

INTRODUCING RAD STUDIO 10.1 BERLIN

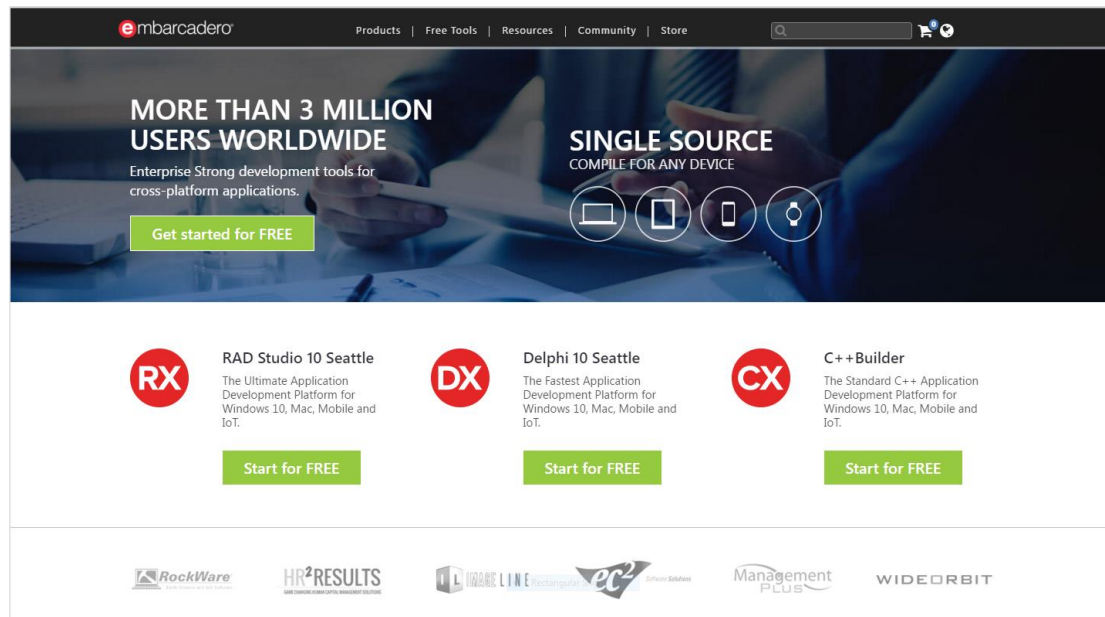


AGENDA

- RAD Studio Today
 - The focus of the product, including C++Builder and Delphi
 - The core value proposition
- What's New in RAD Studio 10.1 Berlin
 - Walk out of new features
 - Technical information
 - Demos

EMBARCADERO, DEDICATED TO DEVELOPERS

- Embarcadero focus on developer tools
 - Database tools now part of the Idera portfolio





It has never been so easy to get things done so quickly. Great work Embarcadero!

Antony West – The Analytical Group, Inc.





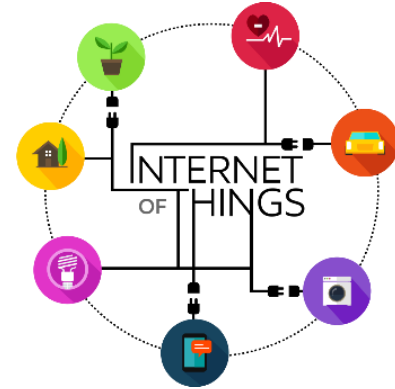
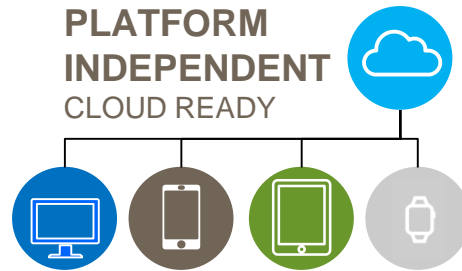
Introducing RAD Studio, Delphi, and C++Builder

RAD STUDIO



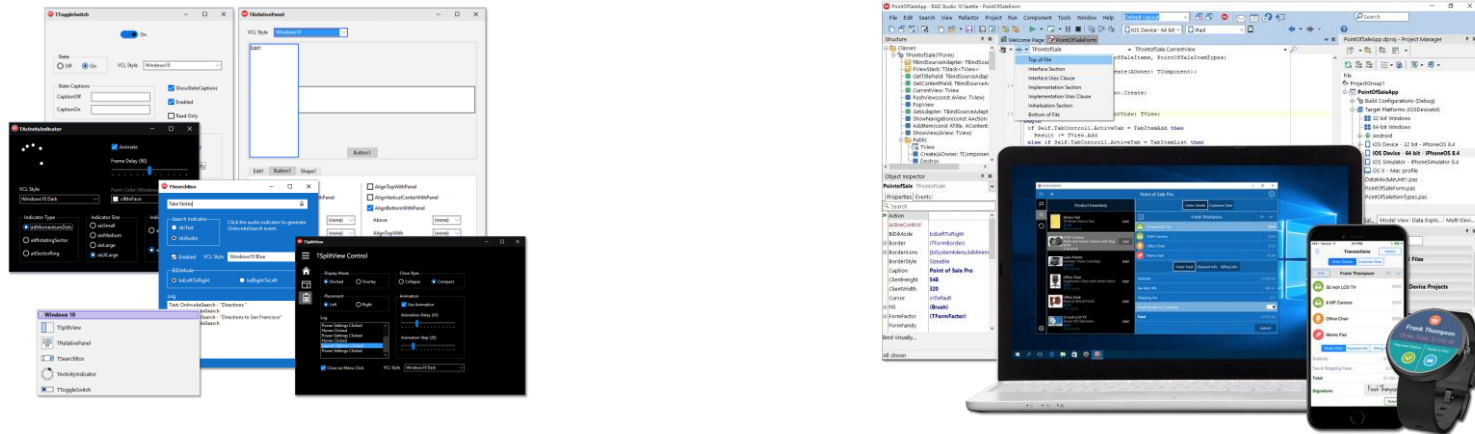
WHAT IS RAD STUDIO?

- The fastest way to develop cross-platform Native Apps with flexible Cloud services and broad IoT connectivity



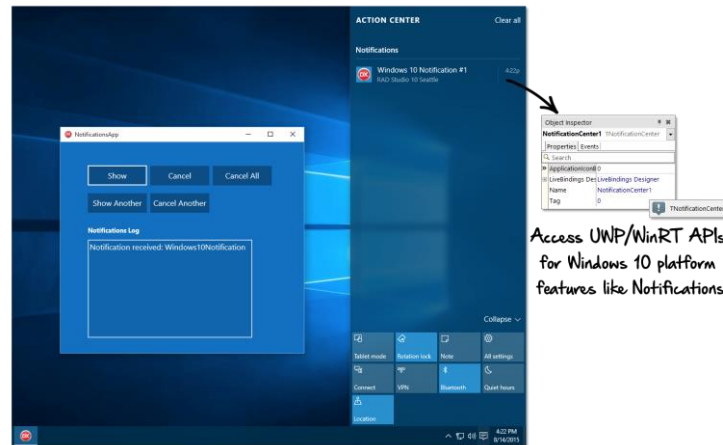
FAST, VISUAL DEVELOPMENT

- It provides powerful VCL controls for Windows 10 and enables FMX development for Windows, Mac and Mobile.



