What's New in .NET 4.5.1 and Visual Studio 2013

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We'll cover

- New Features of .NET 4.5.1
- Visual Studio 2013
- Windows Apps
- One ASP.NET
- Entity Framework

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- Microsoft's Developer Conference
- Windows & Phone
- Cloud
- Web
- Tools and MORE!

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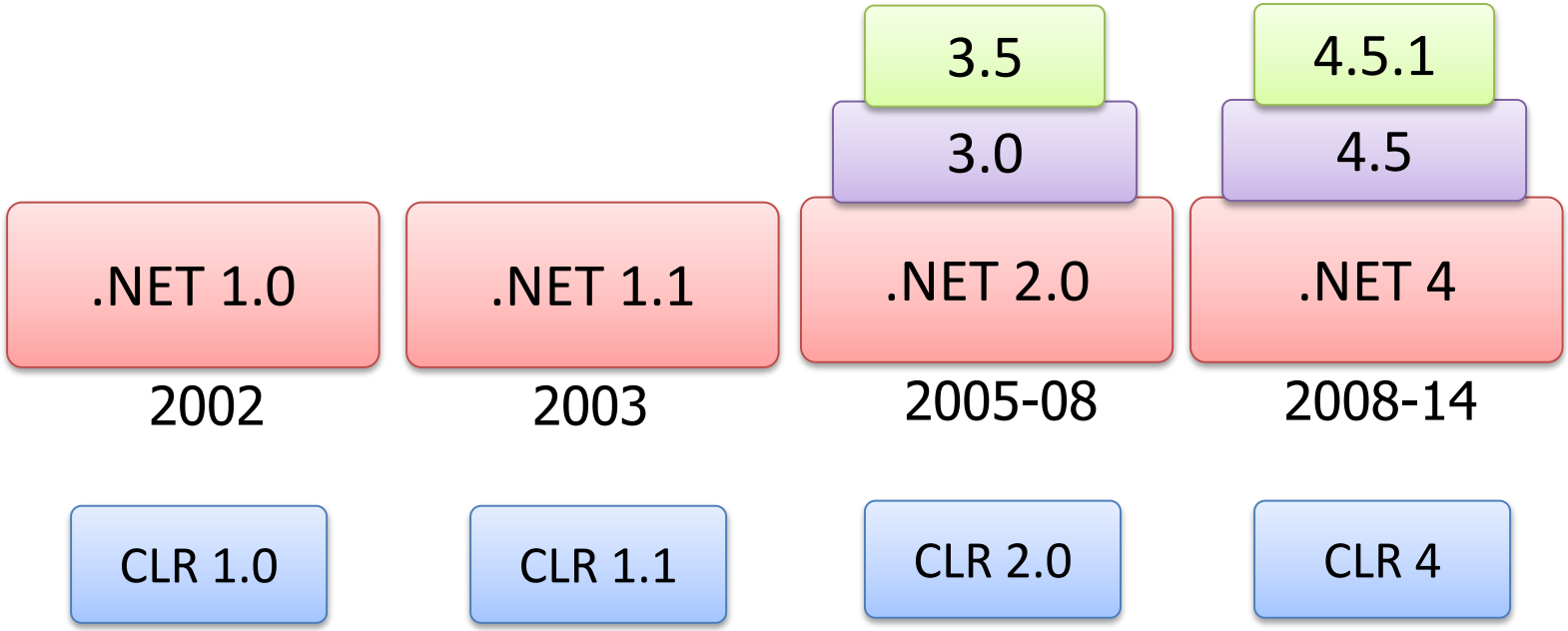
Goals of .NET Framework

- A consistent Object-Oriented programming environment
- Minimize deployment and versioning conflicts
- A code execution environment that promotes safe execution of code
- Eliminates performance problems of scripted or interpreted environments
- Make the developer experience consistent across platforms

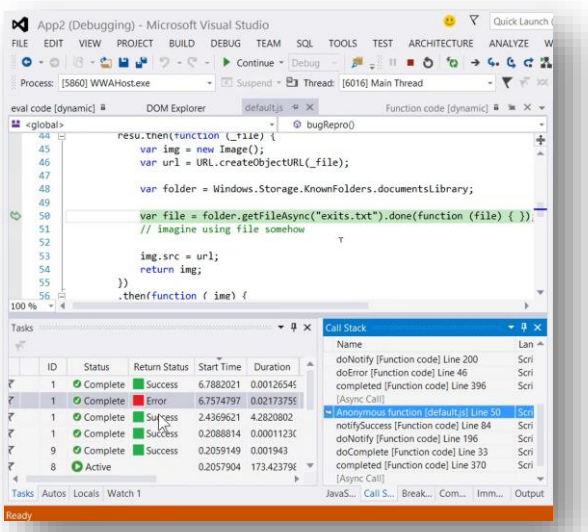
Components of .NET Framework

- Common language runtime (CLR)
  - Memory management
  - Thread management and remoting
  - Code access security
- Class Library
  - Collection of reusable classes and types tightly integrated with CLR
  - Object oriented
- JIT Compiler

