Module 10

"Cross-Platform Code Reuse"
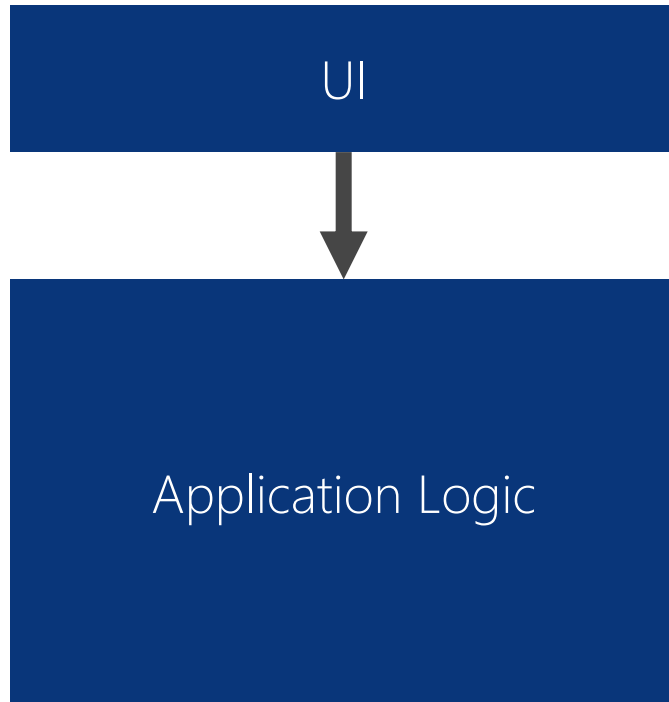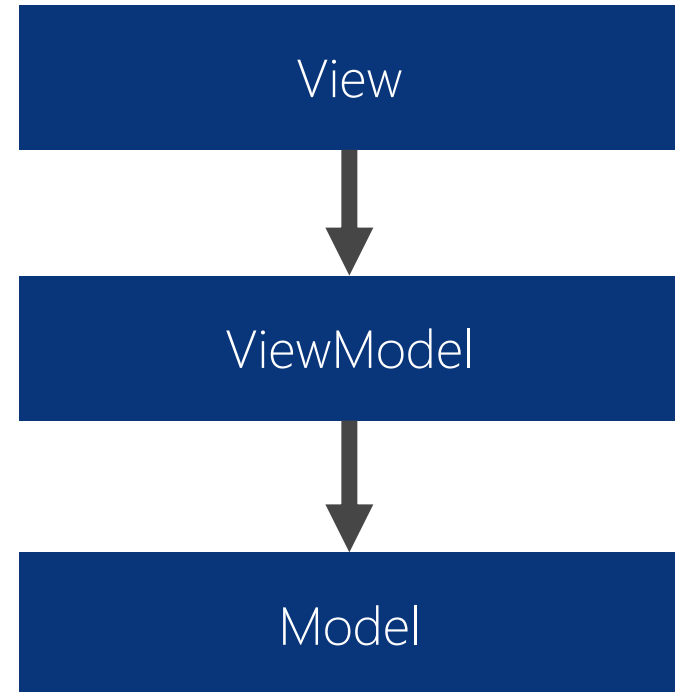
Agenda