THE BEST WINDOWS COMPONENT LIBRARY

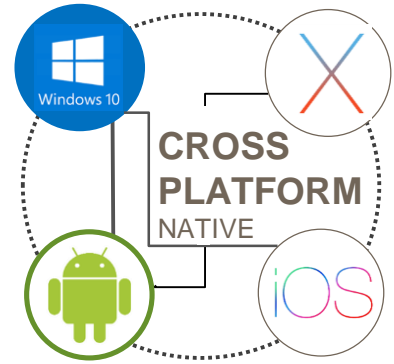
- VCL is the best component library wrapping the native Windows API and COM libraries
 - Component wrapping all common features
 - Extended custom and third party components
- Windows 10 Support
 - WinRT integration
 - Windows 10 style controls
 - WinRT services components
 - Styling library for UI modernization



Access UWP/WinRT APIs
for Windows 10 platform
features like Notifications

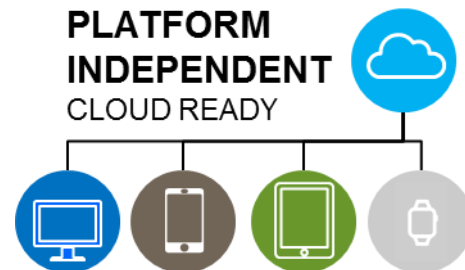
CROSS-PLATFORM, NATIVE APPS

- Native platforms compilers for 4 operating systems, 32bit and 64bit CPUs, Intel and ARM CPUs
 - For maximum performance and security
- Cross platform runtime library and database access
 - Memory, file system, threading, exceptions, data tables, XML, JSON, HTTP and REST clients...
- FireMonkey visual component library
 - Flexible designers, styling, platform components
 - Write your UI once, customize at design time, deploy everywhere



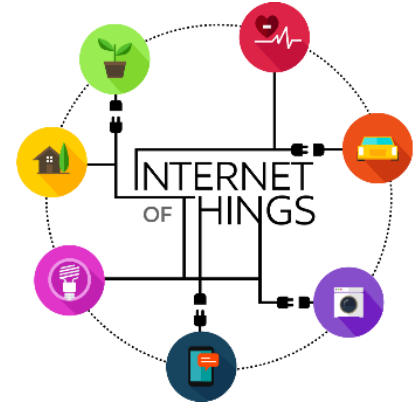
CLOUD SERVICES

- AWS and Azure support
 - Access to storage, tables, queuing
- BaaS providers
 - Including Parse, Kinvey
- REST and HTTP client libraries for direct access
 - Based on platform libraries and including native HTTPS support
- NoSQL database components
 - Full support for MongoDB



BROAD IOT CONNECTIVITY

- Extend desktop and mobile apps with Internet of Things capabilities
 - Bluetooth, Bluetooth LE, and Wifi
 - Ready-to-use IoT components
 - Proximity awareness, BeaconFence
 - Sensors data collection
 - Distributed device monitoring with ThingPoints



OUTSTANDING ENTERPRISE FOCUS

- FireDAC, Optimized Database access
 - All major enterprise RDBMS
- Enterprise service architecture
 - RADServer, REST APIs
- Redefining “Enterprise Strong Development”



IT'S RAD! YOU DELIVER APPLICATIONS FASTER

- Rapid Application Development means *fast development with solid architectures*
- RAD Studio delivers
 - 5x the speed of development and deployment
 - Across multiple desktop and mobile operating systems
 - Across cloud and database platforms





With RAD Studio 10 we are building cross-platform, single-code base apps and every app, exe, apk, uses the same data module. So every project uses the same data-access and general structure!

Steve Beydekerken - B-Logicx Home Automation



- Based on Modern Object Pascal programming language
 - High-performance native compilers for all supported platforms
 - Best easy-to-use, complete, OOP, RAD language
- Leverage a large community of Delphi developers
 - In all industries and at all latitudes



“

*With Delphi 10 my apps will be ready for
the millions of users moving to Windows 10*

Kike Pérez - HabitatSoft



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



With standard CLANG-based C++11 support, C++ Builder 10 enables us to write code once, deploy anywhere!

Andrew Law, HGL Dynamics





10.1 BERLIN

What's new in the current release of Delphi,
C++Builder, and RAD Studio

RAD STUDIO 10.1 BERLIN AT A GLANCE

Core Themes

- New install experience
- Improvements in native toolchain and platform components
- Internet of Things support

Additional Features

- Developer productivity
- Quality, performance, and stability (QPS)
- Improved FireDAC Drivers



NEW INSTALL EXPERIENCE

- RAD Studio 10.1 Berlin Core Themes

WHY A NEW INSTALLER?

- Old monolithic installer was slow, not flexible
 - Hours to install in most cases
- New plan is to get started in minutes
 - Add platforms and features as needed
 - Initially or later on
 - Flexible updates of features
- Better Trial
 - Create a better, more flexible, more modern trial experience

NEW INSTALL EXPERIENCE

- Minimum Install + Platforms
 - Initial “minimum install” builds a bare, working system
 - Followed by platforms install
 - More platforms can be added any time
 - Based on GetIt technology
- Traditional installer is still available (ISO image)





NATIVE PLATFORMS ENHANCEMENTS

- RAD Studio 10.1 Berlin Core Themes

RAD STUDIO 10 COMPILERS



- Object Pascal and C++ Compilers
- Windows 32-bit and 64-bit
 - LLVM-based C++ compiler for Win32 since 10 Seattle
- Mac OS X
- Android ARM v7
- iOS Armv7, iOS Arm 64-bit
- iOS Simulator (Object Pascal only)

7 Object Pascal and 7 C++ compilers

C++ NATIVE TOOLCHAINS ENHANCEMENTS

- C++ Compilers
 - CLANG 3.3 and LLVM 3.3 support on all CLANG platforms
 - Complete C++ 11 language support
- C++ support for Delphi RTL
 - Lambda Support (10 Seattle)
 - In place of Delphi Anonymous Methods
 - Parallel Programming Library
 - STL Iterators for Delphi types
 - Range-for available
 - Non-modifying STL algorithms: find, find-if, count, for_each, ...



DELPHI NATIVE TOOLCHAINS ENHANCEMENTS

- Delphi Compilers
 - Utf8String type now also on mobile
 - 1-byte string access, also RAWByteString
 - [weak] references for interfaces on all platforms
 - And [unsafe] interface references, too
 - [volatile] attribute for parameters and local variables
- Core RTL
 - Shift of [weak] to [unsafe] for many component references

MORE RTL FEATURES

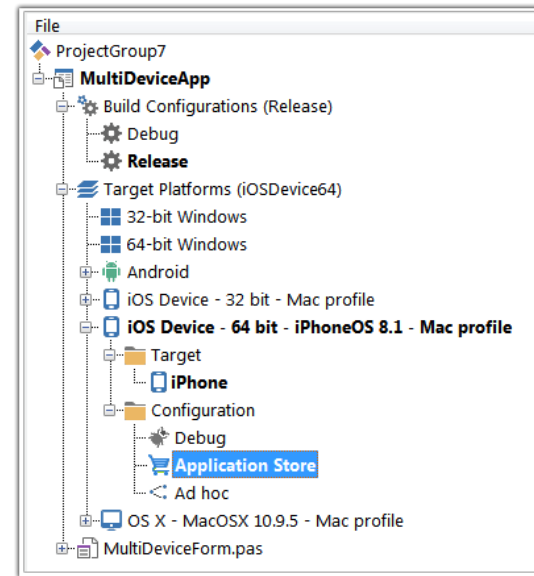
- TBufferedFileStream for fast file read/write support
- TString enhancements
 - AllNames, Options, AddPair fluent interface, and more
- StringReplace and Pos performance enhancements
- HTTP client library timeout and other improvements

WHY MOBILE AND FIREMONKEY?

- Mobile platforms are the fastest growing operating systems
 - Close to 2 billion active users on Android and iOS
- Apps remain the preferred mobile technology
 - Native apps can leverage the device capability
 - FireMonkey platform offers single source support for mobile and even desktop
- Delphi and C++Builder offer seamless migration to mobile, integration of mobile and desktop apps

