RAD Studio Spring 2017

(Spring in Brazil, Fall in USA)

Product Address

Jim McKeeth, Embarcadero Technologies

jim.mckeeth@embarcadero.com

@JimMcKeeth

About Jim McKeeth

Chief Developer Advocate & Engineer

Long time software developer

Invented and patented pattern and swipe to unlock

US Patent # 8352745 & 6766456, etc.

Built thought controlled drone with Google Glass

Host of Podcast at Delphi.org

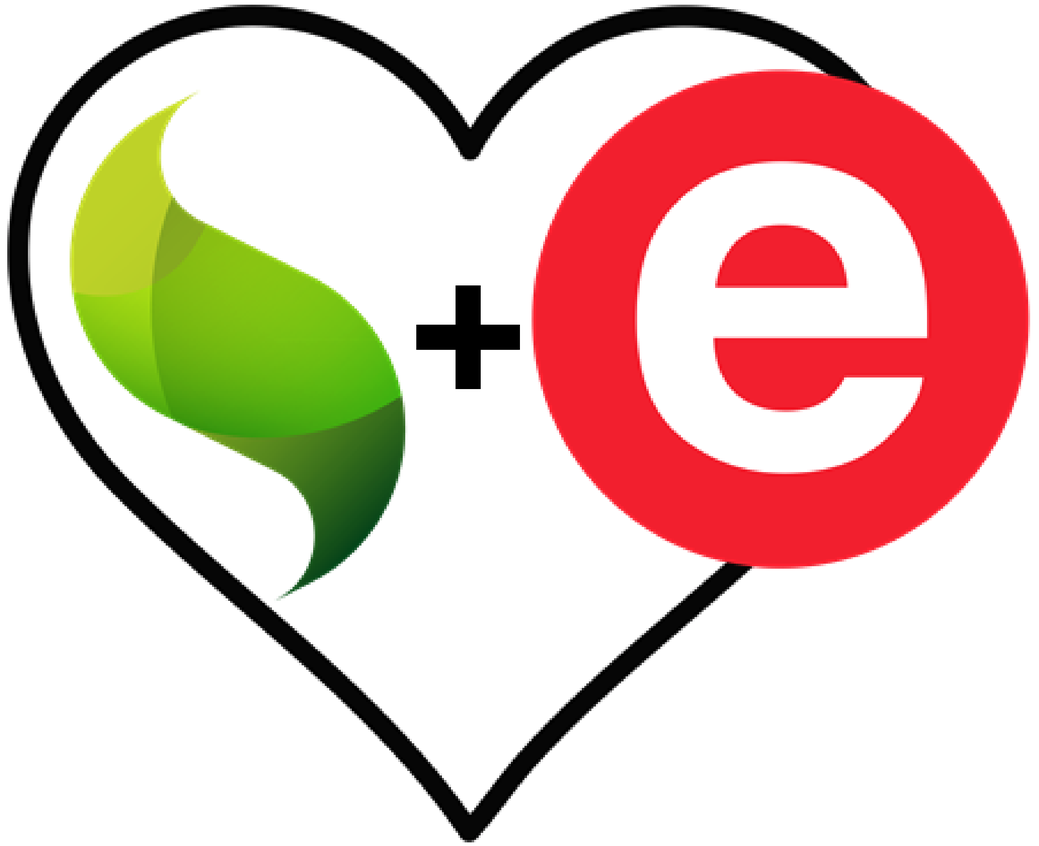
Lives near Boise, Idaho, USA with family & dogs

Improvisational comedy performer w/ CSz Boise

Contributor to *Internet of Things and Data Analytics Handbook*

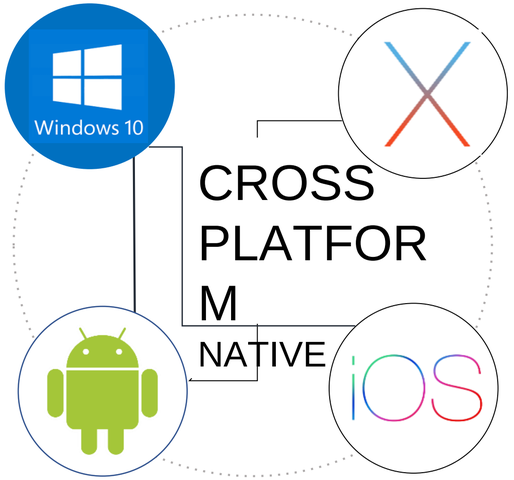
Embarcadero for Developers

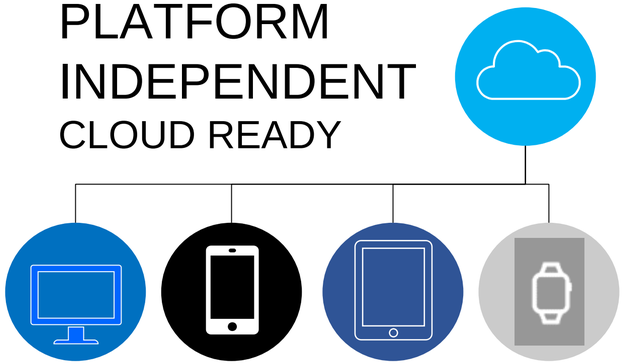
- Development Tools
  - RAD Studio, Delphi, C++Builder
  - *ExtJS, ExtReact, Sencha Architect*
- Database Engines
  - InterBase
- Testing
  - *Sencha Test*
  - *Ranorex Test Automation*

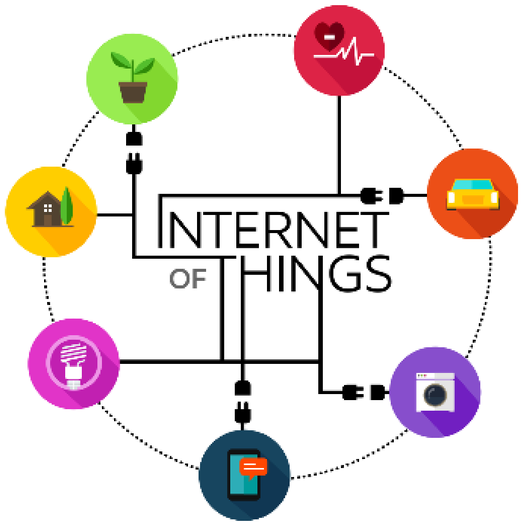


What is RAD Studio?

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

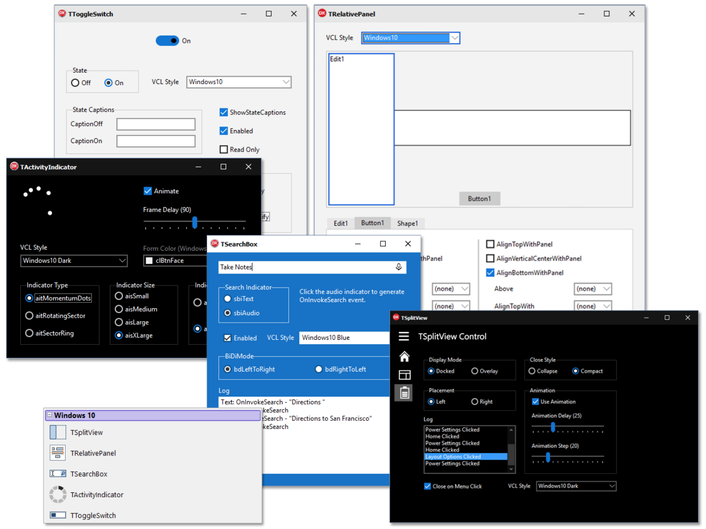


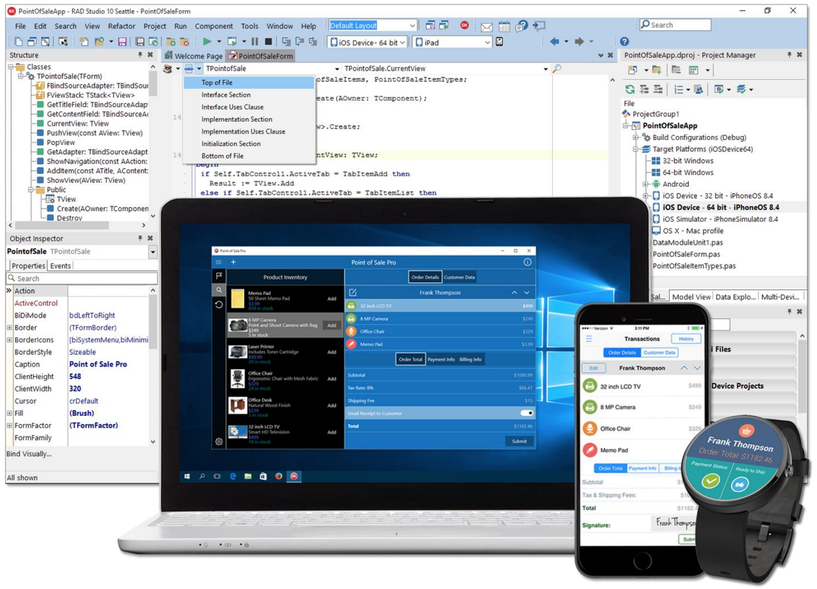




Fast, Visual Development

RAD Studio provides powerful VCL controls for Windows 10 and enables FMX cross-platform development for Windows, Mac, iOS and Android



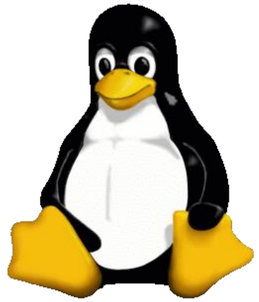


RAD Studio Platform Support

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

Windows 10
Creator's Update

macOS Sierra



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

Android N and O

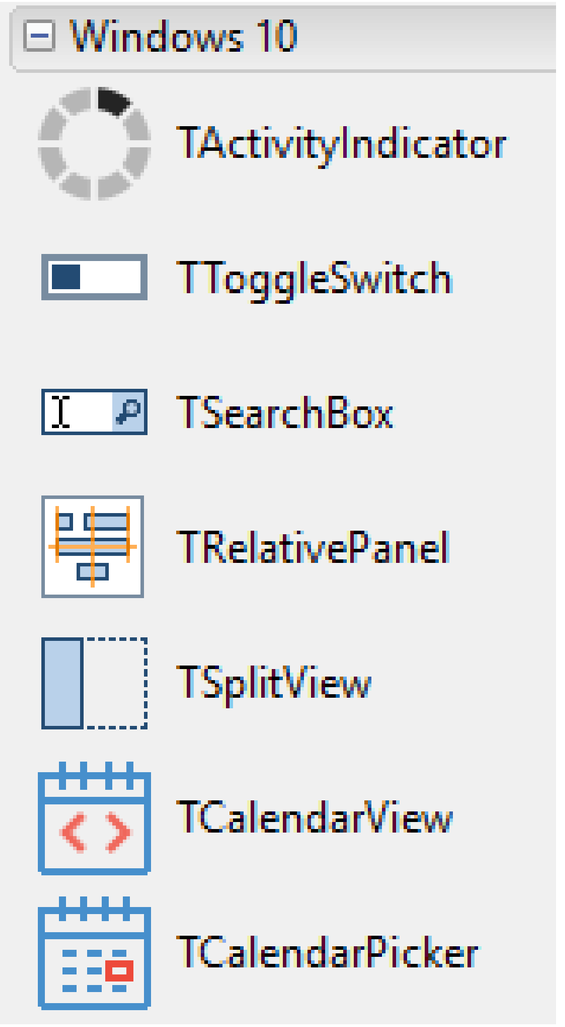
iOS 10

iOS 11

Officially Supporting

VCL: 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

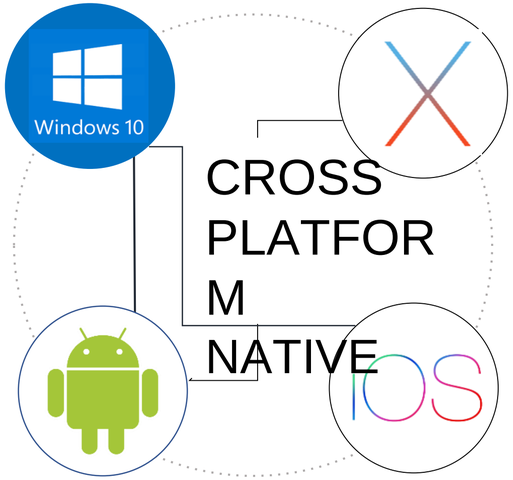


Cross-platform, native apps

Write your UI once, customize at design time, deploy everywhere!

