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Modernize Your VCL Applications Today!

Move Your VCL Apps into the Future with RAD Studio XE7

@EmbarcaderoTech

Agenda

Welcome & Introduction

Let's Start with Style

Be User Friendly with Taskbar buttons, Jump Lists and More

Fast Code Faster with Parallel Programming Library

Language and the RTL to the Rescue

Break

Powerful Database Access with FireDAC and InterBase

Build Scalable, Multitier Solutions with EMS and DataSnap

Web Services Integration with REST Client and More

Extend Your VCL Apps to Mobile and the Internet of Things

Summary and Q&A

Embarcadero Technologies

- Founded 1993
- 3.2 Million Customers - 97% of Fortune 2000
- 35+ Product Awards – Consistent Innovation
- 500+ Employees in 29 Countries

Embarcadero Product Portfolio

Design → Develop → Deliver

Data Modeling & Architecture

Intelligent design and modeling for enterprise information architecture.

Database Management & Optimization

Development, administration and tuning

Application Development

Multi-Device, True Native App Development for Android, iOS, Windows and OS X.

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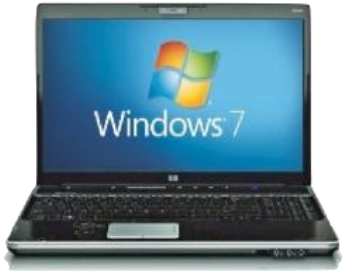
What is RAD Studio?



The complete software development solution for rapidly building highly connected applications for Windows, Mac, iOS, Android, Gadgets and Wearables and get them to market fast

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Windows And Multi-Device

- VCL: The key to Windows
  - VCL is best Windows library
  - Desktop/mobile/device integration
  - FireDAC, REST, Parallel library… and much more
- FireMonkey: The easy path to mobile
  - Single code base for multiple platforms
  - Windows, Mac OS X, Android, iOS
  - Devices, sensors, app tethering…