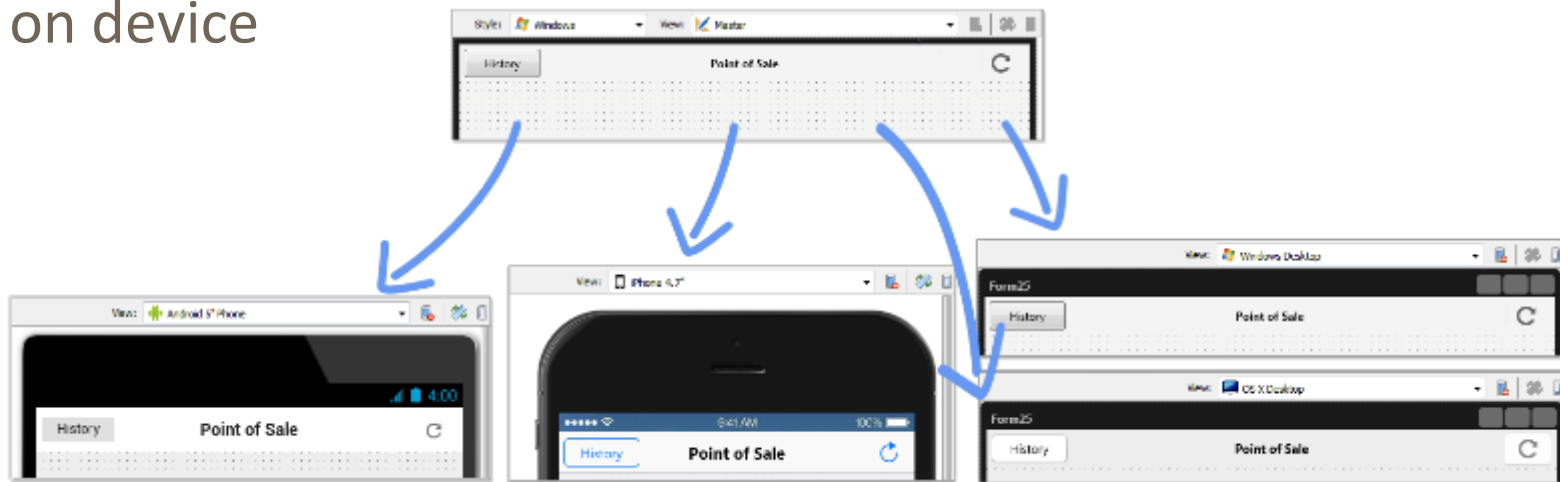
RAD ARCHITECTURE: THE FIREMONKEY PLATFORM

- Single-source multi-device architecture
 - Including user interface controls, which can be styled or platform native
 - Multiple compilers for the different platforms, all producing native code
- RAD, with a strong OOP architecture
- For Windows, OS X, Android, iOS



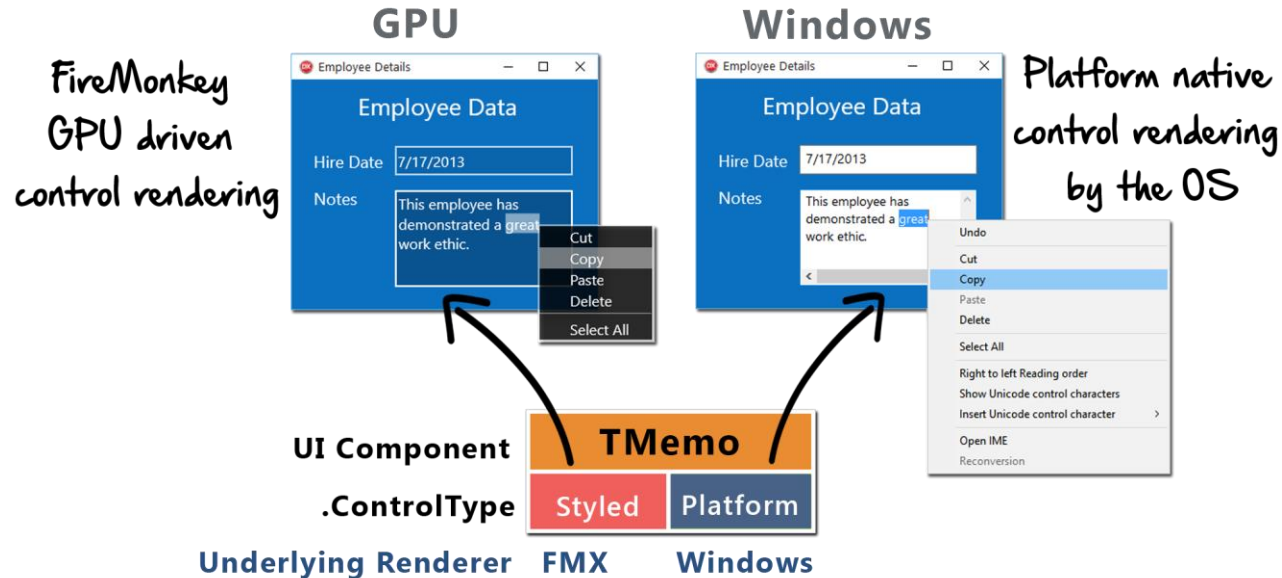
BEST IN INDUSTRY: FIREUI MULTI-DEVICE DESIGNER

- FireUI: Shared master and specific views
 - Visually customize forms for different platforms and form factors
- Brand New: FireUI multi device preview and FireUI App preview on device



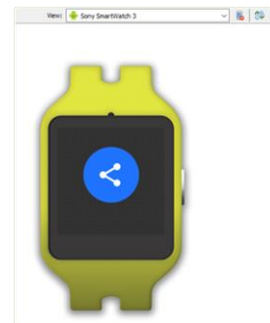
FIREMONKEY PLATFORM NATIVE RENDERING ARCHITECTURE

- Currently available on iOS and Windows



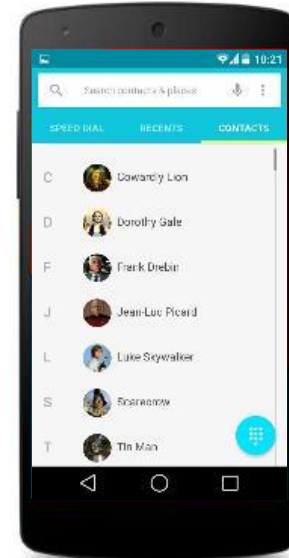
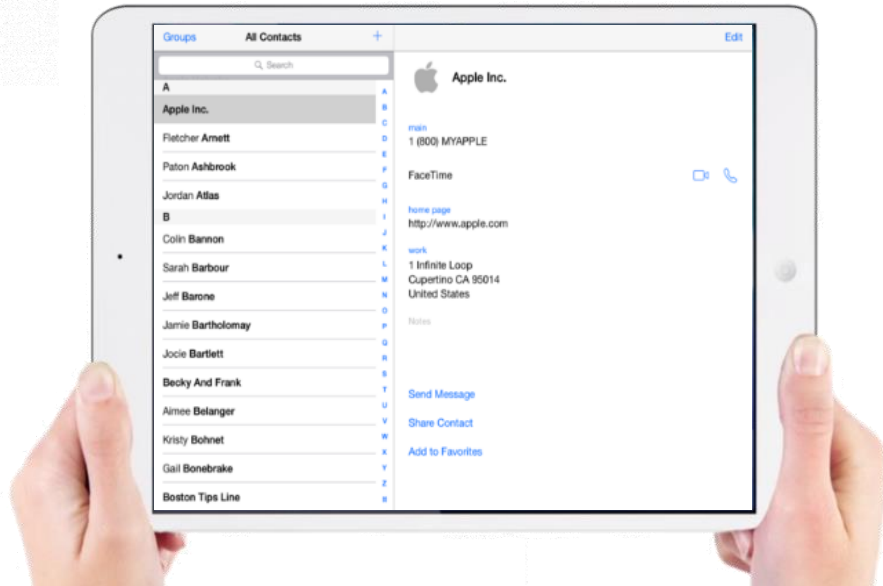
NEW IN 10.1 BERLIN FOR FIREMONKEY

- Enhancements for all platforms: Win, Mac, Mobile
 - FMX Address Book/Contacts component
 - FMX Style Designer improvements
 - ListView Items Designer
 - New font styling
 - And more...
- Multi-Device Designer Improvements
 - FireUI App Preview on Device
 - Android Wear Styling and new FireUI views



