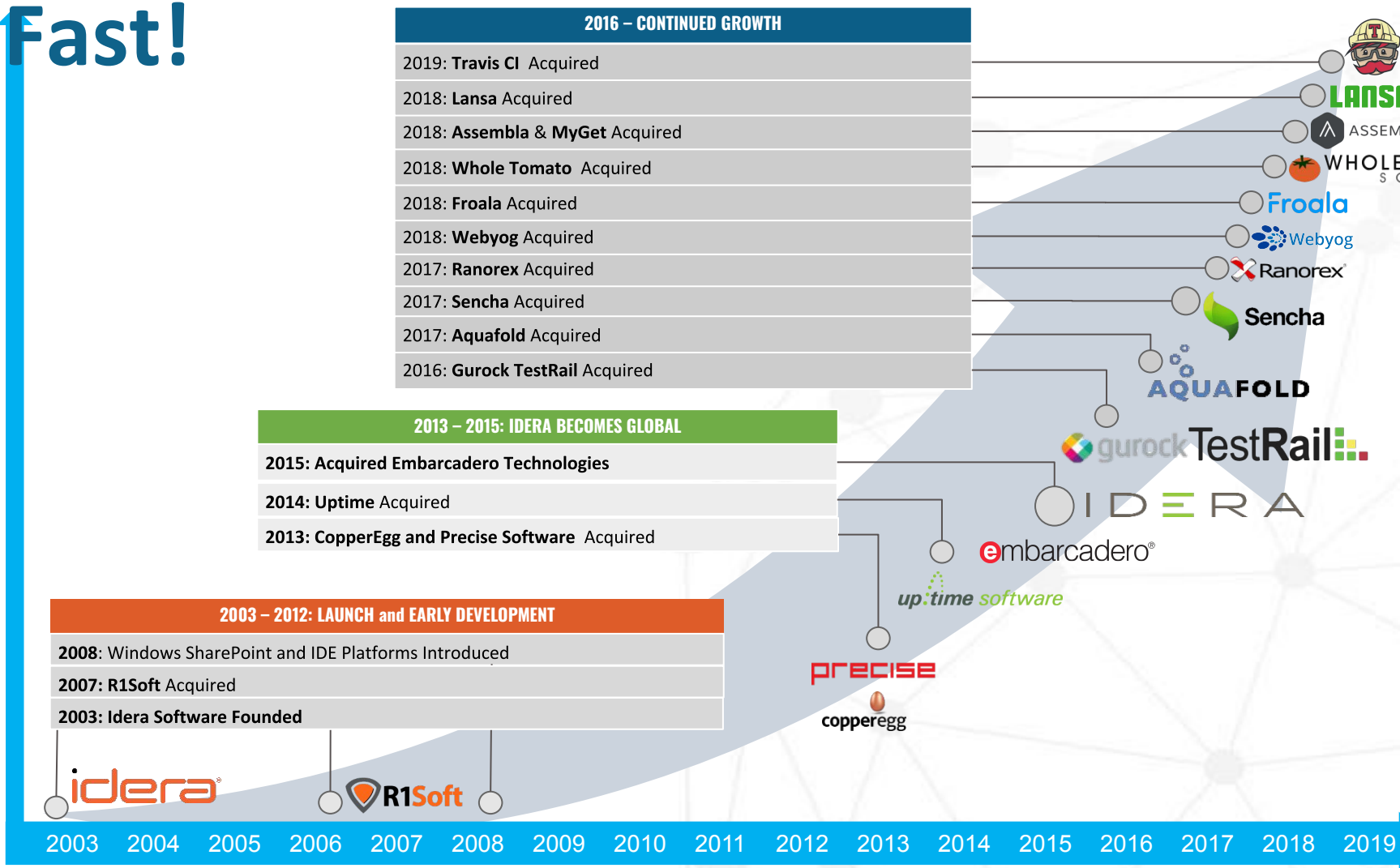
A faint, light gray background graphic consisting of a network of interconnected nodes and lines, resembling a molecular or data network structure, spanning the entire width and height of the slide.

embarcadero®

is part of

Idera, Inc.

Idera Inc, Large and Growing Fast!



Idera, Inc.

- ✓ Founded: 2003
- ✓ HQ: Houston, TX
- ✓ GLOBAL Offices: 15
- ✓ People: 600+



Today: Dev Tools Is Our Largest BU

Idera, Inc.

Database Tools

IDERA

AQUAFOLD

Webyog

Developer Tools

ASSEMBLA + MyGet

embarcadero®

Sencha

WHOLE TOMATO
SOFTWARE

Froala

LANSA

Testing Tools

TestRail

Ranorex®

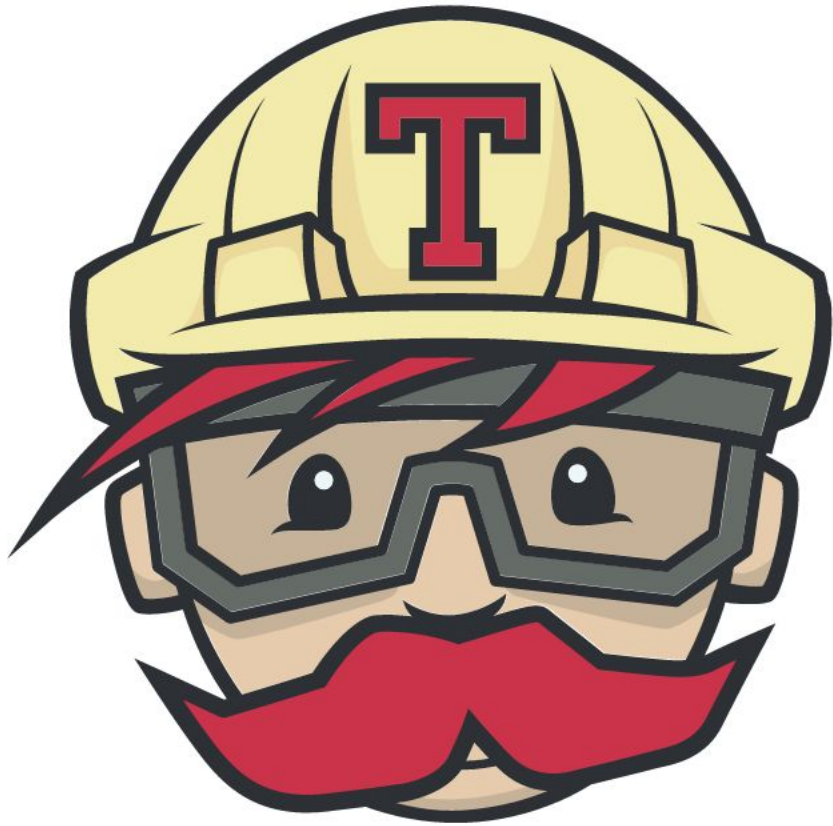
kiuwan

Travis CI



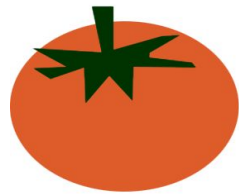
ASSEMBLA

Assembla is the world's only provider of Enterprise Cloud Version Control (ECVC), bringing multi-repository secure source code management to the cloud. Assembla is focused on providing scalable, secure and flexible options for enterprise version control. Serving some of the world's biggest brands and leading innovations, Assembla is a mission critical component to securing source code. Hosted on Assembla or self hosted. Choice of Git, SVN, and Perforce.



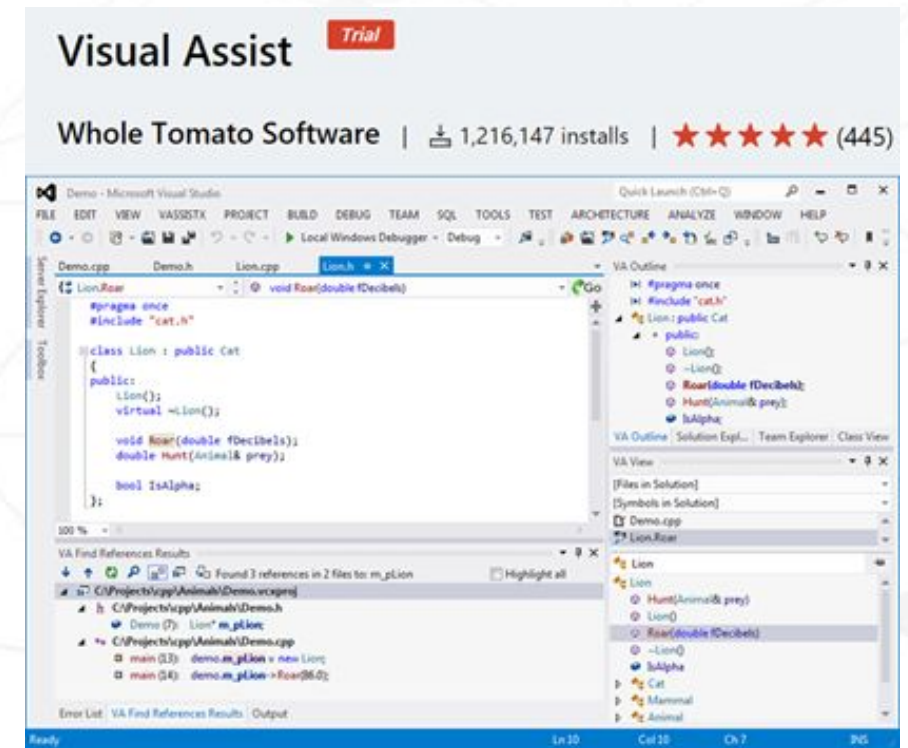
Travis CI

Travis CI is a continuous integration platform used by more than 700,000 developers worldwide to build and test software applications. Travis CI integrates with most other tools in the software development lifecycle, making the platform extremely popular with developers and highly complementary to Idera's Developer and Testing Tools offerings.



WHOLE TOMATO SOFTWARE

Whole Tomato Software delivers productivity tools for C++ and C# development, including Visual Assist, one of the most popular plug-ins for Microsoft Visual Studio. Visual Assist fills gaps in the coding experience of Visual Studio, by providing unmatched functionality for navigation, refactoring, code generation, debugging, and more.



What it means for Embarcadero? Examples...

Idera, Inc.