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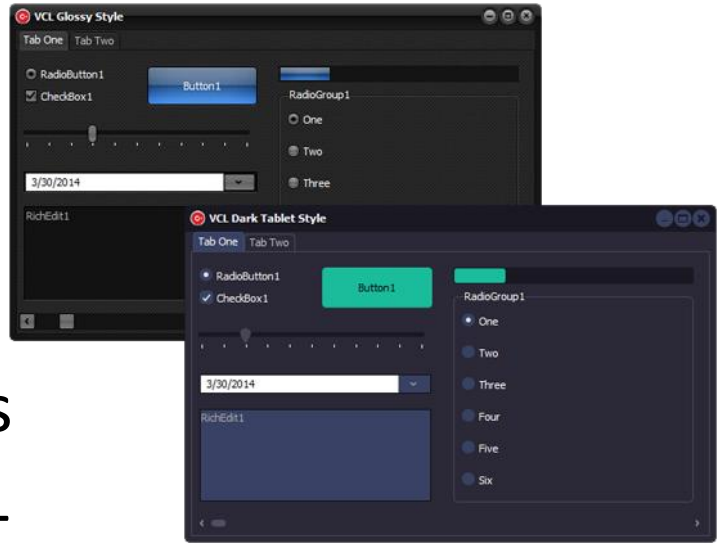
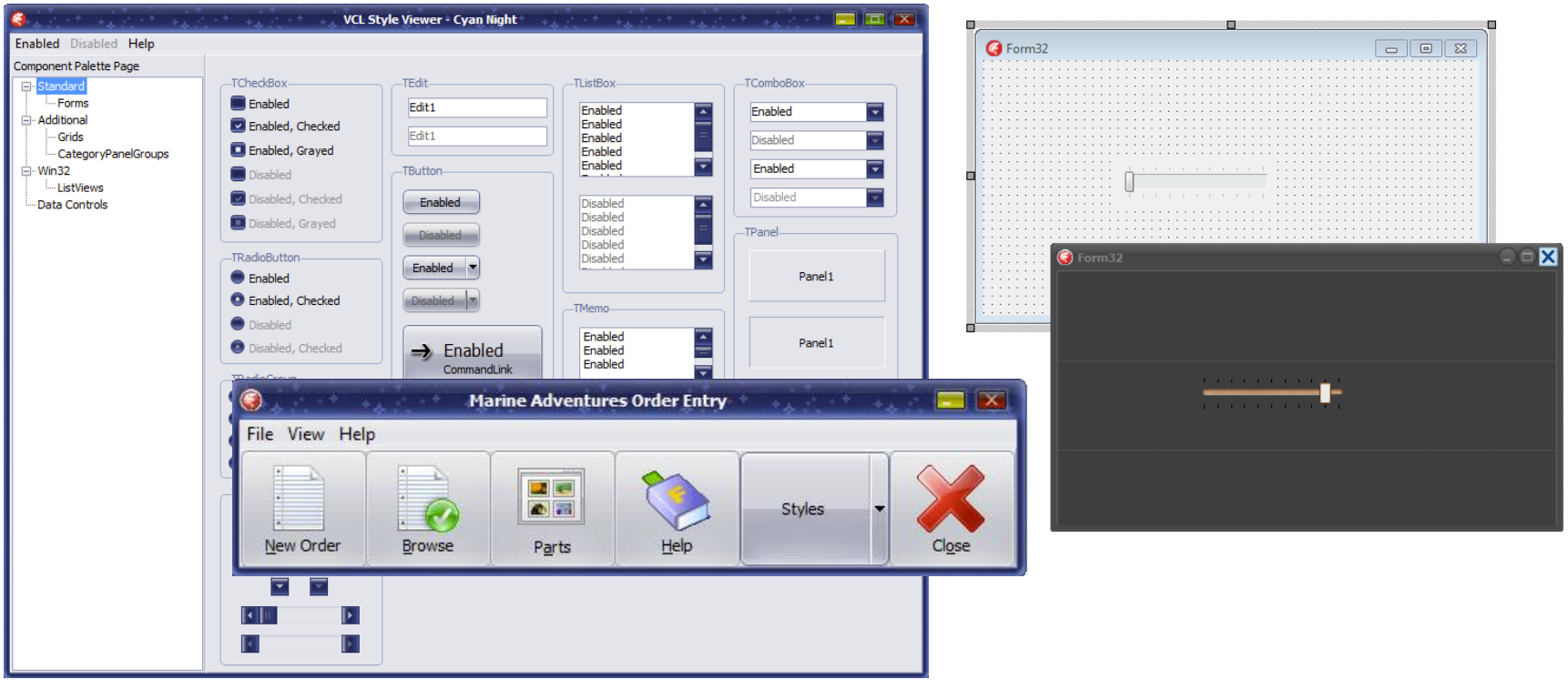
Let’s Start with Style

VCL Styles

- Update the look of your Windows applications with new VCL styles
- Includes Windows tablet styles and supports Windows 7 & 8.1
- Fully style your apps including menus and borders



Custom VCL Styles



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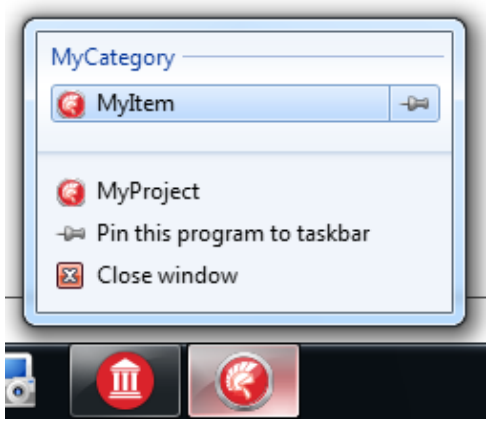
Be User Friendly with Taskbar buttons, Jump Lists and More!