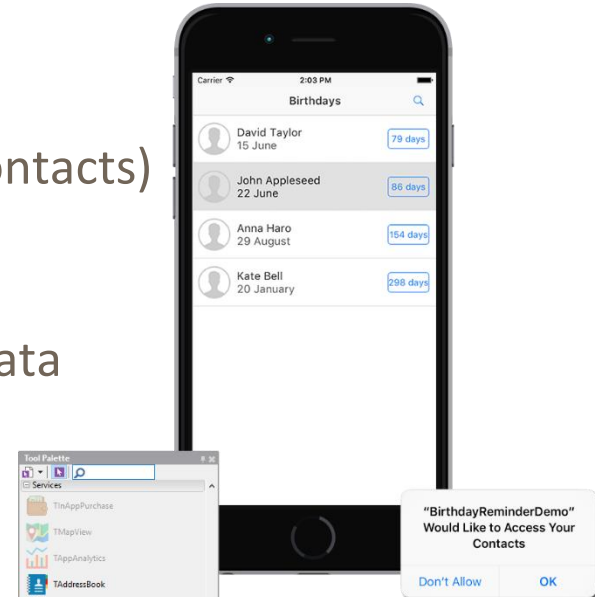
TADDRESSBOOK

- A new non-visual component for working with native mobile OS Address Book data



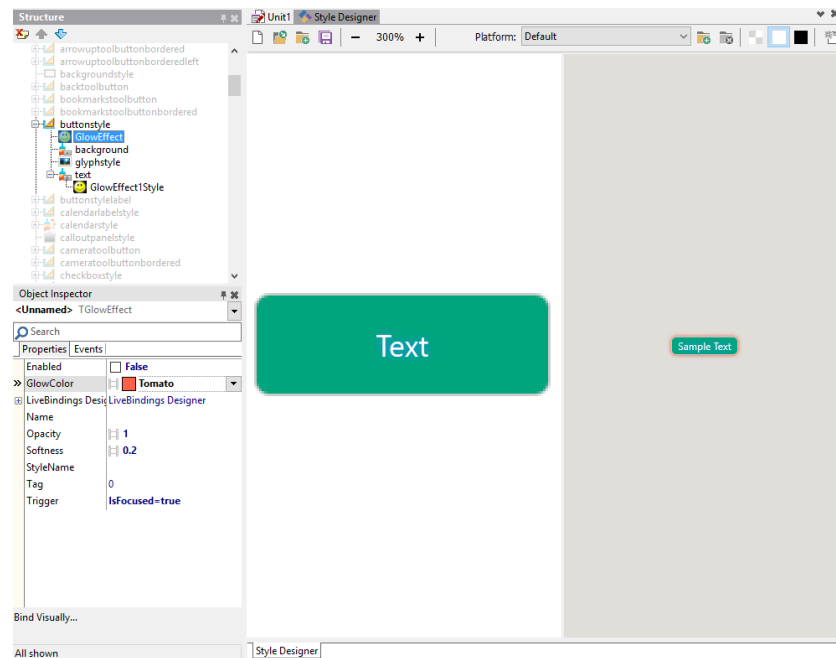
WHAT CAN I DO WITH TADDRESSBOOK?

- Fetch all contacts from phone or tablet
- Fetch all contacts in specified group/groups
- Create new contact and add it to Address Book
- Get existed contact, modify and save
- Remove contact
- Fetch all groups (a Group is a logical union several contacts)
- Change name of group and save
- Remove group
- Request permission for working with AddressBook data
- Get information about current permissions
- Learn when other process or client changed data in AddressBook



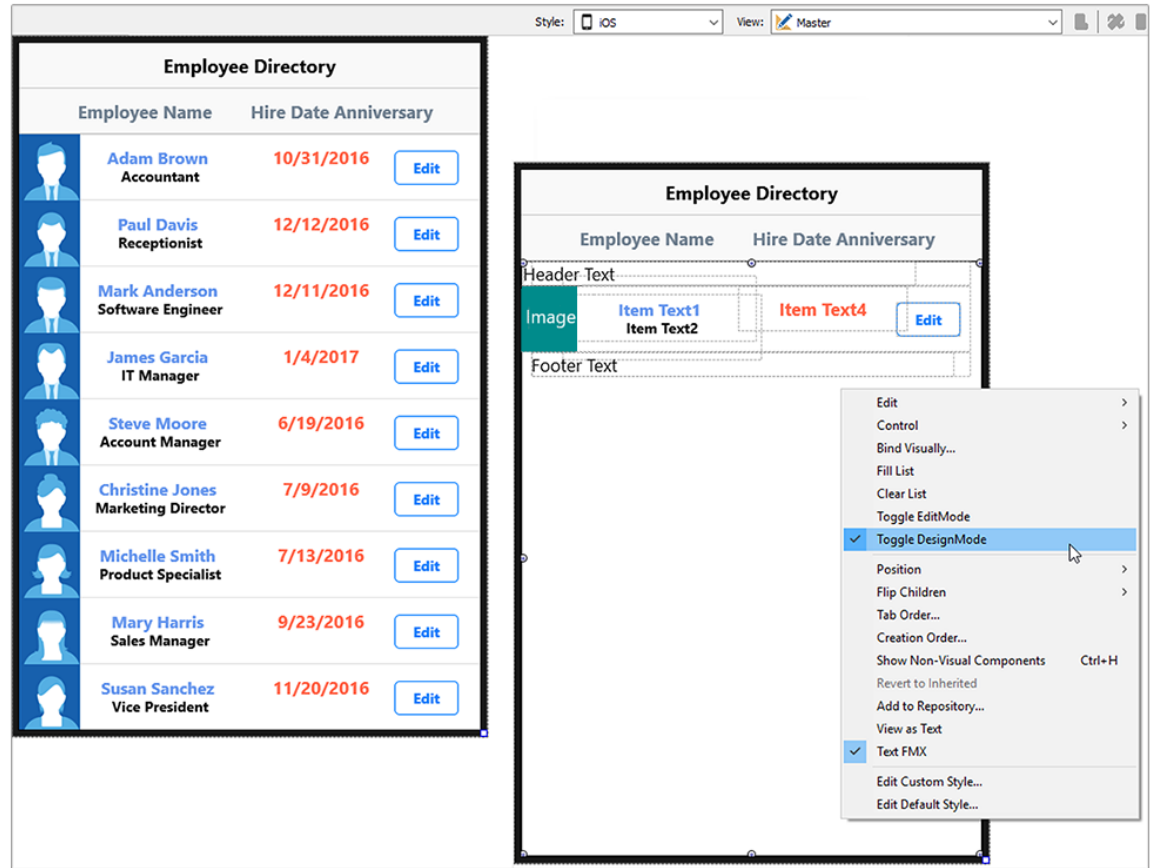
ENHANCED STYLE DESIGNER

- Wholly redesigned FireMonkey IDE integrated style designer
 - Uses existing structure view and selectors
 - Feels more natural to work with



NEW LISTVIEW ITEM DESIGNER

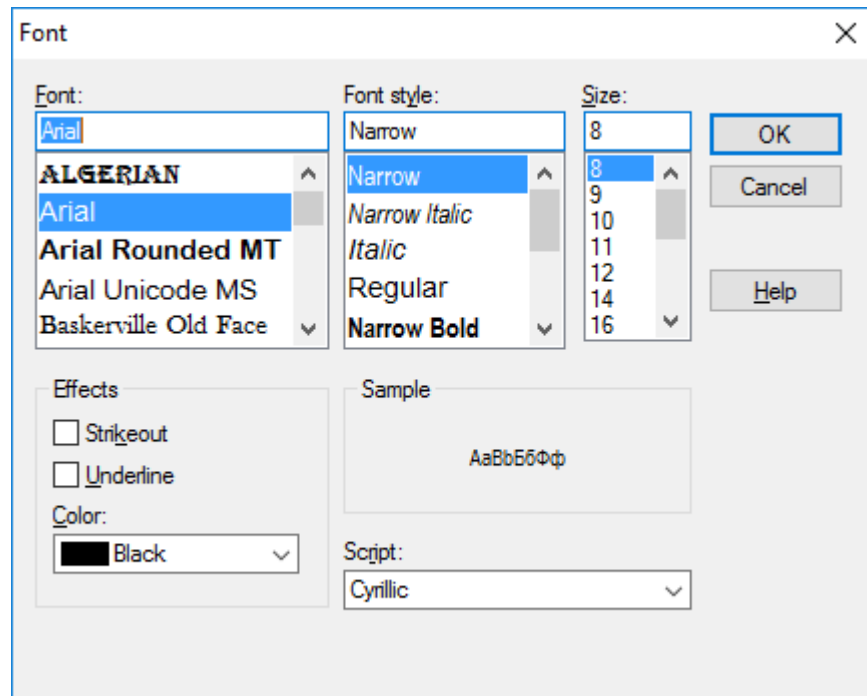
- Edit structure of listview items in place by toggling design and edit mode
- Extended flexibility in list view items structure



FIREMONKEY FONT STYLES WITH FONT FACES SUPPORT

- TFont.Style property
 - Regular styles
- TFont.StyleExt property
 - Supports font faces