▸ **MVVM in Practice**

▸ Portable Class Libraries

▸ Creating a Cross-Platform Application

Development Approaches

UI

Application Logic

Traditional approach

View

ViewModel

Model
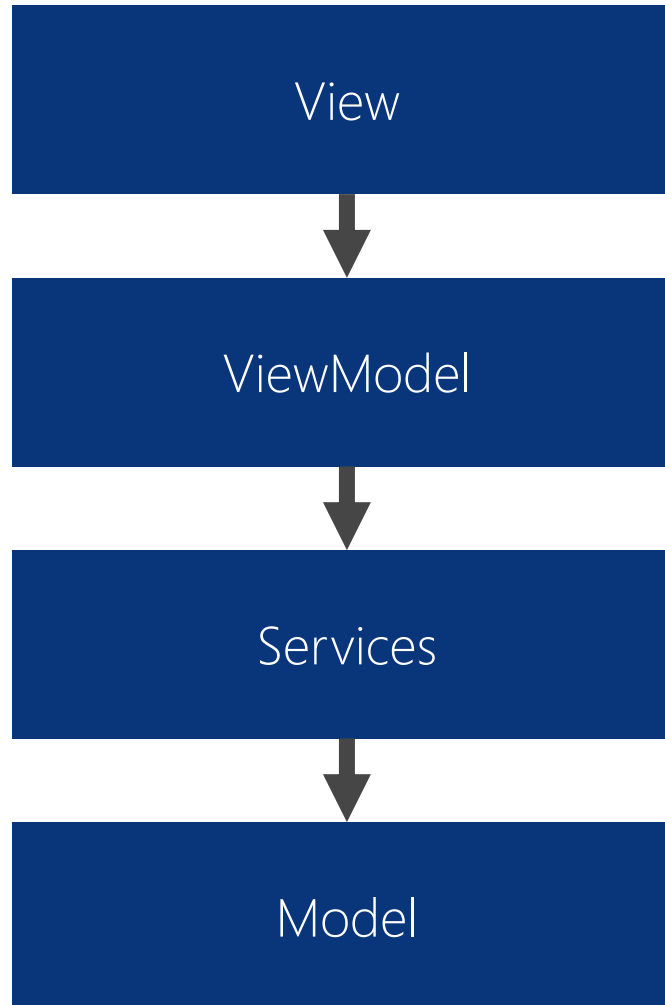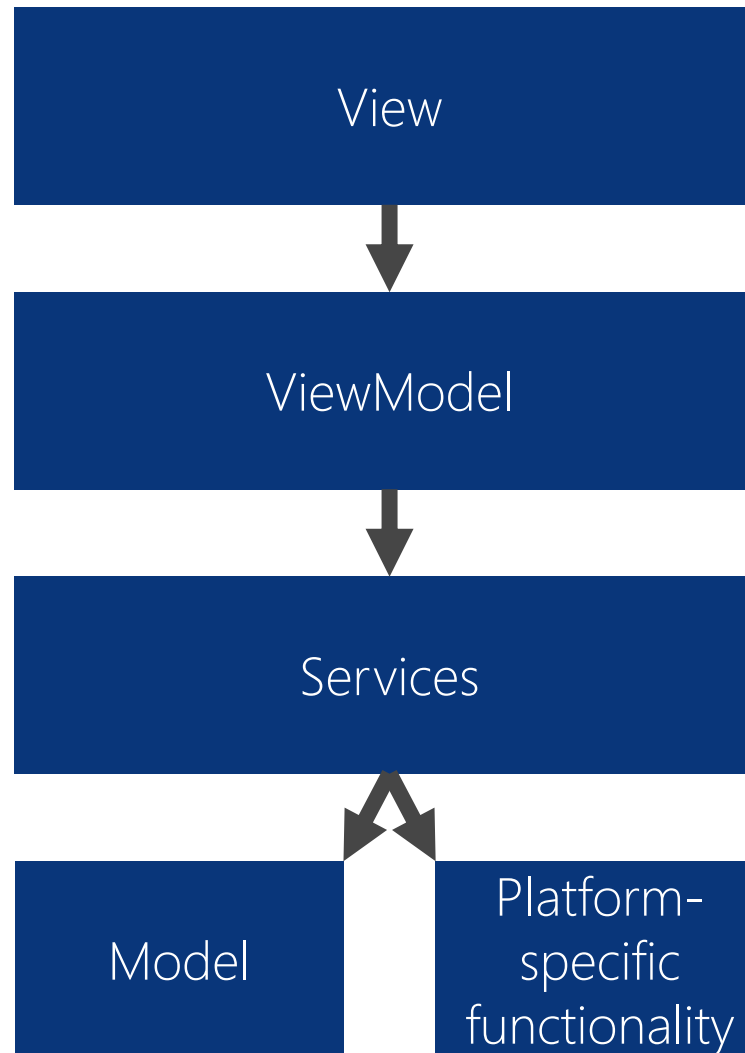
Model-View-ViewModel (MVVM)

