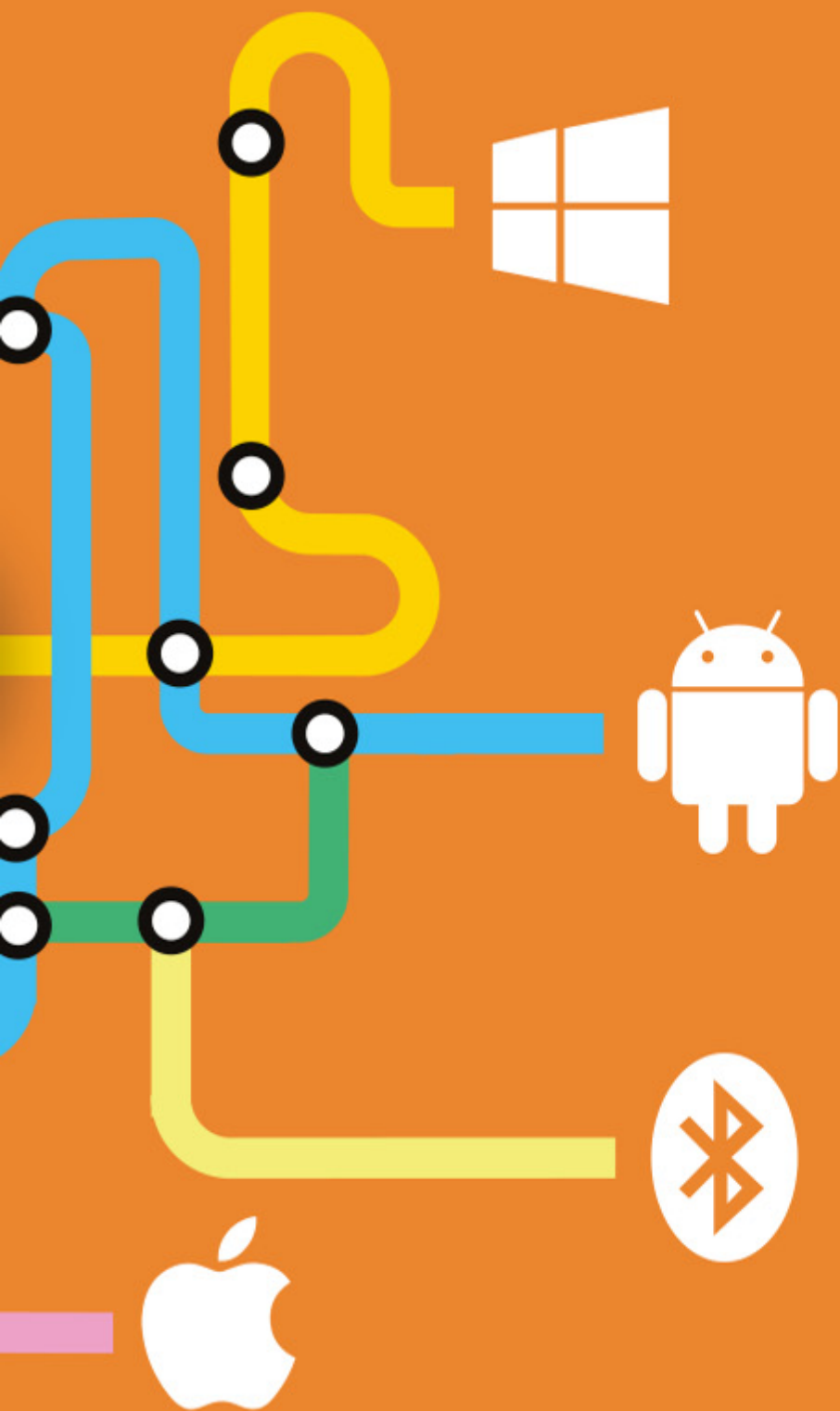




30TH EMBARCADERO DEVELOPER CAMP

第30回 エンバカデロ・デベロッパーキャンプ・ツアー

New Features in XE8

Marco Cantù

RAD Studio Product Manager



Marco Cantù

- RAD Studio Product Manager
- Email: marco.cantu@embarcadero.com



- Book author and Delphi guru
- blog.marcocantu.com



Agenda

- New in XE8
 - Compilers
 - Libraries: FireMonkey, RTL, Database Access, VCL
 - AppAnalytics
- Developer productivity
 - IDE, editor, GetIt, unit testing, and more

New Features in XE8

COMPILERS

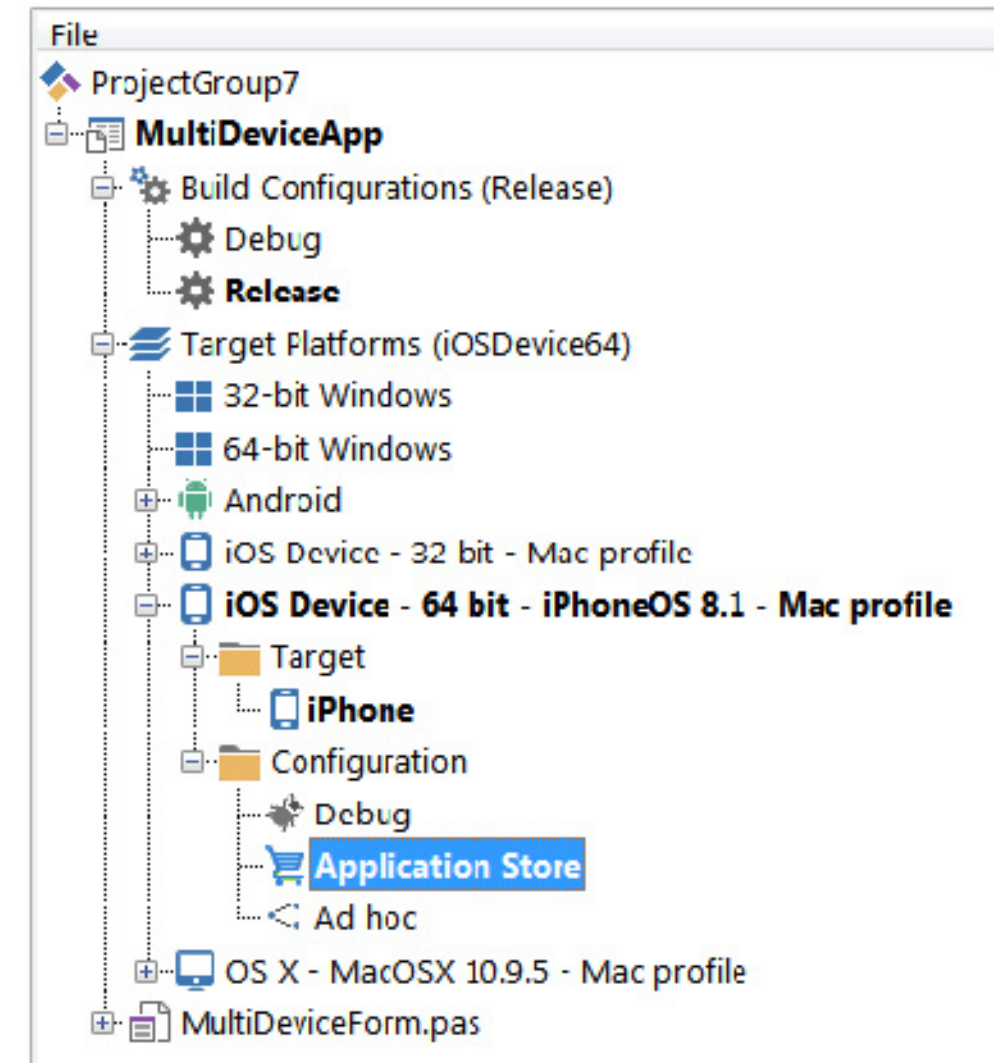
RAD Studio XE8 Compilers and Toolchains

- Object Pascal and C++ Compilers
- Windows 32-bit and 64-bit
- Mac OS X
- Android ARM v7
- iOS Armv7, Arm 64-bit, and iOS Simulator (Object Pascal only)
- **Total: 7 OP and 6 C++ compilers**



New in XE8: iOS 64-bit Compiler and Toolchain

- New iOS 64bit Object Pascal and C++ Compilers
 - Including linkers and tools
 - Separate iOS 64 target
- Support for Apple Universal apps
 - Both binaries in single IPA
 - Required for App Store
 - 64bit target can embed 32bit binary