Database Tools

 **AQUAFOLD**

Leverage award winning Aqua Data Studio to provide better support for **InterBase**

Developer Tools

 **embarcadero®**

 **Sencha**

 **WHOLE TOMATO
SOFTWARE**

Integrate Visual Assist into RAD Studio to improve **C++ Builder**

Testing Tools

Improve **RAD Server** JavaScript support

 **Ranorex®**

Add better support for **Delphi** Test Automation



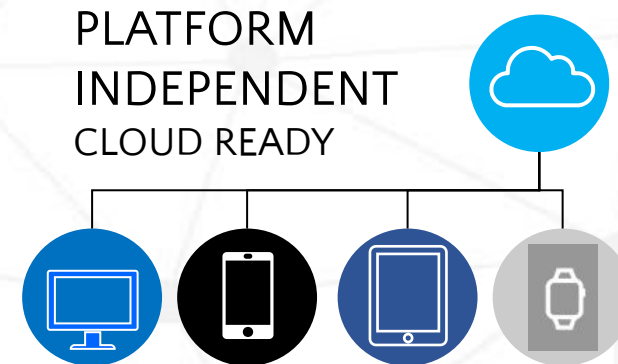
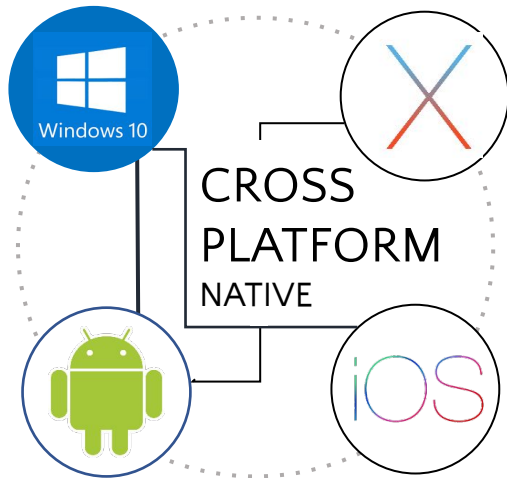
RAD Studio 10.3.x Rio

What is RAD Studio?



The fastest way to develop cross-platform native apps with flexible cloud services and broad data connectivity

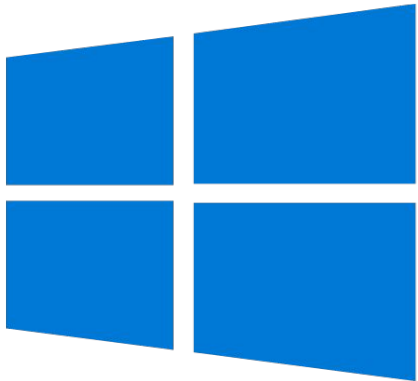
RAD Studio = Delphi + C++Builder



RAD Studio Platform Support



Target the latest versions of major operating systems with one codebase!

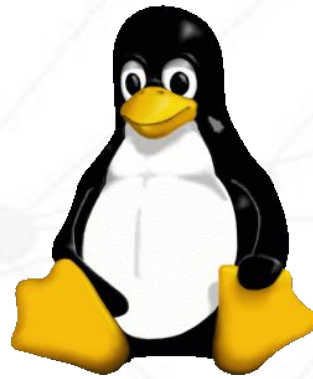


Windows 10

October 2018 Update



macOS Mojave



Linux 64-bit
Ubuntu & Red Hat
Enterprise
(Delphi Only)



Android Pie



iOS 12

Officially Supporting

RAD Studio Cornerstones



Native Delphi and C++ compilers for multiple platforms producing optimized and secure applications

Flexible mix of Modern OOP and fast RAD development

Extensive focus on code migration to modern operating systems and user interfaces

Enterprise and Data Centric architectures

Active Third-Party Vendors Ecosystem



Delphi Language History in 3 Dates

- 1983 Turbo Pascal
 - When everything started
- 1995 Delphi's Object Pascal
 - 1995 was the year of programming languages, including Java, JavaScript, PHP and Ruby
- 2009 Modern Object Pascal
 - With generics, anonymous methods, reflection, attributes
- And now (2018): Inline variables and type inference



Modern Object Pascal

- Not just additional language features, but additional programming model beyond OOP
- Generic types
 - For classes, records, interfaces
- Anonymous methods or closures
- Extended RTTI or reflection
 - Along with custom attributes
- And more coming

Inline Variables (New in 10.3)



- Inline variables and constants declarations, direct assignment of value at inline variable declaration point, block scope...

begin

```
var s: string := 20.ToString();
```

```
for var l: Integer := 1 to 100 do ...
```

- Type inference for inline variables

```
var aDict := TDictionary<Integer, string>.Create;
```



Why I Love Delphi...

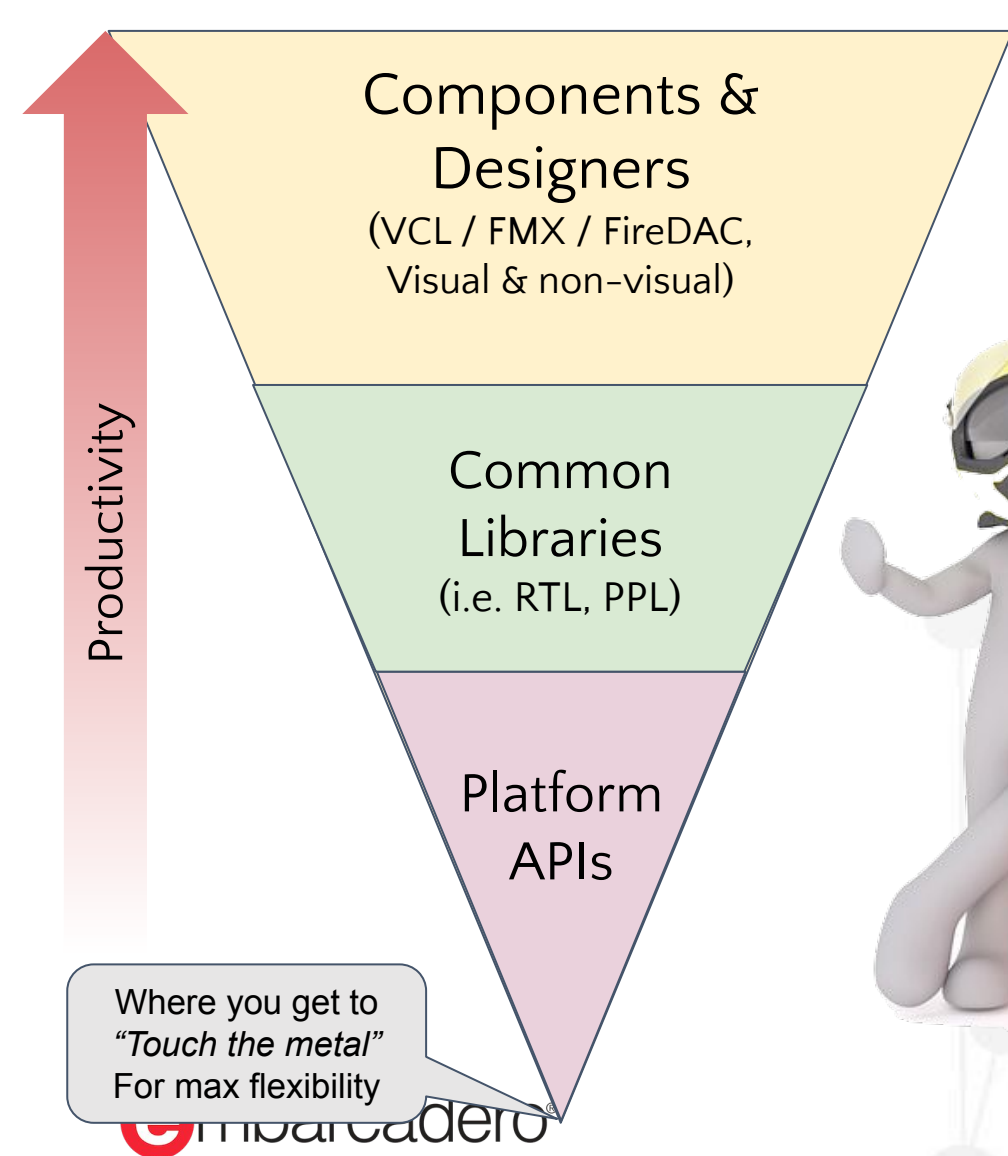
And why you should too!

Why we *Love* Delphi...



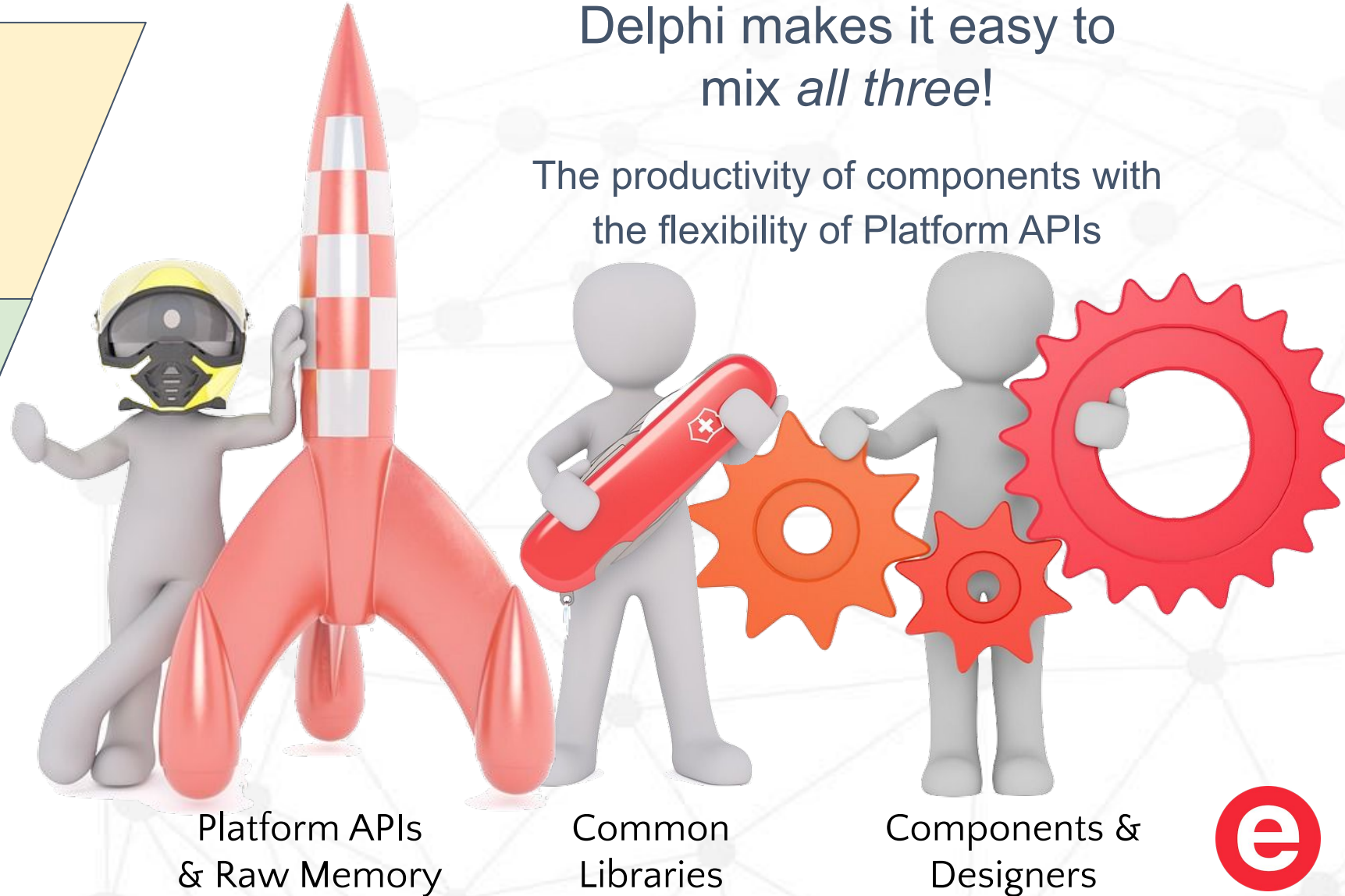
- Best language for productivity - it is easy to read and maintain
- Best library for pure native performance and all platforms
- Best Runtime Library for cross platform functionality
- Easy access to platform APIs and libraries - *“touch the metal”*
- Amazing 3rd party ecosystem
 - Components, tools, and libraries for anything and everything!
- A commitment to backwards compatibility
- Supports the latest platforms and technologies
- Easy to use manual memory management
- Working with all the best people, community, tech partners, and MVPs