TaskBar Preview Component

- Present previews of your app's windows in the Windows taskbar
- Use button controls within previews
- Show progress and overlay icons on the taskbar buttons

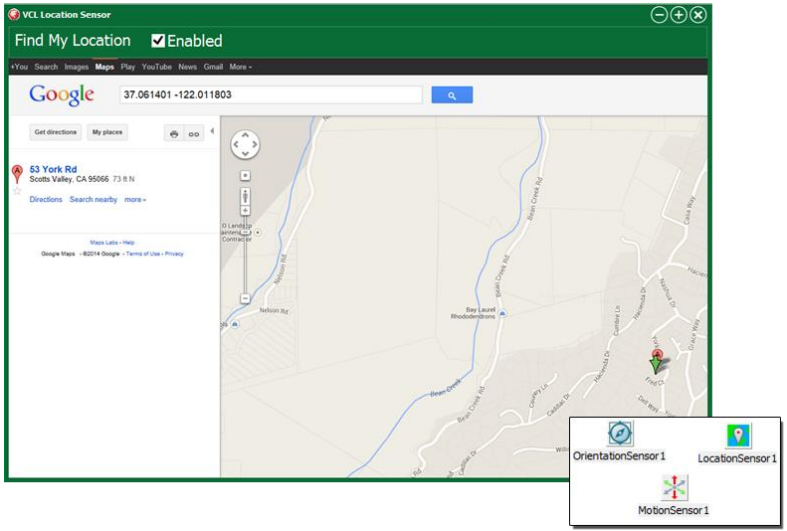
Jump Lists

- Quick access to recent documents
- Define at design-time or access programmatically at runtime
- Complements Taskbar



VCL Sensor Components

- Access location, movement and other features on Windows tablets
- Access device sensors from VCL apps
- Accelerometer, GPS and gyroscope functionality



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Fast Code Faster with Parallel Programming Library

New Parallel Programming Library

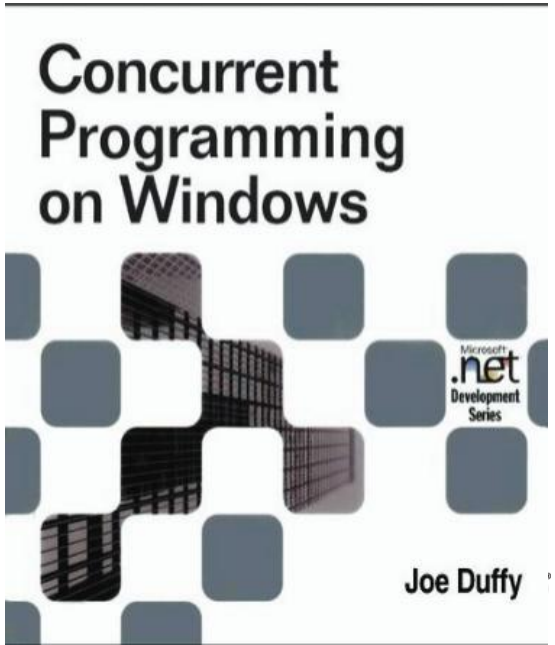
- Great to leverage multicore computers and devices
- Easy integration into existing code
  - Manages a pool of threads to schedule into as many cores as available
- Easier to use asynchronous operations
- Parallel for loops, tasks and futures
- Supports desktop and mobile, Object Pascal and C++

New System.Threading Unit

- Parallel ‘for’ loops
  - TParallel.For
- Scheduling of Tasks
  - TTask methods: Run, WaitForAny, WaitForAll, Future
- Futures

```
var
  value : IFuture <Integer>;
```

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



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Language and the RTL to the Rescue

New in Object Pascal Language

- Improved initialization for dynamic arrays
  - Mix and match constant and dynamic arrays
- String-like operations on dynamic arrays
  - + operator concatenation
  - Insert and Delete

Type Helpers

- Type Helpers extend functionality of
  - Simple types, enums, dynamic arrays, records and classes
- Defined for most of the built-in types in XE5 (System.SysUtils)

```
type
   TMyClassHelper = class helper for TMyClass
     procedure HelloWorld;
     function MyFunc: Integer;
   end;
```

Generics

- „Things that can be parameterized by type”
- Generic types or methods
- More compact code
- Better collection classes
- „open” or „closed” generics

```
type
  TFoo<T> = class
    FData: T;
  end;
```

