RAD-in-Action: Step Up to the Multi-Device Application Platform

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About David Intersimone “David I”

- 44 years since my first program – IBM360/40, Fortran, Prime # Generator
- First 8 years – real time assembly language programmer
- 28 years with the developer tools group
- Responsibilities:
  - Global Evangelism
  - Tech Partner Program
  - MVP Program
  - Embarcadero Community
  - Developer Cheerleader
**Current Tools Choices**

### Vendor Tools

**Pros**
- Native UX
- Native performance
- Secure

**Cons**
- Multiple code bases
- Multiple teams
- Higher dev cost

- **True Native**
  - Apple
  - Google
  - Microsoft

### Web Tech Based Tools

**Pros**
- One team
- Lower dev costs
- Fast time to market

**Cons**
- Script Performance
- Non-Native UX
- Unsecure
- No direct access to OS and Hardware

- **Scripted**
  - HTML5 and JavaScript

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**Single Device**

**Multi Device**
Multi-Device True Native

Pros
Native UX
Native performance
Secure
Full access to OS and HW

Pros
One team
Lower dev costs
Fast time to market

Single Device
True Native

Multi Device
Scripted

HTML5 and JavaScript

Apple
Google
Microsoft
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Windows  
OS X  
iOS  
Android

https://www.embarcadero.com/products/rad-studio/application-showcase
RAD Studio XE5

One team, One codebase
(* C++ mobile – Winter)
Build for Google Glass

• Native ARM, high performance apps (APK)
• Rapid Development, Debug and Deploy
• Share Code between Android, Glass, iOS, Windows and Mac

Hello Glass from Delphi XE5

procedure TMyGlassApp.FormCreate(Sender: TObject);
begin
  Label1.Text := 'Hello Glass from Delphi XE5';
end;
Multi-device, true native, component based, event driven, single codebase development
Multi-device, true native apps

DataSnap Server

Database
Modern Language Features

- Property-Method-Event
- Automatic Reference Counting (ARC)
- Interfaces
- Attributes
- Generics/Collections
- Anonymous Methods (Lambda functions/closures)
- Rich RTTI (introspection/reflection)
Common Compiler Architecture

C++ support for ARM scheduled for later 2013
Cross compilation and Packaging

- App Sources
- FM Framework
- Cocoa SDK
- .app in IPA
- Native Developer Kit
- .so in APK
Built-in Mobile Application Wizard

• Start with a blank HD or 3D FireMonkey application
• Choose from Tabbed Application, Header/Footer and Master/Detail Templates
Delphi FireMonkey on Android and iOS

- “Native” and Custom Styles
- True Native Apps
- Delphi components and development model
Visual LiveBindings

- Bind controls to data
- Rapid Prototyping
Native Styling
Android Styles

- Holo Light (default Android style)
- Holo Dark (custom Android style)
- Both styles include built-in support for all resolutions supported on Android (1x, 1.5x, 2x and 3x)
iOS7 Style
Native controls

- Message alerts
- Custom Picker
- Date Picker
- Phone Dialer
- Virtual Keyboards
- Text Editing for TMemo and TEdit
  - Cut/Copy/Paste/Zoom
Layout Management

- **Alignment**
- **Anchors**
- **Form Family**
  - loads the correct form depending on the target device when developing different forms for phones vs tablets and Landscape vs Portrait
Gestures

• Swipe
• Tap
• Pinch & Zoom
• Tap & Hold
• Double-Tap
Media Library Actions

- Accessing the Camera App
- Accessing the Camera Roll
- Sharing content i.e. photos via Message (SMS), Mail, Facebook, Twitter etc.
- Slide Transitions for Tabs
Sensor Components

- Location Sensor (GPS)
- Motion Sensor (Accelerometer)
- Orientation Sensor (Gyroscope)
Location Sensor

Commonly used in applications that require location awareness

- Get location of your iOS device using latitude and longitude
- Use Reverse Geocoding to convert location data to a readable address
- Works across Win/Mac/iOS
- Can be used with the WebBrowser component to display a location on the map
Motion Sensor (Accelerometer)

Used to detect motion in your application as you move your device

- Get Acceleration Values and Angle Acceleration Values (X, Y, Z)
- Determine Speed
- Determine Motion
Orientation Sensor (Gyroscope/Compass)

• Get X, Y, Z tilt values
• Get X, Y, Z distance values
Mobile Services

- Notification Center
- New Notification component
TListView Features in XE5

- Swipe to Delete functionality built-in
- Multiple Display and Edit Modes
- Various List Accessory Styles
- Edit Mode Animations
- Search filtering enabled
- LiveBindings enabled
Enterprise Ready

EMBARCADERO TECHNOLOGIES

Device

FireDAC

InterBase

or SQLLite

Your App

FM

FireDAC

REST

REST

REST

SERVER METHODS

DataSnap

C++ or Delphi

Oracle

MSSQL

DB2

Sybase

& more...

Server Methods

Device
FireDAC

• A set of Universal Data Access Components
• for developing any database application
• for Delphi and C++Builder
• High-performance, easy-to-use, enterprise connectivity
• Universal Data Access
• But with many database specific features
## Local Databases

<table>
<thead>
<tr>
<th></th>
<th>SQLite</th>
<th>IBLite</th>
<th>InterBase ToGo</th>
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<td>No security</td>
<td>No security</td>
<td>No security</td>
<td>Secure Encryption</td>
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<td>Simple Data Storage</td>
<td>Full SQL-92 RDBMS</td>
<td>Full SQL-92 RDBMS</td>
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<tr>
<td>Single read/write</td>
<td>Fast multi read/write</td>
<td>Fast multi read/write</td>
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Multitier with DataSnap

• Accessing remote on-premise or cloud-hosted services via REST/JSON or SOAP
• Connecting to Enterprise data from a mobile device

Delphi for mobile app
XE5 REST Client Stack

- REST components
  - For developing REST client application
- RESTDemos.exe
  - Uses REST components to access a few different providers
- RESTDebugger.exe
  - Uses REST components to execute ad hoc requests
REST Client Components

- TRestClient - executes a request to a service
- TRestRequest - holds all parameters and settings that form the actual HTTP request to the service.
- TRestResponse - holds all the returned data from the service
- TSimpleAuthenticator - mimics a basic authentication like an HTML form containing an input field for a username and another one for a password
- THTTPBasicAuthenticator – provides HTTP basic authentication containing the username and password into the HTTP header of the request.
- TOAuth1Authenticator/ TOAuth2Authenticator - assists in the support for authentication using the 'OAuth 1.0' and OAuth 2.0 methods.
- TRESTResponseDataSetAdapter - parses the response content and transfers the data into a TDataSet.
REST component features

- Components work in VCL and FM apps
- Comprehensive HTTP client
  - Asynchronous execution
  - Proxy connection
  - HTTPS
- Authentication
  - Basic, OAuth1, OAuth2
- JSON
  - Parsing, Formatting
  - JSON to TObject, TObject to JSON
- Rapid Prototyping
  - LiveBindings
  - Design time execution
Summary
Summary

• Multi-Device
• True Native code
• The Fastest Way to build apps
• Enterprise Ready
• Security Built-In

https://www.embarcadero.com/products/rad-studio/application-showcase
Resources/Links mentioned in the webinar

• DataSnap

• REST Client Library
  – http://oauth.net/

• Google Glass

• Android Device support and development
  – http://delphi.wikia.com/wiki/Android_Devices_Supported_for_Application_Development
  – Testing your Android apps: https://www.apkudo.com/
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