- Native platform compilers for maximum performance and security
  - 5 operating systems,
  - CPUs: 32bit and 64bit CPUs, Intel and ARM
- Cross platform runtime library and database access
- FireMonkey visual component library

  Flexible designers, styling, platform components



FireDAC: High-performance Data

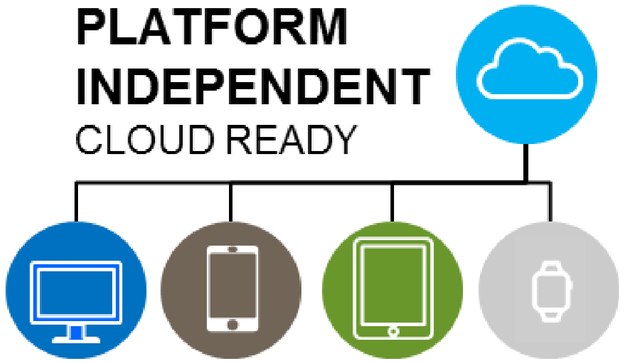
FireDAC

High-performance, easy-to-use, enterprise database connectivity, in-memory data caching and processing

Universal data access, with database specific features: No drivers required and full source code provided

Works on all server and client platforms, mobile included

Cloud Services

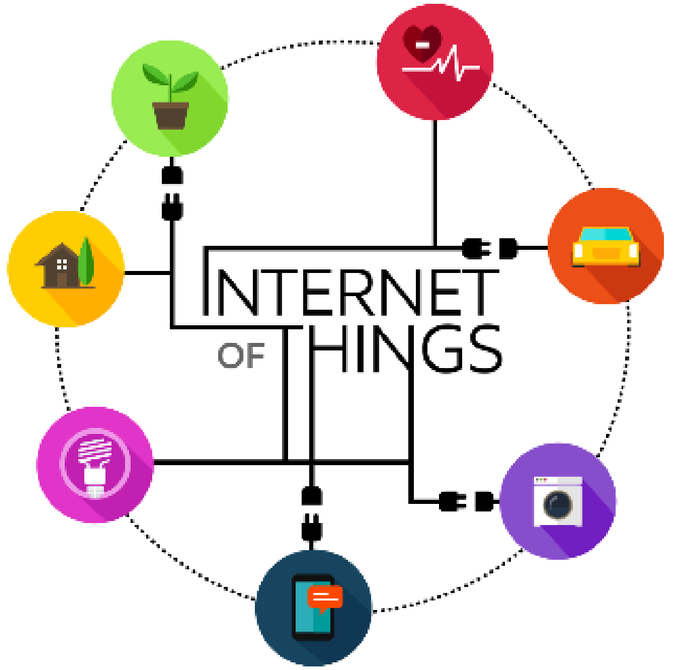


- AWS and Azure support
  - Access to storage, tables, queuing
- Backend-as-a-Service (BaaS) providers
  - Including Parse API (now hosted by other vendors), Kinvey
- REST and HTTP client libraries for direct access
  - Based on platform libraries, native HTTPS support
- FireDAC NoSQL database access
  - Full support for MongoDB, on premise or in cloud

Internet of Things Capabilities

Extend your desktop and mobile apps to IoT

- Connectivity
  - Bluetooth, Bluetooth LE, REST, and WiFi
- Control
  - Ready-to-use IoT components
  - Proximity awareness, BeaconFence
- Actionable Data
  - Sensors data collection
- Device Management
  - Distributed device monitoring with ThingPoints



C++Builder

- C++11 language support for Windows and Mobile
- CLANG-enhanced compilers, with RAD model support
- C++11: “Almost feels like a new language”
  - Lambdas
  - Move semantics
  - Automatic type deduction
  - Native concurrency
  - Better Smart Pointers
  - Range-for

Delphi

- Based on Modern Object Pascal programming language
- High-performance native compilers for all platforms
- Best easy-to-use, complete, OOP, RAD language
- Leverage a large community of Delphi developers
    - In all industries and at all latitudes
- *(New)* Large-Memory enabled Delphi stand-alone compilers

InterBase 2017: Embed, Deploy, Relax!

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

InterBase Server:
- Windows
- Linux

IBToGo:
- Windows
- MacOS
- iOS
- Android
- Linux

IoTA

INTERNET OF THINGS AWARDS

WINNER

Most Innovative
Use of Data

New hot features:

- Changed Views
- Derived tables
- Server-wide performance monitoring
- Common table expressions

... and more

New: Enterprise Connectors

Connecting to Any Application is as Easy as Connecting to a Database

- RAD Studio Add-On
  - Extend Delphi & C++ Builder Apps with SaaS, NoSQL, & Big Data Connectivity.
- 80+ Sources and Growing
  - 45 Connectors in Enterprise
  - 80 Connectors in Enterprise Plus
- Direct Real Time Access
- Royalty Free Distribution
  - Per-developer Royalty Free Distribution Rights
  - Build Rights with valid current subscription

Annual Developer Subscription: ongoing updates, upgrades and releases

Hosting JSON/REST APIs with RAD Server

System Database

Pluggable EMS packages (*.bpl)

DX CX

EMS Server

- Version
- API
- Users
- Groups
- Installations
- Push
- Edgemodules

- Resource A1
- Resource A2

- Resource B1

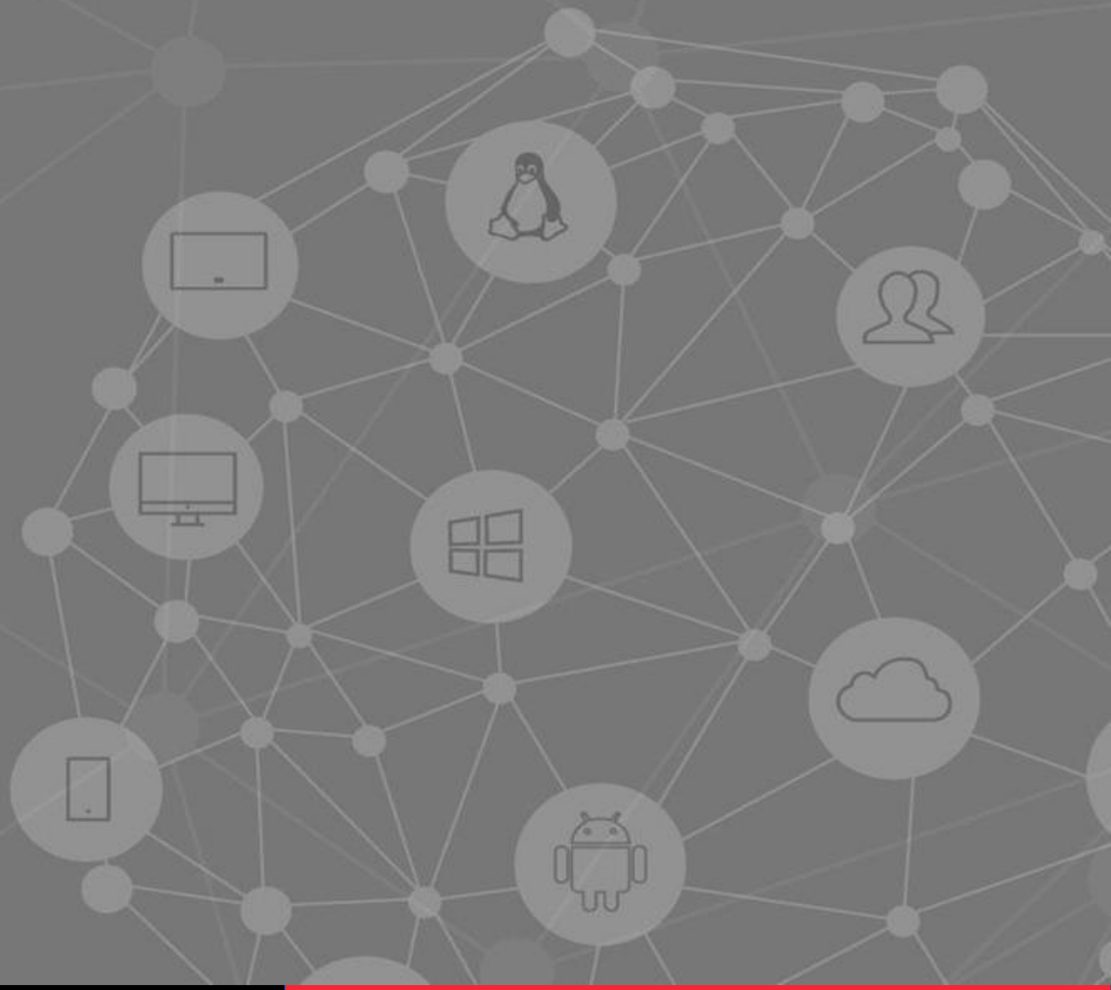
- …

HTTP Clients

Natively compiled FMX clients or HTML + JavaScript clients

Ext JS

What’s New in 10.2 and 10.2.1



Summary of What's New in 10.2

- **New Delphi Linux 64-bit platform support**
- IDE improvements
- New FireDAC drivers and DB RTL changes
- RAD Server Multi-Tenancy support
- Unified Android threading model
- C++ compilers improvements

And much more...

Delphi Support for Linux Servers

- Linux 64-bit Servers
- Expected to work on most distributions
- Server-side technologies
  - RTL, DB RTL, IOUtils and file system access, FireDAC, HTTP, REST, Cloud, WebBroker, Apache integration, DataSnap, EMS/RAD Server, JSON, XML, SOAP, Indy, IoT, and more

Officially Supports:	
Red Hat Enterprise 7	Ubuntu 16.x LTS

What's New in 10.2.1

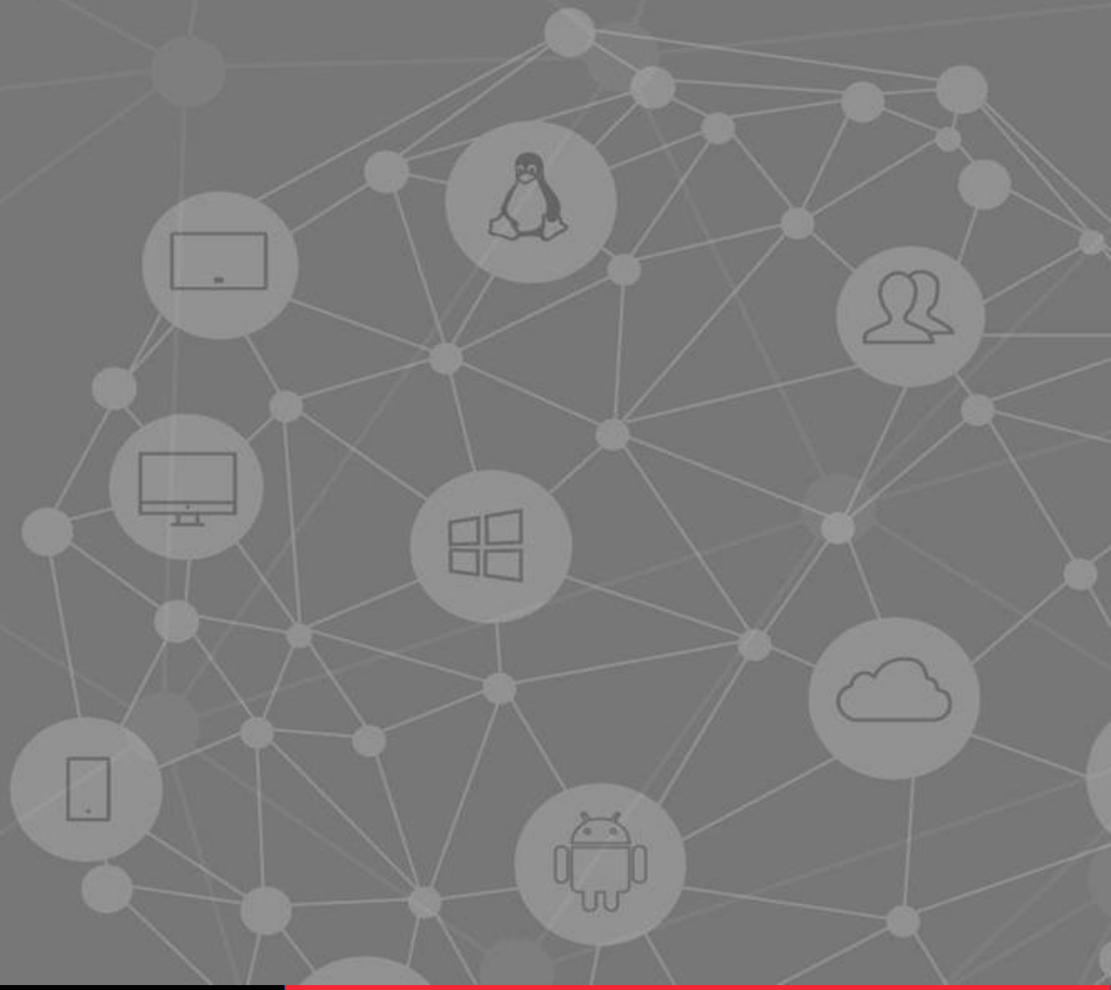
- **Improved QPS (Quality, Performance, Stability)**
  - Fixed over 140 customer reported Quality Portal issues
- BPL package loading for Windows Creators Update
- Improved support for latest versions of iOS and XCode
- TEdit improvements on latest Android, faster controls rendering
- Parse API for other providers
- FireDAC improvements for SQL Server, InterBase 2017, ODBC
- Linker improvements for large C++ projects