Many releases…



New Features of .NET 4.5.1



- x64 edit and continue
- Async-aware debugging
- Portable Class Libraries
- .NET Native
- Improved JIT compiler
- ADO.NET Connection Resiliency

- Method return value inspection
- Curated .NET Framework NuGet packages
- New and enhanced. NET libraries

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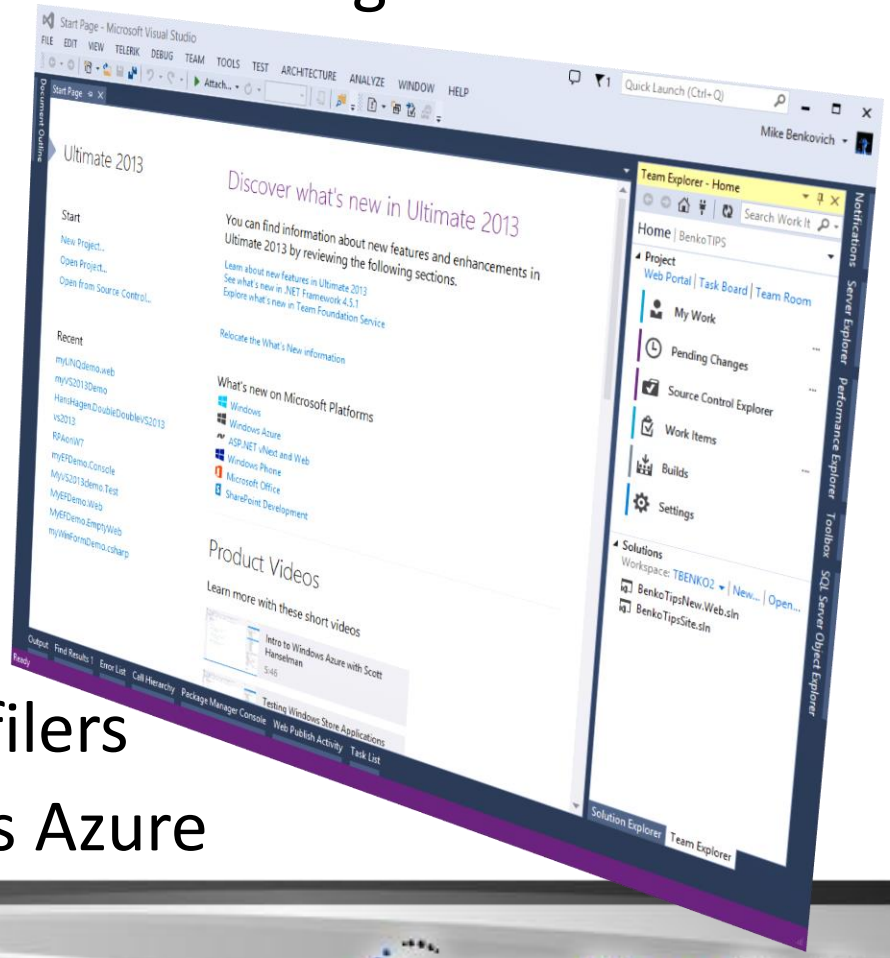
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New in Visual Studio 2013

- Connected IDE & Synchronized settings
- XAML & HTML Editors
- Improved Intellisense
- Go to definition
- Performance and Diagnostics
- CodeLens
- Responsiveness and Energy Consumption Profilers
- Integration with Windows Azure



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Demo

Tour de Studio

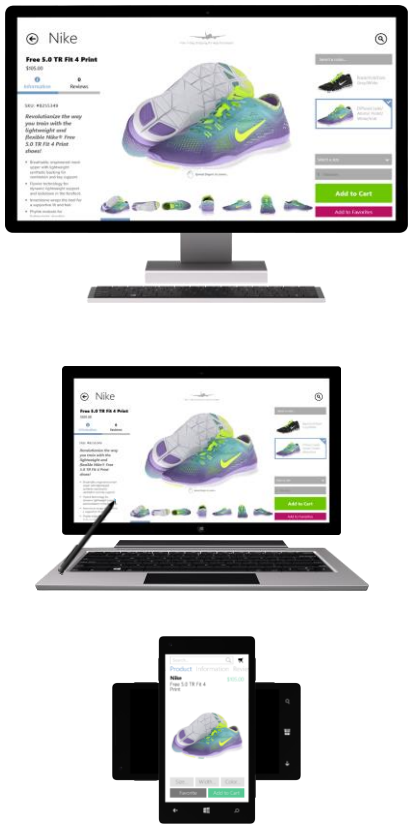
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Windows Apps