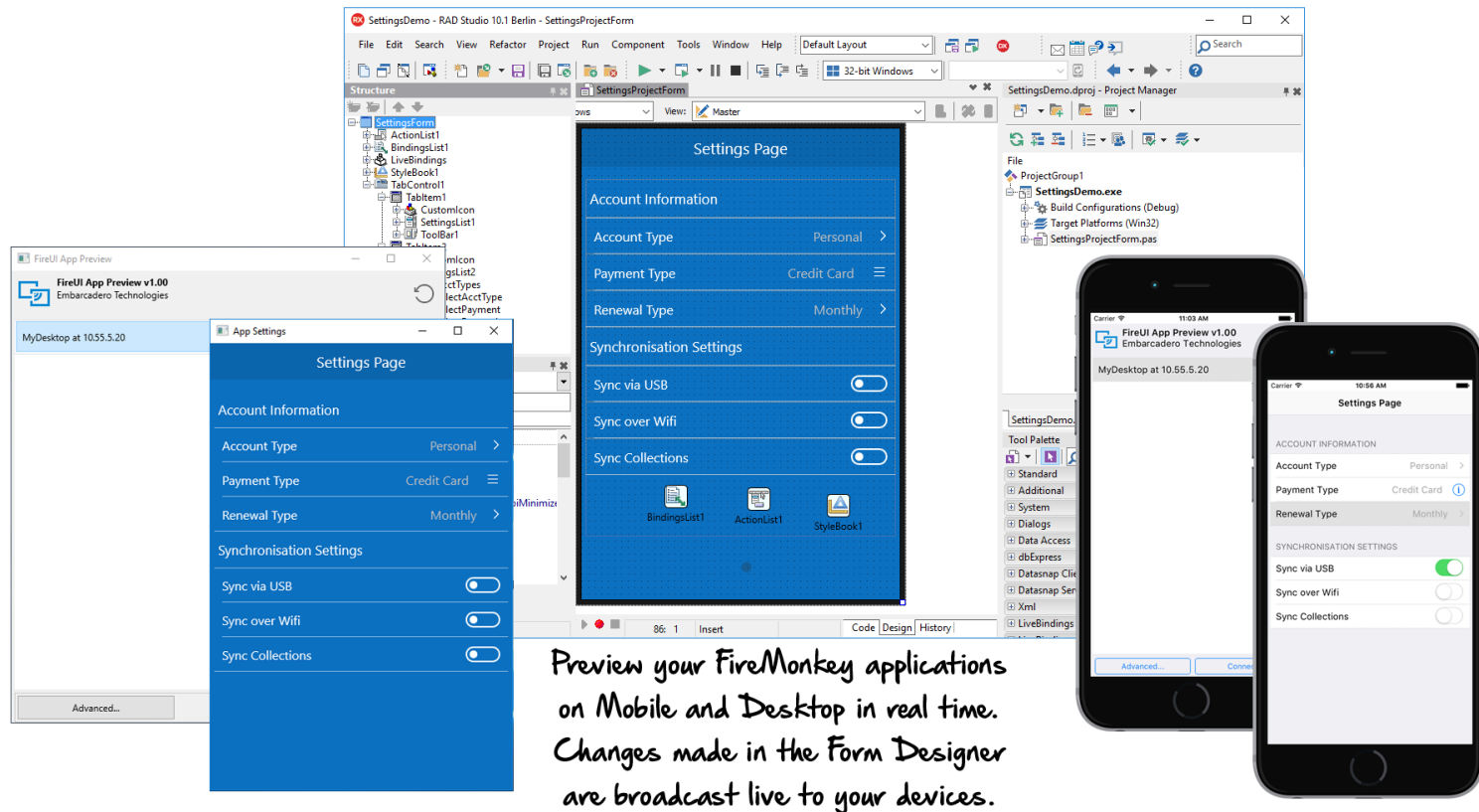
```
TFontStyleExt = record  
  SimpleStyle: TFontStyles;  
  Weight: TFontWeight;  
  Slant: TFontSlant;  
  Stretch: TFontStretch;  
end;
```

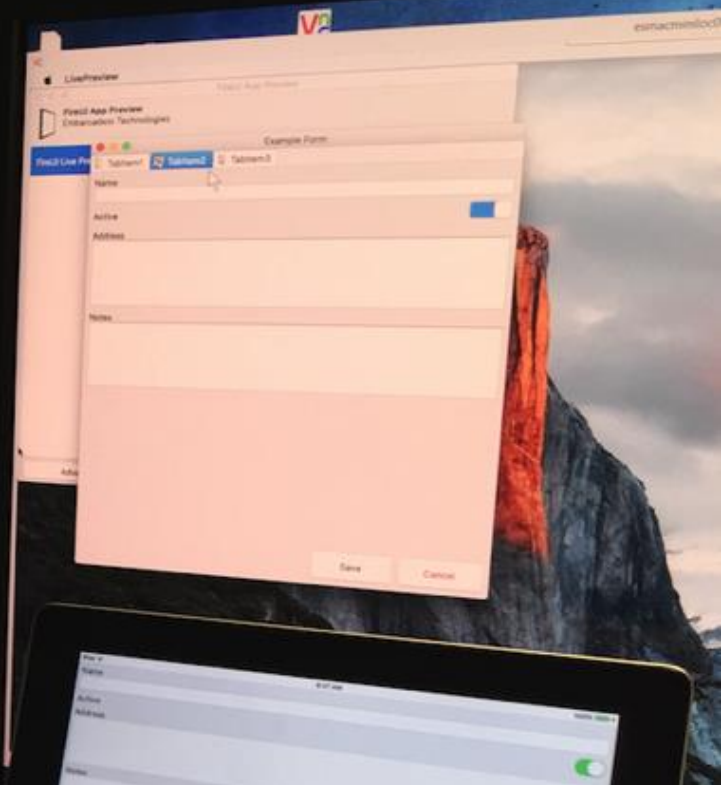
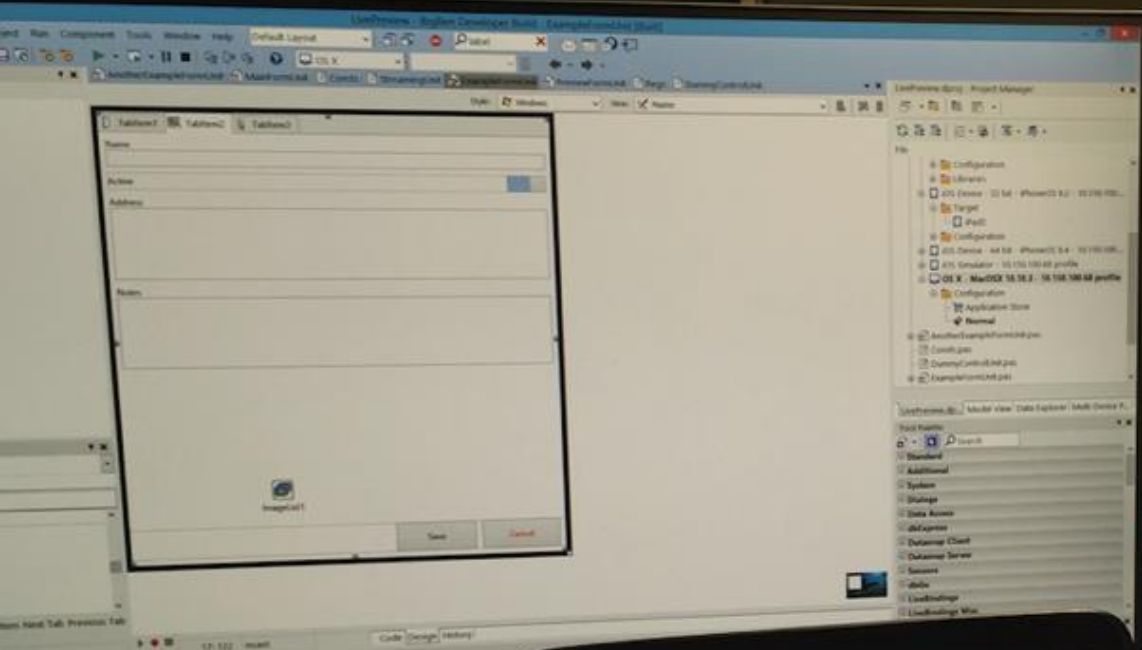


MORE FIREMONKEY FEATURES

- New dialog services
- Extended clipboard services
 - For text, images, and custom formats
- Support for accelerator keys on Windows
 - And focus controls support for labels
- Touch animation support for ListView

FIREUI APP PREVIEW (ON DEVICE)





WHY WINDOWS 10?

