

Module 10

"Cross-Platform Code Reuse"

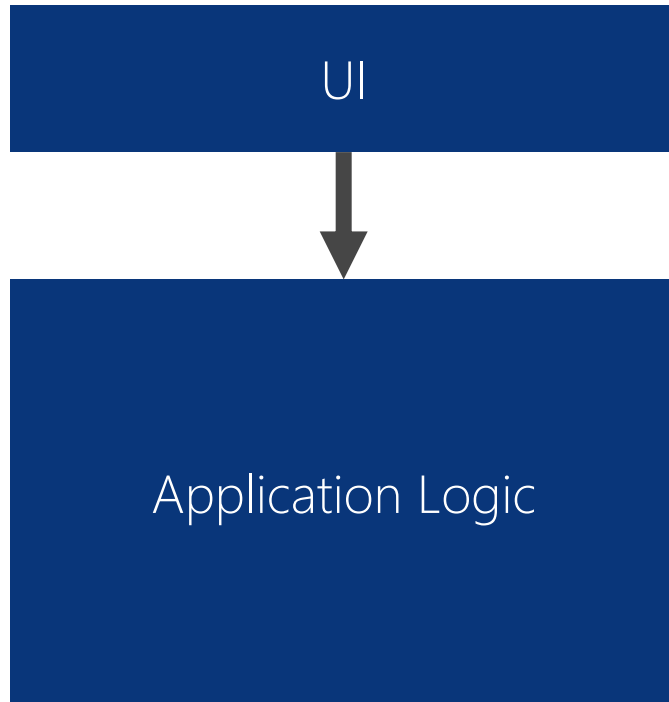


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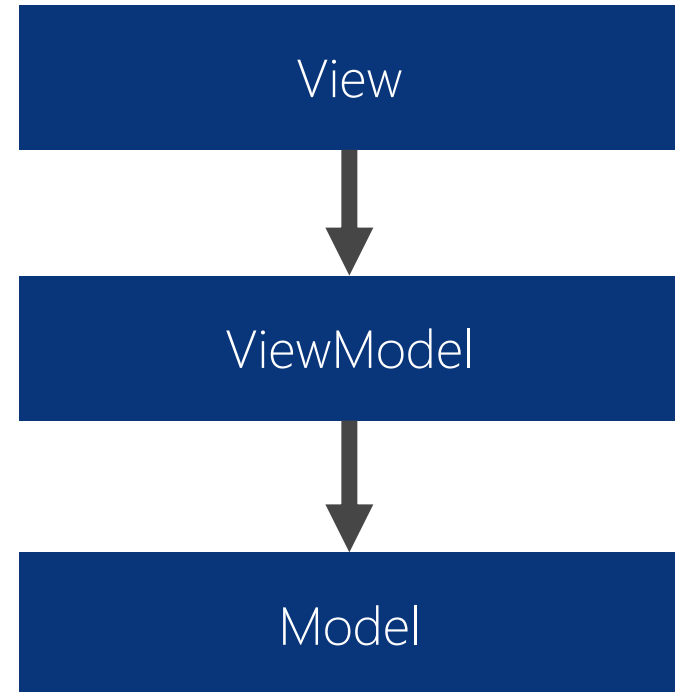
Agenda

- ▶ **MVVM in Practice**
- ▶ Portable Class Libraries
- ▶ Creating a Cross-Platform Application

