



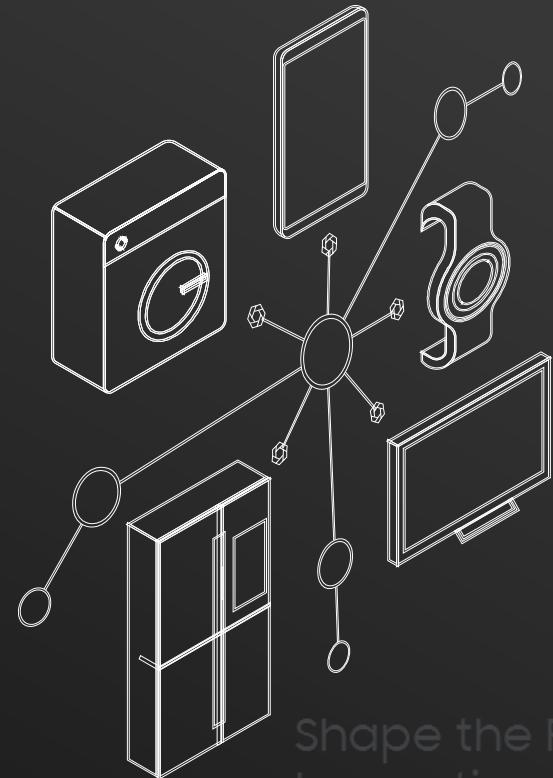
XAMARIN  
DEVELOPER  
SUMMIT

# Xamarin.Forms on Samsung Wearable and TV products

Jay Cho  
Engineer, Samsung Electronics  
[jh5.cho@samsung.com](mailto:jh5.cho@samsung.com)



@Jay\_jhCho



Shape the Future with  
Innovation and Intelligence

# Agenda

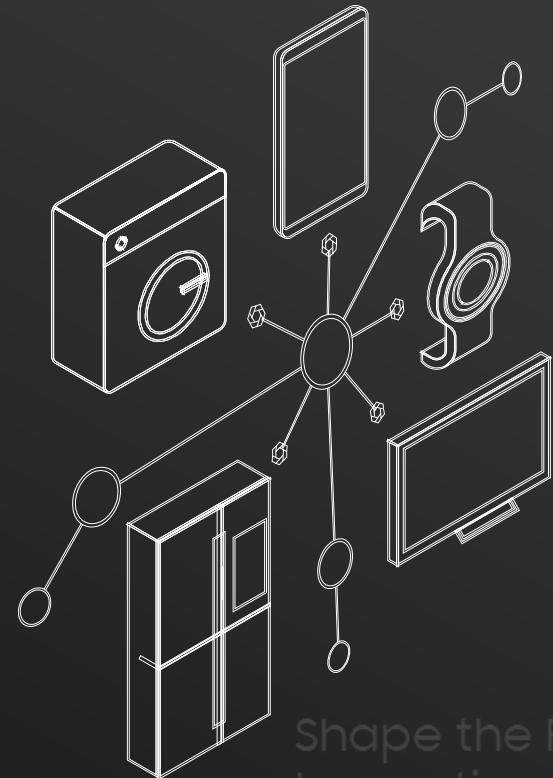
- I What is Tizen .NET?
- II Xamarin.Forms on Tizen .NET
- III Tizen .NET on products
- IV Xamarin.Forms extensions
- V Resources

# What is TIZEN™?

SAMSUNG Research

- ◊ Open-source OS maintained by Samsung
- ◊ Designed & optimized for CE devices
- ◊ Adopted to
  - Samsung TVs (since 2015)
  - Galaxy Wearables (since 2014)
  - Family-Hub (since 2016)
  - Phones (Z1, Z3, Z4)
  - ...
- ◊ Latest: Tizen 5.5 M1 (May 2019)



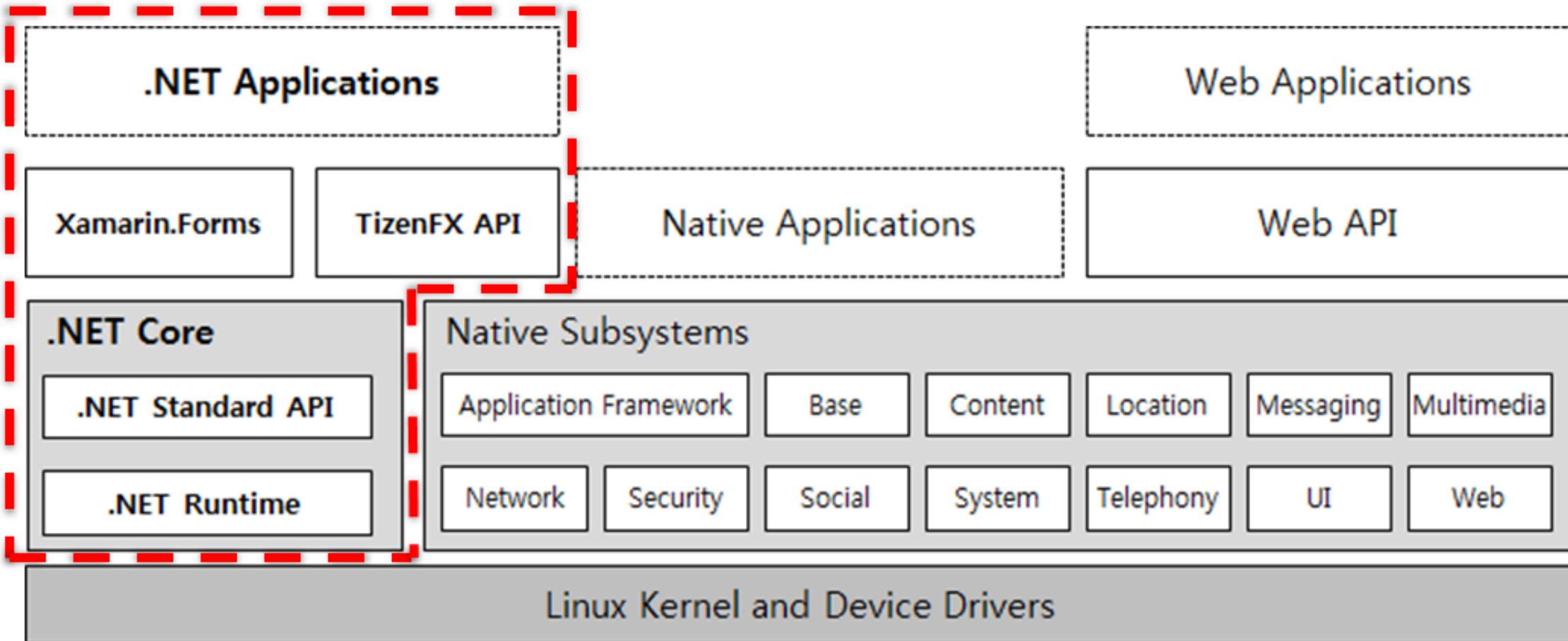


# Agenda

- I    What is Tizen .NET?
- II    Xamarin.Forms on Tizen .NET
- III    Tizen .NET on products
- IV    Xamarin.Forms extensions
- V    Resources