What’s Coming in 10.2.2*

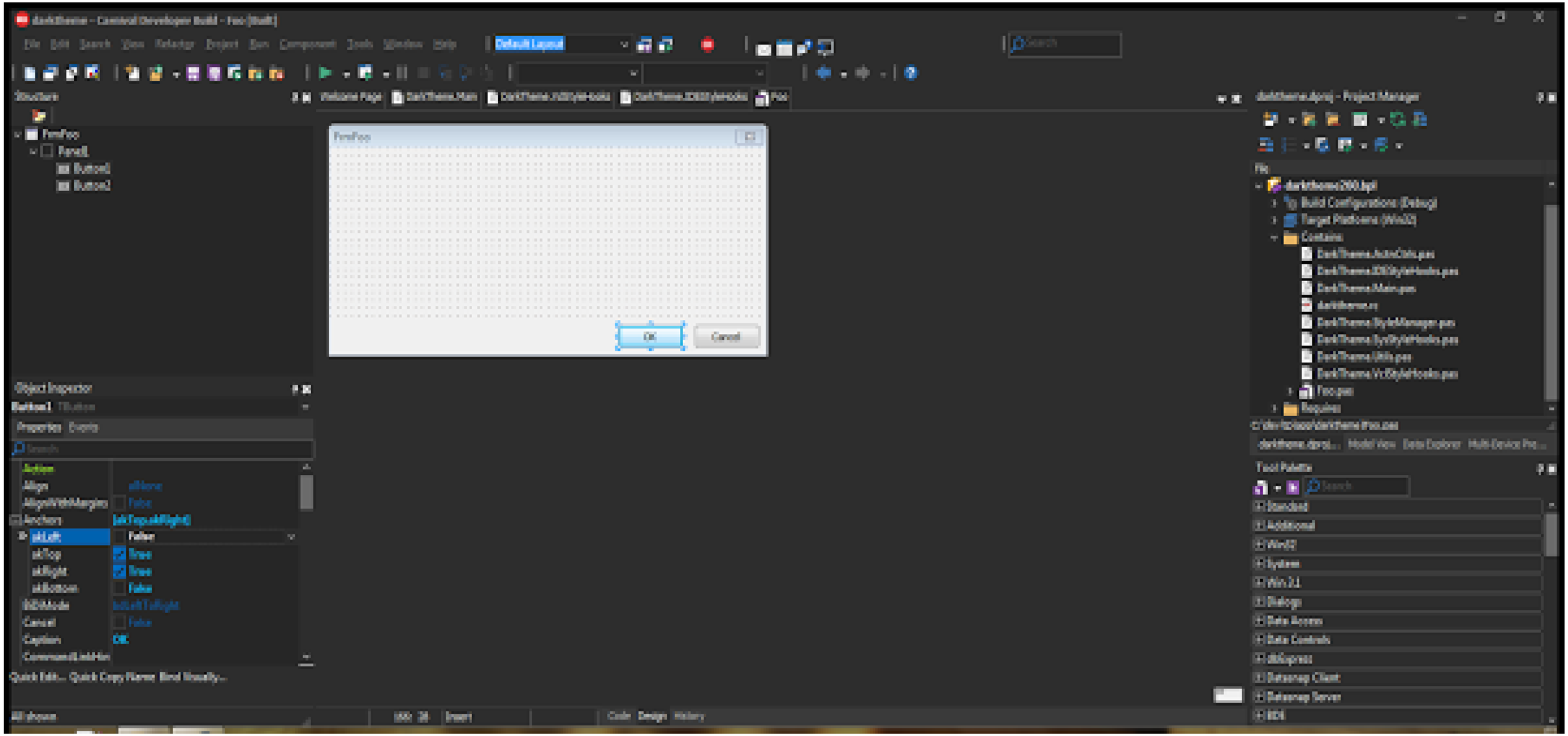
- QPS: Quality, Performance and Stability
- Dark IDE Theme
- New VCL Controls