Development Approaches

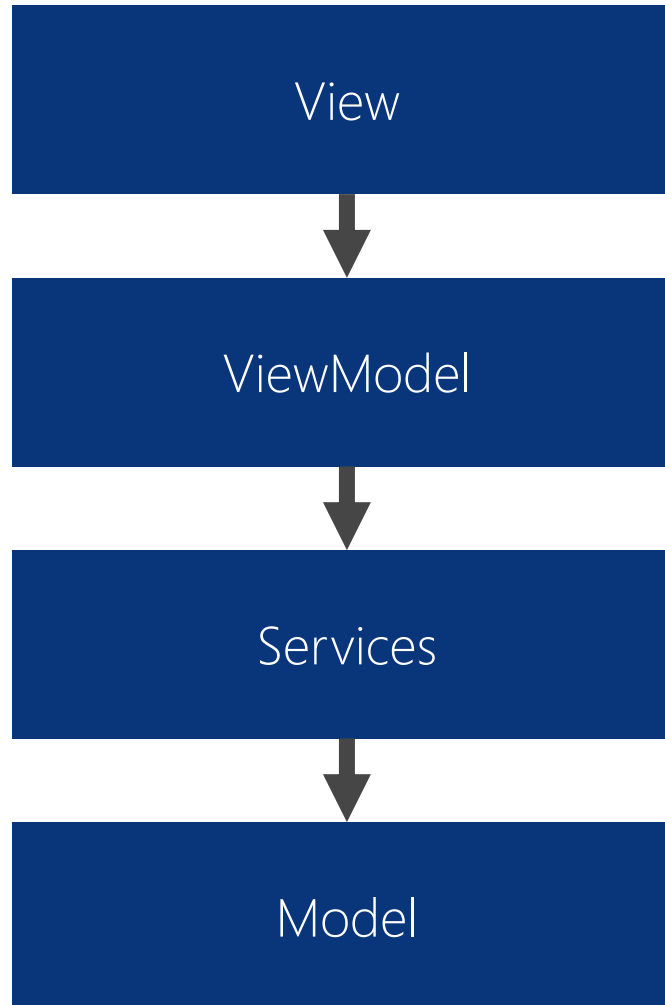


Traditional approach

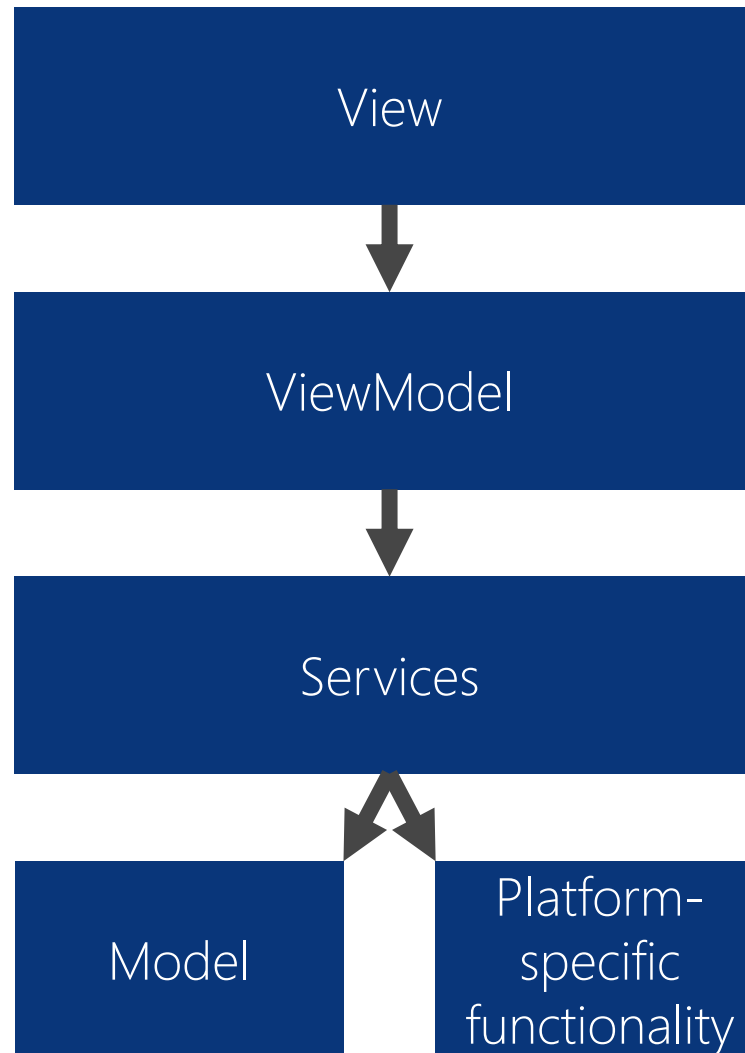


Model-View-ViewModel (MVVM)

More Specific MVVM Pattern



Cross-Platform Development



Agenda

- ▶ MVVM in Practice
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Portable Class Library (PCL)

- ▶ *"Write code once – reuse across various platforms"*
- ▶ New addition to Visual Studio 2010
 - Contains common code
 - Forcing separation
 - Reuse binary-compatible assemblies across platforms
 - No conditional compiler directives **#ifdef** ... **#endif**
- ▶ Platforms include
 - .NET Framework
 - Windows Universal
 - Windows Phone (+ Silverlight) 8.1
 - ASP.NET Core 1.0
 - Silverlight 5
 - Xamarin.*



PCL-compliant Libraries

- ▶ `Microsoft.Bcl` BCL Portability Pack
- ▶ `Microsoft.Bcl.Async` Async and Await for PCL
- ▶ `Microsoft.Net.Http` HttpClient client libs