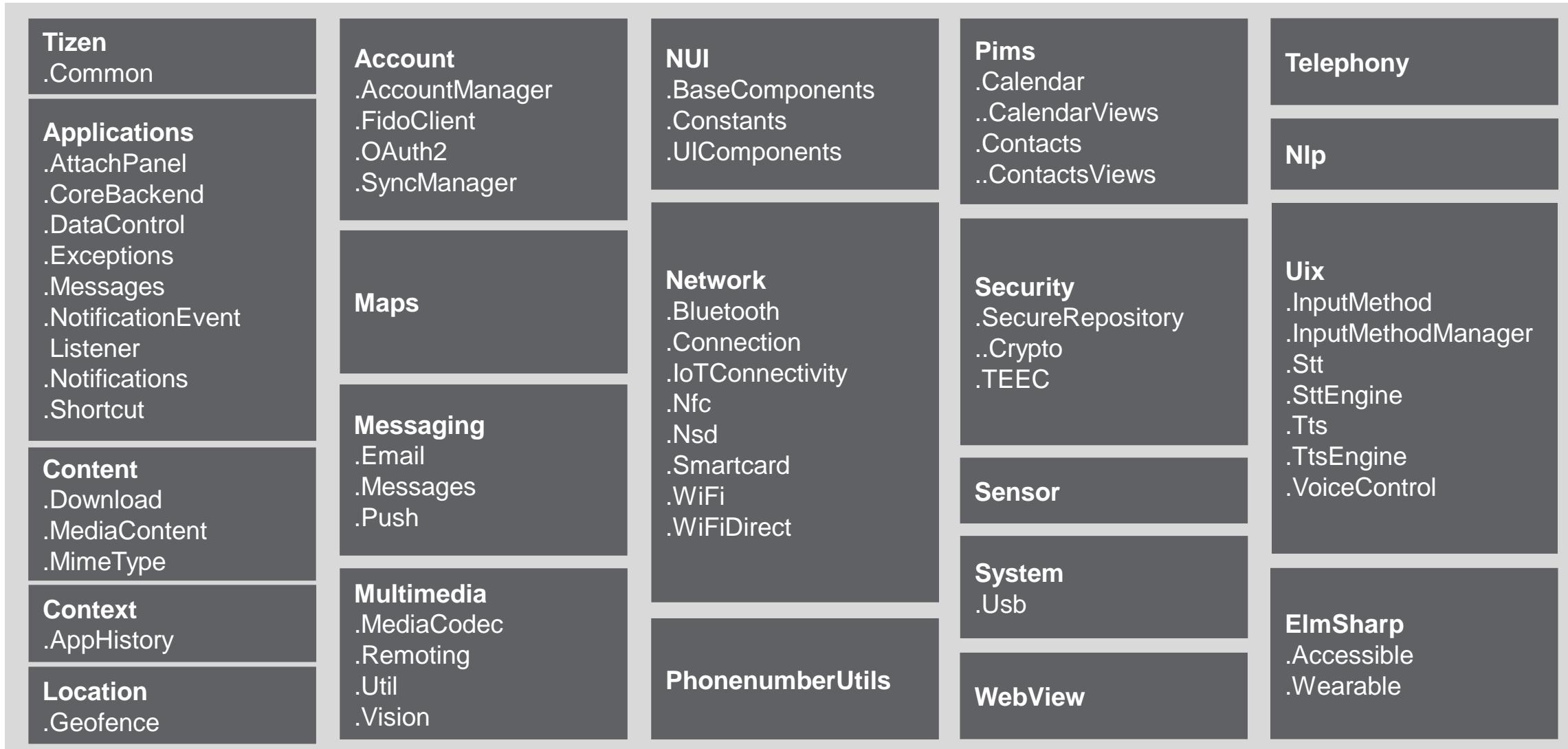
# What is Tizen .NET?

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# Tizen Specific TizenFX API (version4)

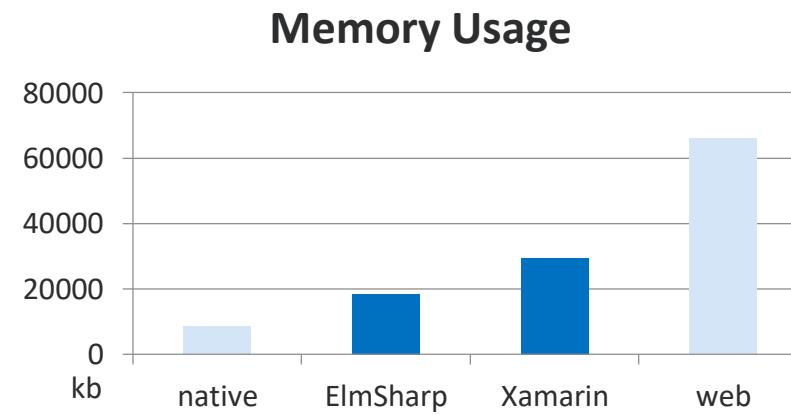
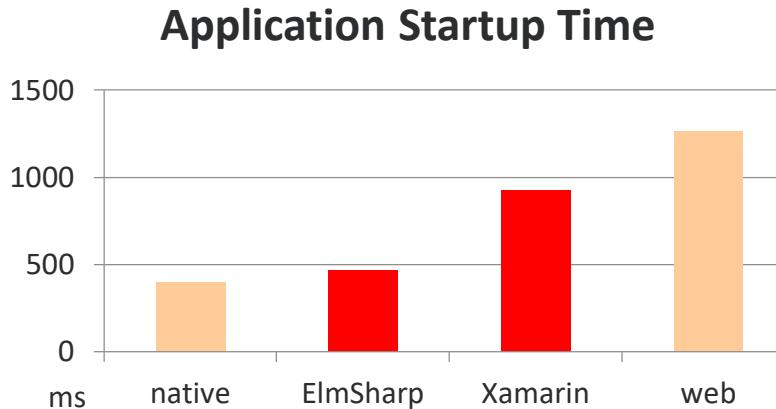
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# .NET Core Runtime for Tizen

