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TECH VISION 20
Implementing amazing apps

Modernization Approach to Increase System Value

David Millington
Senior Product Manager

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Your Presenters:

David Millington

RAD Studio Product Manager

david.millington@embarcadero.com
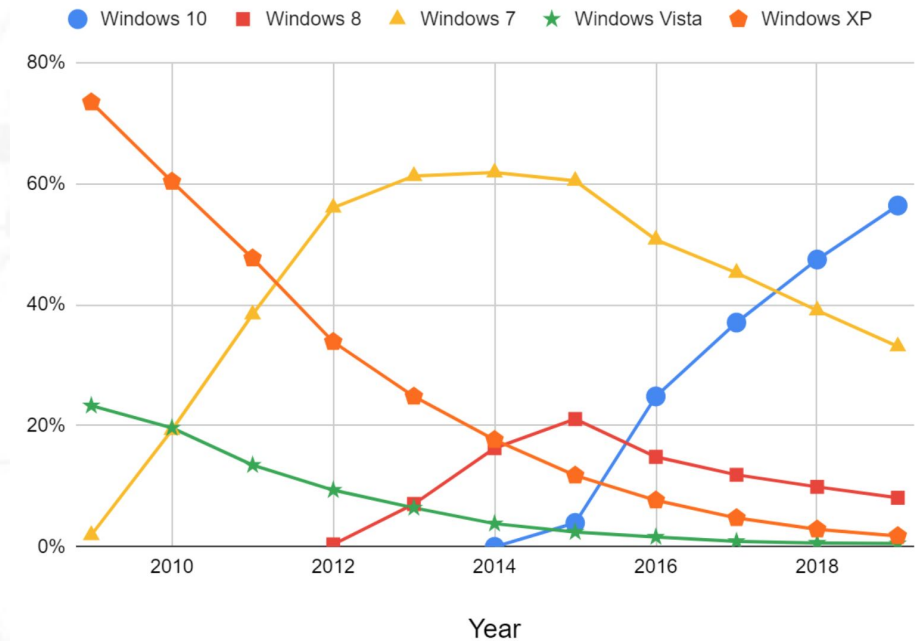twitter.com/cpp_delphi_dave

Agenda

- Technology Today
- What is modernization?
- Modern view of Delphi
- Benefits of using Modern Delphi
- Examples of recent Delphi / C++Builder improvements
  - Docker
  - CMake + Ninja
  - High DPI

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Technology Today

Windows Today

- Windows 7 EOL (January 2020)
    - Windows 10 passed Windows 7 in 2017 in terms of popularity

- Microsoft is again focusing on Windows native components
- New platform browser (Edge based on Chromium) is native (not .NET, not WinRT)
- New native UI controls (WinUI 3.0)
- MSIX–based distribution

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More Than Programming

Today's software has requirements of stability, compatibility, robustness even more than in the past

Rise of testing and DevOps tooling

A software company today has more tools for testing, building and deployment than for pure development

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What Is Modernization?

Modernization is...

Supporting modern operating systems

Supporting modern hardware

Supporting modern customer usage patterns

Present on today's machines: any OS, any device

Meeting modern app requirements: speed of iteration, stability, robustness, reliability of deployment, architecture, and services

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Modern Delphi and C++Builder

What is Modern Delphi?

2009+ – new language features: Unicode, generics, anonymous methods

Then multiple platforms.

Recently (10.3):

- Inline variables
- Type inference
- ...And soon, managed records.

Powerful, elegant language features: less code, reliable code, understandable code, help refactoring

...and C++ too!

Modern Dev Industry

Some Relevant Industry Trends

- Security and code signing, OS vendor controlled distribution
  - We support stores, notarization, planning MSIX support
- Data is everywhere, high capacity processing remains key
  - FireDAC, CData, HTTP/REST clients, etc.
- Be modern: Git, CI, containers
  - Docker for RAD Server, consider Idera DevOps
- Surprise: RAD is making a come back (Apple, Google)
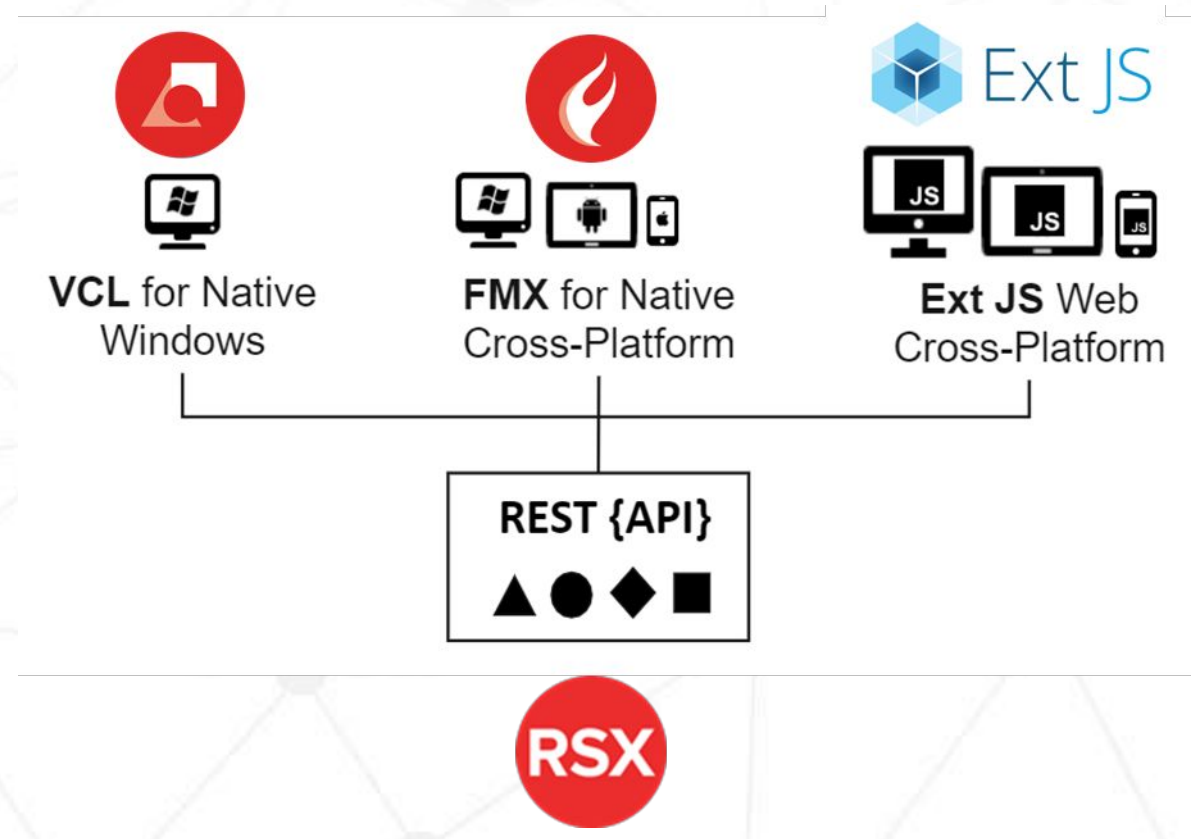 - Bridges traditional/low-code models, *"the best at RAD"*