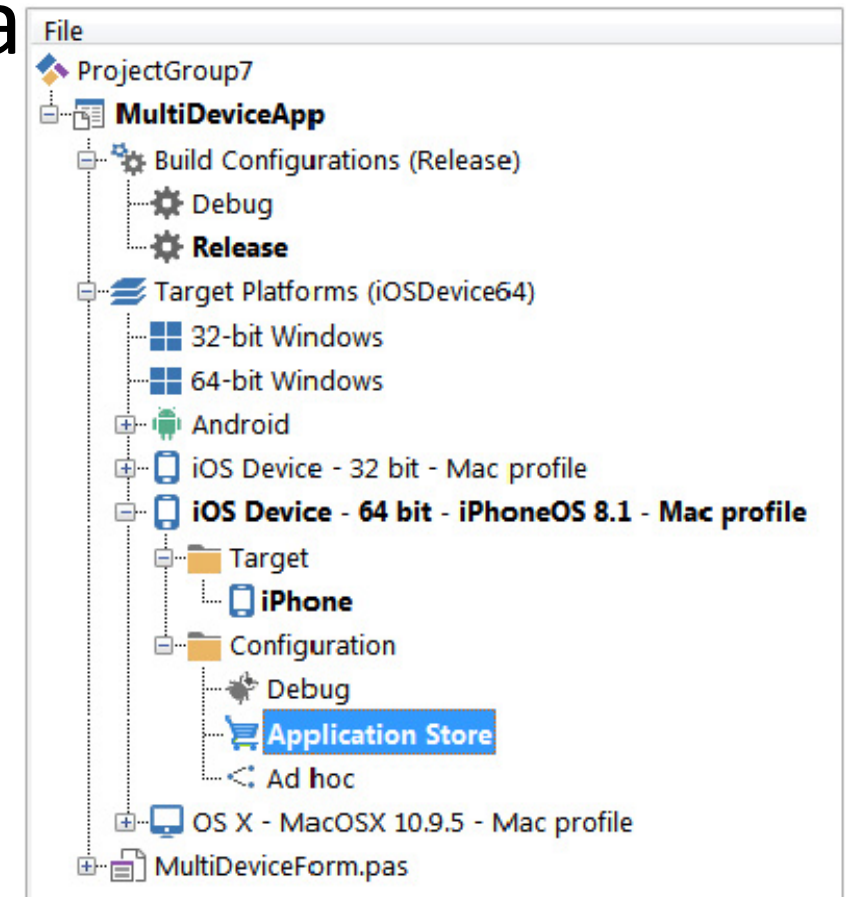


New Features in XE8

FIREMONKEY

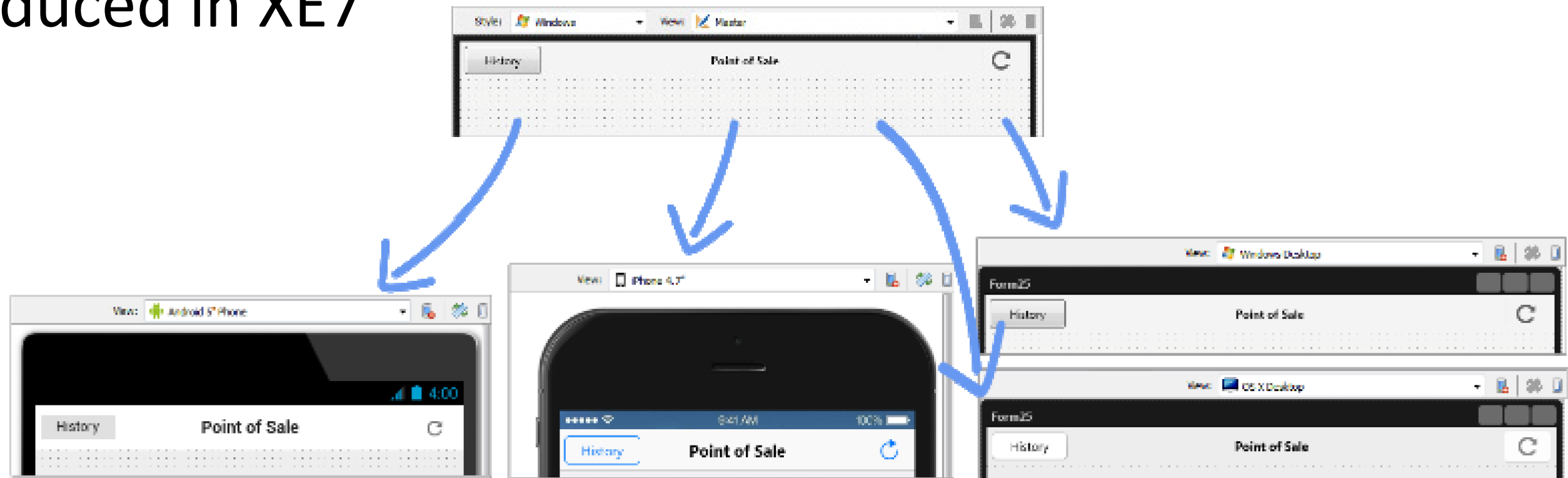
The FireMonkey Platform

- 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



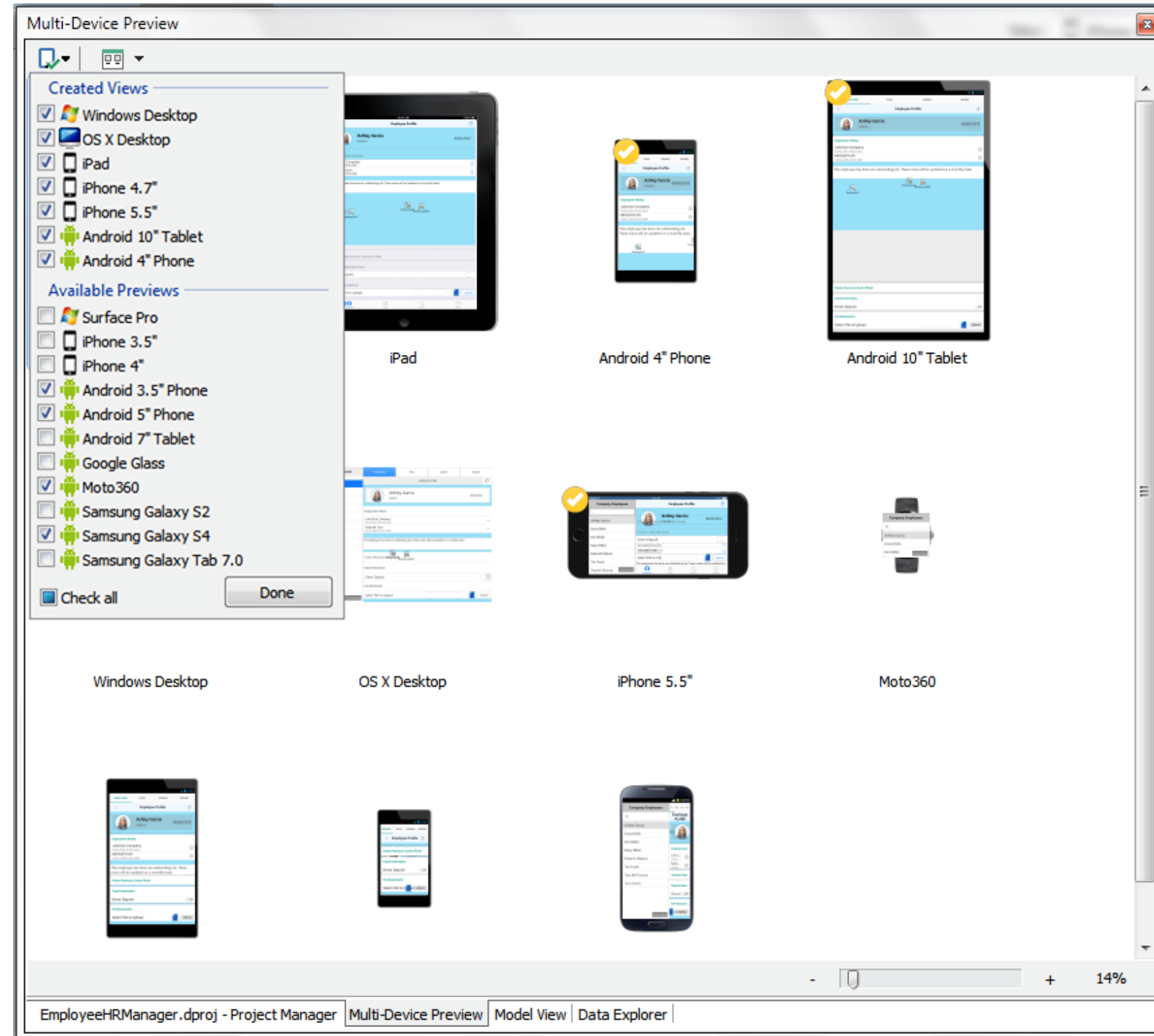
FireUI Multi-Device Designer

- Shared master and specific views
- Visually customize forms for different platforms and form factors
- Introduced in XE7