Anonymous Methods

- Procedure or function that does not have a name
- Can be assigned to variable or passed as a parameter
- May reference variables that are visible to them where they were defined („variable binding”)

```
type
  TProc = reference to procedure;

procedure Call(proc: TProc);
```

Enhanced RTTI and Custom Attributes

- Inspection/Reflection capabilities
- Meta-programming scenarios

```
type
  [Doc('http://www.xyz.com/docs/23456')]
  TMySuperClass = class
  public
    [DocAttribute('http://www.xyz.com/docs/12345')]
    procedure DoSomething;
  end;
```

Break

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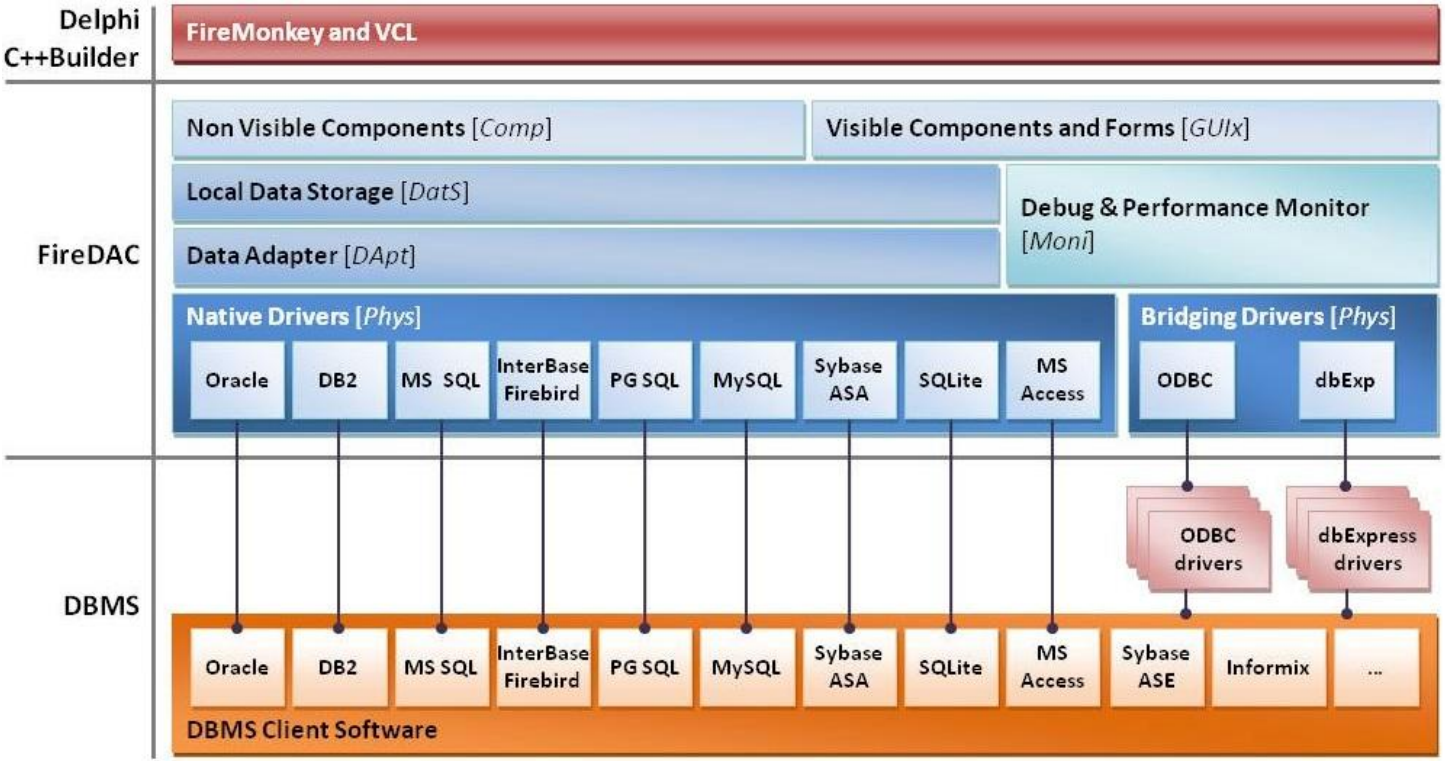
Powerful Database Access with FireDAC and InterBase