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## ❖ Performance (Galaxy Gear – Tizen 5.0)



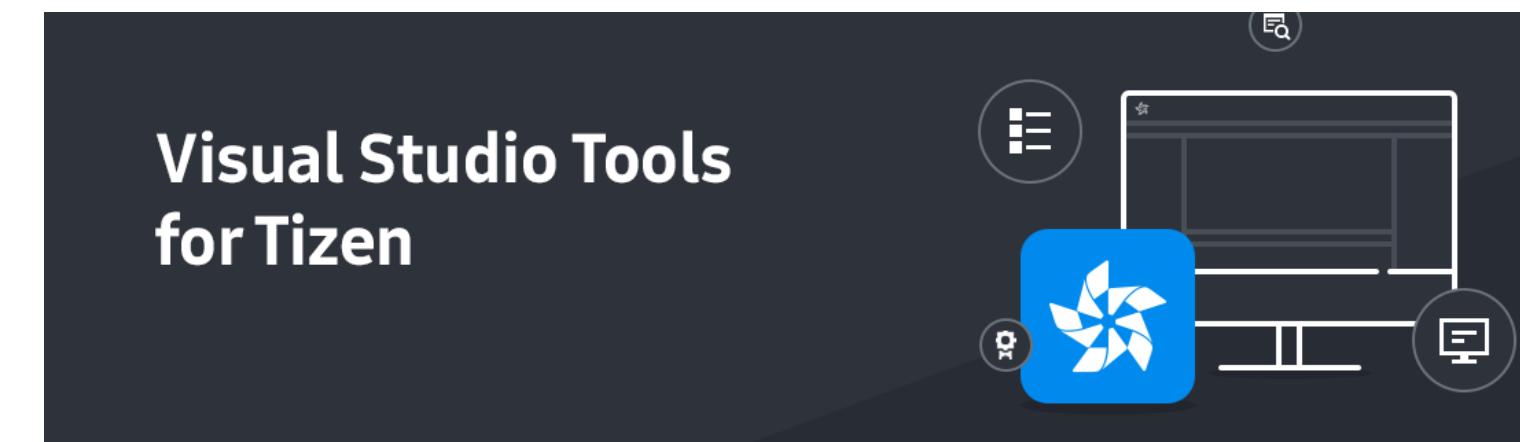
## ❖ .NET Core Version on Tizen

- Tizen 4.0 : .NET Core 2.0.0
- Tizen 5.0 : .NET Core 2.1.4
- Tizen 5.5 M1: .NET Core 3.0.0 preview2

# Extension for Visual Studio

SAMSUNG Research

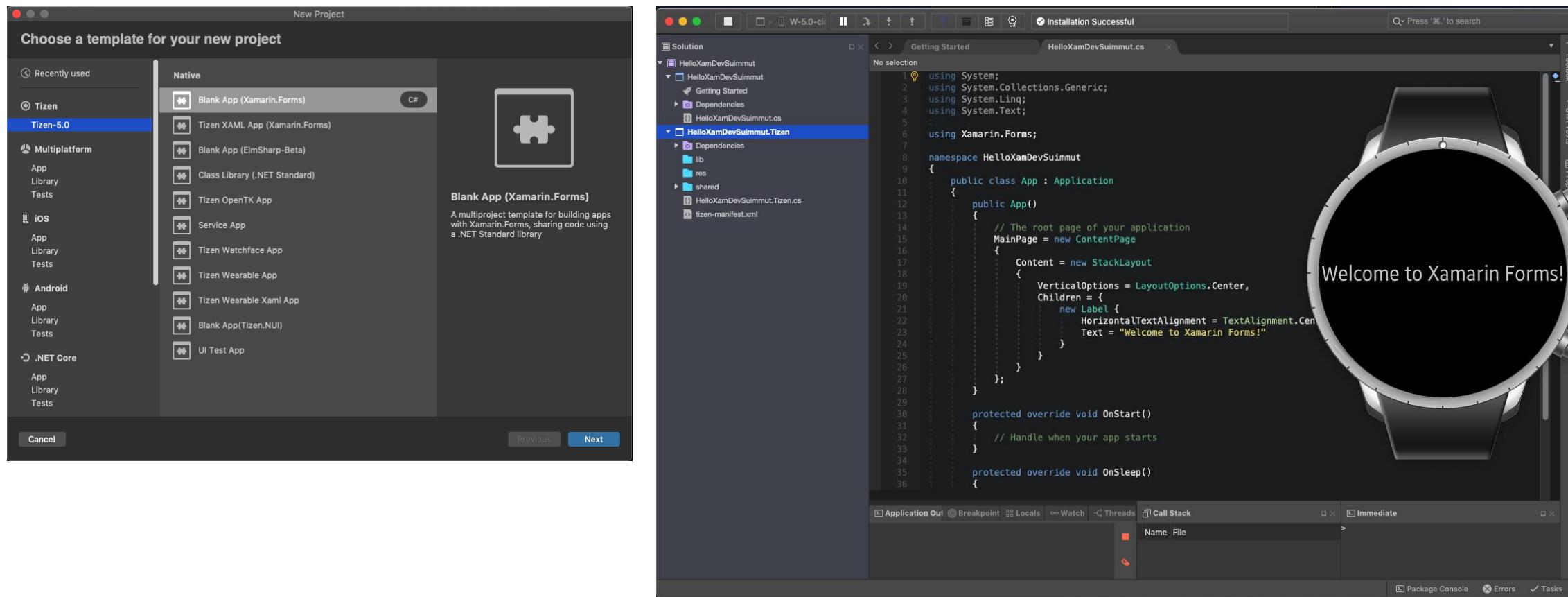
- Visual Studio Tools for Tizen
- Supported on Visual Studio 2017 and 2019
- Search Tizen extension on 'Extensions and Updates'