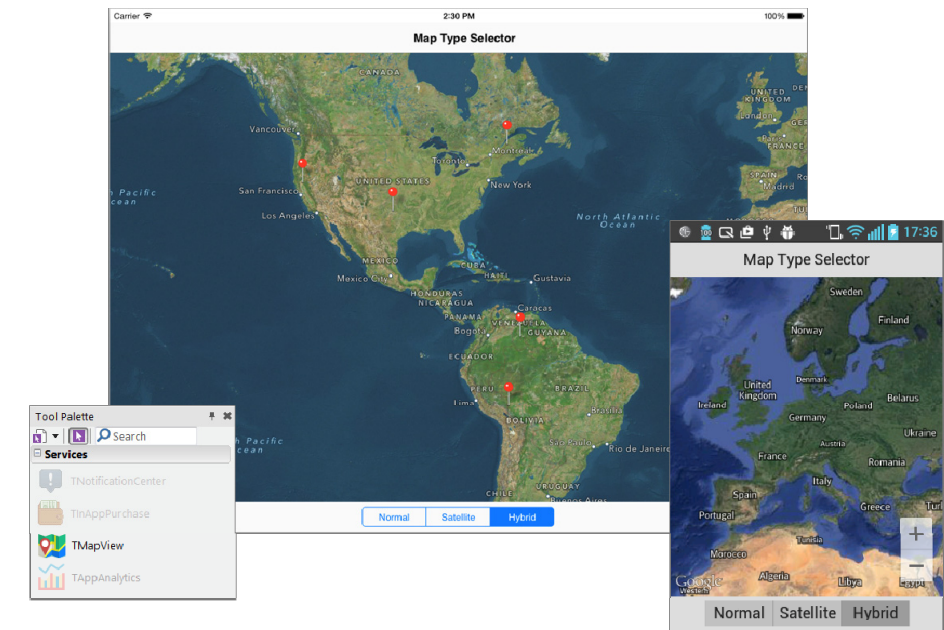
FireUI in XE8 Designer Previews

- Live Previews for mobile and desktop platforms
- Preview the UI on different form factors as you create it



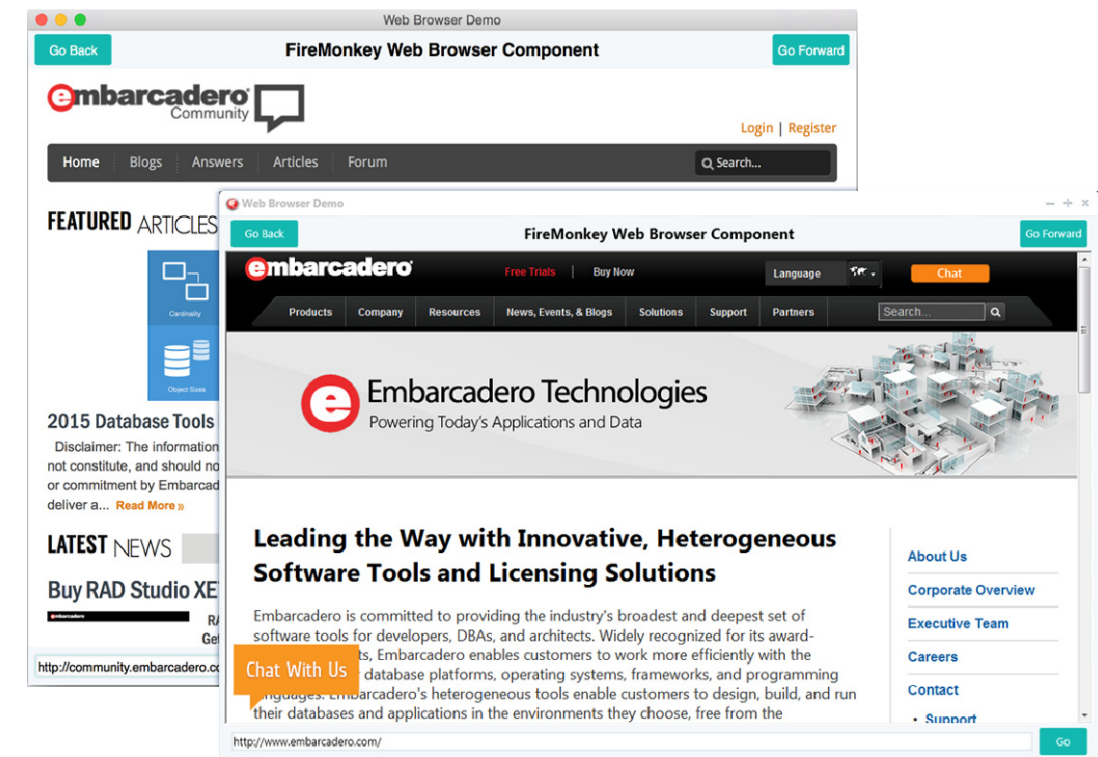
FireMonkey New XE8 Mobile Features

- New MapView component
 - Android Google Maps
 - iOS MapKit
- More iOS platform controls
 - TMemo, TListView, TSwitch (plus TEdit, TCalendar in XE7)
 - Z-order improvements mixing platform and styled control



Other FireMonkey XE8 Features

- Desktop browser components for Windows and OS X
 - Mapped to platform browser components
- New ImageList component
 - Desktop and mobile
- Enhanced multimedia and camera support



New Features in XE8

RTL

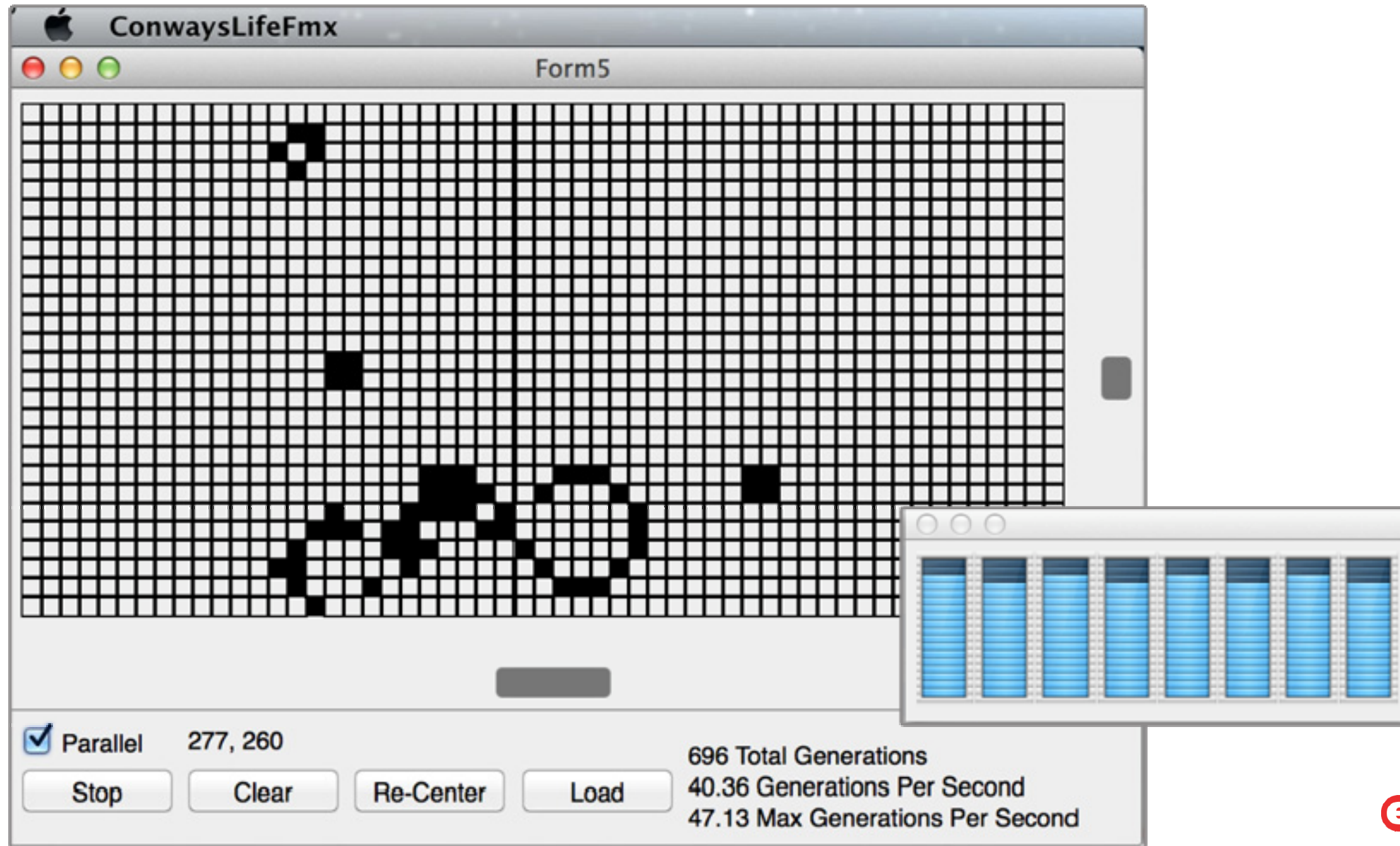
The Run Time Library (RTL)



- Available for both VCL and FireMonkey
- Core runtime: memory management, files and streams, threads, encodings and formats...
- Hooks for platform specific API / SDK calls
- Introduced in XE7: Parallel Programming Library

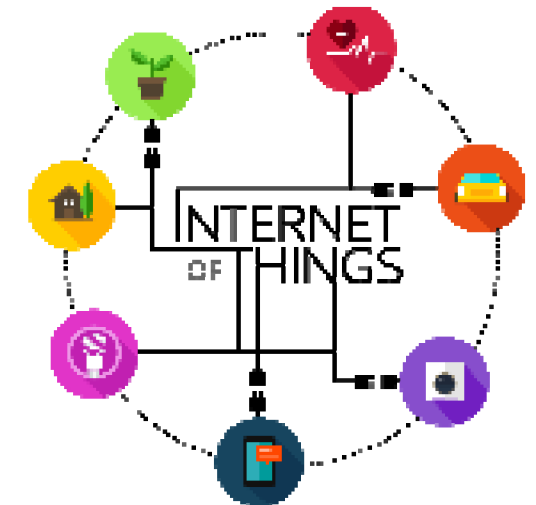
```
80 | TParallel.For(1, Max, procedure (I: Int64)
    | begin
    |     if IsPrime (I) then
    |         TInterlocked.Increment (Tot);
    |     end);
```