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

FireDAC Architecture



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Selected FireDAC Features

- ArrayDML
- FireDAC Data Explorer integration
  - Drag and drop with proper components and naming
- TFDMemTable design-time enhancements
  - Load from File, Save to File, Assign Data
- LocalSQL
  - Heterogeneous queries (queryable datasets have result sets from different DBs)

FireDAC in Action!

- Live Data Window
- Options System
- Monitoring
- Cached Updates
- Array DML
- Data Type Mapping
- Recovering Connections
- Autoinc Fields

InterBase

- Embed, Delploy, Relax
- Highly scalable, powerful, embeddable, encryptable database
- Windows, Mac, iOS, Android, Linux support

IBLite is Free

- Runtime royalty free version of InterBase
- Available on Windows, OS X, iOS and Android
- Binary compatible on all platforms and editions
- Directly upgradable to InterBase ToGo
  - Full encryption support
  - No limit on database size

BDE Migration

- IBLite free distributable on Windows
  - Migrate legacy database data (BDE) to IBLite
- Migrate legacy apps to FireDAC
  - Use reFind and related scripts
- BDE is gone
  - Well, almost, it is a separate download

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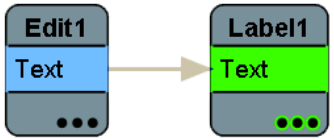
DataSet Automatic Field Creation Control

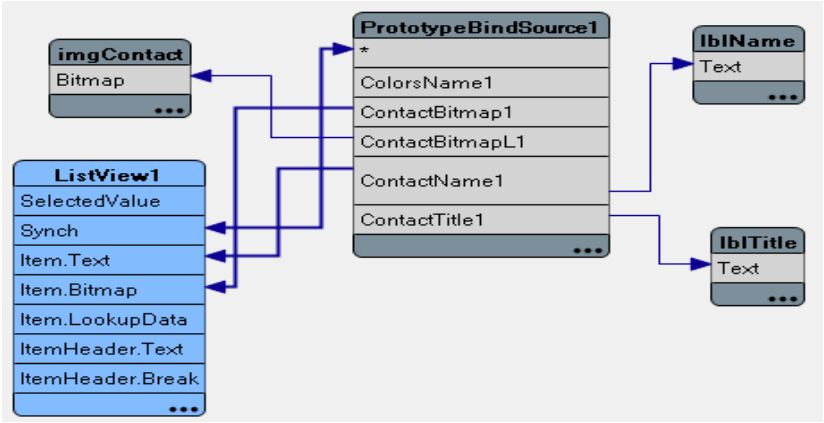
- Flexible management of TFields lifetime with new FieldOptions property (for all datasets)
  - AutoCreateMode indicates how to combine fields
  - PositionMode determines sequence
- Goal: persistent fields can be merged with dynamic ones
  - Supports calculated fields with no other persistent fields
  - Supports dynamic queries with some persistent fields
- User code backwards compatible
  - Custom DataSets code compiles, requires clean up

Visual LiveBindings

Bind data and properties by simply drawing lines between objects



Organize large numbers of bindings using Photoshop-like “layers”



Rapid Prototyping

Visualize your data bindings at a glance

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Build Scalable, Multitier Solutions with EMS and DataSnap

Enterprise Mobility Services

- A turnkey REST based MEAP (Mobile Enterprise Application Platform) middleware stack
  - Custom API hosting and Enterprise Database access
  - Serving mobile and desktop clients
  - Stateless, restful, and scalable
  - Users and REST API calls analytics through Web console