* Features are not committed until GA of product

IDE Productivity

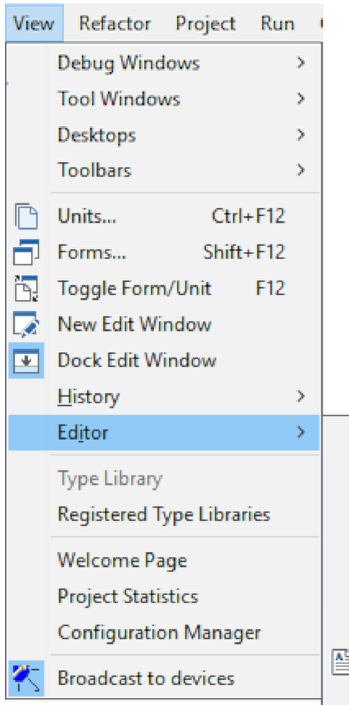


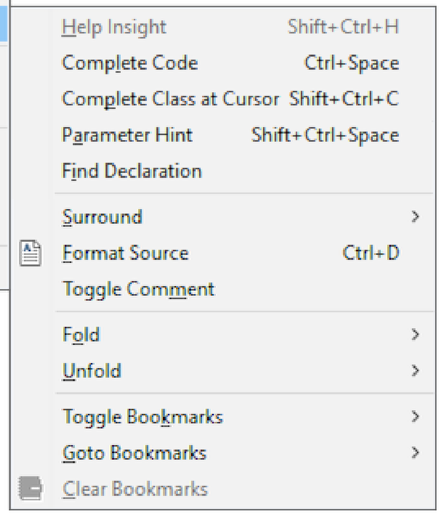
Dark Theme Preview

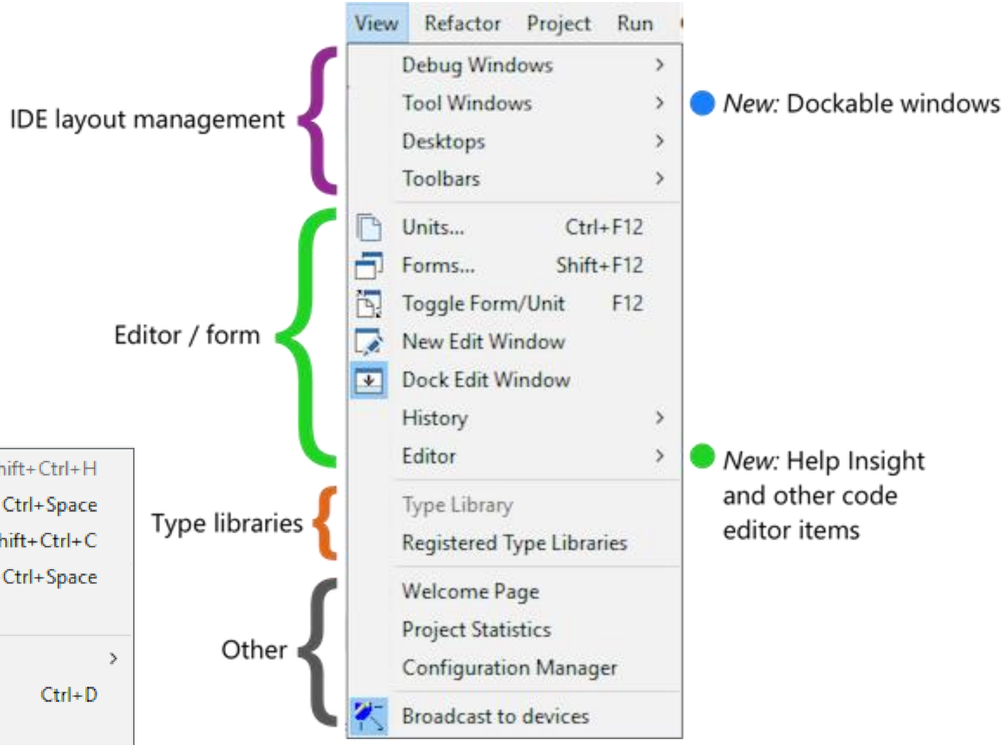


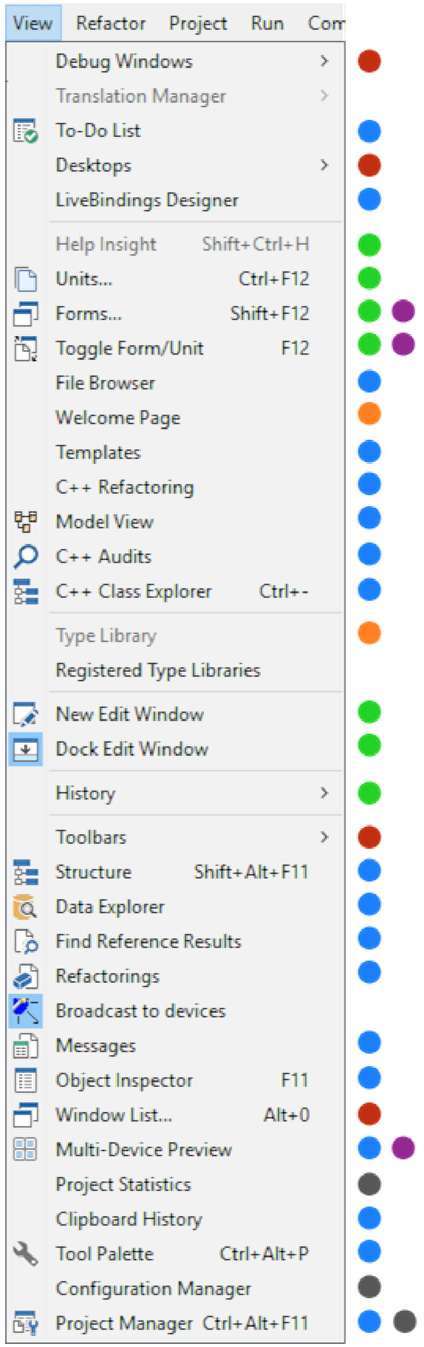
Improved IDE menus

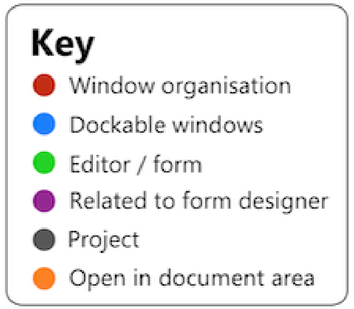
Fast navigation with improved IDE menus



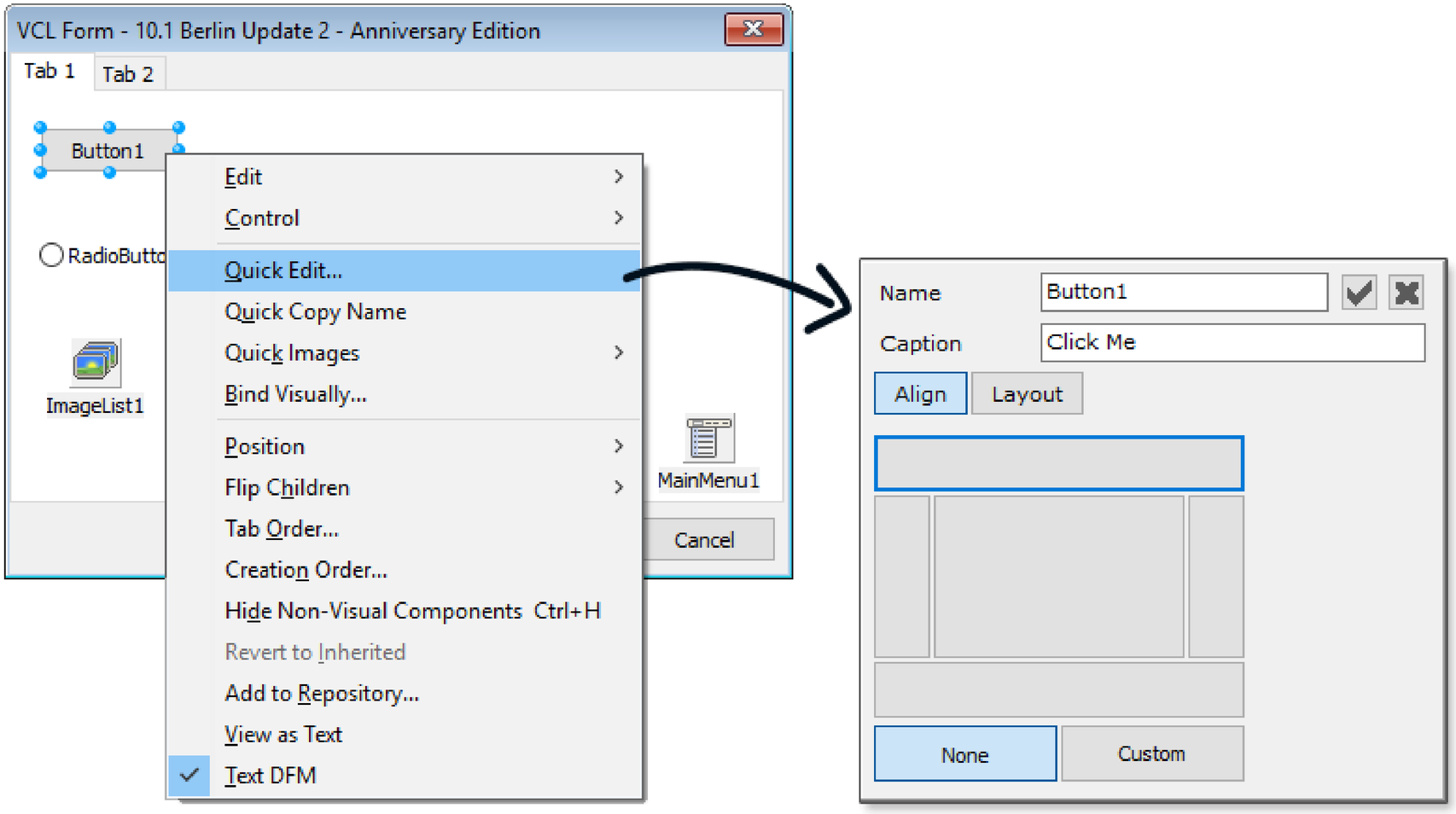






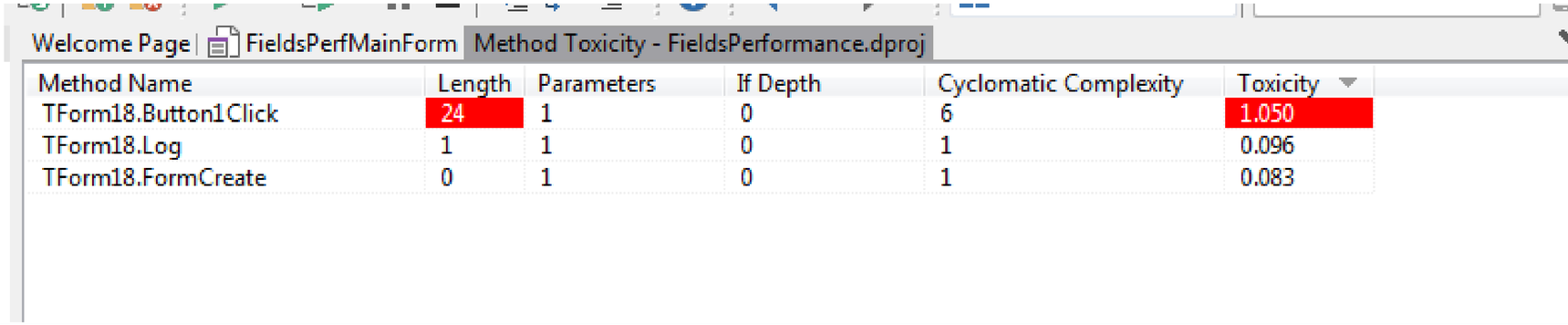


Quick Edits

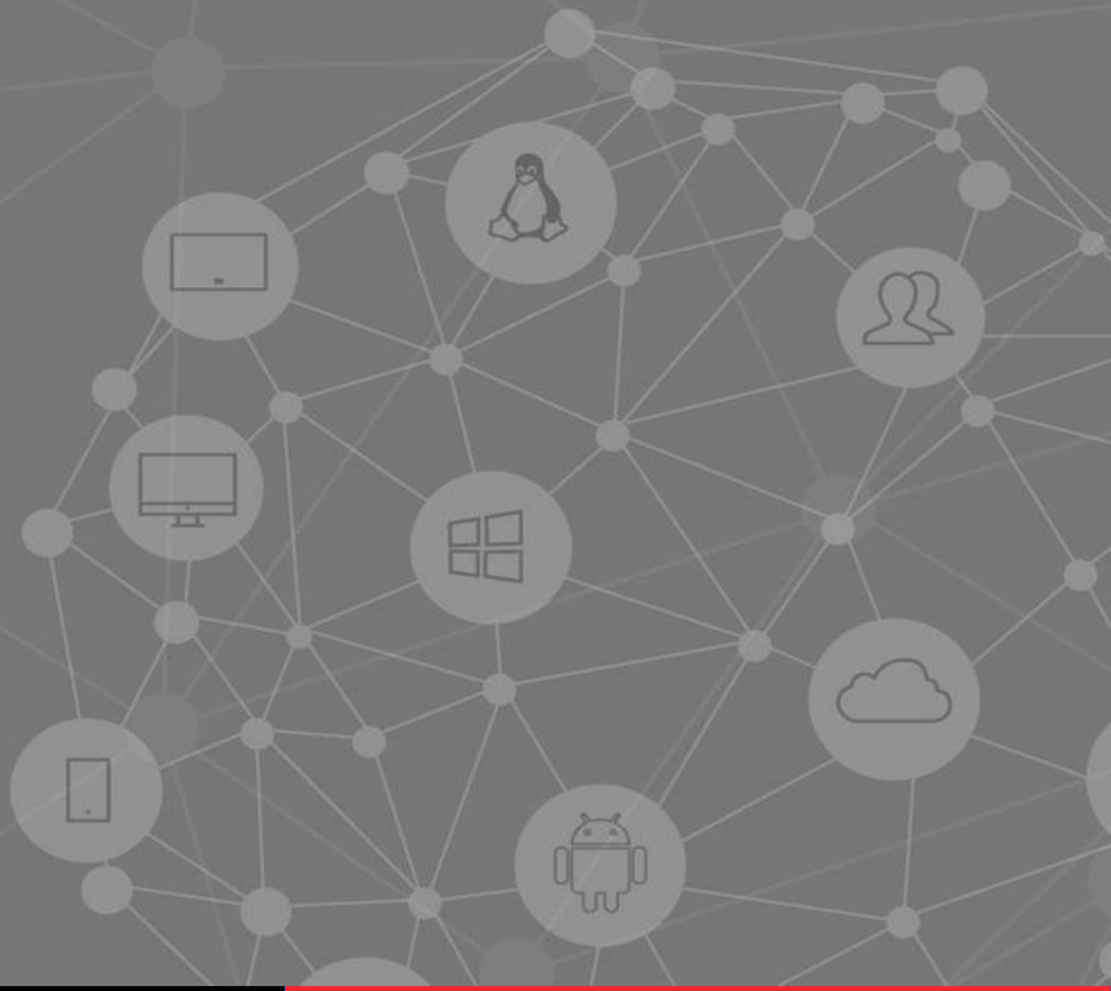

VCL Form - 10.1 Berlin Update 2 - Anniversary Edition
Tab 1
Tab 2
Button1
RadioButto
ImageList1
MainMenu1
Cancel
Edit
Control
Quick Edit...
Quick Copy Name
Quick Images
Bind Visually...
Position
Flip Children
Tab Order...
Creation Order...
Hide Non-Visual Components Ctrl+H
Revert to Inherited
Add to Repository...
View as Text
Text DFM
Name
Button1
Caption
Click Me
Align
Layout
None
Custom

Recent Productivity Enhancements

- Structure View parser for C++
  - Based on the C++ 11 language specification
  - IDE shows header dependencies for CLANG-based 32bit C++ compiler
- Bookmarks stack
- Selection “syntactic” expansion (Ctrl+W)
- File associations in the Options dialog
- Delphi Methods Toxicity metrics



BUILDING WINDOWS 10 APPLICATIONS



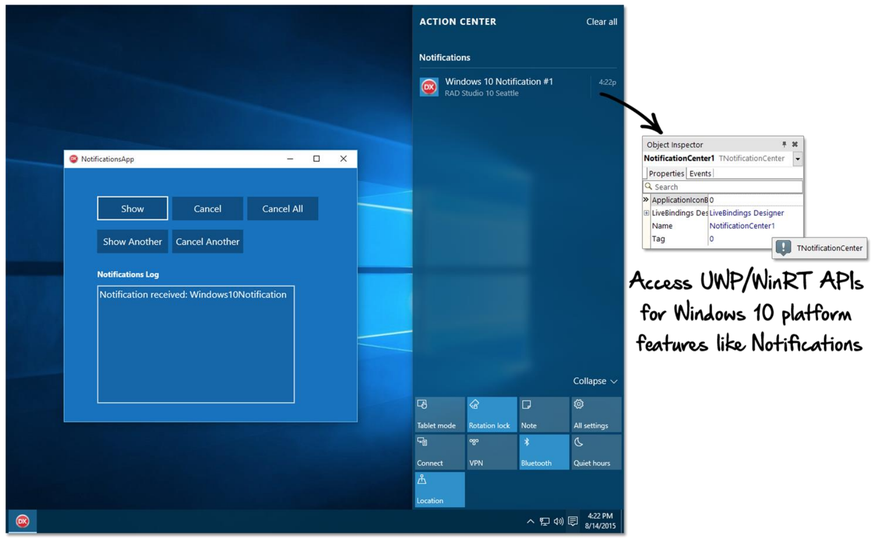
Why Windows 10?