# Extension for Visual Studio for Mac

SAMSUNG Research

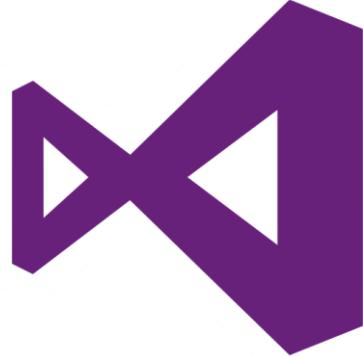
- An extension for Visual Studio for Mac will be released soon



# Improved Development Experience

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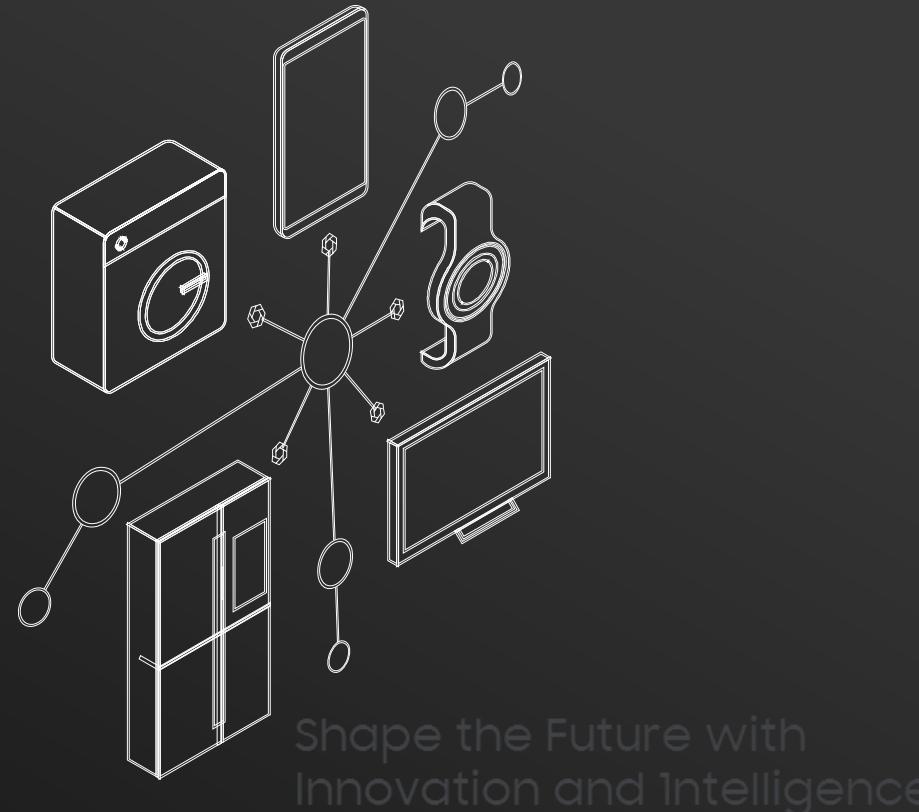
- High Productivity (Intellisense)
- Extensions & Tools
- Nuget Package Manager



- Managed Language
- Garbage Collection
- Strong Community



- Open Source on Linux, Mac, Windows
- .NET Standard API
- Strong Community



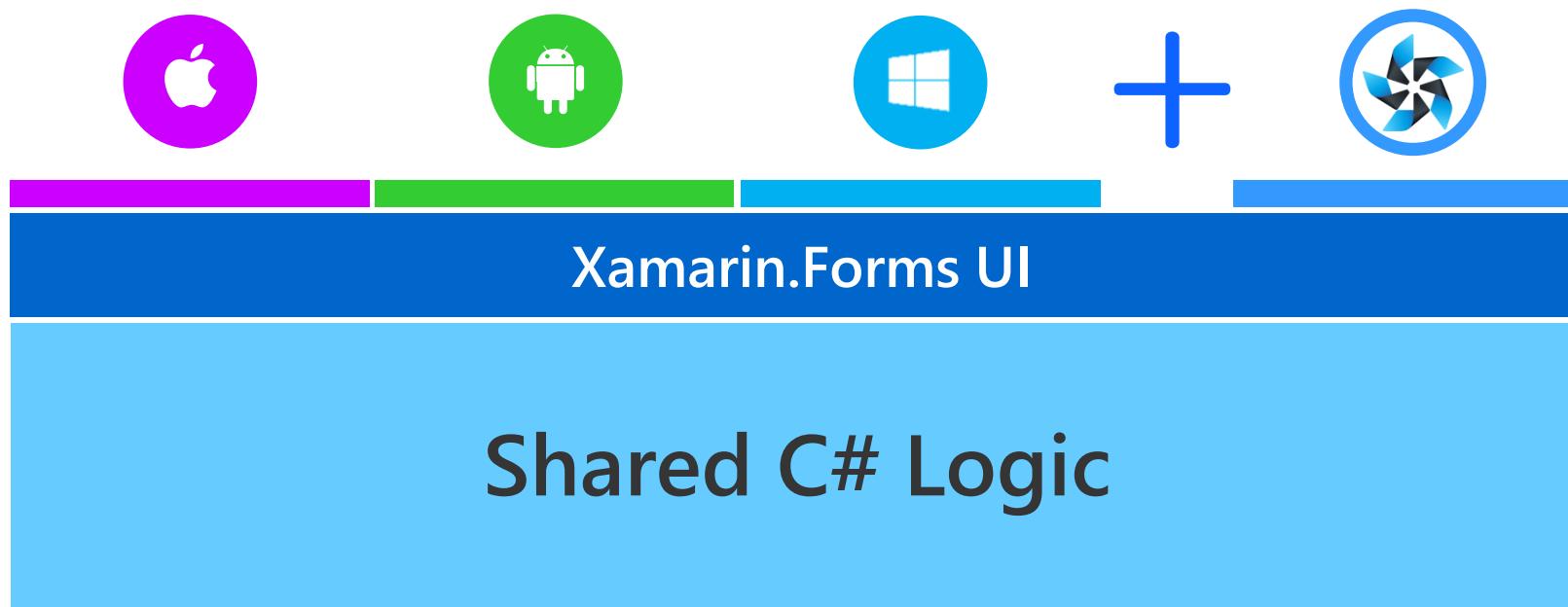
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# Xamarin.Forms on Tizen .NET

