

# MvvmCross

## Building Native Cross-Platform Apps

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# XABLU

Progress is teamwork



# The history of **MvvmCross**

Started by  
**Stuart Lodge**

Started as fork of  
**MonoCross (Mvc framework)**



**November 2012**

Evolved into  
**MvvmCross**

June 2013

Taken over by

- **Tomasz Cielecki** / Cheesebaron
- **Martijn van Dijk** / Martijn00
- + **Many others**

**Android support  
added**

**Xamarin.Forms  
added**

**Plugin structure  
added**



**June 2015**



**August 2015**



**September 2015**

**iOS support  
added**

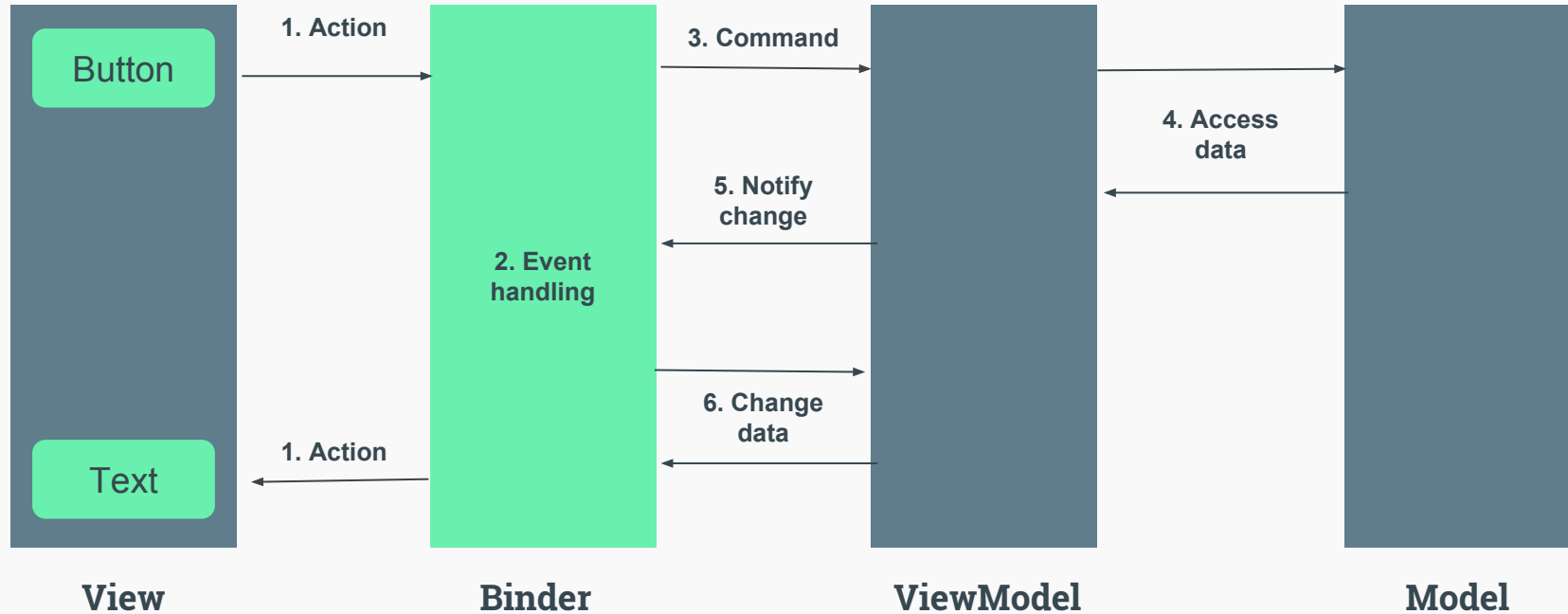


**February 2016**



**And more in the future!**

# Why Mvvm?





# Why MvvmCross?

A decorative green dotted line that starts horizontally on the left and curves upwards towards the right, ending near the top right corner of the slide.



**Cross platform**  
awesomeness!



Support for **all major**  
**platforms**



**Most advanced Mvvm**  
**library** for Xamarin and  
.NET cross platform



Large and engaged  
**community**



**Fast** release cycle



**Clean & easy** conventions



NOKIA



I love  
**MvvmCross**



**Miguel de Icaza**  
Xamarin CTO

I am really  
impressed  
with  
**MvvmCross**



**Scott Hanselman**  
Microsoft Developer  
Evangelist

# MvvmCross

## **Supported platforms**

- Android
- iOS
- Windows
- Xamarin.Forms
- Mac
- And more!