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Data and Multi-Tier

FireDAC universal data access library growing (in usage) and continuously being extended (in features)

RAD Server expanded in 10.3

- Making it RAD with server–side components
- Fully fledged web engine, great backend for Ext JS

VCL for Native Windows

FMX for Native Cross-Platform

Ext JS Web Cross-Platform

REST {API}
▲ ● ◆ ■

RSX

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CData Enterprise Connectors

Access to every data source imaginable

- Accounting systems like FreshBooks
- CRM & Marketing like Salesforce
- ERP & Collaboration like SAP
- NoSQL & Big Data like Hadoop
- eCommerce like E*TRADE
- Social media like Twitter
- Networking & Auth like LDAP
- Local files like Microsoft Excel
- Cloud services like Google Drive

- And more . . .

All data sources are enabled with full SQL support!

https://www.embarcadero.com/products/enterprise-connectors

Enterprise connectors are a royalty free, optional add-on feature.

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REST Client Library

- Introduced in XE5
- Makes it really easy to connect and consume REST services
- Authentication support for Basic, OAuth1, and OAuth2
- Design time execution and Live Data Binding
- Multiple JSON processing libraries, including serialization and deserialization
- Extra support for ExtJS (for RAD Server)

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What is RAD Server? In One Slide

- The engine for multi-tier applications
    - Deploy on premise on in the cloud
    - Tons of ready-to-use features: users and groups management, multi-tenancy, detailed analytics, push notifications support, swagger documentation support, beacon fencing...

- Migrate your data access logic to a web service

- Build flexible and thin Windows VCL clients, multi-device clients for desktop and mobile or Web + JavaScript clients

- Works on Windows and Linux, IIS and Apache (standalone not recommended beyond development)

Mix and match languages

- Delphi is great for database, UI, server, and more – as you know!
- Javascript is great for web frontends, and ExtJS is a Delphi-like RAD UI framework – have seen this today
- C++ is very fast, and has powerful libraries – and is built into RAD Studio! You can make a single app using Delphi, yet adding key C++ code where you need
  - Engineering, 3D, scientific, AI, image recognition, and more.

Idera provides all these, even in a RAD Studio license!

Multi-language: get the benefits of C++ *and* the benefits of Delphi

Live demo

Windows 10 Support

and modern look and feel

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Custom Multi-Device Styles in GetIt

Custom VCL Windows Styles in GetIt

Modern VCL

- The VCL is very alive
- Many controls added recently
- Windows 10 controls (even work on Windows 7)
- High DPI support
  - perMonitorv2 – move windows between different screens, and they scale correctly
  - For WinAPI/ VCL, better than Microsoft's!
  - Virtual image collection, and virtual image list

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Any Platform

Go where your users are

Windows, macOS, iOS, Android, and Linux

Modern App Requirements

Speed of iteration, stability, robustness, reliability of deployment

Speed of iteration

Modern development methods:
- Agile, Kanban, scrums, and similar
- Testing: CI, automated tests, UI (Ranorex)
- Use today's tools and integrations (eg, Assembla, Travis CI – many Idera tools!)

Continuous Integration
- Catch errors quickly, without lengthy QA cycles

Speed of code, compile, code cycle: compile speed

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How do you modernize?

Bit by bit.

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Overview

Overview (1)

Modernize – to meet your customer's needs, and the tech world's current situation today: cross-platform, modern hardware, etc.

Improve your software reliability, deployment, and more

Pick the best tech: RAD Studio allows you to mix web and C++ too

Leverage Idera tools **integration** – many parts, one system.

Aqua Data Studio, ExtJS included in your RAD Studio license!

Overview (2)

Delphi – modern language features, more in 10.4

VCL updated, sometimes better support for Windows features than Microsoft provides

Everything can be introduced *incrementally* – just add things as you come to them

When you do this, your software is high quality, easy to maintain, reliable, works on modern hardware –– and valuable to your customers.

Modernization Consulting Experience

Mr Yamamoto