- 500 Million Installed Base
  - ~28% Market share and growing
  - Enterprise Adoption Gains expected with Win7 EOL in Jan 2020
- VCL offers the best migration path to Windows 10
  - Retains support for older versions of Windows
  - Deploy to Windows 10 store via project Centennial

VCL and Windows are and will remain a key focus of RAD Studio

RAD Studio Windows 10 Support

- Unparalleled support for Windows platform
  - The VCL is the best and most complete component library for native Windows
  - Integrating Win32, Win64 and also WinRT APIs
- Windows 10 Specific Components
  - Windows 10 UI controls
  - Windows 10 notifications and contracts components
  - Available since RAD Studio 10 Seattle

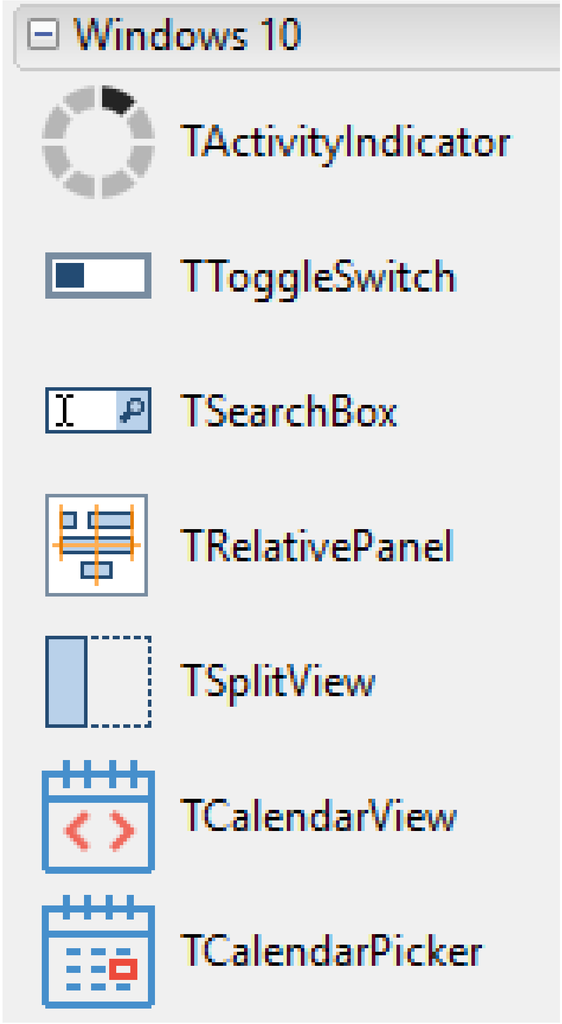


Windows 10 VCL Controls

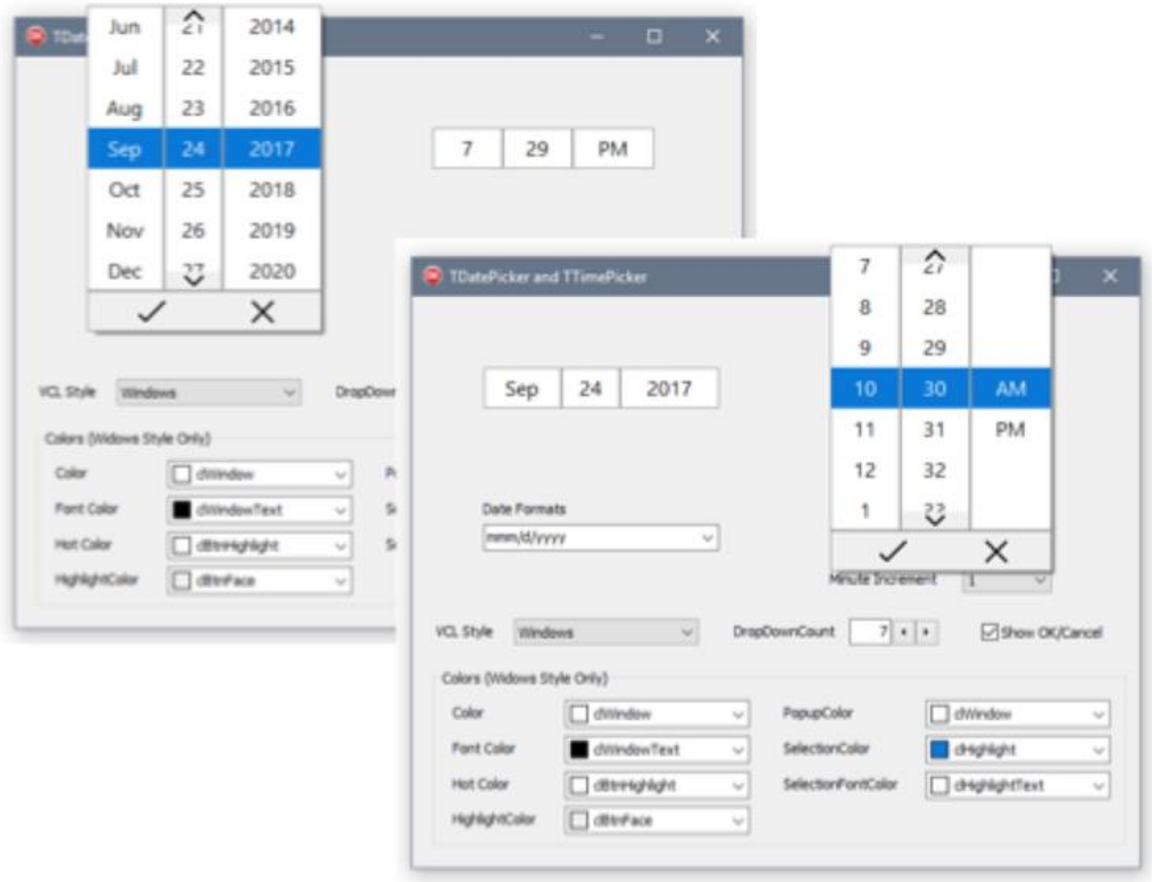
Native VCL controls mapping common Windows 10 UI elements

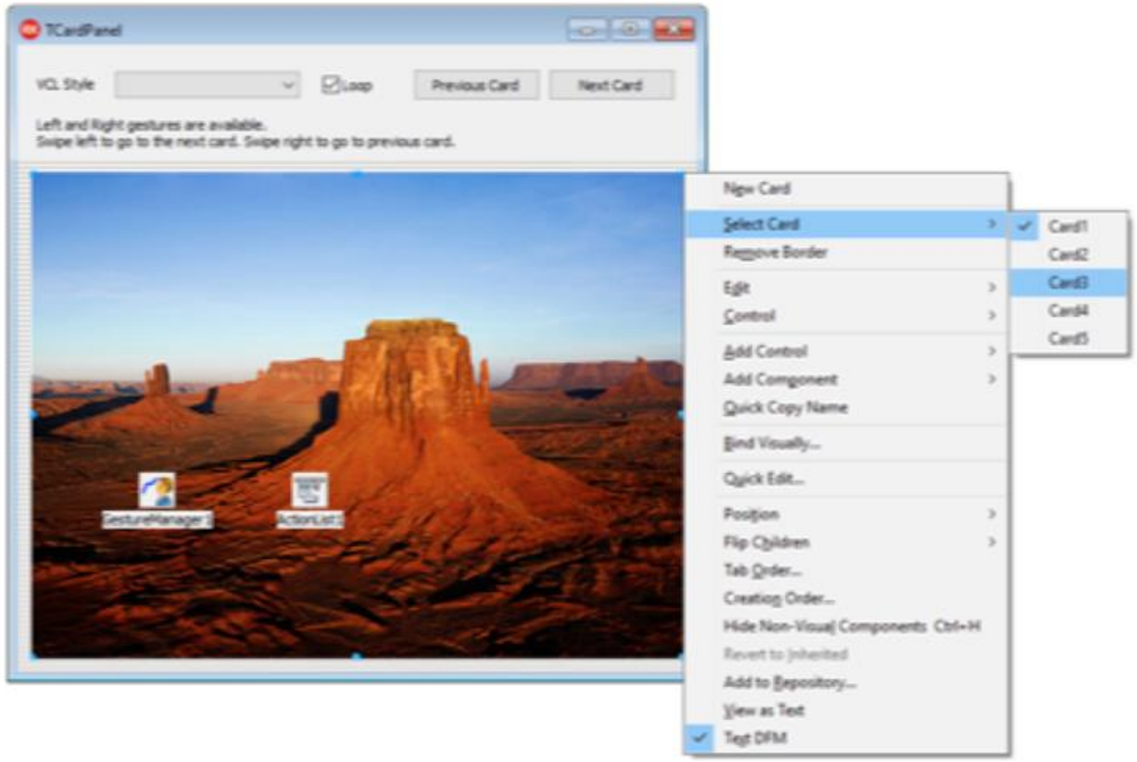
Not tied to WinRT API, will work also on Windows 7 and 8

More VCL Windows 10 UX native controls are coming!