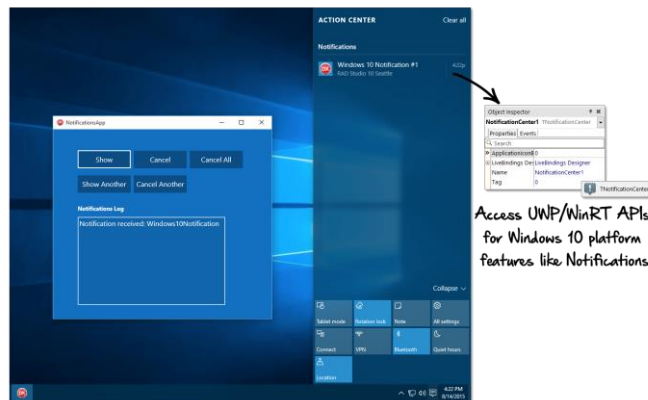


- The fastest adoption rate for Windows
 - 270 Million Windows 10 devices as of March 30th 2016
 - Gaining enterprise adoption

- VCL offers the best migration path to Windows 10
 - Still retaining support for older versions of Windows
 - Deploy to Windows 10 store via project Centennial (coming from Microsoft)

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
 - New Windows 10 UI controls
 - Windows 10 notifications and contracts components
 - Available since 10 Seattle



NATIVE WINDOWS / VCL IN 10.1 BERLIN

- Improvements in WinRT bridge
 - Bluetooth LE support for Windows 10
- More platform APIs
 - And also DirectX 12
- Further scaling, HighDPI and Multi Monitor support improvements



INTERNET OF THINGS

- RAD Studio 10.1 Berlin Core Themes

WHY IOT?

- “Internet of Things”: today’s largest growing IT area
 - Underneath the hype, some core great technologies becoming cheap and ubiquitous
 - Automate tasks, automate life
 - Distributed computing power: smarter sensors, makers boards, mobile devices...



RAD STUDIO RTL CONNECTIVITY AND IOT

- AppTethering
 - Including protocol enhancements, encryption hooks
- Bluetooth
 - With TBluetooth and TBluetoothLE components, Beacons support, and more
- WiFi
 - Connect via HTTP and REST client libraries to TCP/IP-based devices



NEW IOT FEATURES IN 10.1 BERLIN

- Extensions to current foundations
 - More Bluetooth LE standards and features
 - Improved Android Wear support
- New IoT architecture
 - Metadata-driven components generation
 - Downloaded via GetIt
 - ThingPoints: RAD Servers (EMS) distributed extensions



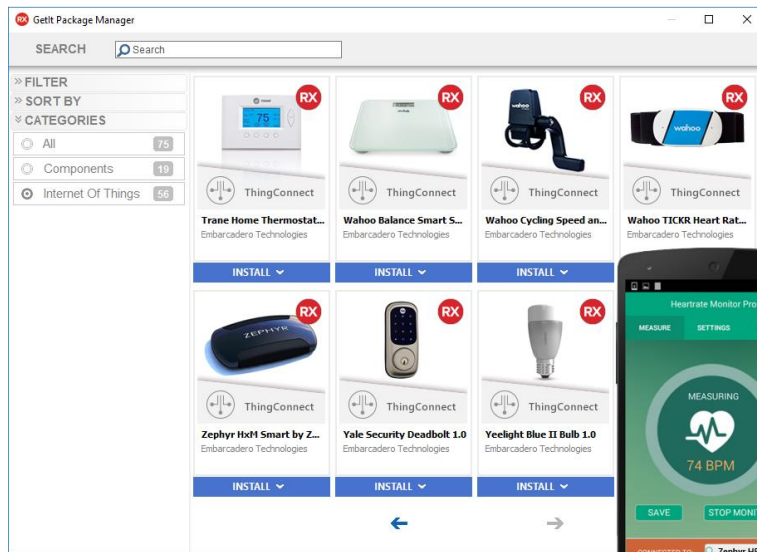
WHAT'S NEW FOR BLUETOOTH IN 10.1 BERLIN

- Bluetooth LE support in Windows 10 / WinRT
 - Support for Bluetooth advertisement
- Beacons
 - Support for EddyStone Beacons (new Google format) for both iOS and Android
 - Support EddyStone UID, URL, Telemetry
- BeaconFence improvements

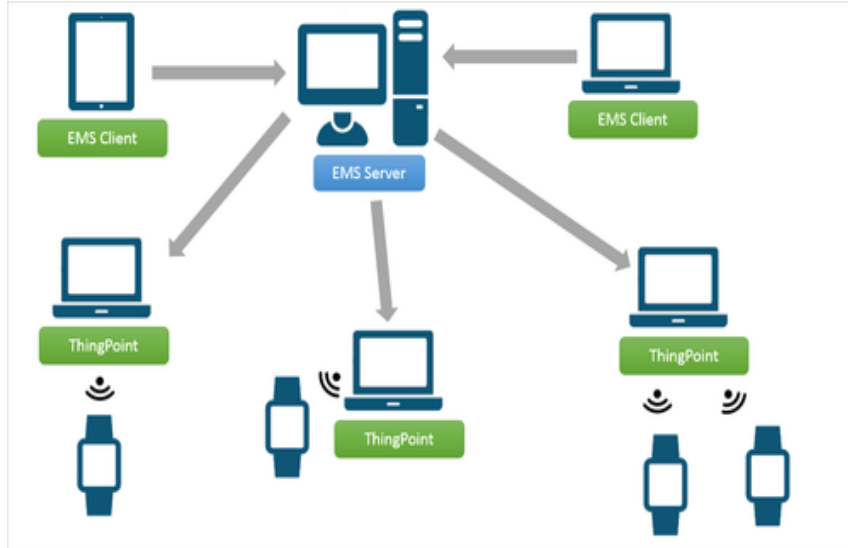


THINGCONNECT IOT CONNECTIVITY FRAMEWORK

- Turns off-the-shelf and custom IoT smart devices, sensors, and wearables into easy-to-use API components

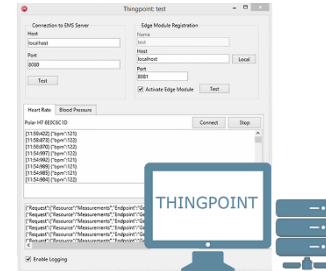
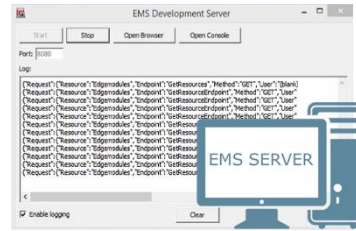
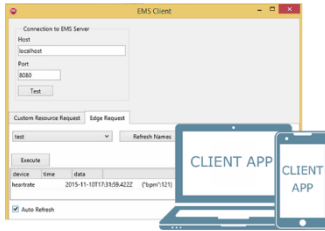
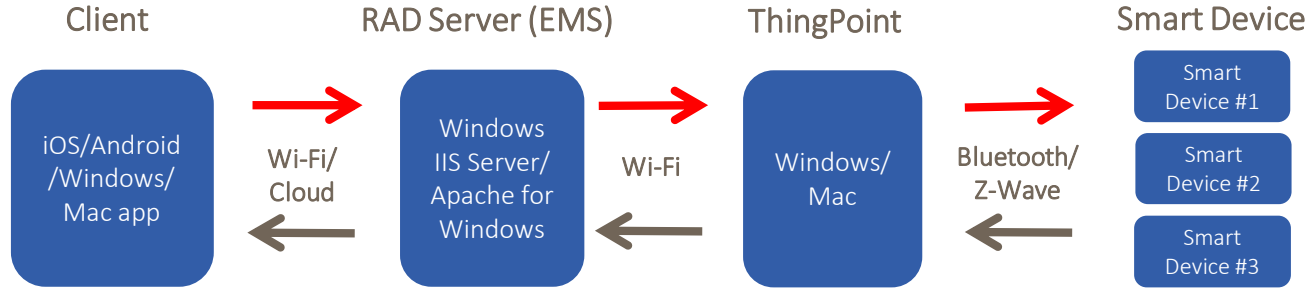