More Specific MVVM Pattern

Cross-Platform Development

Agenda

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

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
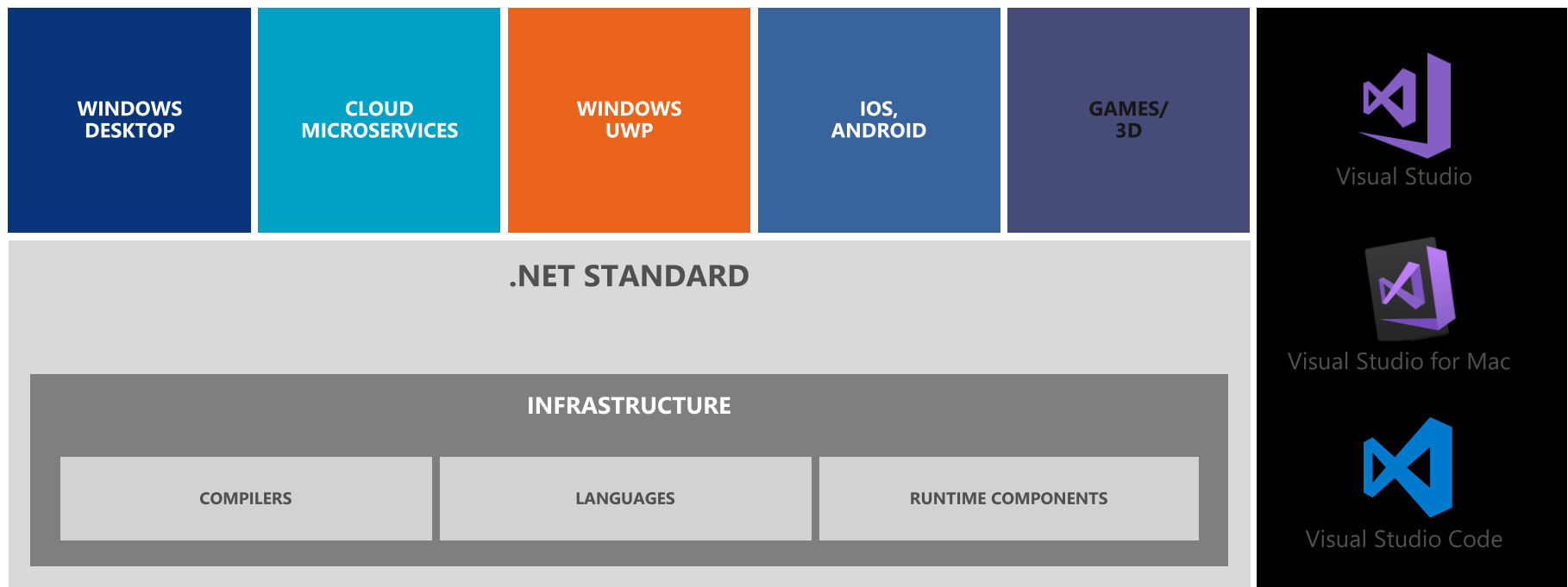
- `WindowsAzure.MobilServices`   WAMS client libs for PCL