New VCL Controls Coming





Windows 10 VCL Styles

Windows 10

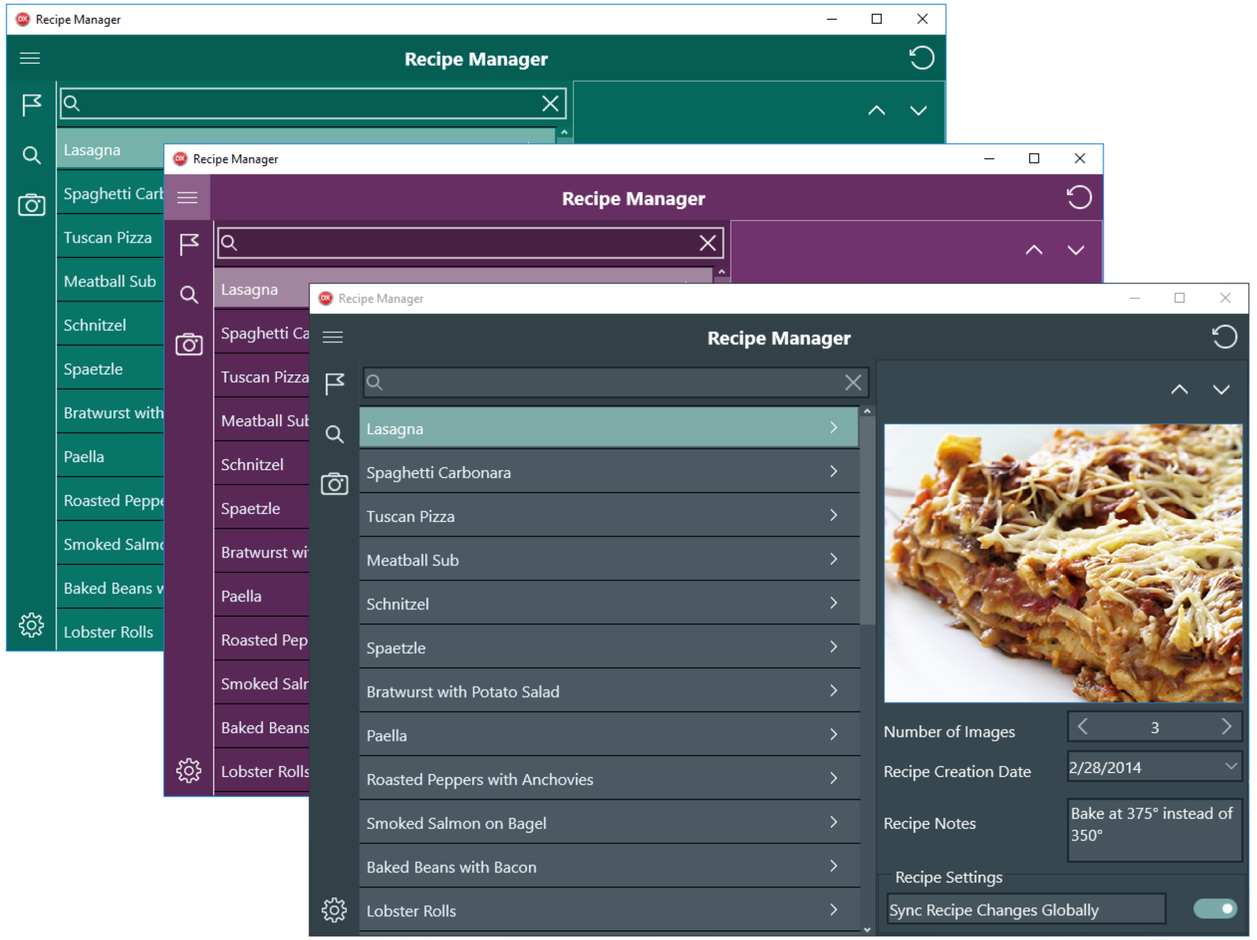
Windows 10 **Blue**

Windows 10 **Dark**

Windows 10 **Green**

Windows 10 **Purple**

Windows 10 **Slate Gray**



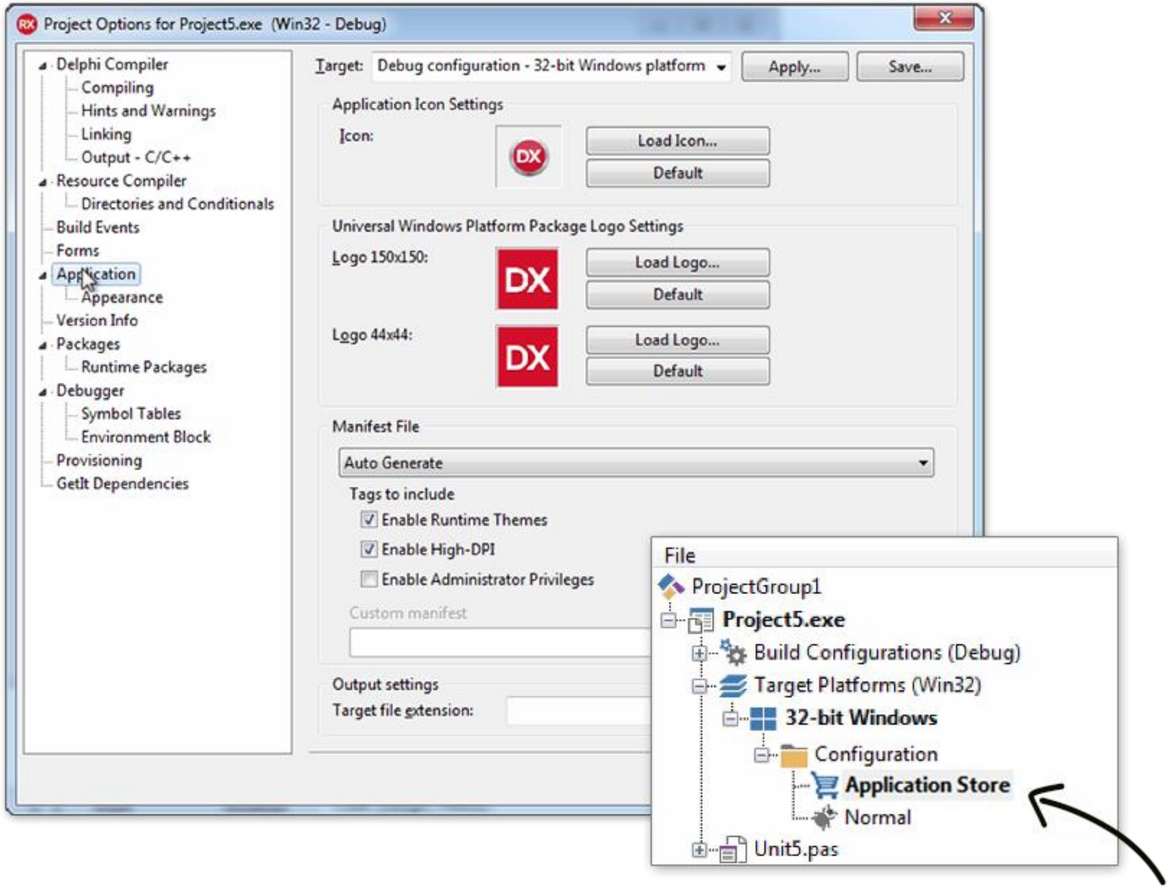
Windows 10 Store support

Package apps as UWP apps

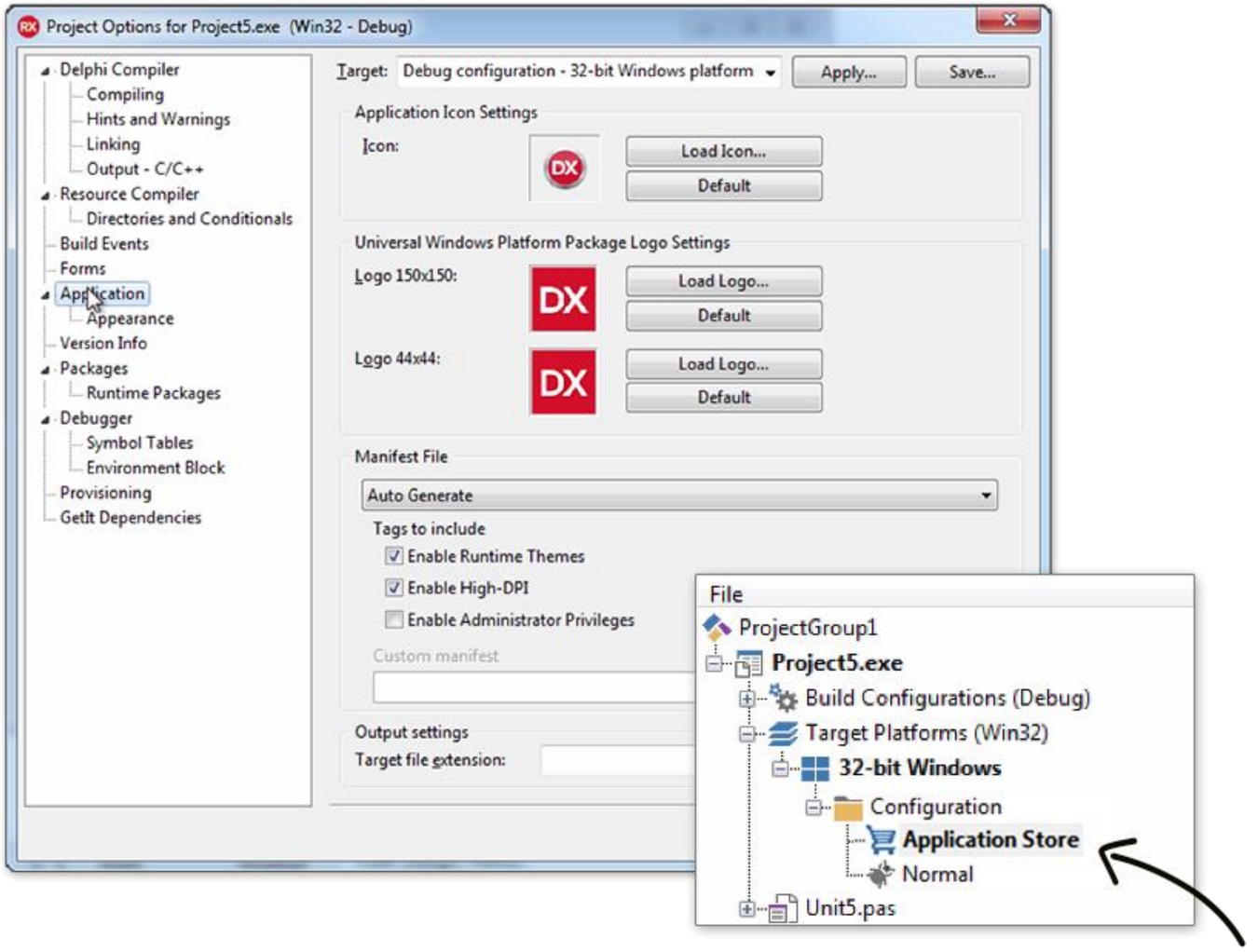
- Desktop Bridge (aka Centennial)
- Sell apps in Windows 10 store to millions of customers
- Deploy to company stores

IDE-based Win Store deployment

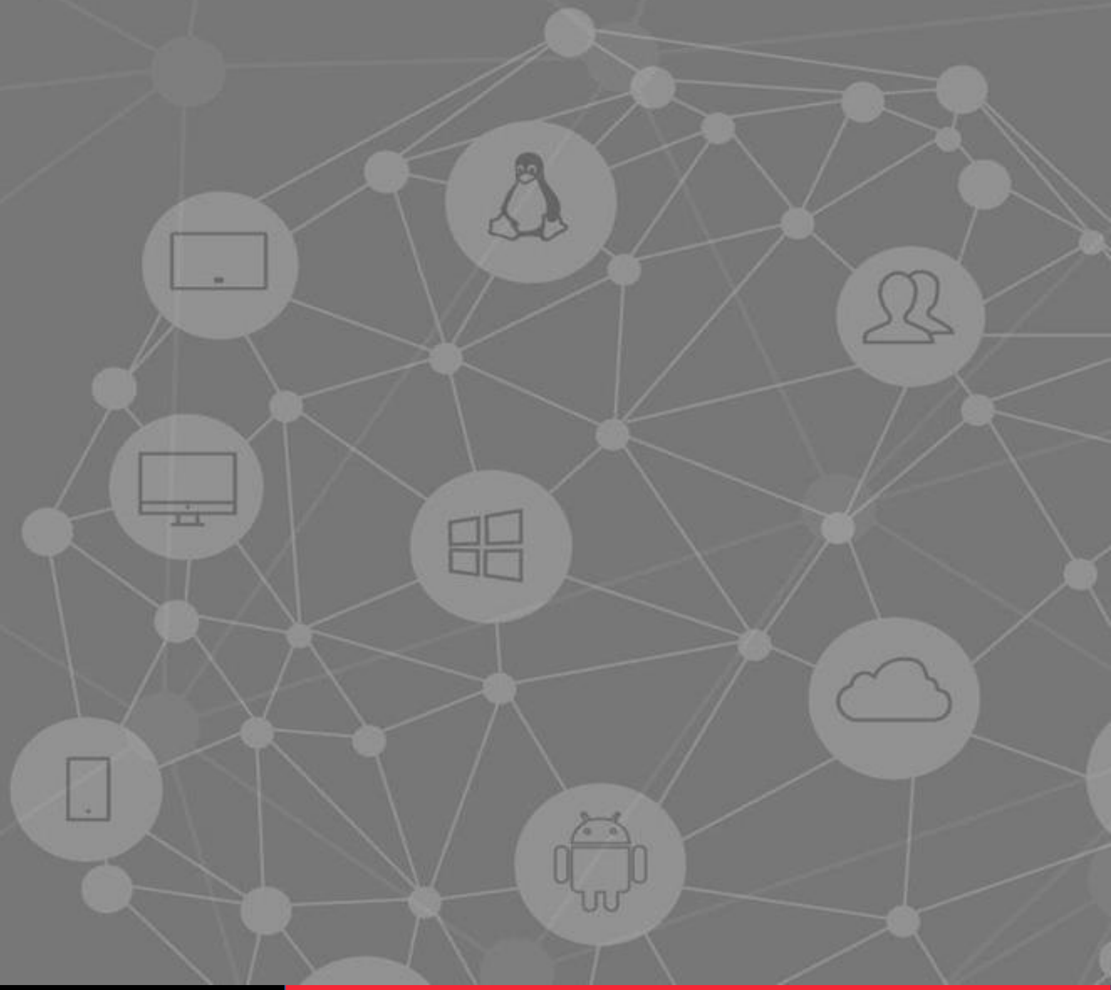
RAD Studio was the first IDE to support Desktop Bridge



Windows 10 Store Support



Linux Development with Delphi



Linux Support

- Focus on Linux 64-bit Servers
- Officially supporting
  - Ubuntu 16.x LTS
  - Red Hat Enterprise 7
  - Expected to work on most distributions
- Server side technologies only
  - RTL, DB RTL, IOUtils and file system access, FireDAC, HTTP, REST, Cloud, WebBroker, Apache integration, DataSnap, EMS/RAD Server, JSON, XML, SOAP, Indy, IoT, and more

Delphi Linux Compiler

- Targets 64-bit Intel Linux
- Based on LLVM technology
  - ARC-enabled
  - ZBS off by default
- Need Linux box to import SDK (via PAServer)
  - Not for compiling
- Use PAServer for deployment and remote debugging
  - You can deploy directly, might have to adjust file permissions

Linux RTL Features

- All core RTL is/will be available
  - System, Exceptions, Kernel, POSIX headers, File System, IOUtils, RTTI, Unicode, Threading and Parallel Library…
  - Native HTTP client library (libCurl)
  - XML DOM and JSON processing
  - DUnitX

Linux Database Access Features

- FireDAC drivers for all Linux-capable DBMS
- MySQL (and MariaDB), InterBase, FireBird, Oracle, MS SQL Server
- Sybase ASA, DB2, MongoDB, PostgreSQL, SQLite, Teradata
- Only exception is Informix
- Drivers not available: MS Access, DataSnap, DBX

Linux Internet Client and Server Support

- Indy Clients and Servers
- WebBroker + DataSnap + RAD Server modules (EMS)
  - Apache integration
  - Standalone servers
- Client libraries
  - HTTP and REST client libraries
  - Cloud and BaaS clients
  - SOAP clients