THINGPOINT: EDGE SERVICES

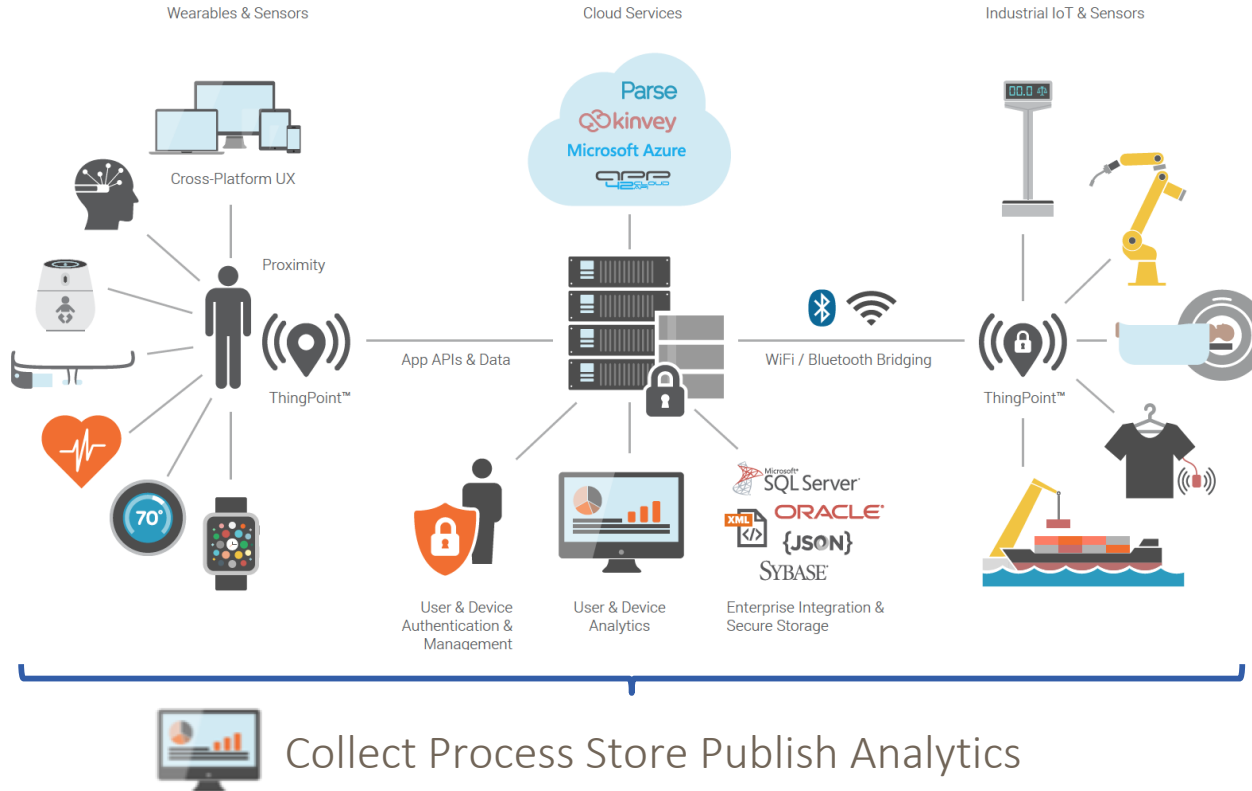


- Software stack for building and deploying edge modules
- Collect data from nearby devices into enterprise backbone
- Pre- and post-process collected data
- Filter data based on several criteria
- Cache edge data in a SQL database (ThingBase)
- Communicate with EMS server bi-directionally through REST APIs

IOT EDGE DATA FLOW



IOT ENTERPRISE WITH RAD SERVER





ADDITIONAL FEATURES

From Developer Productivity to Quality



10 SEATTLE IDE PRODUCTIVITY ENHANCEMENTS

Quickly hide all non-visual controls on your form to get a better view of your application layout

Easily identify components in the Structure pane through their corresponding icons

Object Inspector contents can be filtered to display specific elements using the built-in search functionality

Show and hide non-visual controls on your form

Identify components in the Structure pane through their corresponding icons

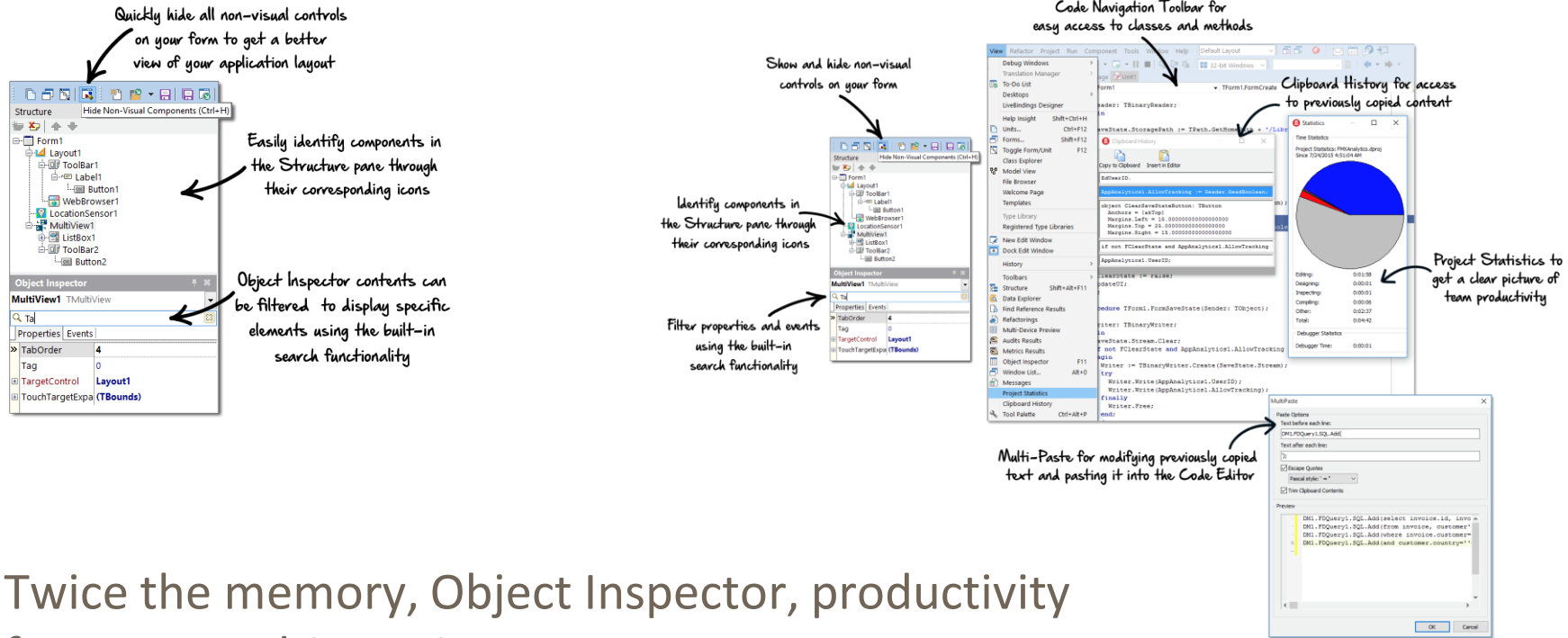
Filter properties and events using the built-in search functionality

Code Navigation Toolbar for easy access to classes and methods

Clipboard History for access to previously copied content

Project Statistics to get a clear picture of team productivity

Multi-Paste for modifying previously copied text and pasting it into the Code Editor



Category	Value
Editing	0.0138
Designing	0.0001
Inspecting	0.0001
Compiling	0.0008
Other	0.0237
Total	0.0442

Clipboard Item	Clipboard Content
Clipboard Item 1	Clipboard Content 1
Clipboard Item 2	Clipboard Content 2
Clipboard Item 3	Clipboard Content 3