XE7 Parallel Library



RTL Connectivity and IoT in XE8

- AppTethering
 - Protocol enhancements and encryption hooks
- TBluetooth component
 - Matching existing TBluetoothLE component
- TBeacon component
 - iBeacons and AltBeacons



Add Physics with Box2D

- Library distributed with C++
 - <http://box2d.org/>
- Object Pascal headers and ready-to-use demos
- Add physics to your desktop and mobile applications
 - Great for games, but not only



HTTP Client Library

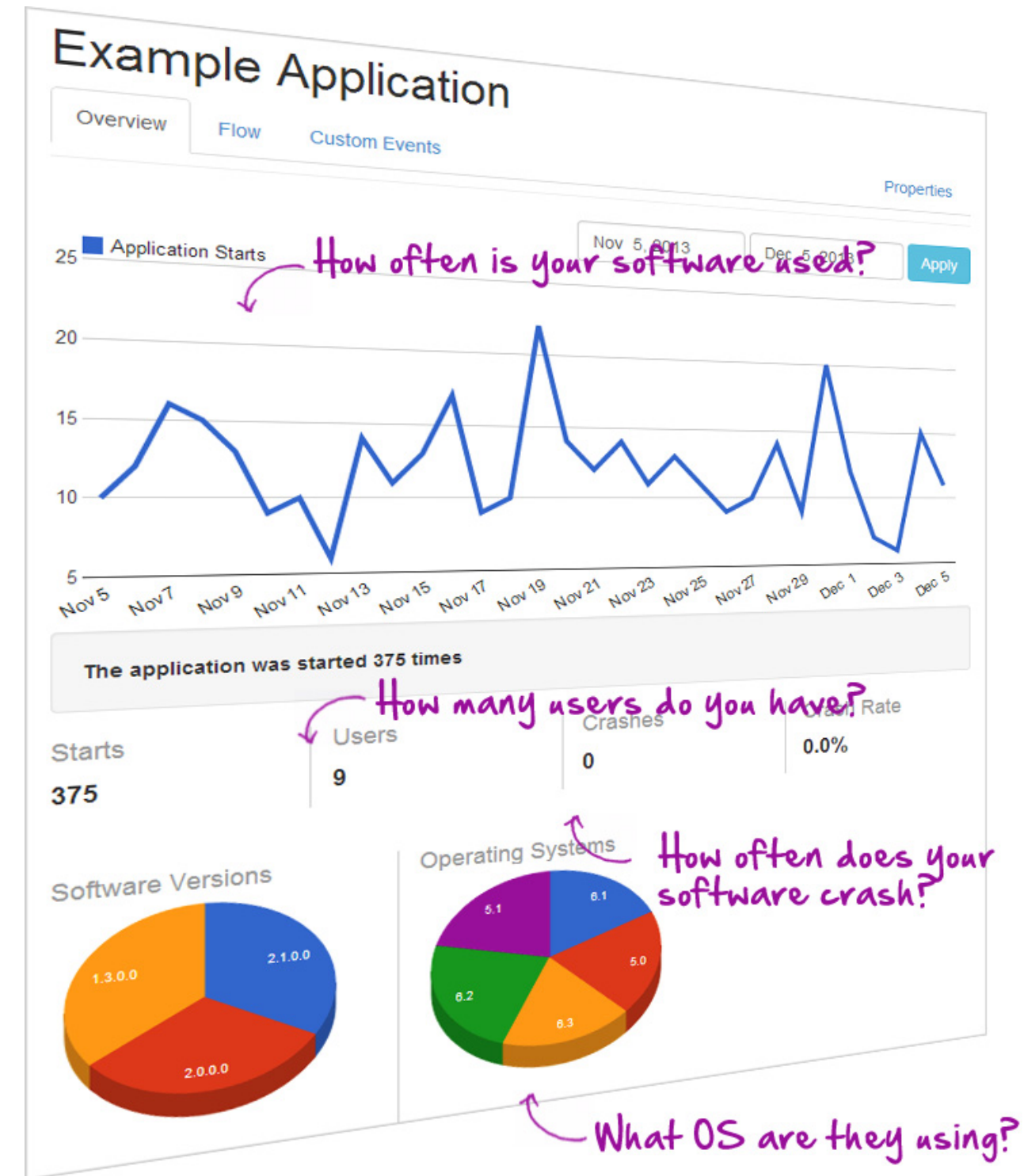
- Platform native HTTP and HTTPS support
 - Uses platform SDK services on each platform
 - Hassle-free deployment, relies on platform security
 - Rather than OpenSSL
 - For Windows, Mac, iOS, Android
 - Works also in VCL!
- NetHTTPClient and NetHTTPRequest components
 - System.Hash with hash functions for HTTP

New Features in XE8

APPANALYTICS

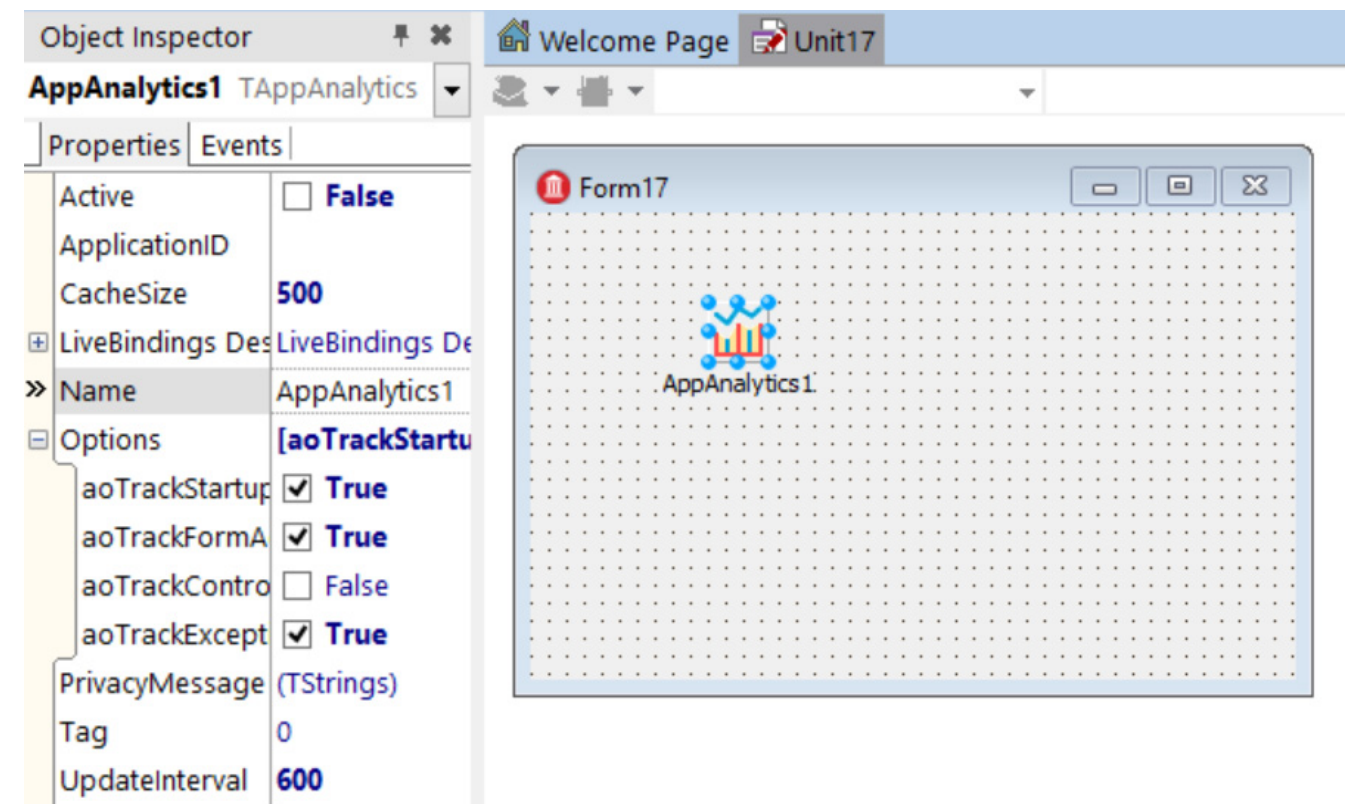
AppAnalytics

- Capture anonymous usage stats from your customers, understand users behavior
 - No tracking of user data
 - Used also by RAD Studio IDE
- Hosted by Embarcadero as pay-per-use service (SaaS)
 - appanalytics.embarcadero.com