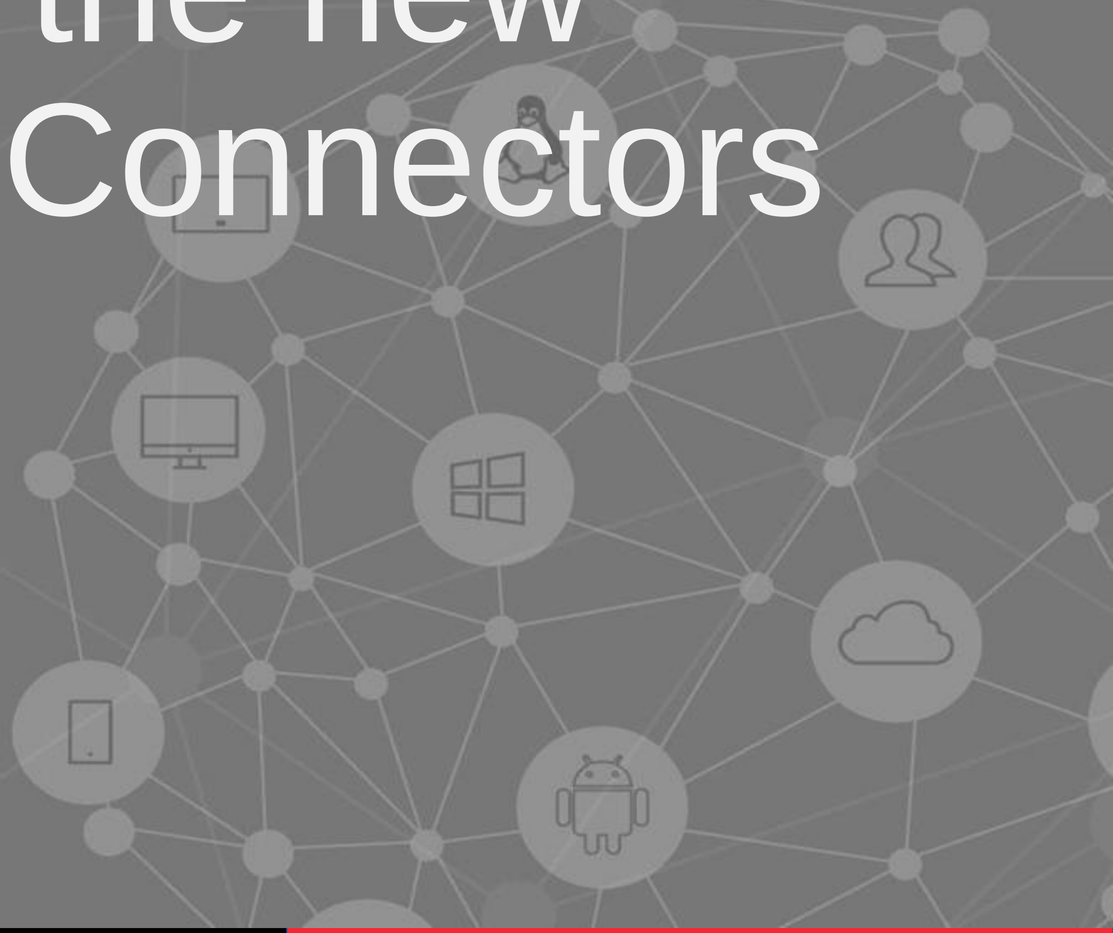
Configure Linux on Machine or VM

- Ubuntu or RedHat recommended
  - Ubuntu Server 16.04 LTS is free
  - https://www.ubuntu.com/download/server

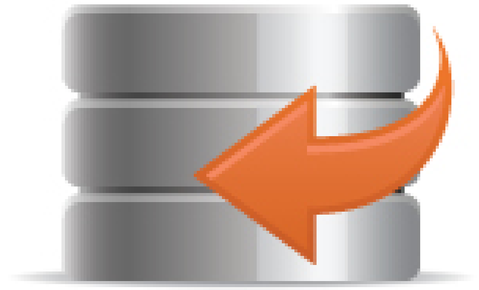
Configuring Ubuntu:

```
➢sudo apt-get install joe wget p7zip-full curl openssh-server
➢sudo apt-get install build-essential zlib1g-dev libcurl4-gnutls-dev
➢Copy PAServer and extract from tar.gz in any folder
```

Making Database Apps with FireDAC and the new CData Enterprise Connectors



FireDAC



FireDAC

- High-performance, easy-to-use, enterprise database connectivity
- Universal data access, but with many database specific features
- No drivers required and full source code provided
- Compatibility with the BDE means easy migration of legacy applications with “reFind” utility

FireDAC Selected Features

FireDAC

- Metadata
- Batch Move components
- Local SQL
- Live Data Window
- Options System
- Monitoring
- Cached Updates
- Array DML
- Data Type Mapping
- Recovering Connections
- Autoinc Fields
- ... and more

FireDAC Changes

- New - MariaDB support (v5.5 and later)
- MySQL support for v5.7
- Firebird support for Direct I/O
- TFDMemTable design time dataset editor to create data for runtime use
- TFDDataMove component removed. Use TFDBatchMove instead

Enterprise Connectors

- Connect Delphi & C++ Builder Apps to data from popular applications for Accounting, CRM, Marketing Automation, ERP, Collaboration, NoSQL, Big Data, and more.
- SQL-92 Compliant data access: “Select * from Customers …”
- Works as part of FireDAC, technically FireDAC drivers

Enterprise Connectors

Developed in partnership with CData

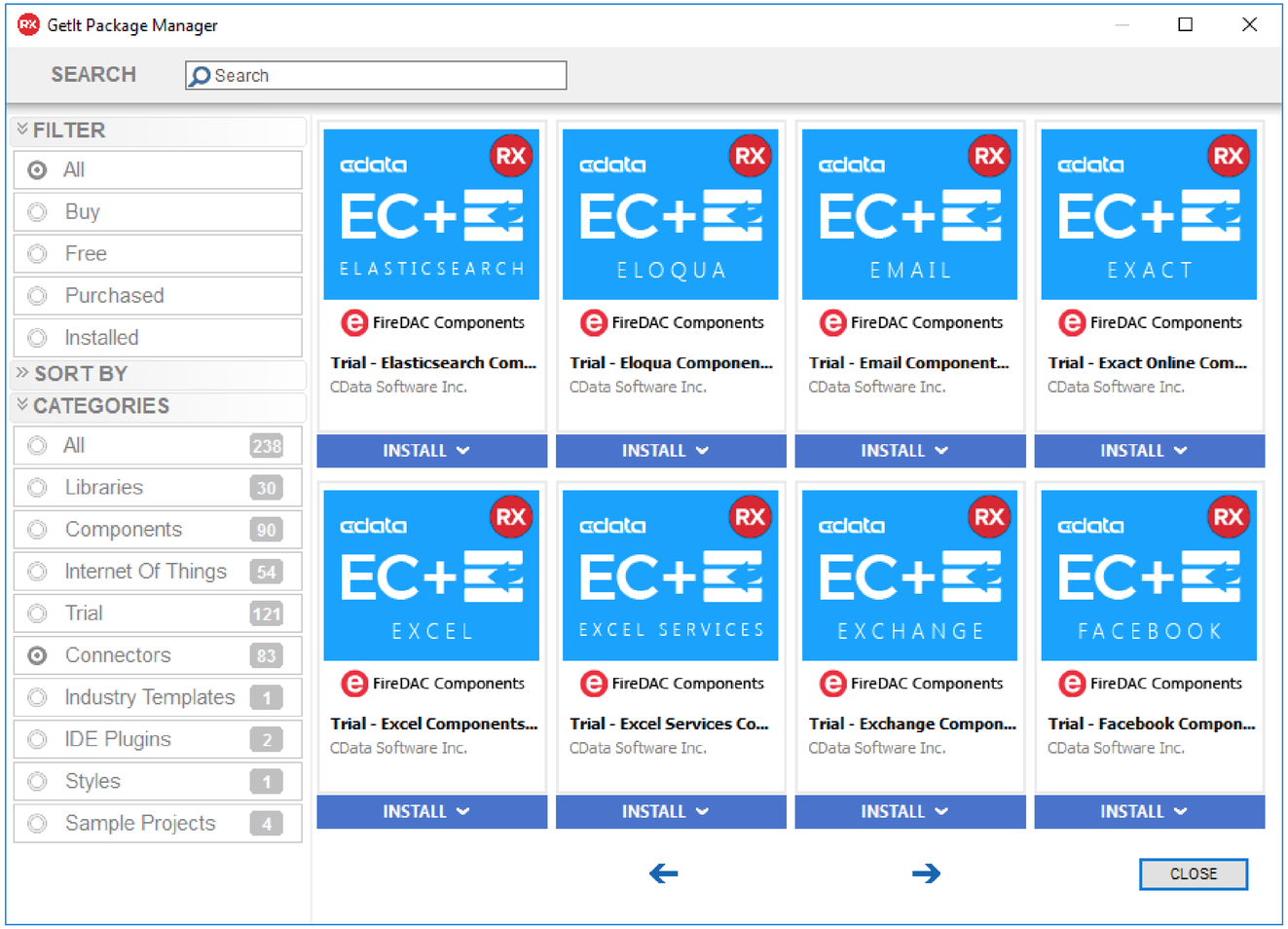
2 different offerings: Enterprise and Enterprise Plus
- Enterprise: ~ 45 connectors
- Enterprise Plus: ~ 80 connectors

Annual Developer Subscriptions: Ongoing updates, upgrades, new releases while subscription remains current.

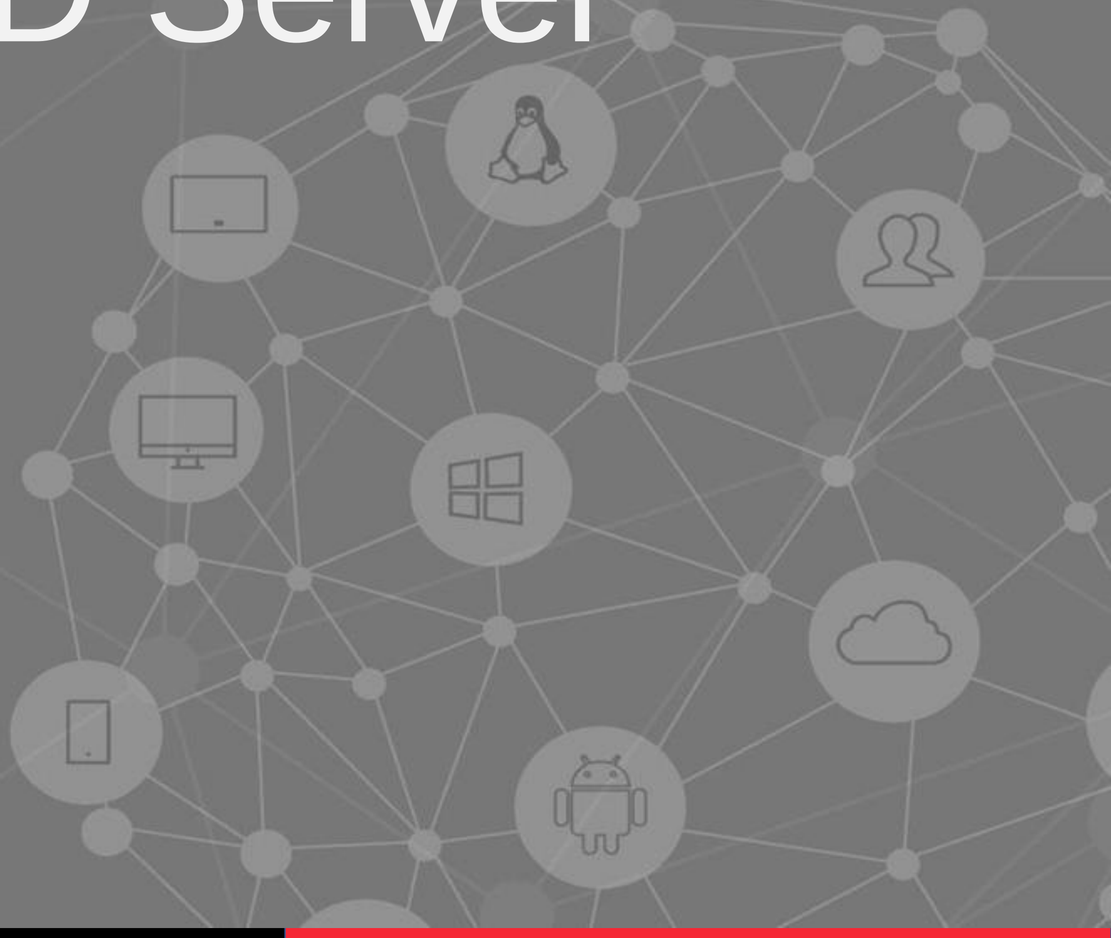
Enterprise Connectors Trial

30 DAY trials of each connector available in GetIt

New “Connectors” category



Building Scalable REST API Solutions with RAD Server



RAD Server

The Perfect Backend for Delphi and C++Builder Apps!