- New Project Type - Universal App
  - Runs across Devices
  - Phone and Windows
  - Supports code sharing
- New Templates for green-field development
- Simplified migration path for existing apps

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Universal Apps

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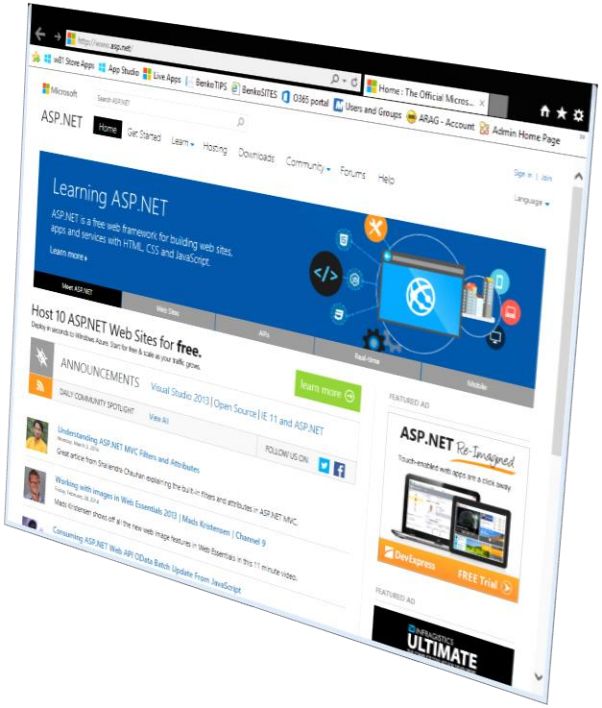
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ASP.NET as a framework

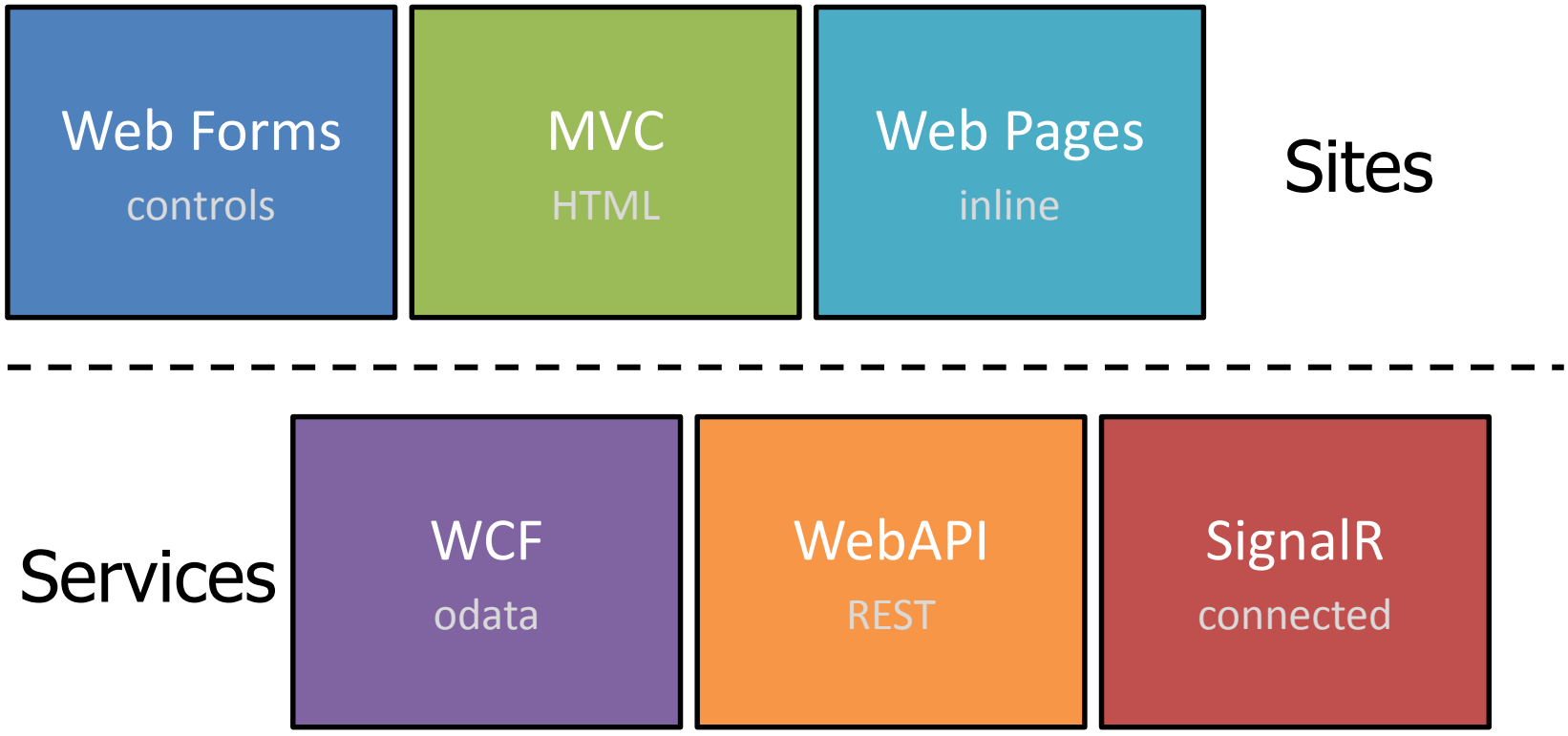
- Brings the .NET framework to web sites and services
- Supports building applications in multiple languages
- Tool-rich environment simplifies and speeds development of complex apps
- Developers can leverage their strengths & build apps in a way that works for them
- In Visual Studio 2013 Microsoft introduces what they call One ASP.NET