# MvvmCross

## Highlights

- Flexible architecture
- PCL based
- Inversion of Control
- Dependency injection
- Value Converters
- Bindings
- Testable
- Plugins



Let take a look  
at setting up a  
**basic project**



# Bindings

## iOS:

```
var set = this.CreateBindingSet<MainViewController,  
MainViewModel>();  
set.Bind(Label).To(vm => vm.Title);  
set.Apply();
```

## Android:

```
local:MvxBind="Text Title"
```

# Device & platform fragmentation



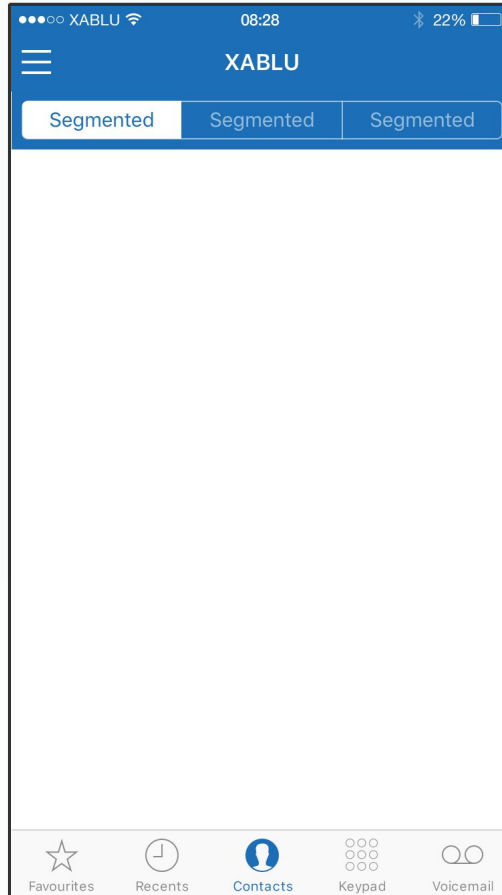
# The solution?

## **MvvmCross presenters**

- Customize view presentation
- Platform-specific
- Still retain View Model logic
- Presentation hints

Let's take a look at  
**some samples**

Hamburger  
menu



Segmented  
control



Tab bar



# iOS presenter

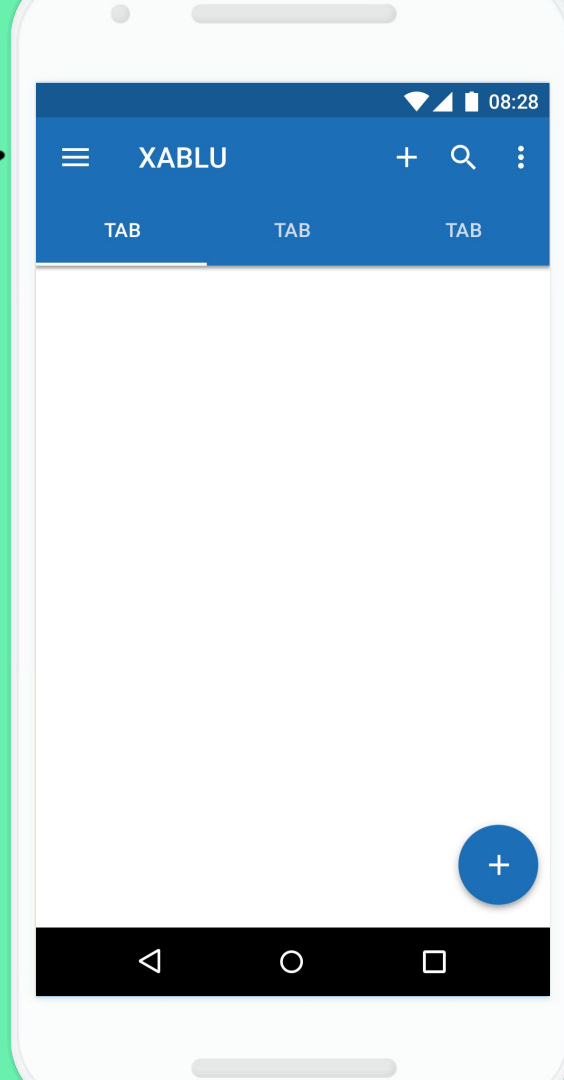
*// Override the IMvxiosViewPresenter to customize iOS presentation*

```
protected override IMvxiosViewPresenter CreatePresenter()
{
    return new MvxSidePanelsPresenter((MvxApplicationDelegate)ApplicationDelegate, Window);
}
```