Implement RAD Server services in Delphi or C++Builder

- Easy REST API End-Point Publishing
- Server Metadata Publishing based on Swagger.io
- Mobile Push Notifications
- User/Group Management
- API Usage Analytics
- User Location/Proximity and BeaconFence
- IoT Edge Modules and ThingPoints

RAD Server Architecture

System Database

Pluggable EMS packages (*.bpl)

EMS Server

- Version
- API
- Users
- Groups
- Installations
- Push
- Edgemodules

- Resource A1
- Resource A2

- Resource B1

- …

HTTP Clients

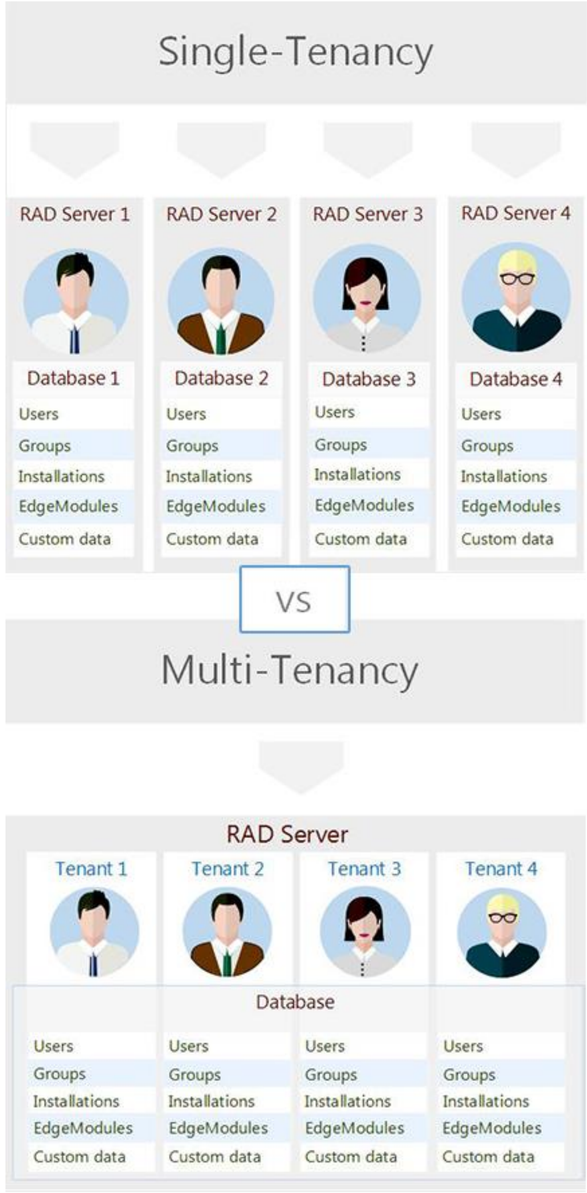
Natively compiled FMX clients or HTML + JavaScript clients

Ext JS

RAD Server Enhancements

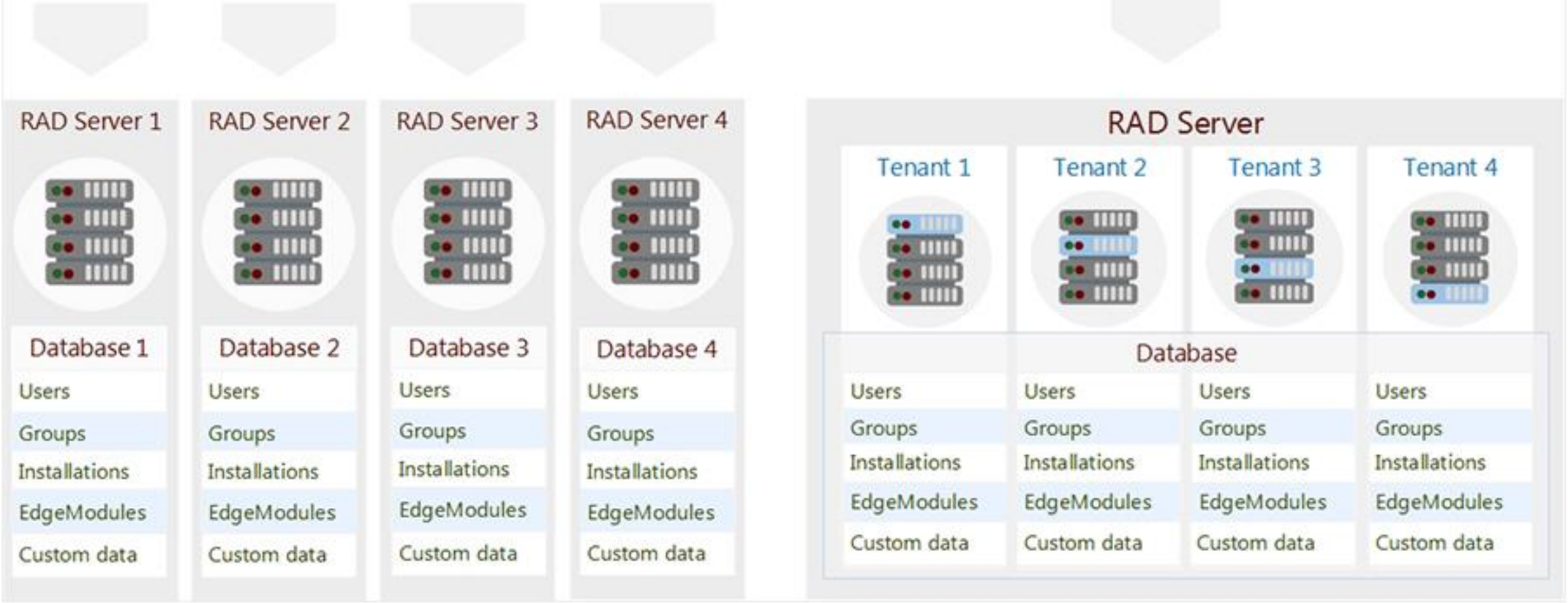
Multi-Tenancy Support

- A single RAD Server instance with a single RAD Server database connection can now support multiple isolated tenants
- Each tenant has a unique set of RAD Server resources including Users, Groups, Installations, Edge Modules, and other data
- Tenant Administration: Create new tenants, edit existing ones, add, edit or delete tenants



RAD Server

Single-Tenancy vs Multi-Tenancy



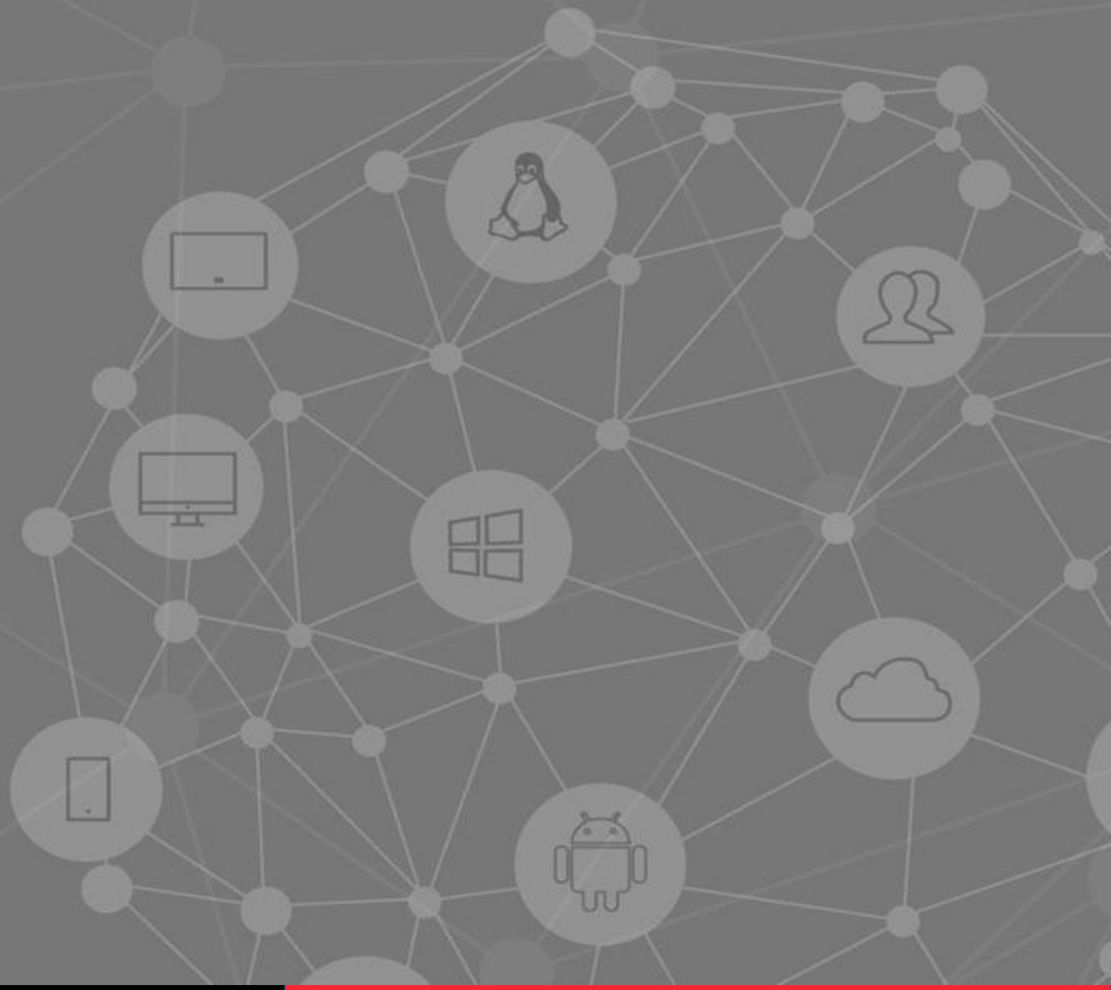
Using RAD Server with ExtJS Clients

Combine Embarcadero Tools:

- Use RAD Server for building JSON REST web services
- Use Sencha ExtJS solution for building a web app calling the web services

Recently build demo: *** Survey app

Plans and Summary



RAD Studio CY 2017 / CY 2018 Timeline**

2017

RAD Studio 10.2.1 Tokyo

Tokyo Release 1

- Delphi Linux server performance enhancements
- Windows 10 Creators Update support
- Support for latest versions of iOS and Xcode
- Improved Android N support
- C++ Improvements
- Expanded database support

RAD Studio 10.2.1 released in August 2017

RAD Studio 10.2.2 Tokyo

User Experience

- Dark IDE theme
- IDE UI/UX improvements
- Simplified download and install experience

Windows App Modernization

- New VCL Windows GUI Controls
- Windows 10/WinRT/VCL updates
- Enhanced Windows Theming & HiDPI support

C++ Productivity

- CMake Support
- C++ Rename Refactoring

2018

RAD Studio "Carnival" 10.3

Platform Enhancements

- Android Z-Order (native windowing) support
- Native Android controls in FireMonkey
- Consolidate debuggers

C++ Builder

- Language standards: Clang support, C++ library integration (cont.), C++ Linux
- Further CMake support (IDE)
- 64-bit macOS platform support (10.3.x), with C++17

Delphi

- Language Enhancements
- 64-bit MacOS platform support

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***** Features are not committed until completed and GA released***

More Information

www.embarcadero.com

- Product details

https://community.embarcadero.com

- Blogs
- Events
- Forums

http://docwiki.embarcadero.com/RADStudio/

- Latest online documentation

Thank you!

Questions and Answers