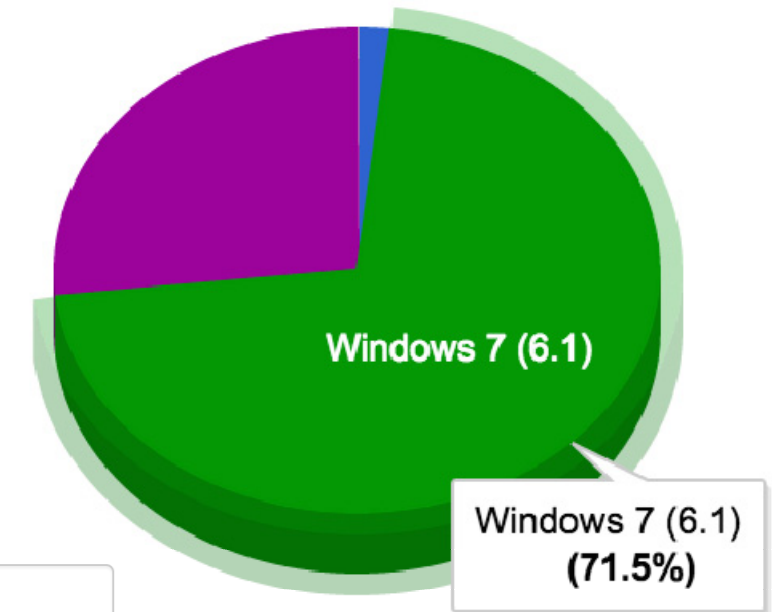
TAppAnalytic Component(s)

- VCL and FireMonkey
 - Same component name, different implementations
- Captures application startup, form activation, exceptions, controls focus
- Developer can add custom events of any type and group them



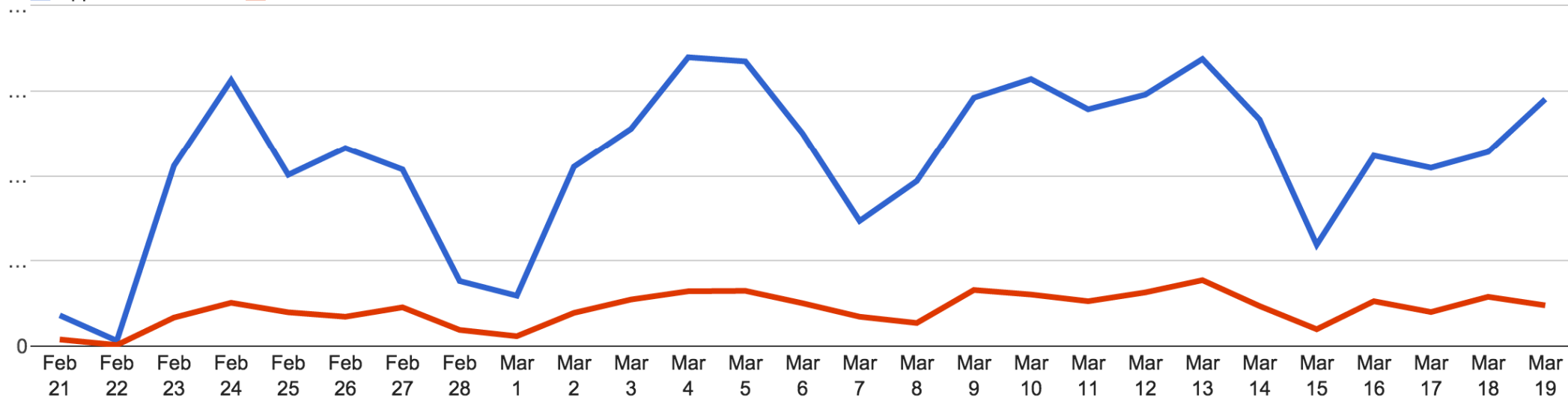
AppAnalytics Sample Data

Operating Systems



Feb 21, 2015 - Mar 20, 2015

■ Application Starts ■ Users

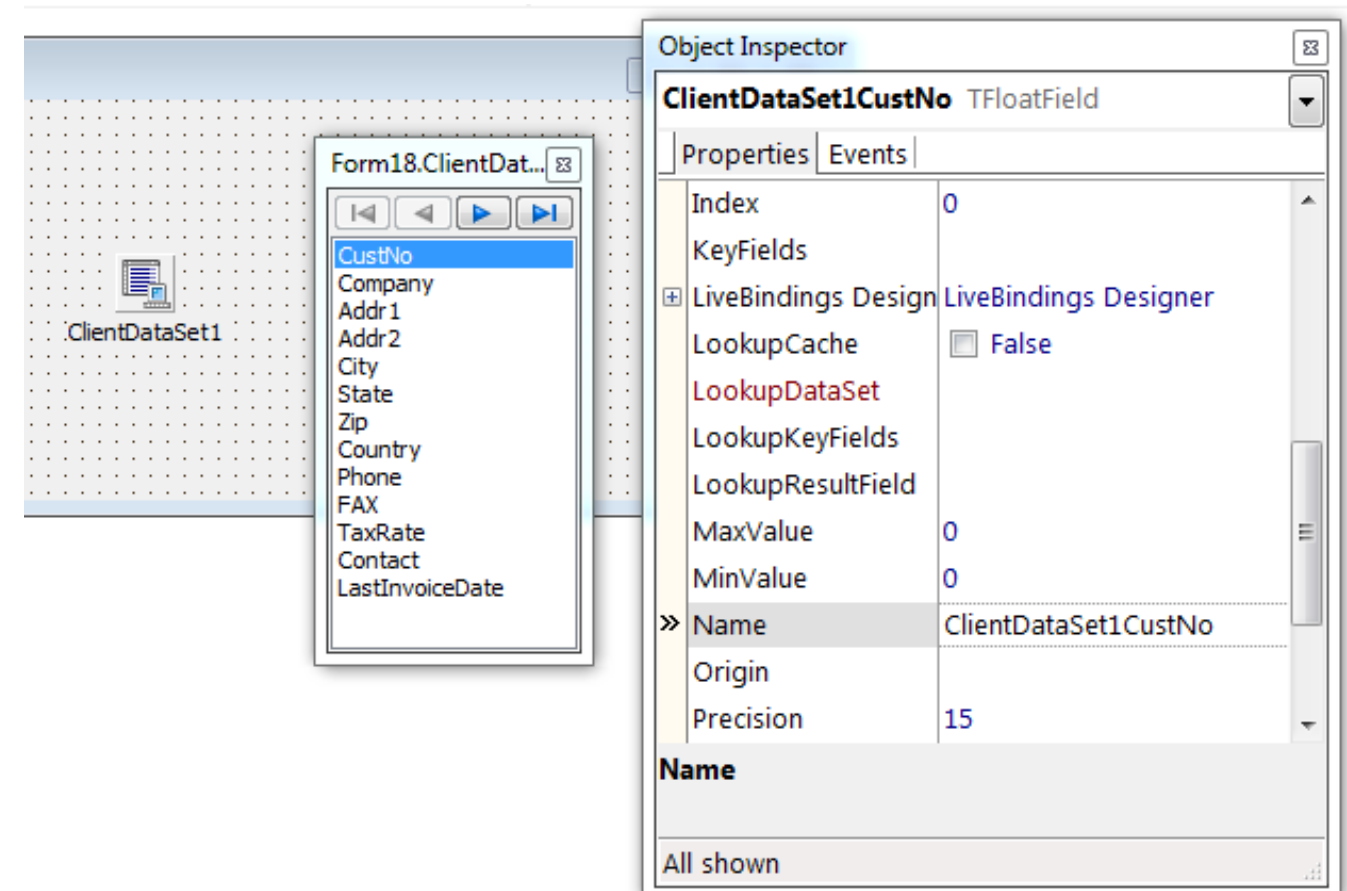


New Features in XE8

DATABASE ACCESS

What's new in Database RTL

- TField read/write performance optimization
 - For all TDataset descendants
 - Customer reported 25% increase in ClientDataSet performance compared to XE7



What is FireDAC?



- High-performance, easy-to-use, enterprise database connectivity
- Universal data access with database specific features
- No drivers required and full source code provided (in Enterprise edition)

**Database applications development
is fun again with FireDAC**

What's New in FireDAC

- New in FireDAC
 - Teradata database driver, based on ODBC driver
 - Support for InterBase Change Views
 - Details in the InterBase XE7 section
 - Change notifications
 - dbExpress to FireDAC migration tools
 - Enhanced SQLite v3.+ database support, with smart data types and both static and dynamic linking



FireDAC and InterBase XE7 ChangeViews

- Query database for changes, merge with current dataset
 - MergeDataSet method with dmDeltaMerge param

```
10 procedure TdtmdlDelta.PostDeltas;  
- begin  
-   qryCategory.MergeDataSet(qryCategoryDelta, TFDMergeDataMode.dmDeltaMerge, mmUpdate);  
-   qryMedicine.MergeDataSet(qryMedicineDelta, TFDMergeDataMode.dmDeltaMerge, mmUpdate);  
-   qryMedicineCategories.MergeDataSet(qryMedicineCategoriesDelta, TFDMergeDataMode.dmDeltaMerge, mmUpdate);  
-  
-   qryCategory.ApplyUpdates;  
-   qryMedicine.ApplyUpdates;  
-   qryMedicineCategories.ApplyUpdates;  
-  
110   FDTransactionDelta.Commit;  
-  
-   if Assigned(OnPostDeltas) then  
-       OnPostDeltas(Self)  
- end;
```

What is EMS?