EMS Overview

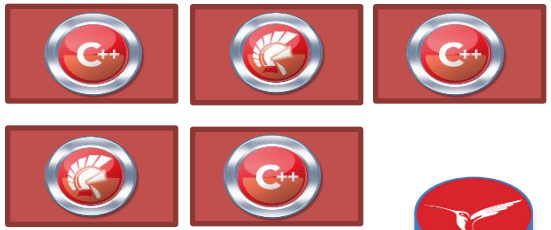
EMS Clients

- Rest API

- InterBase ToGo licenses included

EMS Server

- Plug in EMS Package



EMS DB

EMS Console

- Users tracking
- REST API analytics

FireDAC

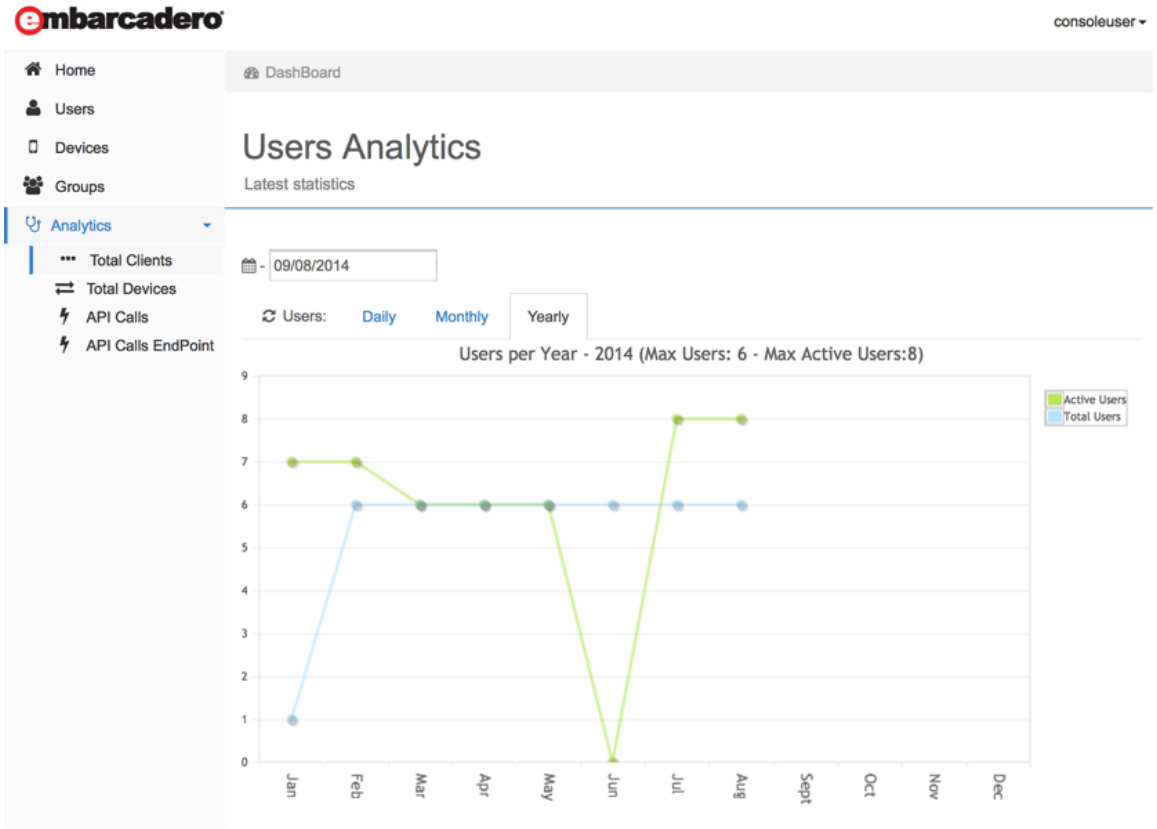
InterBase Server

Included

Enterprise Databases

BaaS Providers

EMS Analytics



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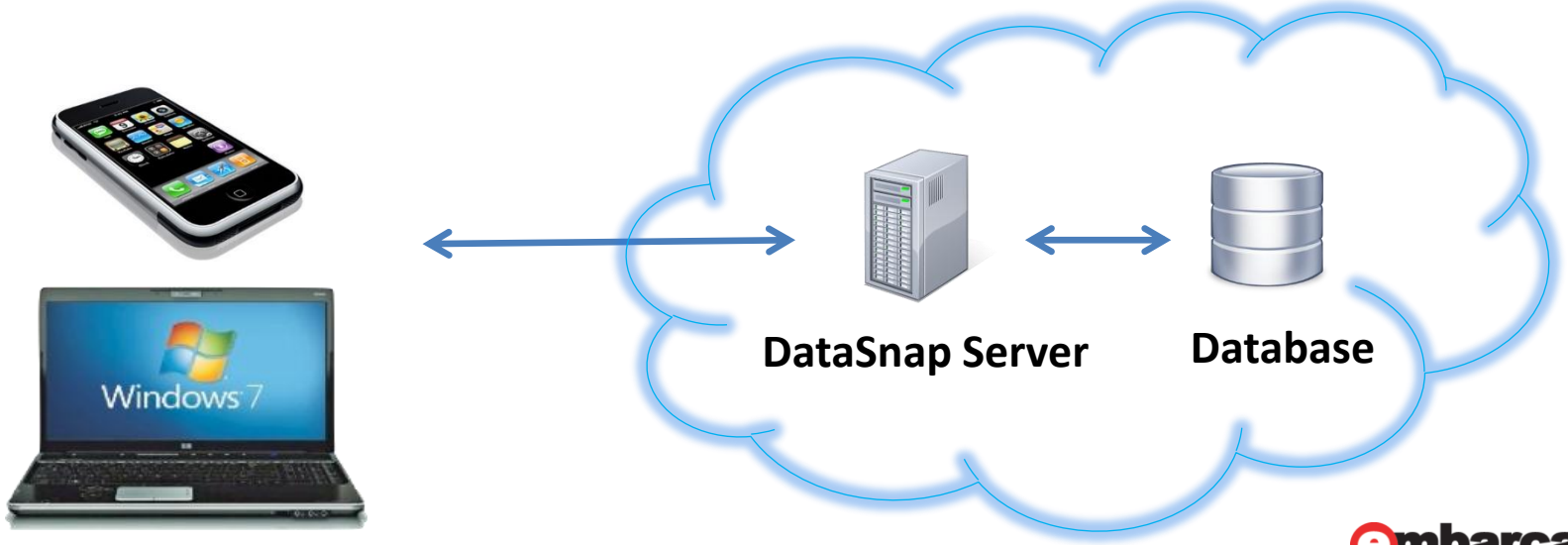
DataSnap Multitier Development

- Accessing remote services and data
- Connecting to DataSnap servers from VCL desktop or mobile apps



Go Multitier with DataSnap

- Flexible server architecture and hosting
- Role-based authentication and authorization
- Secure transport and communication filters
- REST clients and RESTful interfaces
- Callbacks
- Multiple client types
- FireDAC JSON Reflection

EMS vs. DataSnap

EMS (Turnkey)	DataSnap (SDK)
Turnkey “ready-to-use” solution	Do-it-yourself solution with a high-level SDK
Create server extensions exposing REST APIs and database data via FireDAC	Build your own server including REST and HTTP support, and can also use FireDAC
Fully stateless and scalable, no sessions	Heavy or light weight session management, depending on your code
Includes users management, API call analytics and console	Do it yourself
Self hosted (on premise on on cloud), pay per user, includes IB + IB ToGo	Self hosted, free to deploy, included only in Enterprise SKU