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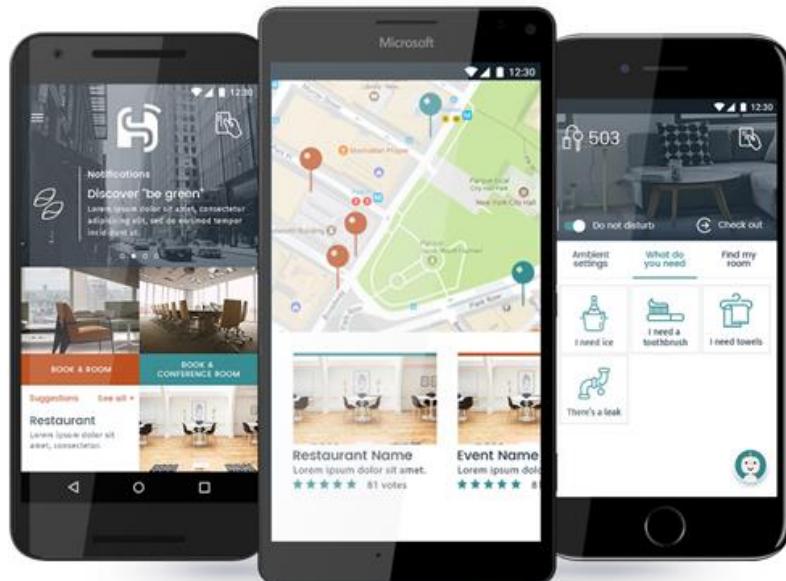
- Complete cross-platform UI toolkit that allows you to create native UI
- Make native UI much easier than using Tizen Native UI framework
- Tons of developer references



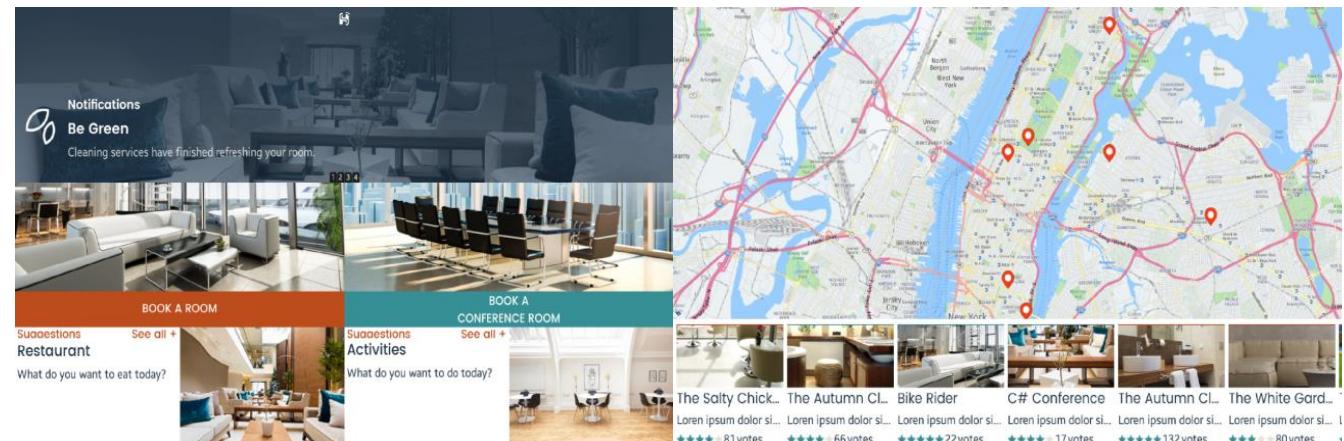
# Xamarin.Forms on Tizen .NET

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- ◆ Tizen backend has been officially added on Xamarin.Forms 3.0.0



SmartHotel360



Samsung Smart TV

# Keeping up with Xamarin.Forms

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## ❖ How we contribute to Xamarin.Forms

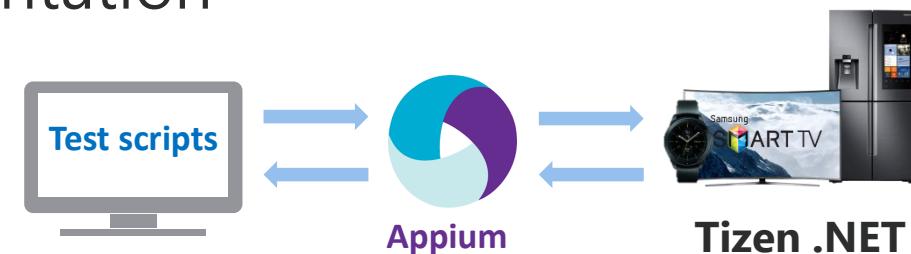
- Appium is used to verify the implementation