- ▶ `Portable.MVVMLightLibs` MVVM Light Toolkit PCL

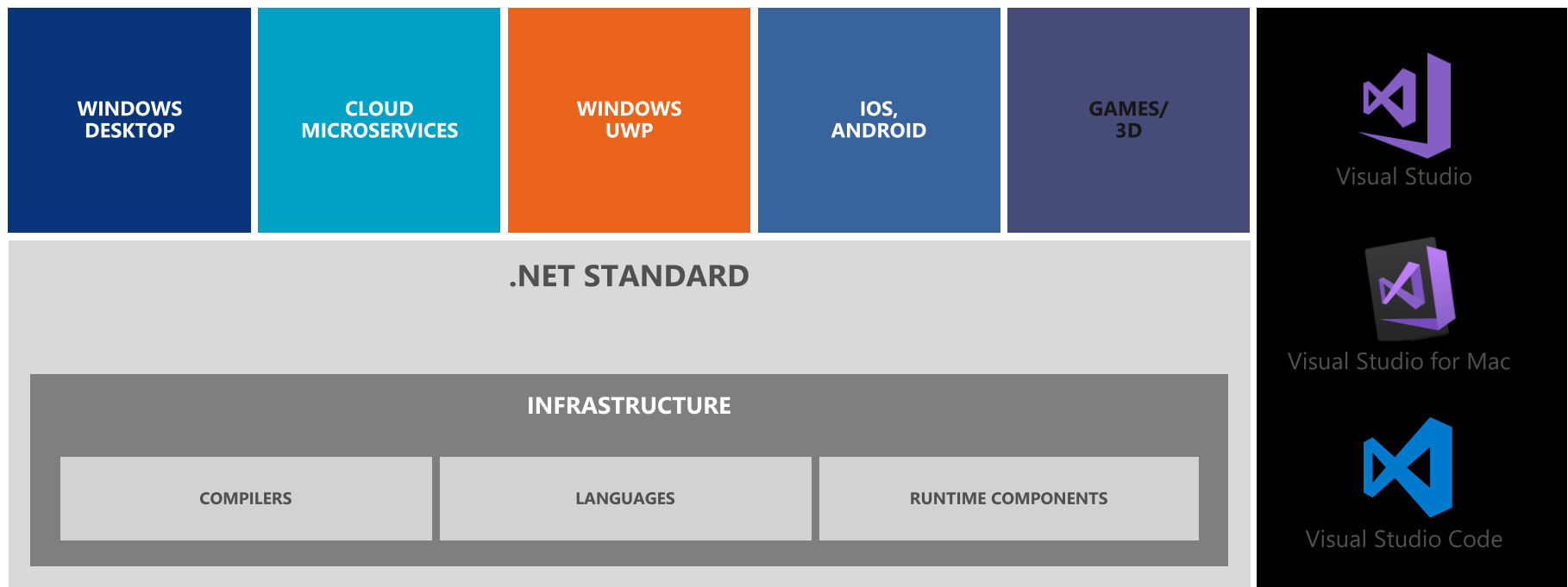
- ▶ `WindowsAzure.MobileServices` WAMS client libs for PCL

- ▶ + many, many more

- ▶ See longer list at
 - <http://www.hanselman.com/blog/CrossPlatformPortableClassLibrariesWithNETAreHappening.aspx>

Next Generation: .NET Standard

- ▶ .NET Standard is the evolvement of PCLs
 - <https://docs.microsoft.com/en-us/dotnet/articles/standard/library>