Three Levels of Development



Delphi makes it easy to
mix *all three*!

The productivity of components with
the flexibility of Platform APIs



What's New with Delphi?

A lot of growth in just 8 years!
(7 new platforms/compiler)
Yeah, it still does Win32!



All added from 2010 to 2017

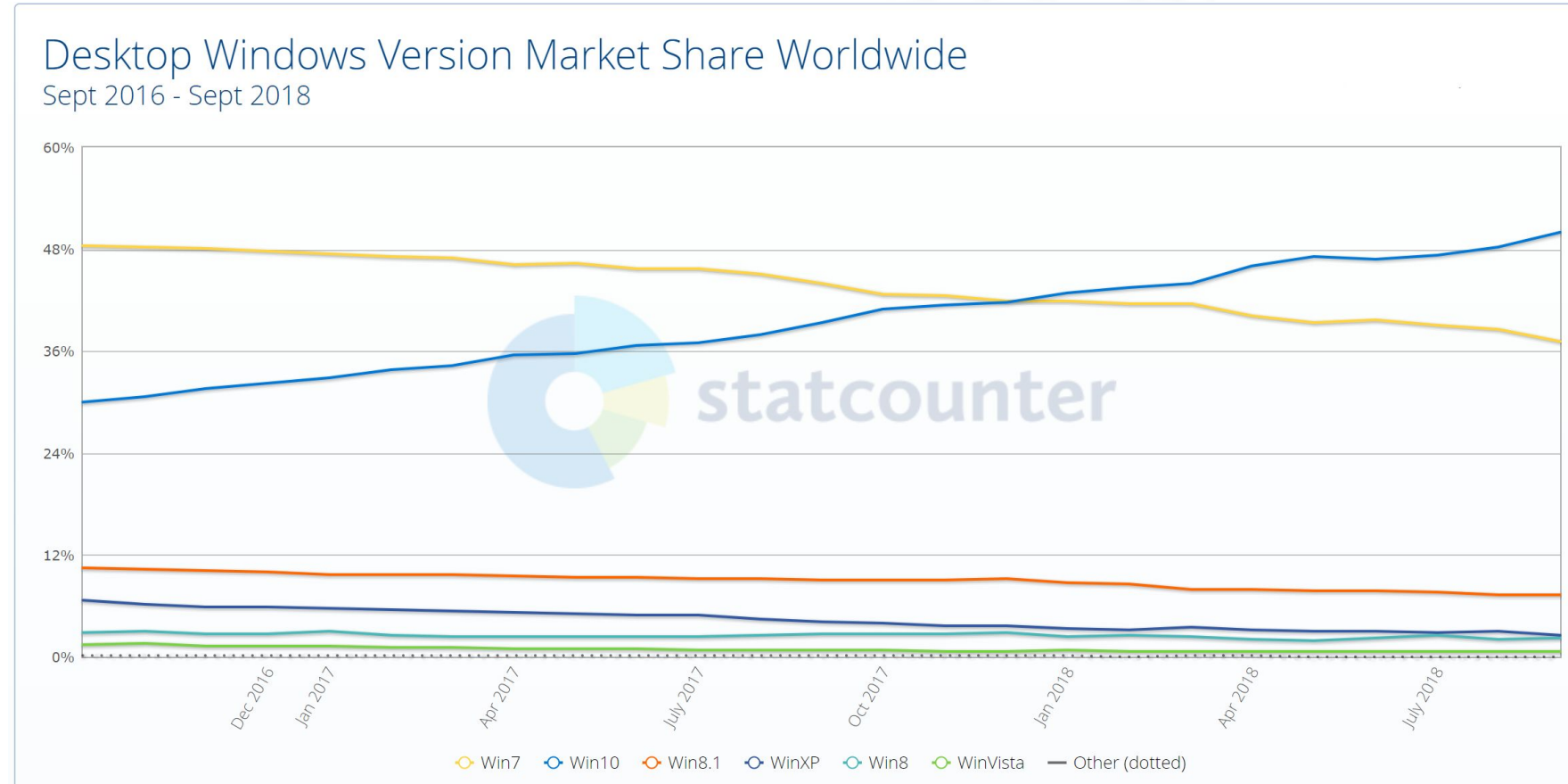


Delphi for Windows

Windows 10 is King



- The most important platform for our current customers
- Add Windows 10 features without breaking Windows 7 compatibility



Data by Stat Counter as of September 2018 -

<http://gs.statcounter.com/windows-version-market-share/desktop/worldwide/#monthly-201609-201809>

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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 is the Best Solution for Windows 10



The best UI controls library for Windows

Includes direct access to Win32 APIs, COM Shell

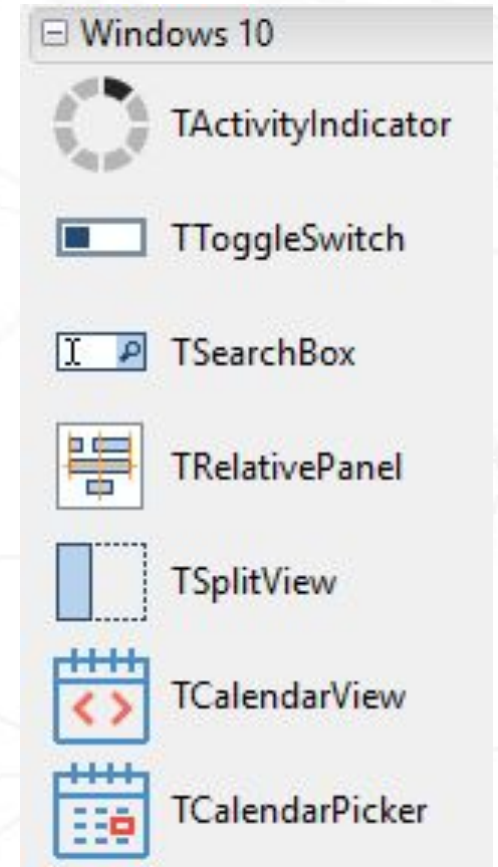
Controls, WinRT new APIs

VCL controls corresponding common Windows 10 UI elements (but not limited to Windows 10)

Style your existing VCL apps

Publish VCL apps on Windows Store via Desktop Bridge

No dependency on any runtime or execution environment (like .NET or Java)



VCL Styling



The screenshot displays three overlapping windows from a VCL application, demonstrating different styling options. The top-left window is styled after Windows 10, the top-right after the Modern UI, and the bottom window is a custom template. Each window contains a table of customer orders and a menu for creating new orders.

Windows 10 Style (Top Left):

Cust No	Company	Phone	Last Invoice
1221	Kauai Dive Shoppe	808-555-0269	12/27/12
1231	Unisco	809-555-3915	10/11/12
1351	Sight Diver	357-6-876708	09/11/12
1354	Cayman Divers World Unlimited	011-5-697044	12/23/12
1356	Tom Sawyer Diving Centre	504-798-3022	02/11/13
1380	Blue Jack Aqua Center	401-609-7623	10/02/12
1384	VIP Divers Club	809-453-5976	12/26/12
1510	Ocean Paradise	808-555-8231	10/03/12

Modern UI Style (Top Right):

Cust No	Company	Phone	Last Invoice
1221	Kauai Dive Shoppe	808-555-0269	12/27/12
1231	Unisco	809-555-3915	10/11/12
1351	Sight Diver	357-6-876708	09/11/12
1354	Cayman Divers World Unlimited	011-5-697044	12/23/12
1356	Tom Sawyer Diving Centre	504-798-3022	02/11/13
1380	Blue Jack Aqua Center	401-609-7623	10/02/12
1384	VIP Divers Club	809-453-5976	12/26/12

Custom Template Style (Bottom):

Order No	Sale Date	Ship Date	Amount Paid	Amount Due
1023	11/05/12	11/06/12	\$4,674.00	
1076	11/10/11	03/19/12	\$17,781.00	
1123	07/19/10	07/19/10	\$13,945.00	

Menu Options:

- New Order...
- Print Report
- Printer Setup...
- Exit

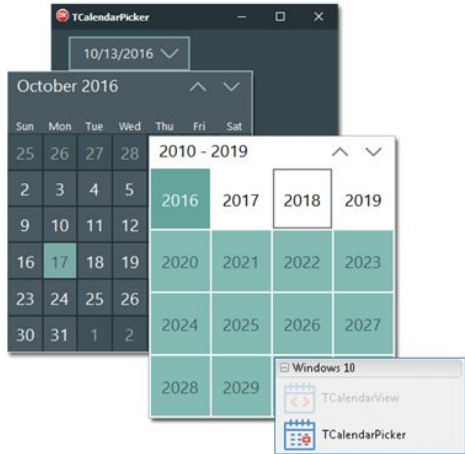
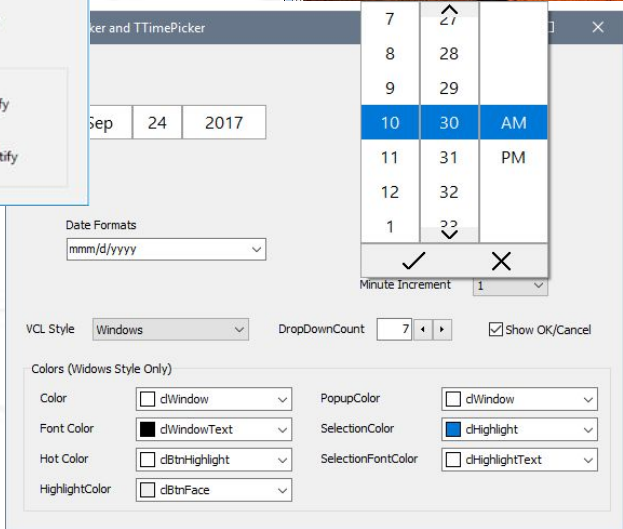
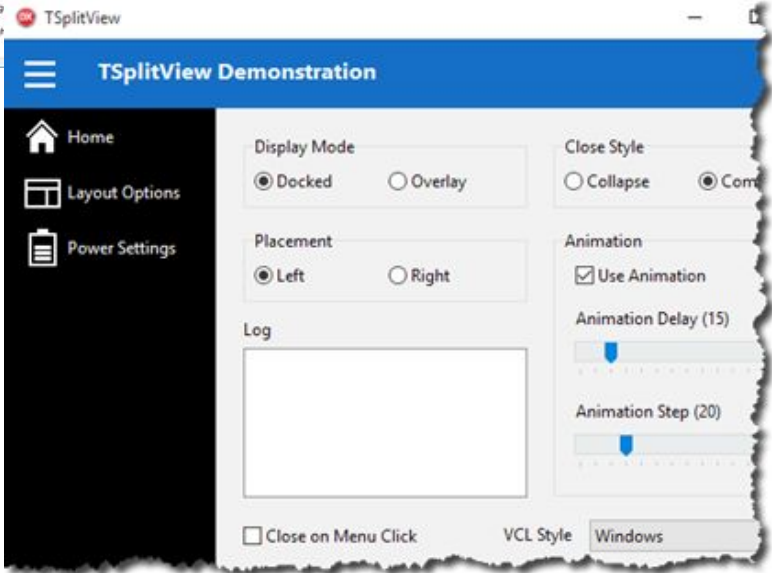
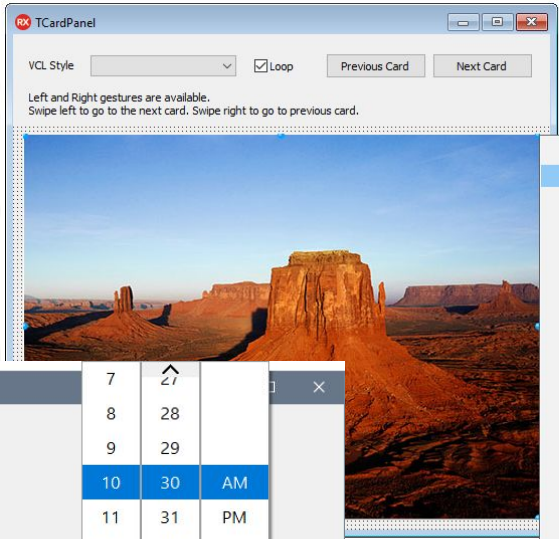
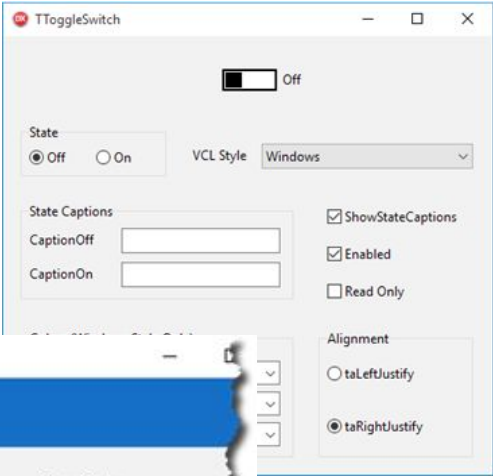
Specify Date Range Dialog:

Customers with LastInvoiceDate

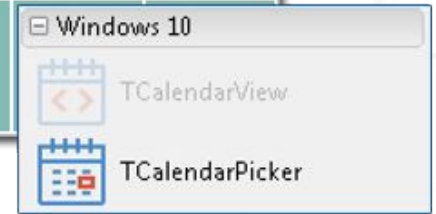
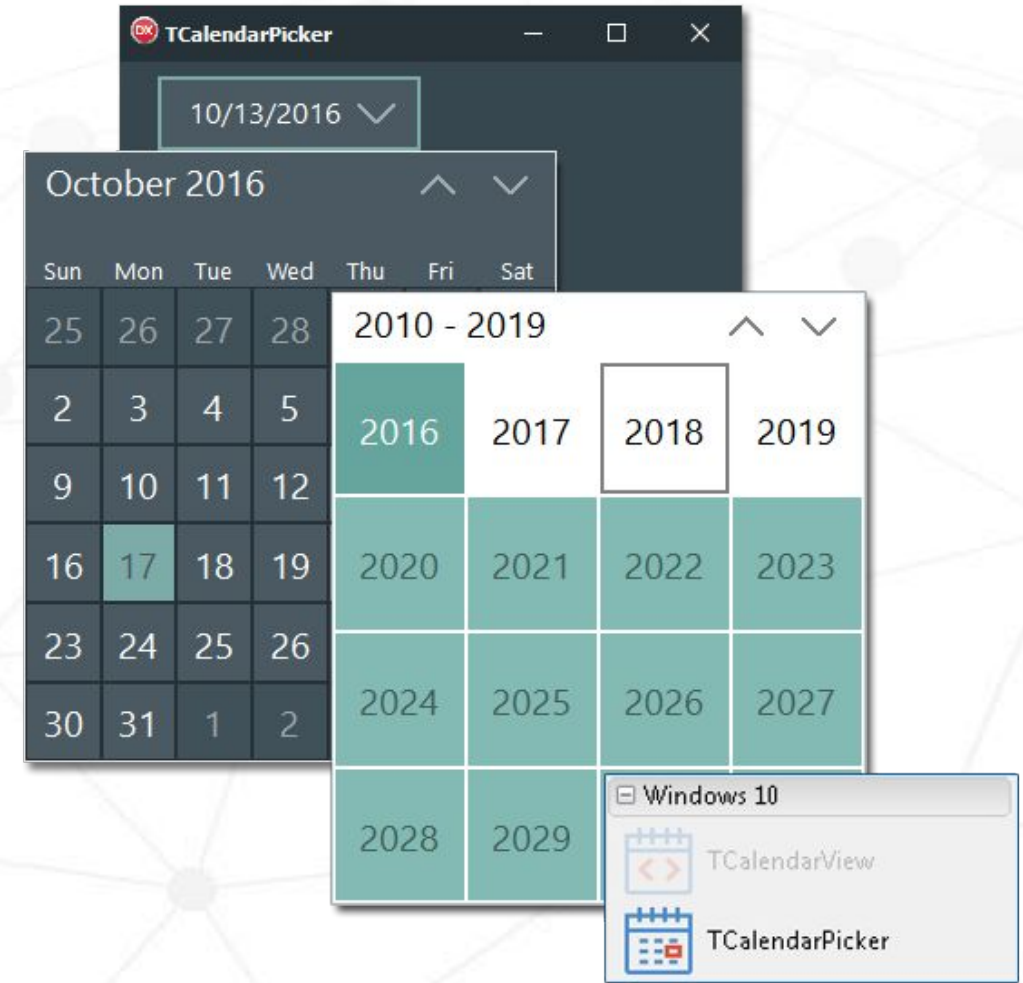
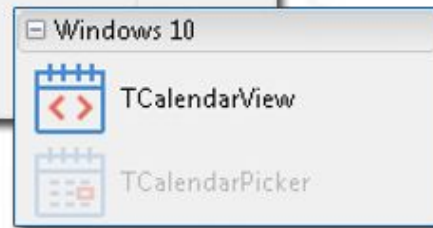
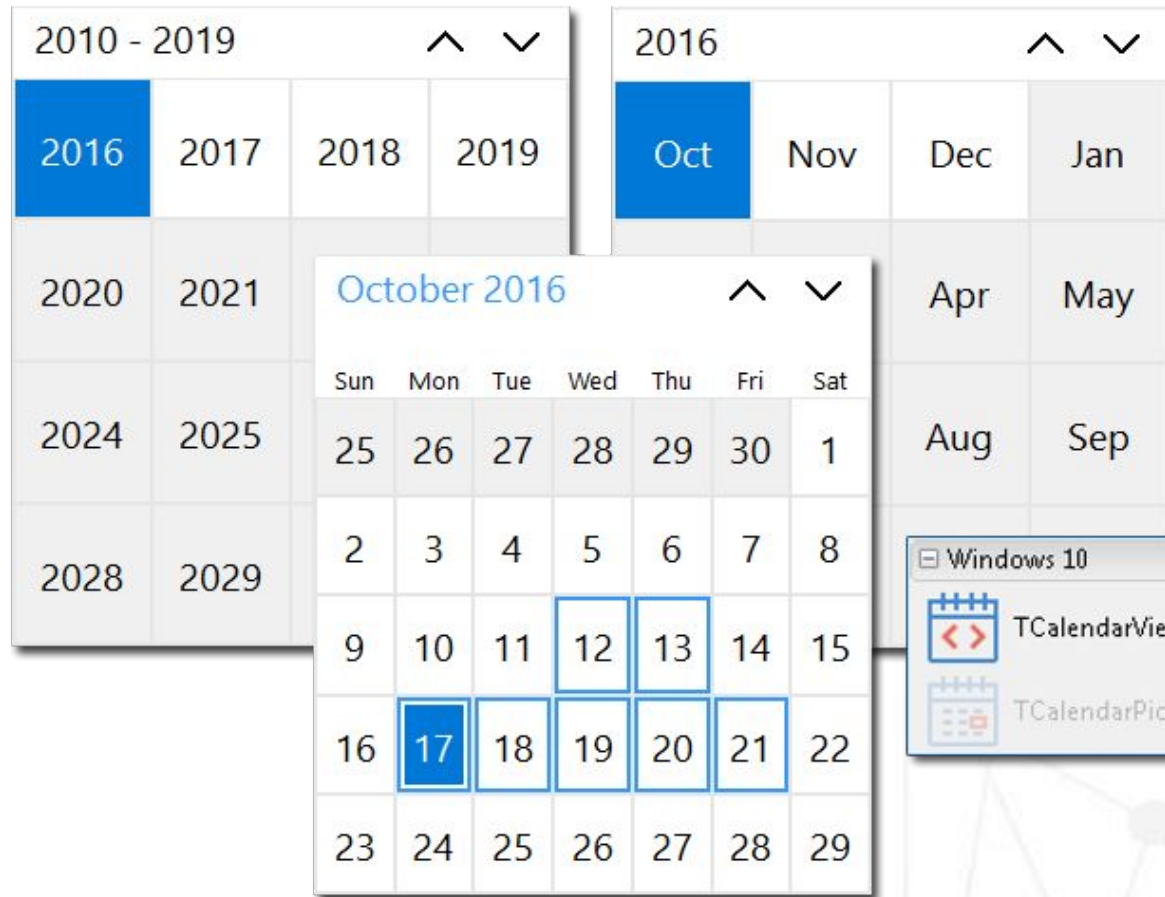
From: 1/1/2006 To: 7/27/2015