## ❖ Xamarin.Forms 4.0 Features

- Material Visual
- Shell
- CollectionView

## ❖ Supporting 4.0 core features on Tizen from 4.1.0

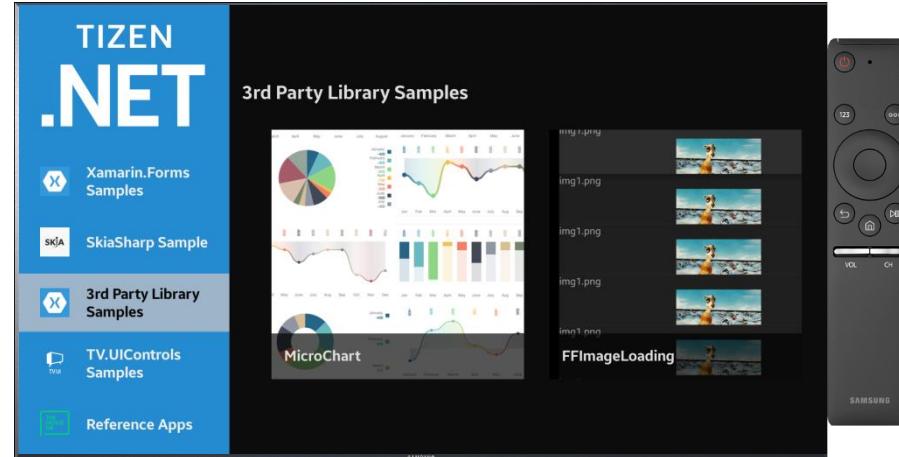
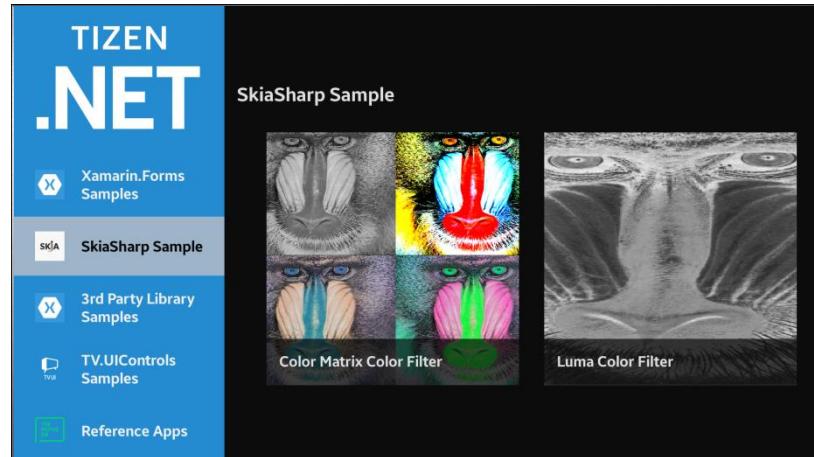
## ❖ Contribute for Tizen Platform



# .NET and Xamarin 3<sup>rd</sup> APIs

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- ◆ [SkiaSharp](#)
- ◆ [FFImageLoading](#)
- ◆ [MicroChart](#)
- ◆ [Xamanimation](#)
- ◆ [CarouselView](#)
- ◆ [XamarinMediaManager](#)
- ◆ [Xam.Plugins.Messaging](#)
- ◆ [SimpleAudioPlayer](#)
- ◆ [UserDialogs](#)
- ◆ [SharePlugin](#)
- ◆ [SettingPlugin](#)
- ◆ [SecureStorage](#)
- ◆ [Permissions](#)
- ◆ [Media Plugin](#)
- ◆ [DeviceInfoPlugin](#)
- ◆ [ConnectivityPlugin](#)
- ◆ And so on



# Xamarin Essentials

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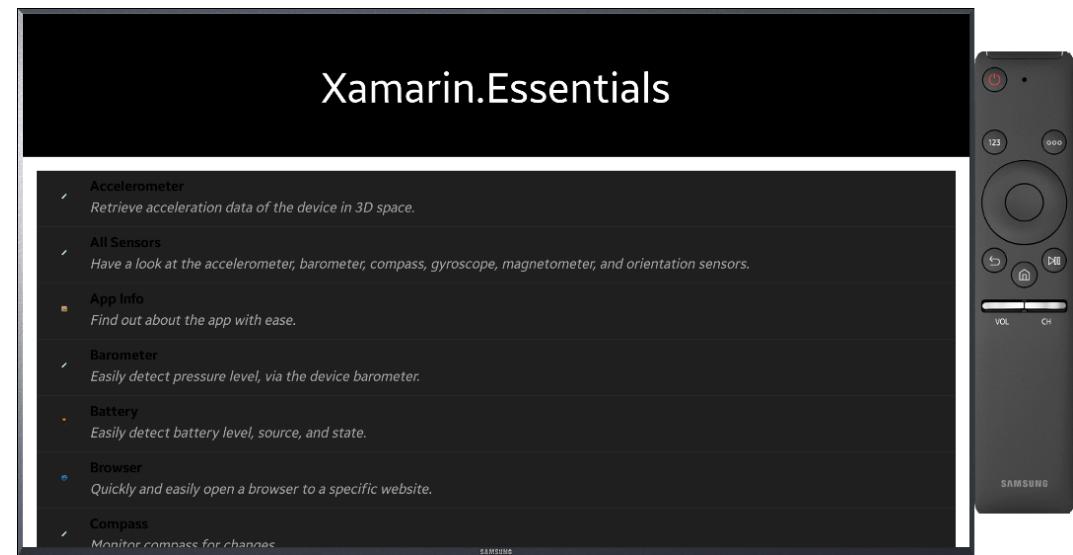
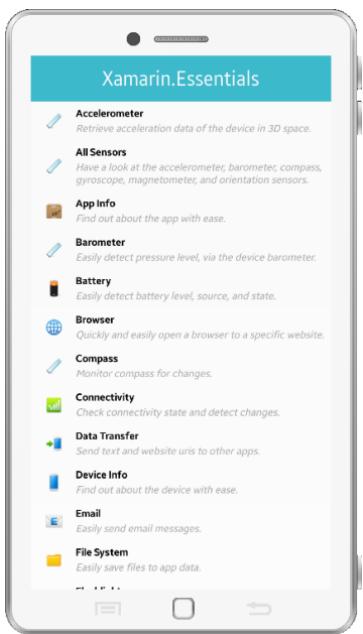
- ❖ A single cross-platform device API
  - works with Android, iOS, and UWP application.
  - can be accessed from shared code no matter how the user interface is created.
  