- Mobile solutions require strong backend for enterprise focus
- Advantage of turn-key, cloud-ready solution, fast and easy deployment
- Critical for enterprise acceptance
 - Shared customers backed for a VAR
- Introduced in XE7, covered in my IoT session, later



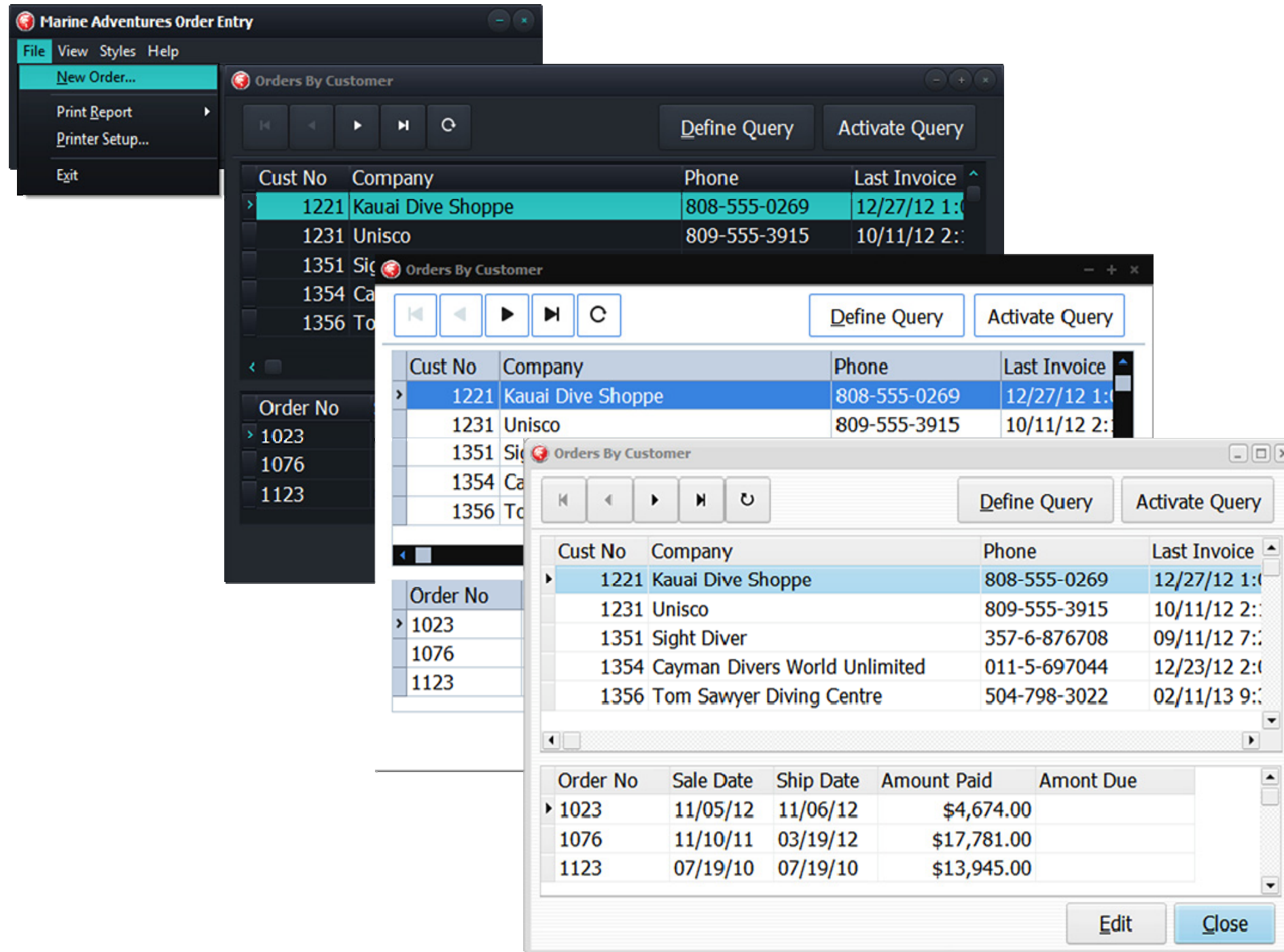
New Features in EMS for XE8

- Integrated Push Notifications
- External credentials support
 - Demo showing ActiveDirectory integration
- Database connections pooling
- Export Data from Web Console
 - Improved users/groups analytics
- Client console for managing user accounts and more

What's New in VCL in XE8? Summary

- Building on a very solid foundation
 - Fonts scaling and other improvements
- Connectivity
 - Bluetooth and AppTethering extensions
 - HTTP client library
- AppAnalytics
 - Track applications usage with little effort
- And many developer productivity features in the IDE, with the addition of GetIt, DUnitX, Mercurial

Plus, New VCL Styles in XE8



Aside: What's Coming in Windows 10

- XE8 VCL and FireMonkey applications work just fine
- Microsoft at BUILD conference just announced
 - “Project Centennial”:
Host Win32 app in Windows 10 Store, First class
 - “Project Astoria”:
Run Android APKs on Windows 10 Phone

New Features in XE8

DEVELOPER PRODUCTIVITY

Developer Productivity Enhancements

The screenshot displays the RAD Studio XE8 IDE interface with several productivity enhancements highlighted by handwritten annotations and arrows:

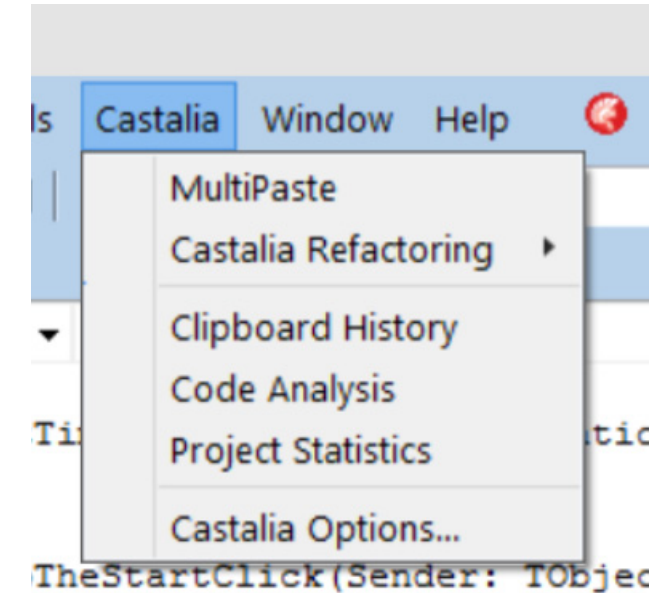
- Intelligent clipboard tools:** A "Multi-Paste" dialog box is open, showing options for "Text before each line" (sql.add), "Text after each line" (}), and checkboxes for "Fix Single Quotes" and "Trim Clipboard Contents". A preview shows the resulting SQL query.
- First-rate code navigation:** An arrow points to the "Tools" menu, which includes options like "Go to Definition", "Find All References", and "Find All Implementations".
- Integrated code metrics:** A "Code Analysis" window is open, displaying a table of metrics for various methods.
- Smart automated refactoring:** An arrow points to the "Refactor" menu, which includes options like "Rename", "Extract Method", and "Extract Class".
- Advanced syntax highlighting:** An arrow points to the code editor, highlighting the "SaveResp" variable in the "TMainForm.CheckFileSave" procedure.

The "Code Analysis" window shows the following data:

Method Name	Length	Parameter Count	If Depth	Cyclomatic Complexity	Toxicity
LoadNewResourceModule	15	1	3	4	0.517
TMainForm.FileSaveAs	8	1	3	4	0.458
TMainForm.SwitchLanguage	15	1	2	3	0.408
InternalReloadComponentRes	14	3	1	3	0.400
SetResourceHInstance	10	1	2	4	0.392
TMainForm.FormCreate	18	1	0	6	0.342
TMainForm.SelectionChange	18	1	0	5	0.317
TMainForm.RulerItemMouseMove	2	4	1	2	0.317
TMainForm.CheckFileSave	6	0	1	6	0.283
TMainForm.ActionList2Update	5	2	1	2	0.258
TMainForm.LeftIndMouseDown	3	5	0	1	0.258
TMainForm.FirstIndMouseDown	3	5	0	1	0.258
TMainForm.RightIndMouseDown	3	5	0	1	0.258
TMainForm.RulerItemMouseDown	3	5	0	1	0.258
TMainForm.BoldButtonClick	5	1	1	3	0.242
TMainForm.ItalicButtonClick	5	1	1	3	0.242
TMainForm.UnderlineButtonClick	5	1	1	3	0.242