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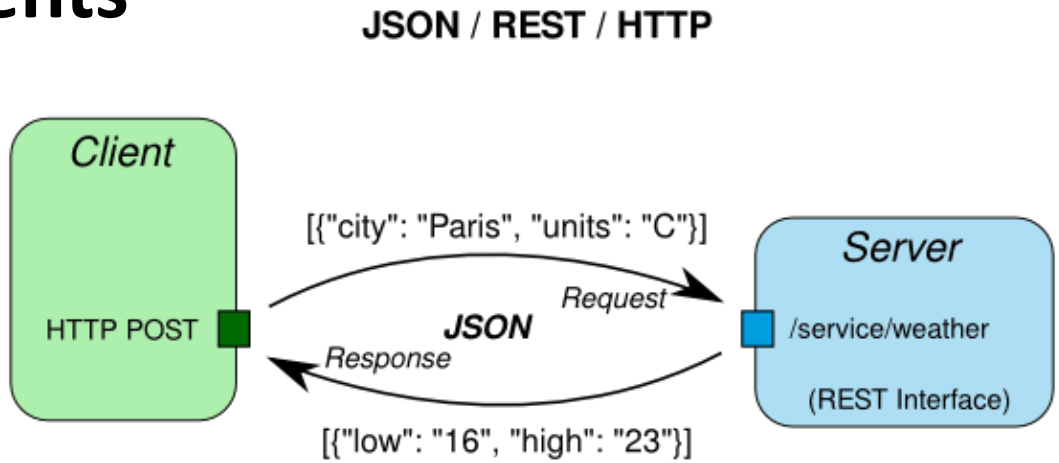
Web Services Integration with REST Client and More

REST Client Components

- 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



XML SOAP Web Services

- Easy integration with XML SOAP Web Services
- Build XML Web Services servers

Cloud API for AWS and Azure

- Common object model for integrating with cloud services
- Support for leading cloud computing vendors including Microsoft Azure and Amazon Web Services

Backend-as-a-Service Client Components

- Based on REST Client architecture
  - Introduces in XE5
- BaaS clients for Kinvey, Parse and EMS
  - Native providers to use services directly
  - Providers integration with framework for common services
  - Framework works with these providers, open for future extensions

Extend Your VCL Apps to Mobile and The Internet of Things

RAD Studio Supports Gadgets and Wearables

- App Tethering over WiFi
- Bluetooth
  - App Tethering with Bluetooth
  - Bluetooth LE component
- REST calls to devices and gadgets

Bluetooth™

Wi Fi®

embarcadero®

What is App Tethering?

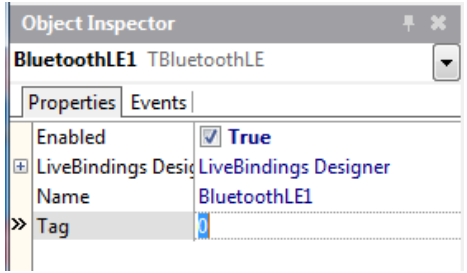
- Introduced in XE6
- Easily expand your existing Windows apps to mobile devices
- Simple communication components on each side
  - Execute actions
  - Exchange data

Why App Tethering?

- Build companion mobile apps
  - Mobile enable desktop VCL apps with companion apps
  - Embrace and extend, rather than migrate
- Automatic discovery
  - No configuration, IP setup, server management
  - Peer-to-peer model, across same app / companion apps
- XE7: target specific IP address or discovery subnet

RAD Studio Bluetooth Support

- Includes Bluetooth and Bluetooth LE APIs
  - Native API support can be used directly by developer
- Bluetooth extensions for App tethering
  - "Easy to use" developer interface, more cross platform
- New Bluetooth LE specific component



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IDE & Libraries

Changes to the IDE

- IDE Insight
  - Search “everywhere” from the IDE toolbar
- Castalia
  - Free plug-in for XE7 registered users
    - Delphi only

“Turbo Pack”

- A set of significant open source libraries just migrated to XE7

- Async Professional
- Orpheus
- Abbrevia
- LockBox
- PowerPDF
- SynEdit
- Virtual Tree

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Summary

Summary

- Move Your VCL applications to the future with Delphi, C++Builder and RAD Studio XE7 now!
- Modernize existing Windows apps now with VCL styles, new VCL components, Parallel Programming Library, language enhancements, FireDAC database access components, REST, DataSnap, EMS and more!
- Upgrade to XE7 now and have fun using the best RAD Studio ever!

Questions?

Thank you