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

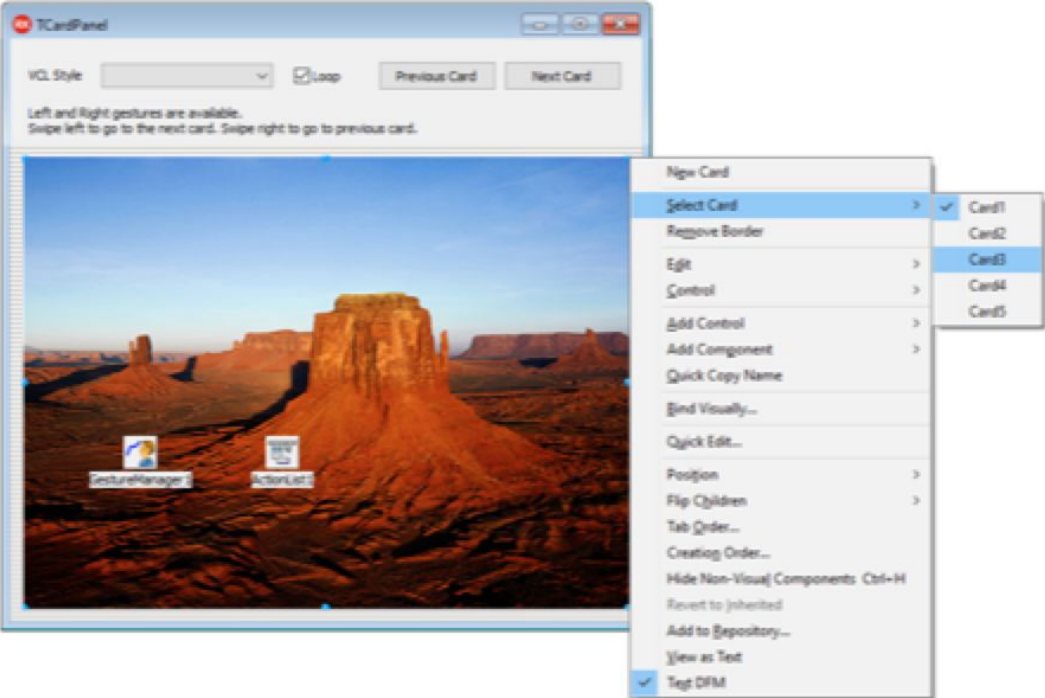
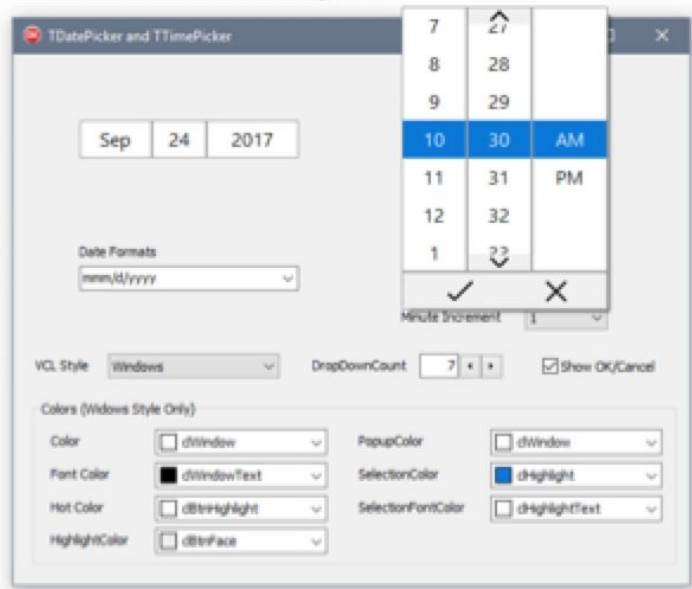
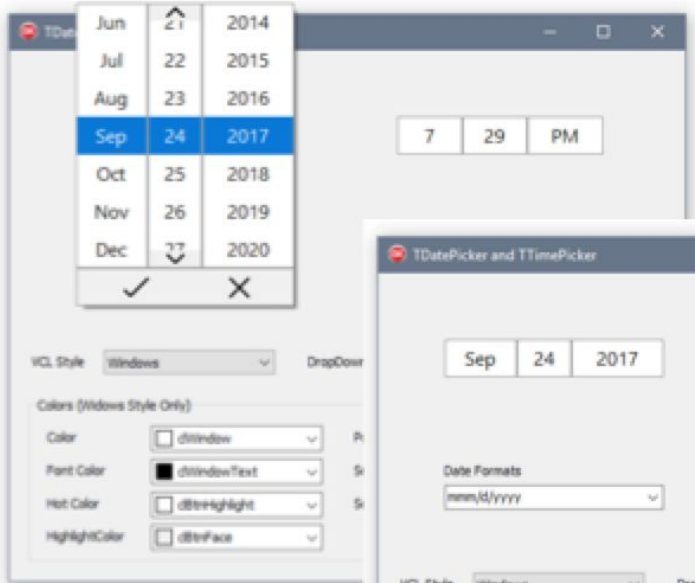
Recent New VCL Controls



VCL Calendar control



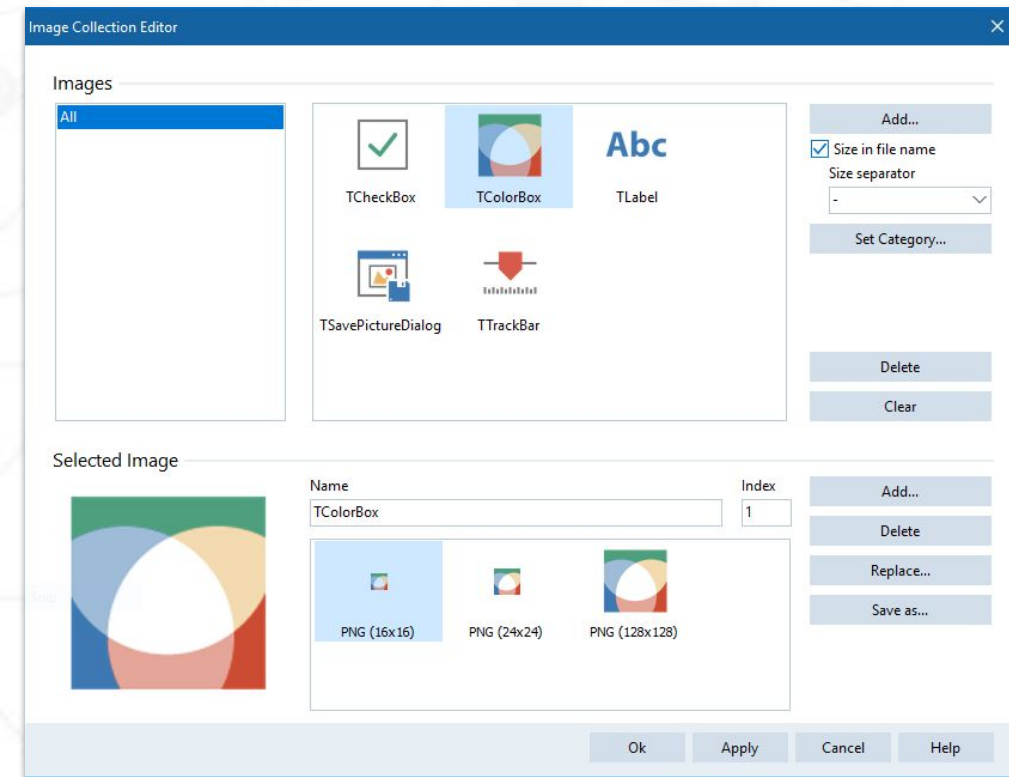
Date and Time Picker, More panels



VCL High DPI Image List



- New components
 - **virtual image collection** (holds images)
 - **image list** (DPI-aware specific view of that collection)
- Multi-resolution, alpha channel, 32bpp bitmap / PNG (and can import old bitmaps)
- List is compatible with TImageList (including HIMAGELIST handle)
- Image list scales as parent form DPI scales
- Migration tools for old -> new lists



Windows 10 “Per Monitor v2” Support



- PerMonitor v2 support in project options
 - Requires Windows 10 build 1703 “*Creators Update*” (from 5-April-2017)
- New GetSystemMetrics model
 - GetSystemMetricsForWindow
 - TControl.GetSystemMetrics
 - Highly compatible with existing source code
- Significant focus on VCL High-DPI Fixes

Manifest

Target
Debug configuration - Windows 32-bit platform Apply... Save...