- + 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

WINDOWS DESKTOP	CLOUD MICROSERVICES	WINDOWS UWP	IOS, ANDROID	GAMES/ 3D

.NET STANDARD

INFRASTRUCTURE

COMPILERS	LANGUAGES	RUNTIME COMPONENTS

Visual Studio

Visual Studio for Mac

Visual Studio Code

APIs in .NET Standard 2.0

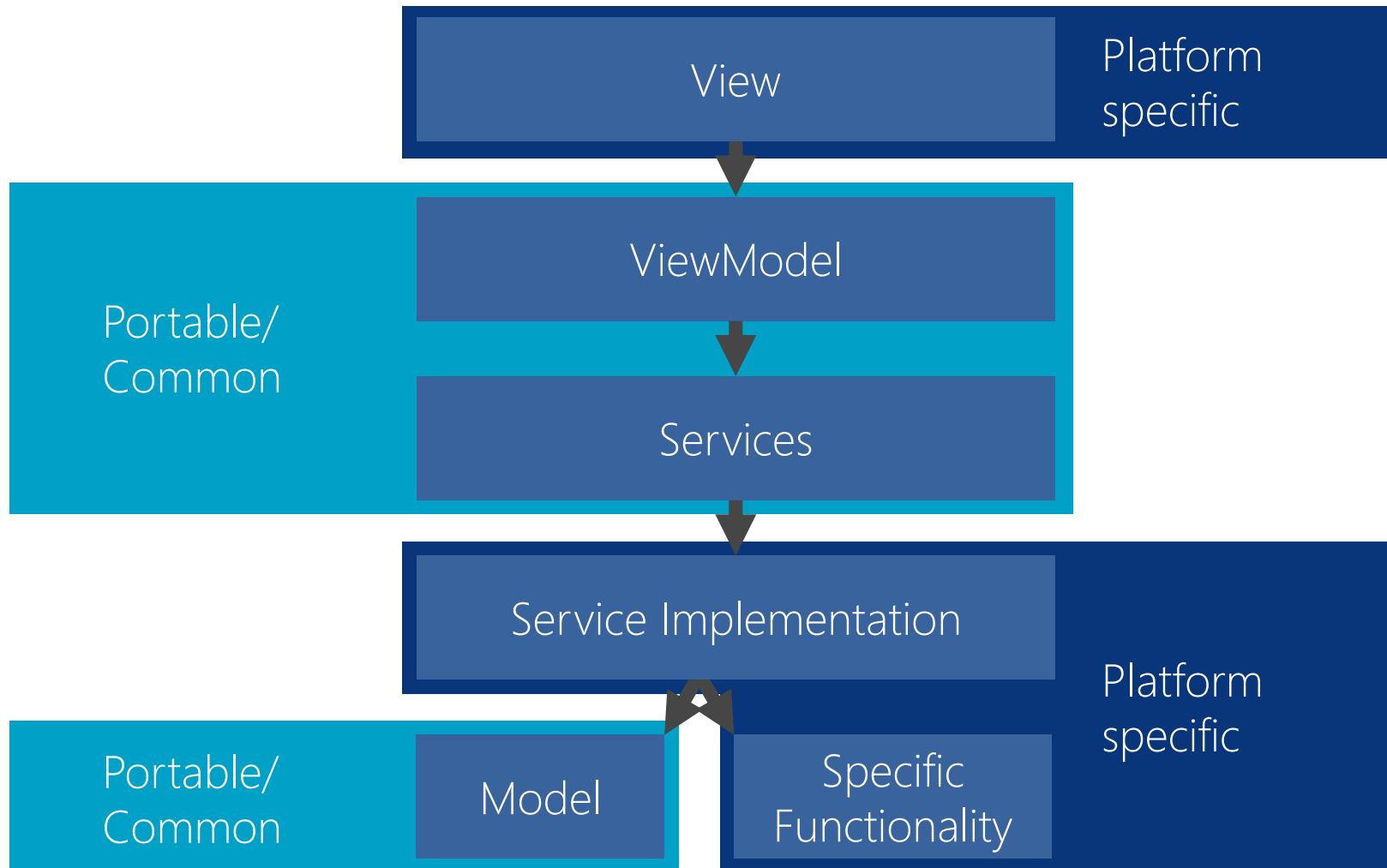| **XML**	XLinq • XML Document • XPath • Schema • XSL
SERIALIZATION	BinaryFormatter • Data Contract • XML
NETWORKING	Sockets • HTTP • Mail • WebSockets
IO	Files • Compression • MMF
THREADING	Threads • Thread Pool • Tasks
CORE	Primitives • Collections • Reflection • Interop • Linq

Agenda

▸ MVVM in Practice

▸ Portable Class Libraries

▸ **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

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