APIs in .NET Standard 2.0

XML

XLinq • XML Document • XPath • Schema • XSL

SERIALIZATION

BinaryFormatter • Data Contract • XML

NETWORKING

Sockets • HTTP • Mail • WebSockets

IO

Files • Compression • MMF

THREADING

Threads • Thread Pool • Tasks

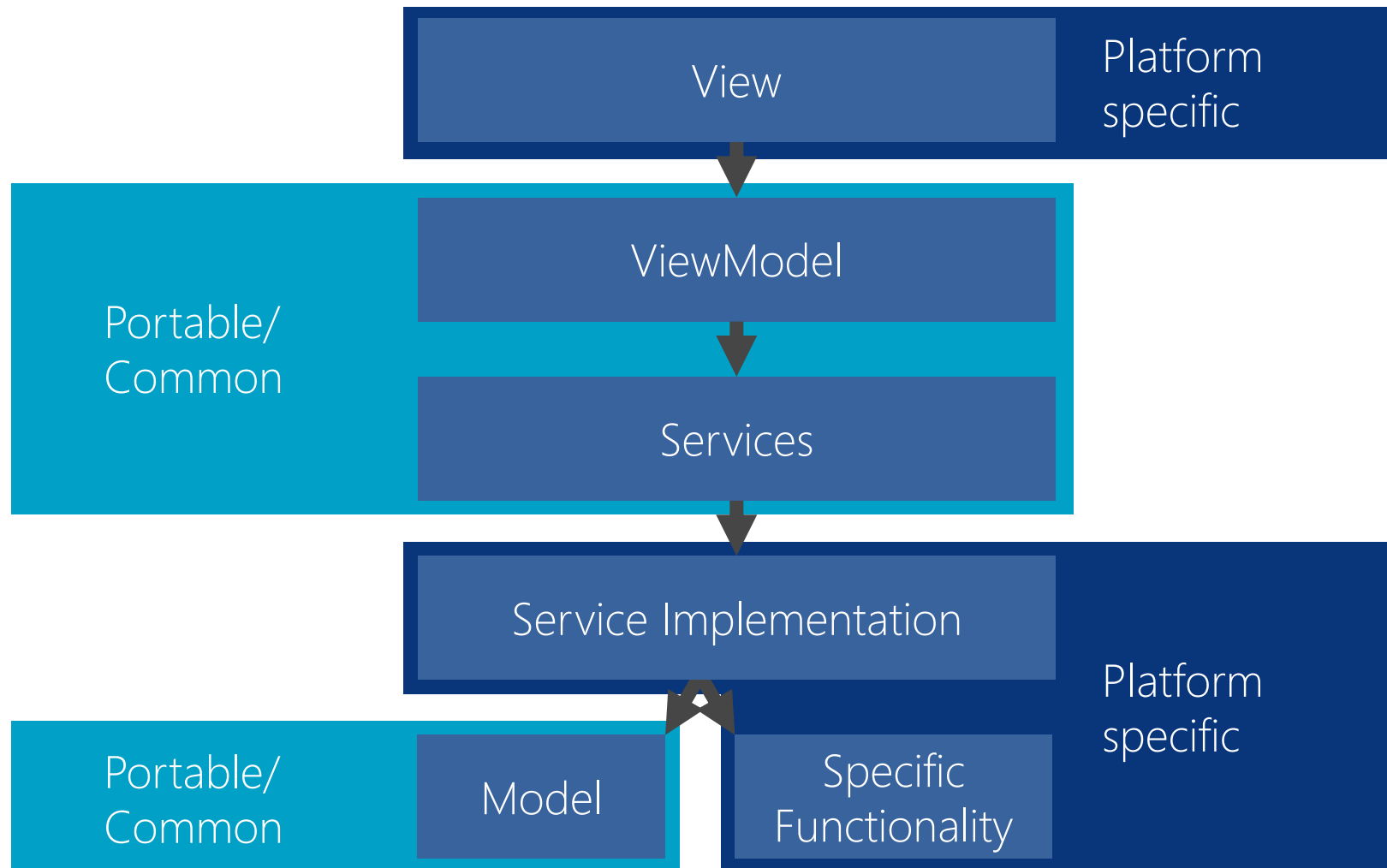
CORE

Primitives • Collections • Reflection • Interop • Linq

Agenda

- ▶ MVVM in Practice
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- ▶ **Creating a Cross-Platform Application**

Cross-Platform Architecture



Initial Project Setup

- ▶ Create solution with
 - Portable Class Library
 - Windows Universal Project
 - Windows Presentation Foundation Project
 - ... + more
- ▶ Add references from platform-specific projects to PCL project
- ▶ Add **Portable.MVVMLightLibs** NuGet package to all projects



Cross-platform MVVM Setup

- ▶ Add namespace references til PCL ViewModelLocator
- ▶ Bind UI to PCL ViewModel
- ▶ Implement platform-specific View
- ▶ Implement platform-specific services, if any
 - Register/unregister for Dependency Injection
- ▶ Occasionally
 - Add **Microsoft.Bcl.Async** or similar NuGet package
 - Visual Studio "Add As Link" and/or preprocessor defines



Summary

- ▶ Practical MVVM
- ▶ Portable Class Libraries
- ▶ Creating a Cross-Platform Application



WINCUBATE

Jesper Gulmann Henriksen

PhD, MCT, MCSD, MCPD

Phone : +45 22 12 36 31

Email : jgh@wincubate.net

WWW : <http://www.wincubate.net>

Hasselvangelen 243

8355 Solbjerg

Denmark