Manifest File
Auto Generate

Tags To Include
☒ Enable Runtime Themes

DPI Awareness
Per Monitor v2

Execution Level
As Invoker

☐ UI Access

Windows, High DPI, and Multiple Monitors



Windows 10 has support for multiple monitor, different DPIs

Dragging to new monitor triggers system messages

Windows support for High DPI has been changing

Each Windows 10 release has something new

“Per Monitor v2” -> new APIs offers system information per monitor

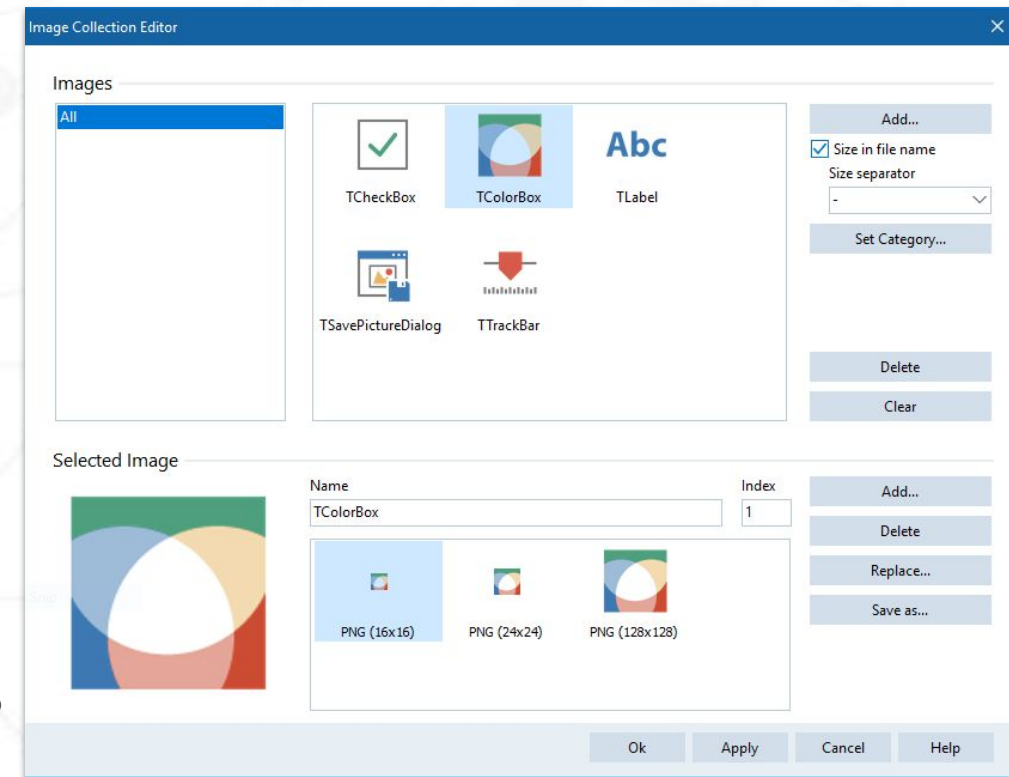
Additional challenge:

Win32 standard and common controls and image lists are only partially DPI aware (single image list, no scaling)

VCL High DPI Image List



- New components
 - **image collection** (holds images)
 - **virtual image list** (DPI-aware specific view of that collection)
- List is compatible with TImageList (including HIMAGELIST handle)
- Image list scales as parent form DPI scales (that means, share an image collection, but don't share an image list between two forms or place in data module)
- Migration tools for old -> new lists



Windows 10 “Per Monitor v2” Support



- PerMonitor v2 support in project options
 - Requires Windows 10 build 1703
“Creators Update” (from 5-April-2017)
- New GetSystemMetrics model
 - GetSystemMetricsForWindow
 - TControl.GetSystemMetrics
 - Highly compatible with existing source code
- Also in 10.3: Significant focus on VCL High-DPI Fixes

Manifest

Target
Debug configuration - Windows 32-bit platform Apply... Save...