*// Use the Panel attribute to indicate where a viewcontroller is shown on the screen*

```
[MvxPanelPresentation(MvxPanelEnum.Left, MvxPanelHintType.ActivePanel, false)]
public class LeftPanelView : BaseViewController<LeftPanelViewModel>
```

Navigation  
drawer



Tabs

Floating  
action button

# Android fragment presenter

*// To use a custom presenter override the IMvxAndroidViewPresenter in your Android setup.cs*

```
protected override IMvxAndroidViewPresenter CreateViewPresenter()
{
    var mvxFragmentsPresenter = new MvxFragmentsPresenter(AndroidViewAssemblies);
    Mvx.RegisterSingleton<IMvxAndroidViewPresenter>(mvxFragmentsPresenter);
    return mvxFragmentsPresenter;
}
```

*// Use the Fragment attribute to show fragments within an Android Activity*

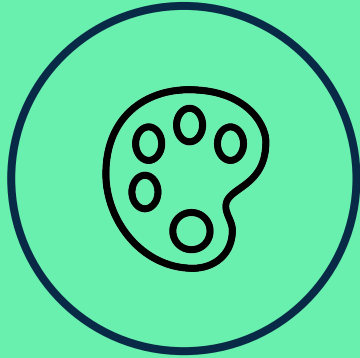
```
[MvxFragment(typeof (MainViewModel), Resource.Id.content_frame, false)]
[Register("com.sample.droid.fragments.LoginFragment")]
public class LoginFragment : BaseFragment<LoginViewModel>
```



# Technical implementations

- Tabs / Panorama
- Split View / Master-Detail
- Fragments
- Modals
- Hamburger menu

# Recap of MvvmCross presenters



Enables the best  
Native UI

Build beautiful Native Apps  
using Xamarin and  
MvvmCross!



Easy to implement  
custom presenters

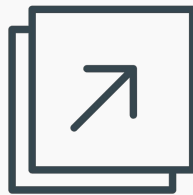
Enables you to customize the  
behavior of your app without  
making your app multiple  
times



Most code reuse

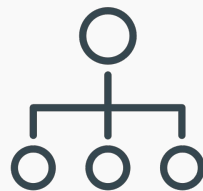
Using the presenters saves you  
budget because you only need  
to code navigation once

# Generics



- MvvmCross uses CoC (Convention over Configuration) by default
  - LoginView > LoginViewModel
- Generics can be used too
  - LoginView : MvxActivity<LoginViewModel>
  - MainView : MvxActivity<SomeDifferentNameViewModel>
- Possible to override in setup.cs
  - protected override IDictionary<Type, Type> GetViewModelViewLookup()

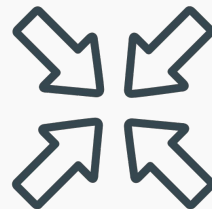
# IoC (Inversion of Control)



1. Use interfaces
  2. Define implementation of interfaces at runtime
  3. Job done! :)
- Singleton: `Mvx.RegisterSingleton<T>();`
  - Lazy: `Mvx.ConstructAndRegisterSingleton<T>();`
  - Dynamic: `Mvx.RegisterType<T>();`

**`Mvx.Resolve<T>();`**

# Dependency Injection



```
public class MyViewModel : MvxViewModel
{
    public MyViewModel(IMvxJsonConverter
jsonConverter,      IMvxGeoLocationWatcher
locationWatcher)
    {
        // Do stuff....
    }
}
```

# MvvmCross Plugins

- Accelerometer
- Download Cache
- Email
- File
- Json
- Localization
- Location
- Messenger
- Phone Call
- Picture Chooser
- SQLite
- Visibility
- Web Browser
- + **Many More!**



**Plugins available at**

<https://github.com/MvvmCross/MvvmCross-Plugins>

# Messenger



```
public class LocationViewModel
    : MvxViewModel
{
    private readonly MvxSubscriptionToken _token;

    public LocationViewModel(IMvxMessenger messenger)
    {
        _token = messenger.Subscribe<LocationMessage>(OnLocationMessage);
    }

    private void OnLocationMessage(LocationMessage locationMessage)
    {
        Lat = locationMessage.Lat;
        Lng = locationMessage.Lng;
    }
}
```