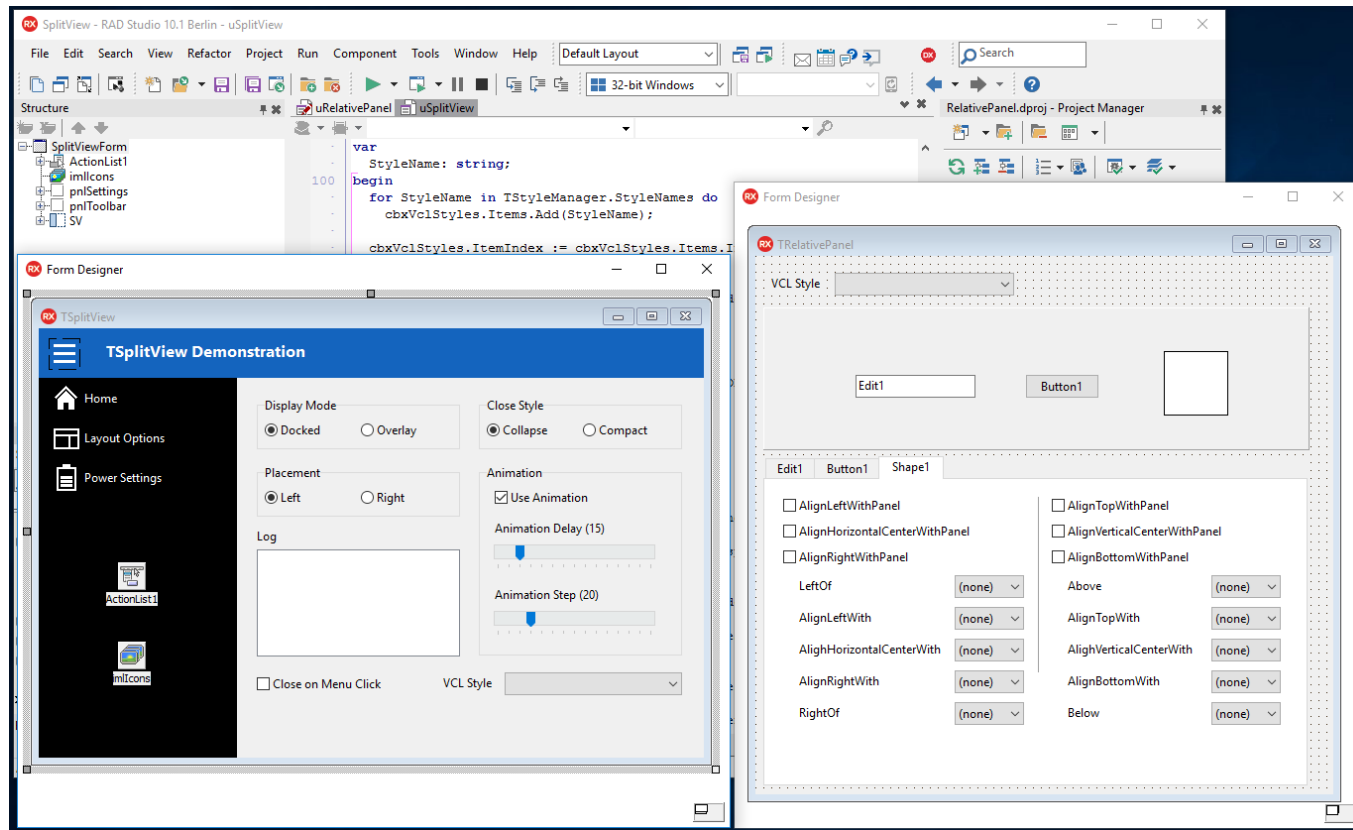
- Twice the memory, Object Inspector, productivity features, multi-monitor support...

10.1 BERLIN PRODUCTIVITY ENHANCEMENTS (I)

- Areas we already covered...
 - The new installer and the enhanced GetIt Package Manager
 - The FireUI App Preview on Device
- New minimalistic welcome page
- Separate form designer for VCL and FMX
 - Optional, great for multi-monitor
- HighDPI support improvements
- Visual Live Bindings improvements

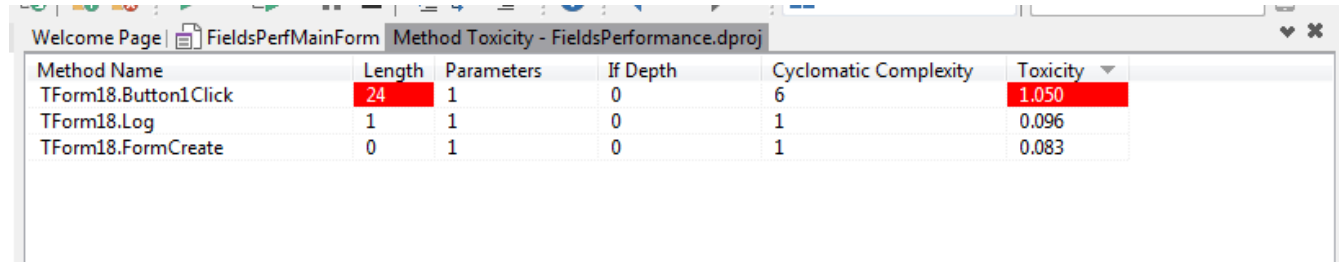
FLOATING VCL FORM DESIGNER

- Edit code and design side by side
- Great for multi-monitor systems



10.1 BERLIN PRODUCTIVITY ENHANCEMENTS (II)

- New 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



The screenshot shows a window titled 'Method Toxicity - FieldsPerformance.dproj'. It contains a table with the following data:

Method Name	Length	Parameters	If Depth	Cyclomatic Complexity	Toxicity
TForm18.Button1Click	24	1	0	6	1.050
TForm18.Log	1	1	0	1	0.096
TForm18.FormCreate	0	1	0	1	0.083

QUALITY PERFORMANCE STABILITY (QPS)



- Significant focus on Quality
 - 25% of planned developers tasks
 - Covering all areas of the product
- High number of fixes and smaller enhancements
 - 744 customer reported bugs closed
 - Total number of bugs fixed: Over 2,500
- Mobile debugging enhancements
 - CPU View support, Unicode strings evaluation, ...

FIREDAC DRIVERS UPDATE



- ODBC 3.8 driver
- SQLite driver (with 3.9.2 support)
- InterBase and Firebird drivers
 - Service manager, real BLOB streaming
- Oracle driver supporting v11g and v12c new APIs
 - TFDOracleAdmin service and change notifications
- Advantage DB driver (version 12)
- DB2 driver (with support for AS/400)
- PostgreSQL driver (new JSON data types)
- Informix driver with better locking support
- MongoDB databases improvements and change notifications

RAD SERVER (EMS) EXTENSIONS

- Support for server metadata
 - Based on Swagger open API
 - YAML and JSON representations
 - Can be used for API testing, documentation, faster clients development
- ThingPoints “federated” services
 - Act as a conduit to and from RAD Server (EMS)
 - Register periphery endpoints with RAD Server
 - User can reach ThingPoints endpoints via dynamic RAD Server backend endpoints

WEBBROKER, DATASNAP, CLOUD

- WebBroker
 - Now defaults to UTF8
- DataSnap
 - Clients use HTTP client library for both REST and HTTP(S) connections
 - Server methods support TDBXJSONStream parameters for passing JSON streams
- Cloud
 - Microsoft Azure support updated to latest API
 - Amazon AWS support updated to latest API



RAD STUDIO 10.1 BERLIN AT A GLANCE



New Installer

Making installation and trial a modern, smooth, faster experience



Native

Compiler, libraries, FireMonkey, VCL, Windows 10, mobile...



IoT

Core technologies enhancements, ThingWare, ThingConnect, ThingPoints



QPS

Quality, performance, stability throughout the entire product



Developer Productivity

FireUI App Preview on device, floating form designer, and toxicity



Enterprise Strong

FireDAC database access, EMS REST services, Cloud services

RAD STUDIO 10.1 BERLIN EDITIONS

■ RAD Studio

- Professional
 - FireDAC AddOn
- Enterprise
- Architect
(Embeds Ultimate)

■ Delphi

- Starter
- Professional
 - FireDAC AddOn
 - Mobile AddOn
- Enterprise
- Architect
(Embeds Ultimate)

■ C++Builder

- Starter
- Professional
 - FireDAC AddOn
 - Mobile AddOn
- Enterprise
- Architect
(Embeds Ultimate)

UPDATE SUBSCRIPTION IS INCLUDED

- Update Subscription Benefits
 - Instant access to the latest RAD Studio, C++Builder, Delphi
 - Get new features when new features are added
 - Includes support

Critical to insure the best user experience and provide customers the most from our developer tools

As of April 19, 2016, we won't sell
licenses without Update Subscription

THANKS!

Any questions?