Manifest File
Auto Generate ▼

Tags To Include
☒ Enable Runtime Themes

DPI Awareness
Per Monitor v2 ▼

Execution Level
As Invoker ▼

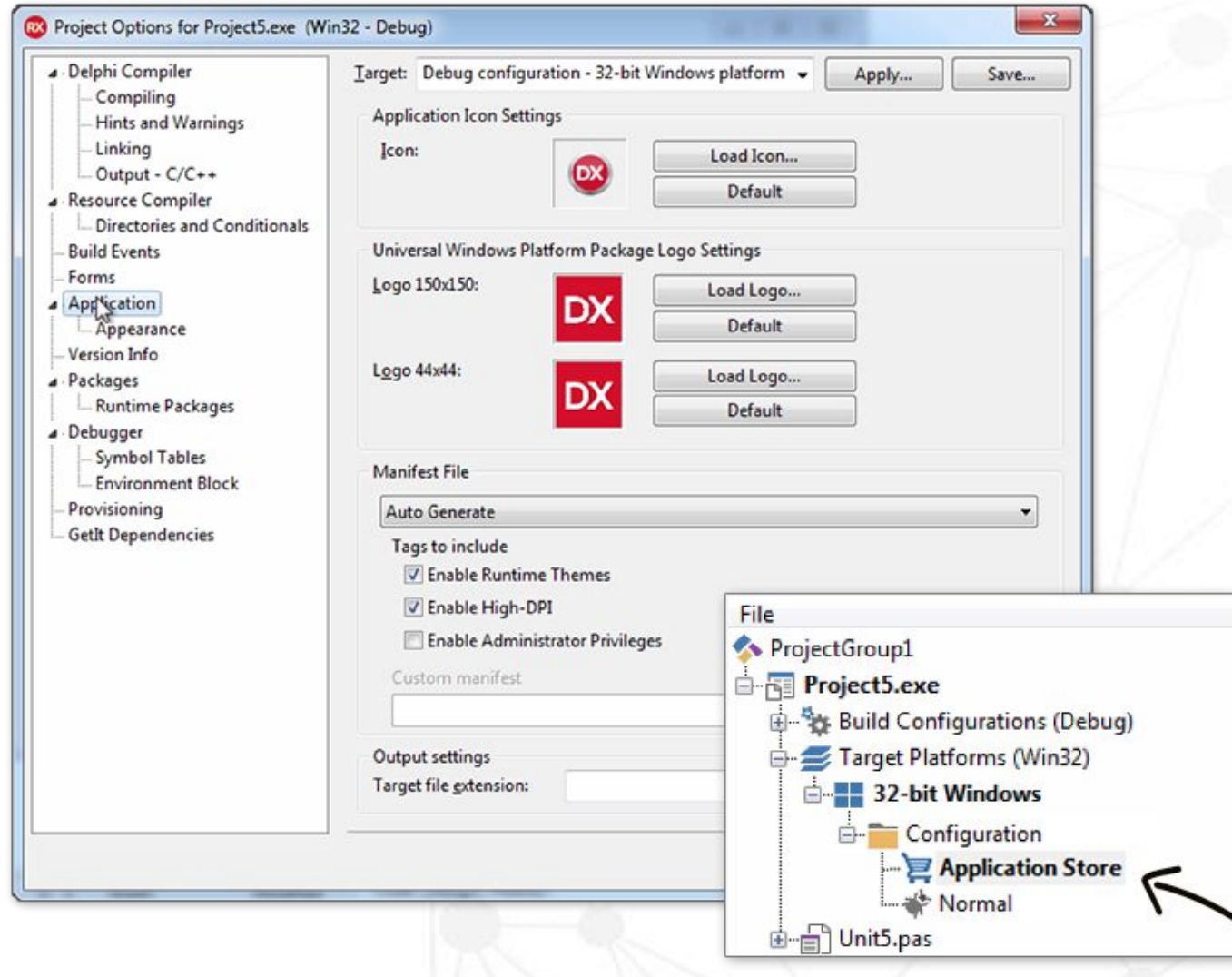
☐ UI Access

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

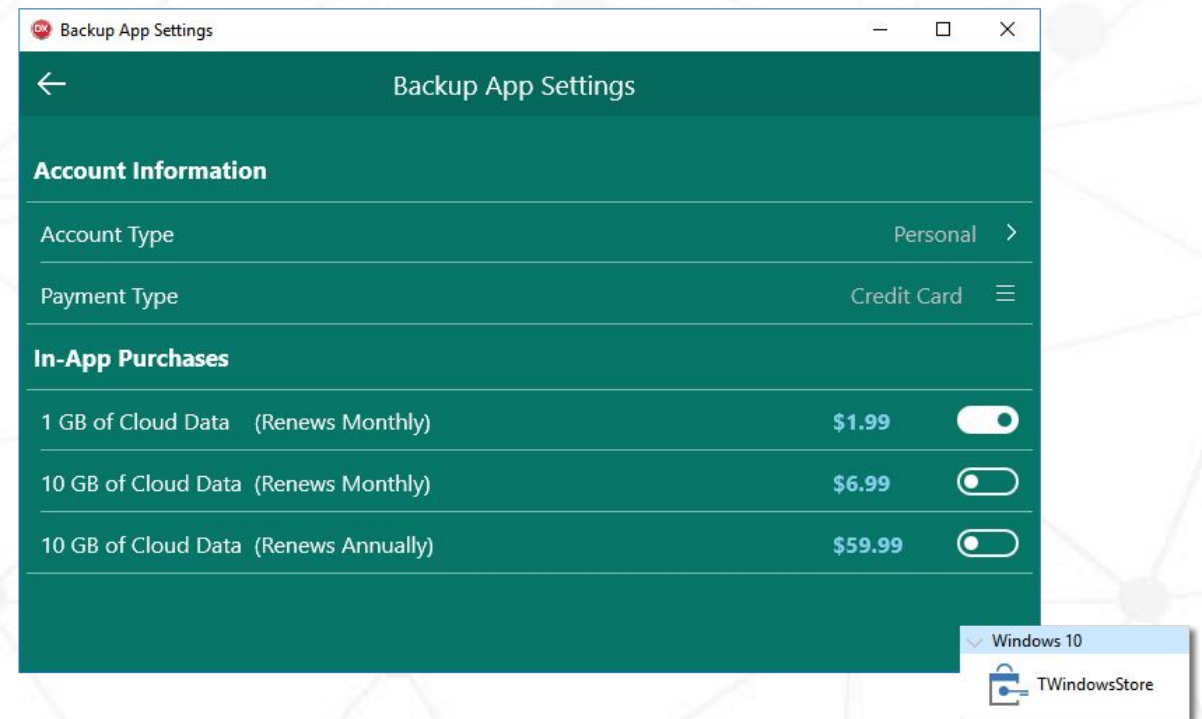
Windows 10 Store support in IDE



Windows 10 Store



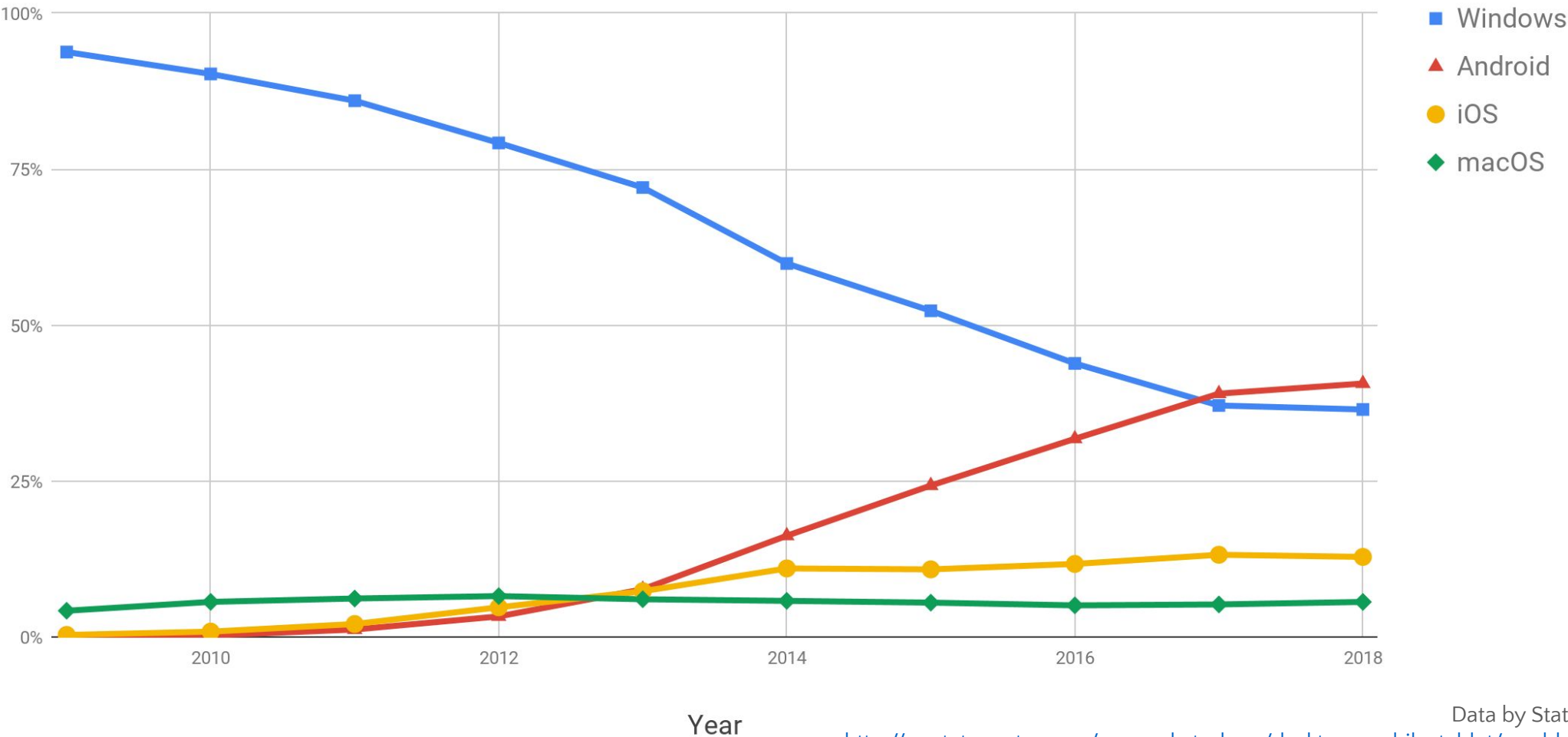
- Additional WinRT API and Windows Store support with TWindowsStore component
 - Trial mode
 - Verify license
 - In-App Purchase





10.3: Delphi for Multi Device

Multi Device is the Future



Data by Stat Counter as of July 2018 -
<http://gs.statcounter.com/os-market-share/desktop-mobile-tablet/worldwide/#yearly-2009-2018>
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Platform Vendor Tools

Apple iOS

Info.plist

Swift or
Objective-C
Code

NIB File

Resources

Cocoa APIs

Android

AndroidManifest.x
ml

Java or Kotlin
Code

Layout

Resources

JNI & JDK
Interface

Windows

Visual Studio
Project

C++ or C#
Code

XAML

Resources

Windows APIs

RAD Studio

Single Project file

C++ or Pascal code

DX **CX**

FMX layout

Android
Variant

iOS
Variant

Resources

FMX & RTL Libraries

Platform APIs



One Project
4 Platforms

RAD Studio

Single Project file

C++ or Pascal code



FMX layout

Android
Variant

iOS
Variant

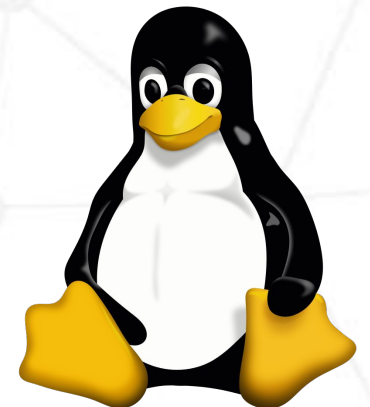
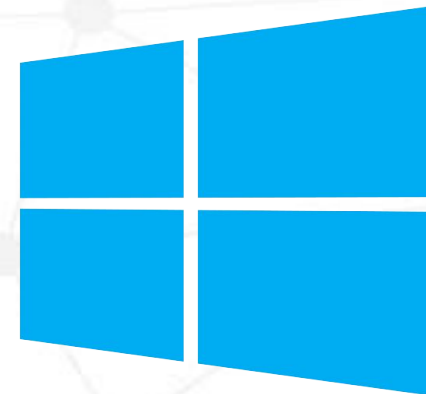
Resources

FMX & RTL Libraries

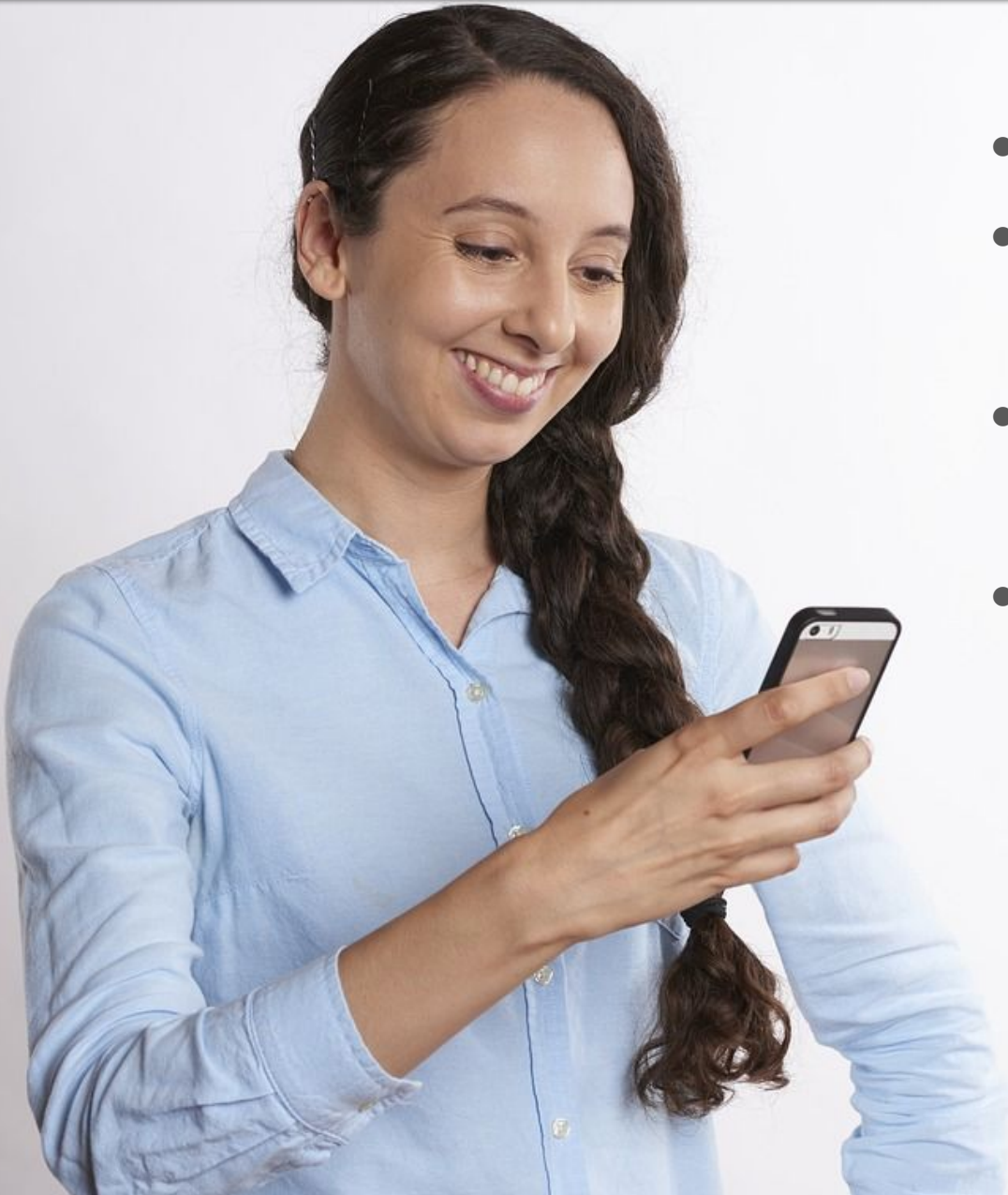
Platform APIs



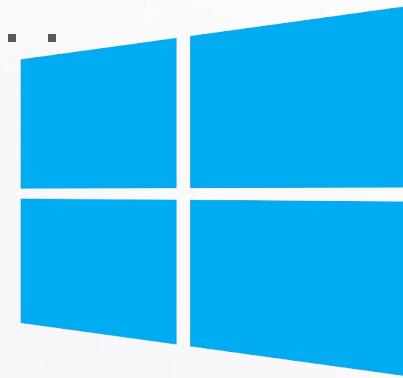
One Project
Every Platform



Not so very long ago . . .



- First came Windows, ruling all the land
- Later iPhone was king of the mobile world
- Now Android outsells iPhone and macOS is a contender again!
- Today we live in a ***multi-device world*** .

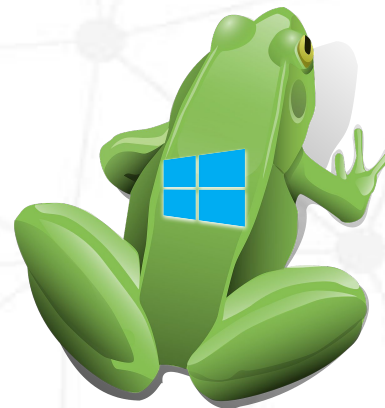


Yes, DOS came before Windows, so did UNIX and CP/M, but we aren't going back that far *today*.