# Material Design support for MvvmCross

## ■ V7 AppCompat

- MvxCachingFragmentActivity
- android:Theme
- Toolbar
- DrawerToggle

## ■ Core.UI

- SwipeRefresh
- DrawerLayout

## ■ Core.Utils

- WakefulBroadcastReceiver

## ■ Fragments

- Support Fragment
- ViewPager (FragmentStatePagerAdapter)

## ■ RecyclerView

- ItemTouchHelper for Xamarin
- Multiple item templates

## ■ Design

- NavigationView
- FloatingActionButton

## ■ Compat

## ■ Media.Compat

## ■ LeanBack

## ■ Preference





See it in action,  
**demo time!**

# Other Material & Android support libraries

- Cardview
- Pallete
- Gridlayout
- Mediarouter
- V8 Support
- V13 Support
- Annotations support
- Custom tabs
- Percent support
- Recommendation support

# Testing

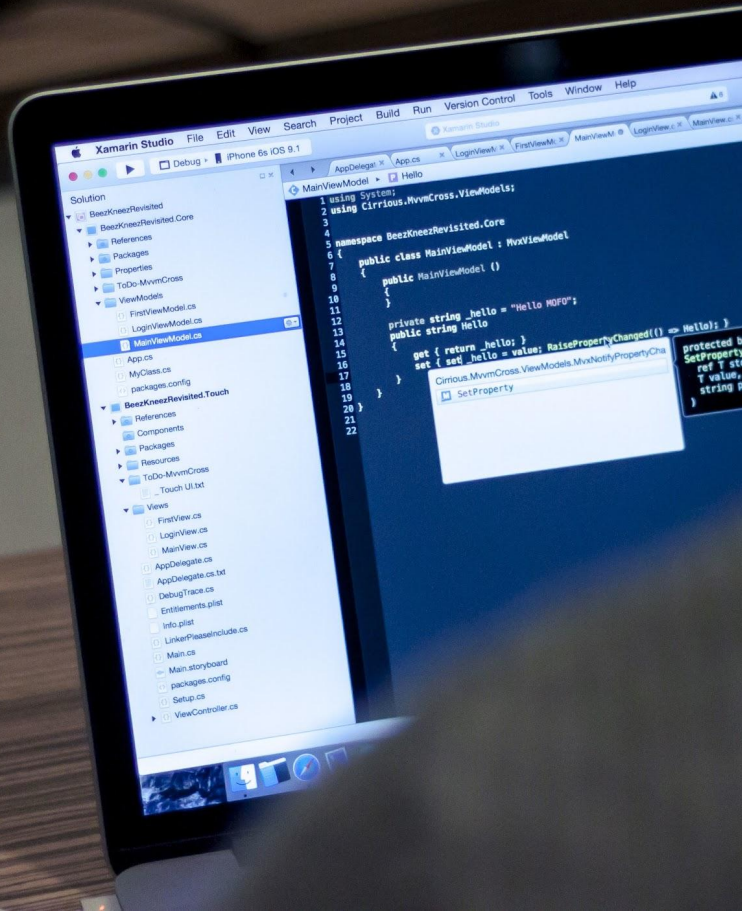
```
using MvvmCross.Test.Core;
using Moq;
using NUnit.Framework;

[TestFixture]
public class MyTest : MvxIoCSupportingTest
{
    [Test]
    public void TestViewModel()
    {
        base.Setup(); // from MvxIoCSupportingTest

        // your test code
    }
}
```

# MvvmCross Resources

- [Github.com/MvvmCross](https://github.com/MvvmCross)
- [MvvmCross.com](https://mvvmcross.com)
- Slack (#mvvmcross)
- Stackoverflow
- Xamarin Forums



# Tips

- Keep it simple
- Separation of Concerns
- Don't try to invent the wheel again, use plugins, samples, etc.
- Use the Analysis plugin to fix common mistakes

# Get involved!



## Get help on Slack

[xamarinchat.herokuapp.com](https://xamarinchat.herokuapp.com)

#MvvmCross channel



## Follow influencers

#MvvmCross

@Mhvdijk

@Cheesebaron

@MvvmCross



## Join the LinkedIn group

[linkedin.com/groups/8456977](https://linkedin.com/groups/8456977)

MvvmCross & Xamarin group



## Contribute on Github

[github.com/MvvmCross/MvvmCross](https://github.com/MvvmCross/MvvmCross)

# Questions?

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