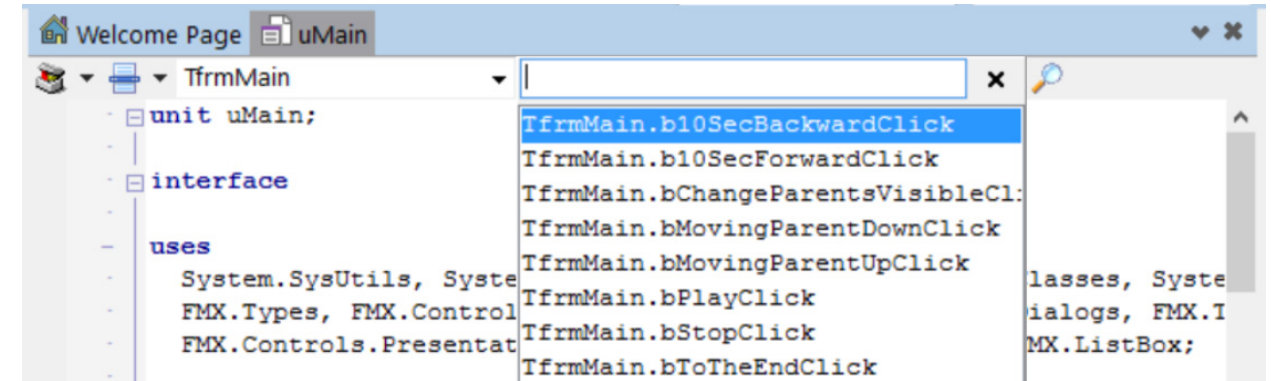
Developer Productivity Enhancements

- IDE and editor extensions
- Initial Castalia integration
 - Some overlapping feature disabled
 - Still a separate menu, will be merged
- IDE features
 - Project statistics information, clipboard history, multi-paste support



New Editor Features

- Shared
 - Stack bookmarks, smart keys, parenthesis matching, code structural highlight
- Object Pascal only
 - Castalia refactorings, Editor selection expansion, Flow controls highlighting, Code navigation toolbar, Smart symbol search
 - Code analysis to track quality



```

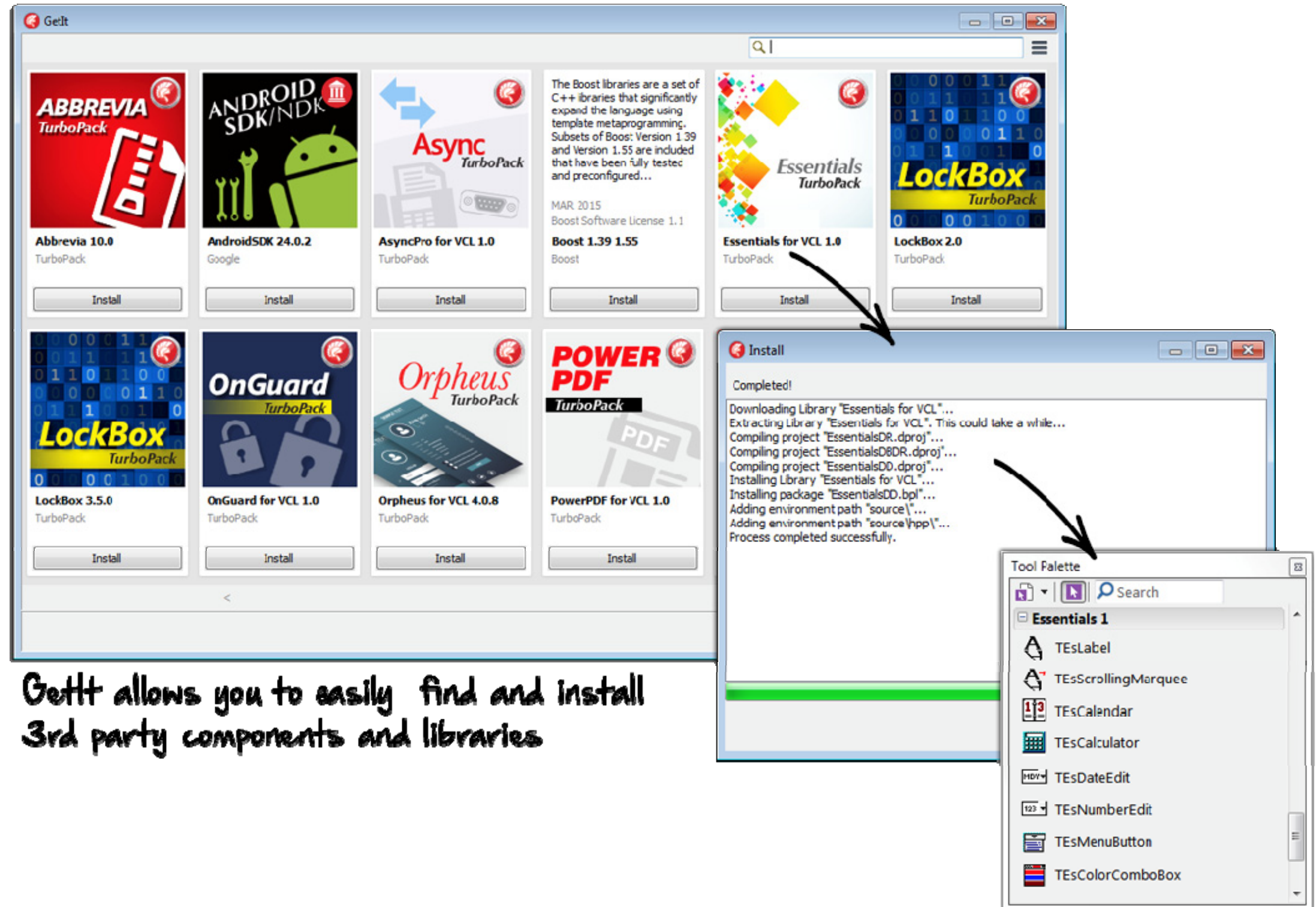
Attr: Integer
begin
  Path := TPath
  Attr := faRea
  FindFirst(Pat
  if F.name <>
  begin
    ListBox1.It
    while FindN
      ListBox1.
  end;
  FindClose(F);
end;

```

GetIt Package Manager

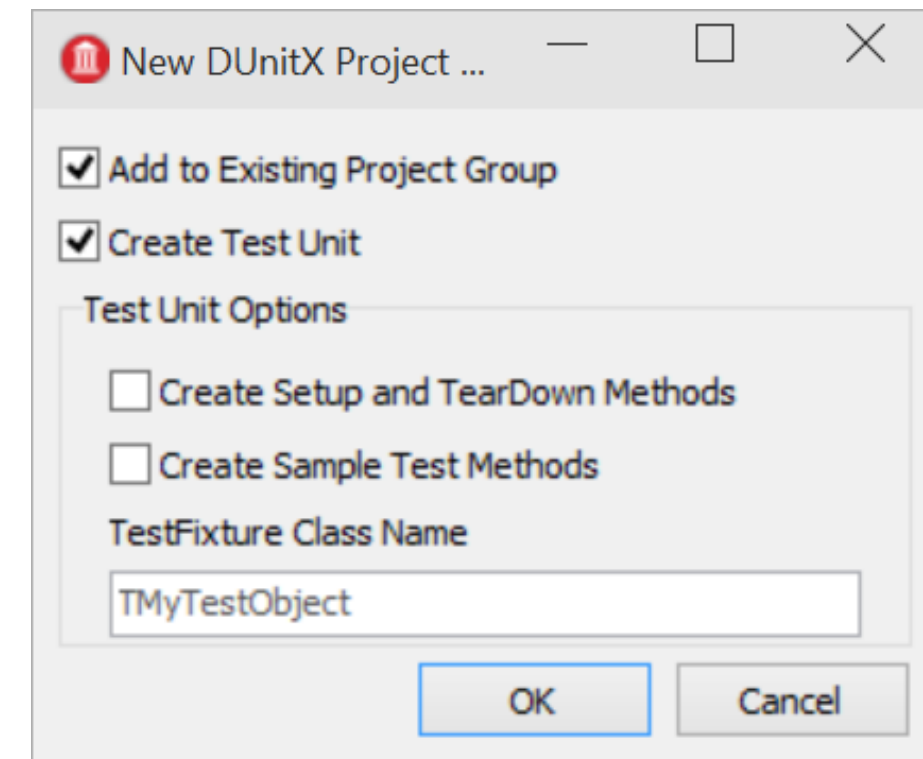
- Easy libraries discovery and one-click installation
- Hosting both VCL and multi-device libraries
- Includes all TurboPack projects
- “GetIt Library Manager for easy discovery, download and update of source code libraries, components, and other features from Embarcadero GetIt servers”

GetIt Package Manager



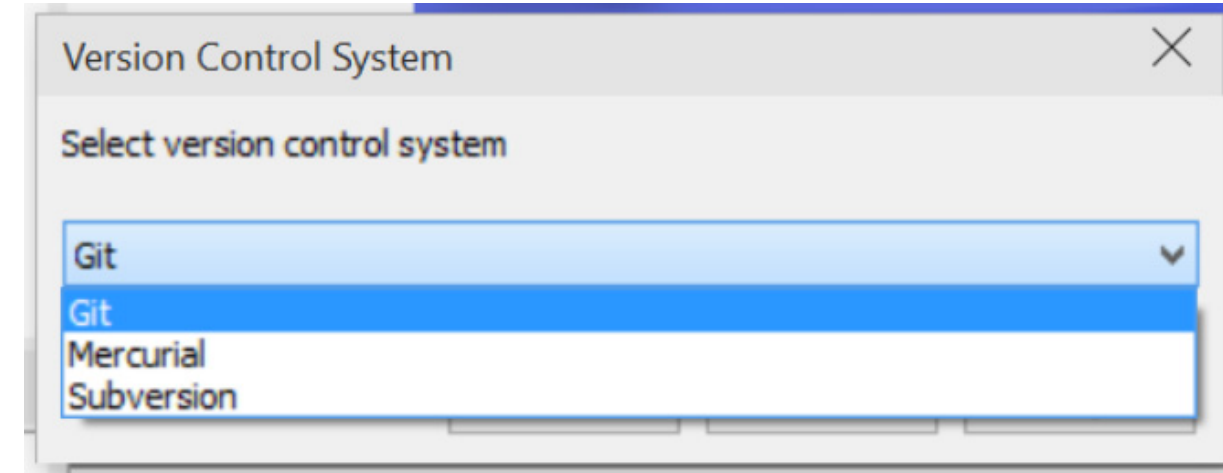
DUnitX Support

- DUnitX
 - Modern Delphi unit testing framework
 - github.com/VSoftTechnologies/DUnitX
- Integrated support with wizards
 - Console and FMX runners
 - Delphi and C++
- DUnit runtime still in the product