Now What's a Developer to do?



- Mobile or iOS first (but there are more Androids!)
- Then rewrite for the other platforms?
- Even if you share *some source* you still have multiple project files, and release schedules
- You are stuck playing *release leapfrog*!



I need *how many* tools & languages?



Java for Android



Swift for iOS & macOS



C# for
Windows

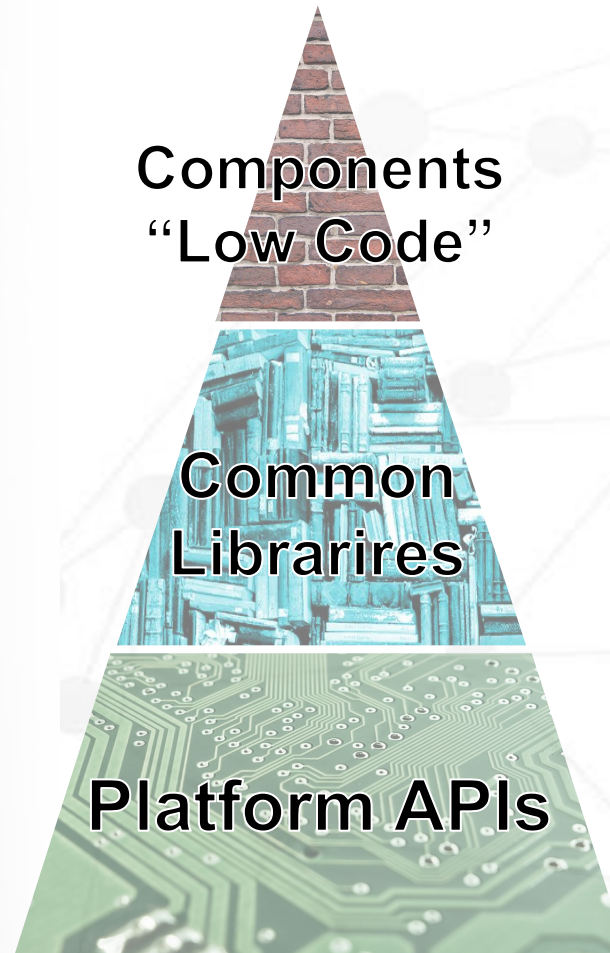


That's Where Embarcadero Comes In . .



- Embarcadero's Delphi is a tool for the multi-device world
 - One project gives you native apps for all four platforms: **Windows, iOS, Android, & macOS**
 - Visual designer lets you design it once
 - Smart themes adapt the UI to correct platform behaviors
 - Create platform specific variations to tweak behavior on each platform if desired
 - Still with full access to platform APIs & 3rd party libraries

Supports all Three Layers of Development



- Each layer builds on previous
- Higher layers provide productivity benefits
- Lower layers provide more control of platform
- Apps typically written with a combination of layers
- Delphi gives you easy access to all layers!

No-Compromise Compiled Code



- Delphi compiles to native code, for Intel or ARM
 - Most compilers based on LLVM infrastructure
- No runtime needed
 - No dependency on execution environment (.NET, JVM)
 - No runtime compilation, JITer, or any other layer
- Advantages
 - Fast, secure, xcopy deployment

UI Widgets: Styled vs. Native or Both



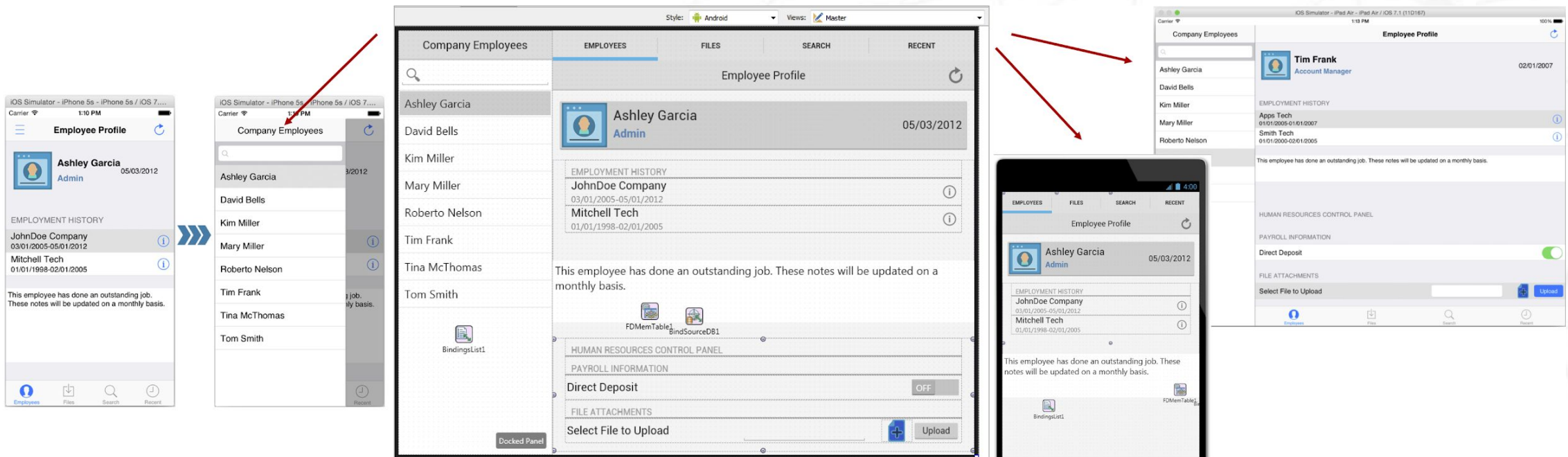
- Multi-platforms solutions offer
 - Styled (painted) controls only – often not even matching the platform
 - Native controls only – UI code changes significantly among platforms
 - “Forms” with a handful of controls
- FireMonkey
 - Extensive collection of styles controls, with platform specific styles (“pixel perfect”)
 - Key controls available as native controls (input controls and more)
 - Embedded complex native controls (maps, browser, etc.)

Best in Industry: FireUI Multi-Device Designer



Shared master and specific views

Visually customize forms for different platforms and form factors



Desktop First, Mobile Integrated



- A common scenario for business apps
- Keep the core business application on desktop
- Surface features on mobile with focused apps, notifications, etc
 - Ideally, use a shared back end
- Create companion apps via AppTethering
 - No server needed, just peer to peer to desktop app



Other Delphi Key Libraries

FireDAC = Amazing Database Access!



- Works on all platforms & Supports most databases
 - Including NoSQL on MongoDB
 - Enterprise Connectors expands it further to the cloud!
- Amazing Features + Top Performance
- Unified interface with database specific control
- TFDLocalSQL is so useful!
 - Run SQL queries locally on TDataSet descendants.
 - Simplify code with SQL to process sets of local data
 - Join queries between heterogeneous data sources.
 - Supports the INSERT/UPDATE/DELETE SQL commands as transactions and savepoint



From HTTP Clients to Integrated Cloud Services



REST and HTTP client libraries for direct access

Based on platform libraries, native HTTPS support

AWS and Azure support

Access to storage, tables, queuing

Backend-as-a-Service (BaaS) providers

Including Parse API (now hosted by other vendors), Kinvey

FireDAC NoSQL database access

Full support for MongoDB, on premise or in cloud



What is RAD Server in One Slide



The engine for multi-tier applications

Deploy on premise or in the cloud

Comes with tons of ready-to-use features: users and groups management, multi-tenancy, detailed analytics, push notifications support, swagger documentation support, beacon fencing...

Migrate your data access logic to a web service

Build flexible and thin Windows VCL clients, multi-device clients for desktop and mobile or Web + JavaScript clients

Works on Windows and Linux, IIS and Apache (standalone not recommended beyond development)

InterBase 2017: Embed, Deploy, Relax!



Self-tuning, High Performance SQL-92 Relational Database Management System

Runs on Windows and Linux servers and embedded on desktop and mobile

Developer edition integrated in RAD Studio

InterBase Server:

Windows
Linux

IBLite/IBToGo:

Windows
MacOS
iOS
Android
Linux

What's Coming

RAD Studio 10.3.2 is currently in NDA-limited Beta, available to update subscription customers

** Features are not committed until completed and GA released

RAD Studio
10.3.2

mid-2019

User Experience

FireMonkey UI Templates
Further IDE UI/UX improvements
New Downloads/Licensing Portal

Platform Enhancements

Enhanced RAD Server Tooling

Delphi

macOS 64-bit platform support

C++

Windows 64-bit C++17 support
Enhanced C++ LSP support

Quality Focus Areas

VCL High DPI
FireMonkey Platform
RTL Performance
C++17 Win32 Compiler
IDE Code Tooling

What's Coming

RAD Studio 10.4 later this year, planning Beta with Android Store waiver

** Features are not committed until completed and GA released

RAD Studio
10.4

late 2019

Platform Enhancements

- Metal 2 GPU driver support (macOS/iOS)
- Enhanced Windows Theming
- Additional RAD Server Tooling Enhancements
- Android Push Notifications and Google Play Services re-architecture
- LiveBindings Performance Enhancements

C++

- Expand C++ libraries support
- Toolchain performance and quality improvements
- Unified memory management across all platforms

Delphi

- Android 64-bit platform support
- Language Server Protocol for Delphi
- Language Enhancements
- Unified memory management across all platforms

User Experience

- Further IDE UI/UX Improvements
- GetIt Package Manager Enhancements
- VCL High DPI Styles Support
- VCL Per Control Styling
- Unified Installer for Online & Offline installations

Additional Quality Focus Areas

Conclusion: What is Delphi's DNA?

1. **Developer productivity** – Shipping is a feature. Get to market 5x faster with Delphi.
2. **Fast native apps** – With a native compiler Delphi gives your apps the speed they need.
3. **Database access** – Key to Delphi's initial design, database access is integral to Delphi.
4. **Platform API access** – Gives you access to all the platform APIs and direct memory access.
5. **Visual designers** – Forget prototyping in another tool, just design it and finish it in Delphi.
6. **Reliable applications** – Programs developed with Delphi just keep working.
7. **Good strong community** – Full of Technology Partners, MVPs, trainers, authors and developers.
8. **Readability and Maintainability** – Developers spend more time reading and maintaining code than writing code. Pick a language that balances that.
9. **Backward Compatibility** – You have an investment in your code, Delphi keeps that relevant.
10. **Code Reuse** – Delphi's components shipping with source fosters a culture of code reuse.
11. **Speed** – Did we mention Delphi development is fast, compiles fast, and makes fast apps?





Questions?