- ❖ Over 25 native features
  - ❖ App Information, battery, compass, ...
  - ❖ <https://github.com/xamarin/Essentials>

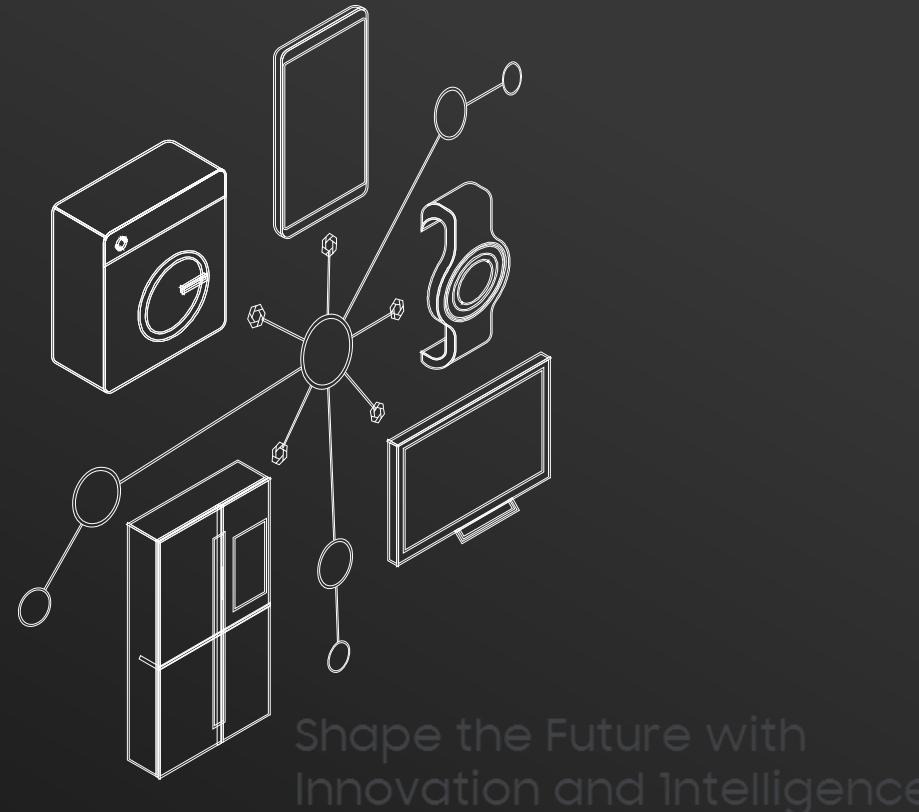


# Xamarin Essentials for Tizen

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- ◆ Tizen is now officially supported!
  - ◆ Official support from 1.3.0
  - ◆ Support multi-profiles (Mobile, Wearable, TV)





# Agenda

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# Tizen .NET on Products

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Gear S3



Gear Sport



Galaxy Watch



Galaxy Watch Active

Wearable Products	Tizen Platform Version
Gear S3	2.3.2 ~ 4.0
Gear Sport	3.0 ~ 4.0
Galaxy Watch	4.0
Galaxy Watch Active	4.0

# Tizen .NET on Products

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[2018 Smart TV models](#)



[2019 Smart TV models](#)

TV Products	Tizen Platform Version
2018 Smart TV models	4.0
2019 Smart TV models	5.0

# Types of Tizen .NET Applications

SAMSUNG Research

## ❖ Wearables

- **Watch Faces**
  - First screen displayed on the Watch
  - Most popular Apps on the Watch
- Widgets
- Watch Apps



## ❖ TVs

- TV Apps

# #XamarinDevSummit Watchface

SAMSUNG Research

- Xamarin Developer Summit Watchface



- Xamarin Developer Summit Watchface with Lottie animation



GitHub: <https://github.com/rookiejava/xds2019-tizen-net/> Tizen School: <http://tizenschool.org/>

# Types of Tizen .NET Applications

SAMSUNG Research

## ❖ Wearables

- Watch Faces
- **Widgets**
  - Quick access to tasks and display content
  - Packaged together with watch apps
  - Will be supported from Tizen 5.5
- Watch Apps



## ❖ TVs

- TV Apps

# Types of Tizen .NET Applications

SAMSUNG Research

## ❖ Wearables

- Watch Faces
- Widgets
- **Watch Apps**
  - Main app that resides in app tray
  - Have full access to Tizen features