Version Insight

- Enhanced Subversion support
 - Change list labels, SVN merge dialog, branches switching
- Enhanced Git version control integration
 - Push and Pull changes to and from remote repositories
- *New* Mercurial version control integration
 - Cloning your remote repository, commit changes locally, show log data

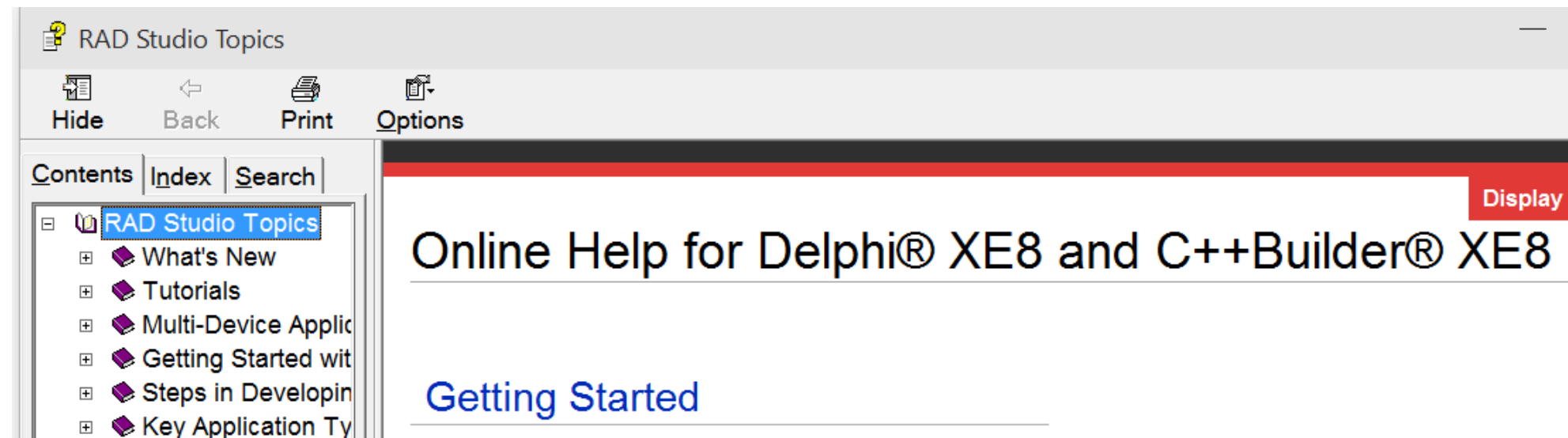
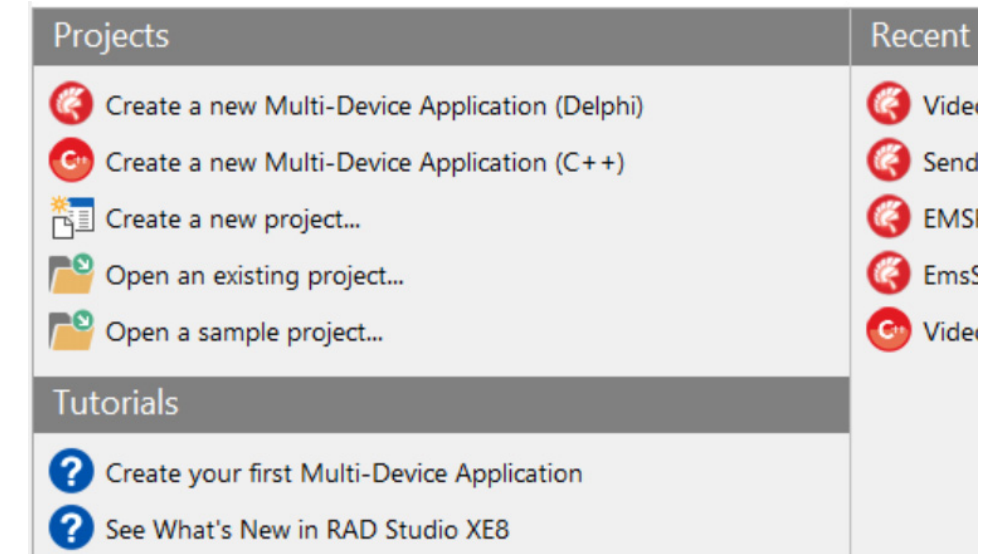


Migrate IDE Settings

- In Bin folder, *migrationtool.exe*
- Migrate configurations from older versions of the IDE
 - If installed on the same machine, registry to registry
 - If different machines, export to/import from XML
- Copy configurations of same version between different installations (via XML)
- User can pick specific groups of settings

More New XE8 IDE Features

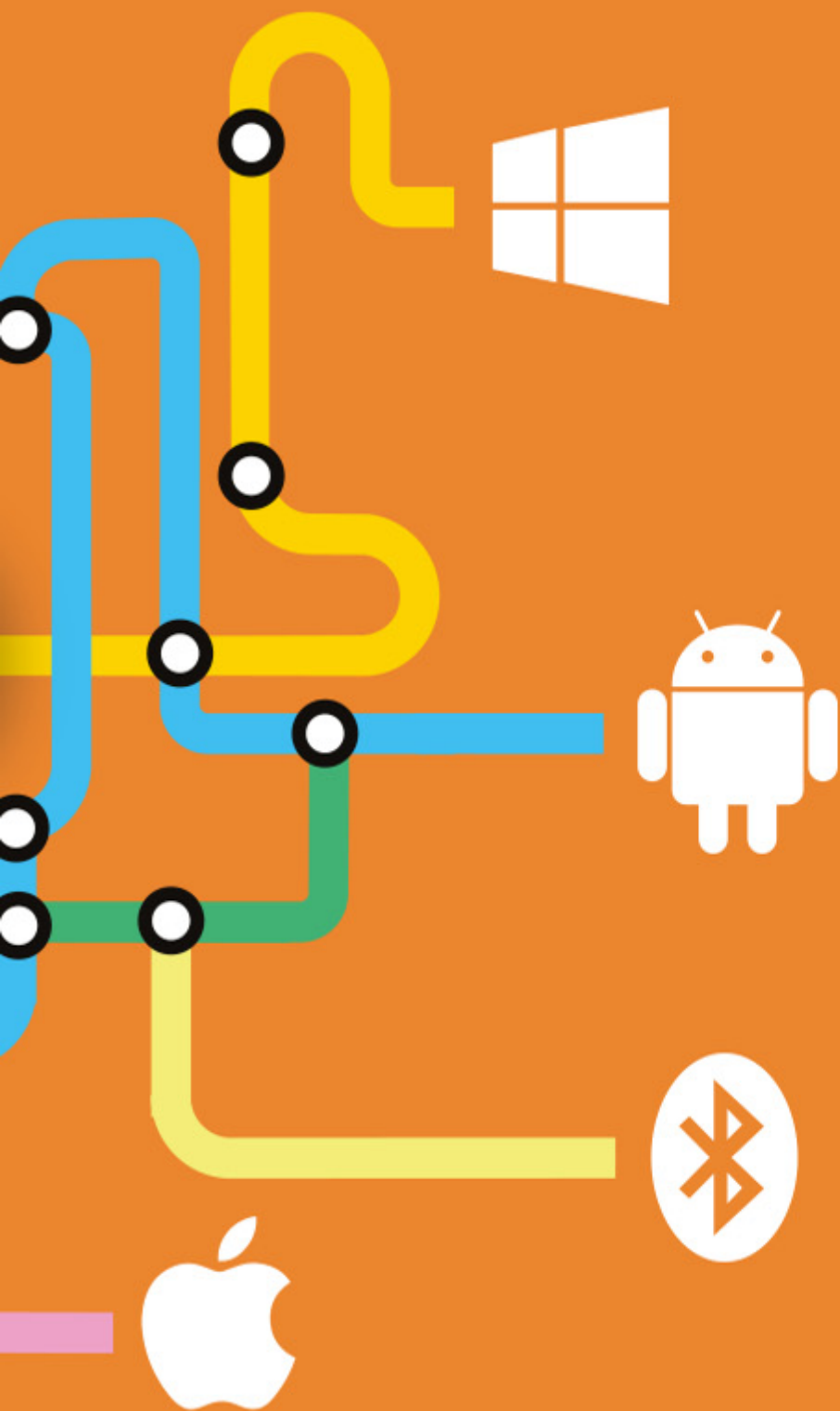
- Android Java libraries manager
- CHM help is back
- Start here page redesign
- Improved installation experience and reduced installation footprint (removes temporary files)





New Features in XE8

QUESTION?



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Thank you!