  What is it and why?



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One ASP.NET



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One ASP.NET

- Use what you need, a la carte
- Responsive with Bootstrap
- Identity with OWIN
- Connected with SignalR
- Wired with Browser-Link

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One ASP.NET

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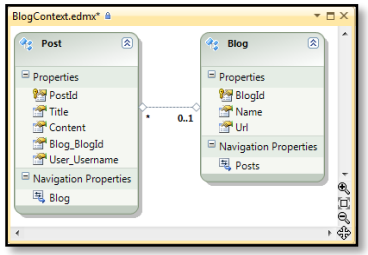
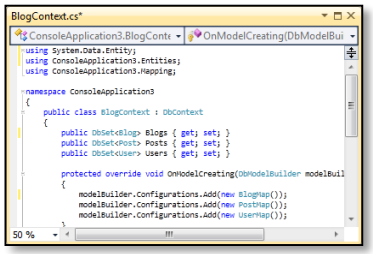
Entity Framework

- Object modeling layer
- Logical representation of Physical schema
  - Create from Database
  - Start from scratch
- Deep integration between code and the database

Entity Framework (EF)

- EF 3.5 Initial release with .NET 3.5 SP1 (VS 2008) provided basic O/RM support with Database First workflow
- EF 4.0 released with .NET 4.0 and VS 2010
- EF 4.1 released via NuGet, included Code First workflow
- EF 5.0 included in VS2012 with .NET 4.5, includes support for enums, table valued functions, spatial data types, and more
- EF 6.0 included with VS2013, includes many new features including Async support, connection resiliency, code-based config, and much more

EF developer workflows

	Designer centric	Code centric
		
new database	**Model first** • Create .edmx model in designer • Generate database from .edmx • Classes auto-generated from .edmx	**Code first** • Define classes and mapping in code • Database auto-created at runtime
existing database	**Database first** • Reverse engineer .edmx model • Classes auto-generated from .edmx	**Code first** • Define classes and mapping in code (Reverse engineer tools available)

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EF Database First

- Database First…
- Model First…

EF Mapping Capabilities

- **Inheritance**
  - **Table per Hierarchy**
  - Table per Type
  - Table per Concrete Type
  - Hybrids
- **Many entities to one table**
- **Stored Procedures**
- Many tables to one entity
- Spatial data types
- Enums
- Abstract Entities
- Associations within EntitySets
- Associations across EntitySets
- Store-side discriminators
- EDM-side discriminators
- QueryViews, Defining Query, CommandText

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Entity Framework Data Migrations

- Part of Code First pattern to new database
- Create POCO classes and generate data context
- NuGet packages enable migrations and sync between classes and database
- Rollbacks and delta change scripts generated

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EF Data Migrations

- Code First
- Data Migrations
- Change scripts

We covered a lot…

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Summary

In this talk we've covered a lot of ground, from how the .NET framework uses the CLR and Base Class Library to provide a consistent and predictable programming model across languages, to specific features such as LINQ, the Entity Framework and Asynchronous programming that simplify building powerful solutions that take advantage of modern hardware and technologies.

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What next…

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