## ❖ TVs

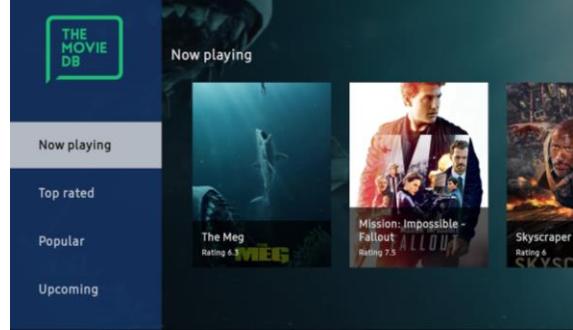
- TV Apps

# Types of Tizen .NET Applications

SAMSUNG Research

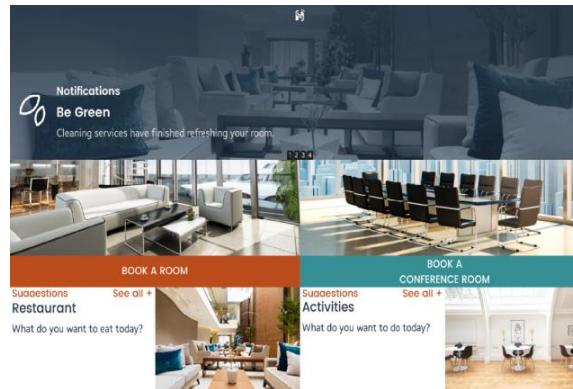
## ❖ Wearables

- Watch Faces
- Widgets
- Watch Apps

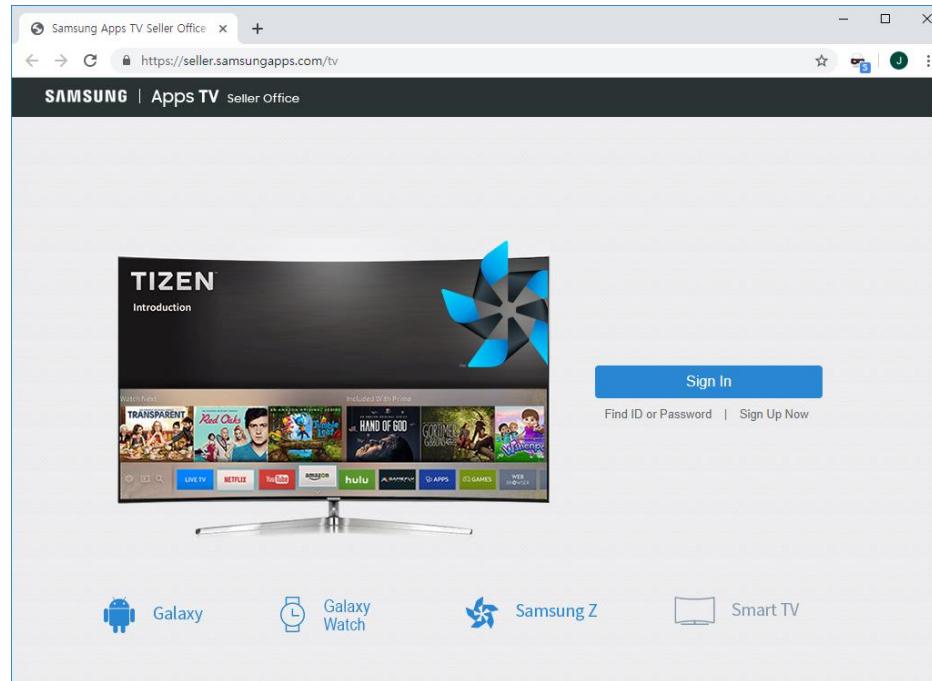
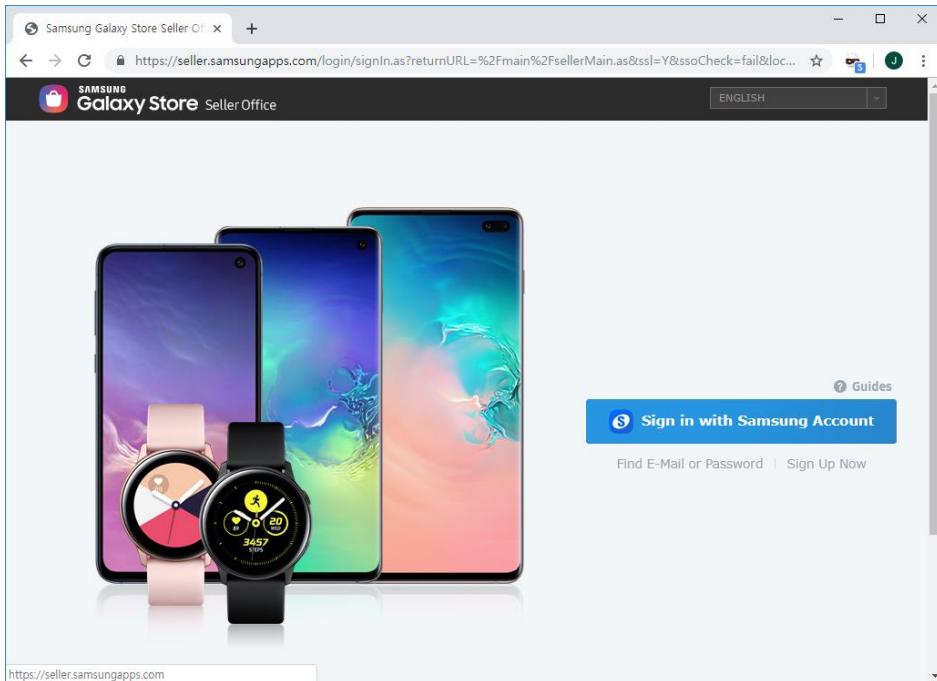


## ❖ TVs

- TV Apps
  - Have full access to Tizen features

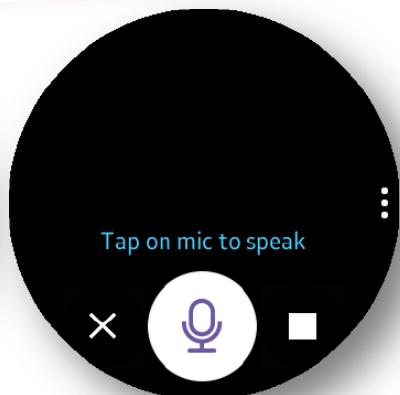
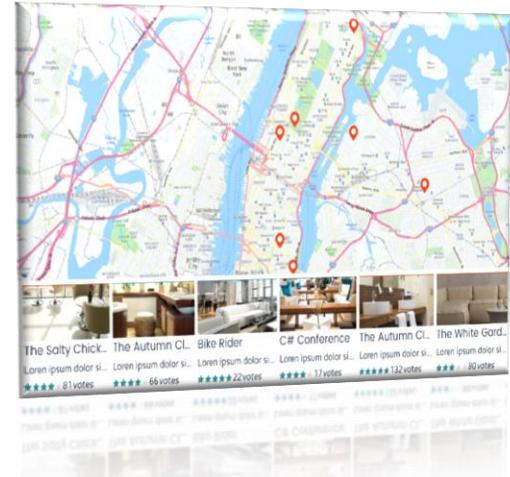


- ❖ Galaxy Store Seller Office for Wearable
- ❖ Samsung Apps TV Seller Office for TV
  - Public sellers can distribute TV applications only in the United States.



# Tizen .NET Apps

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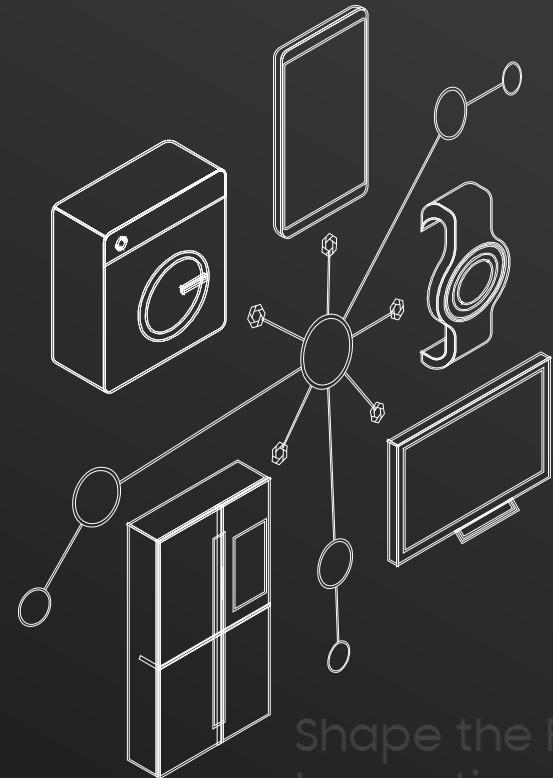


✓ Checkout at the lounge

# Houston..

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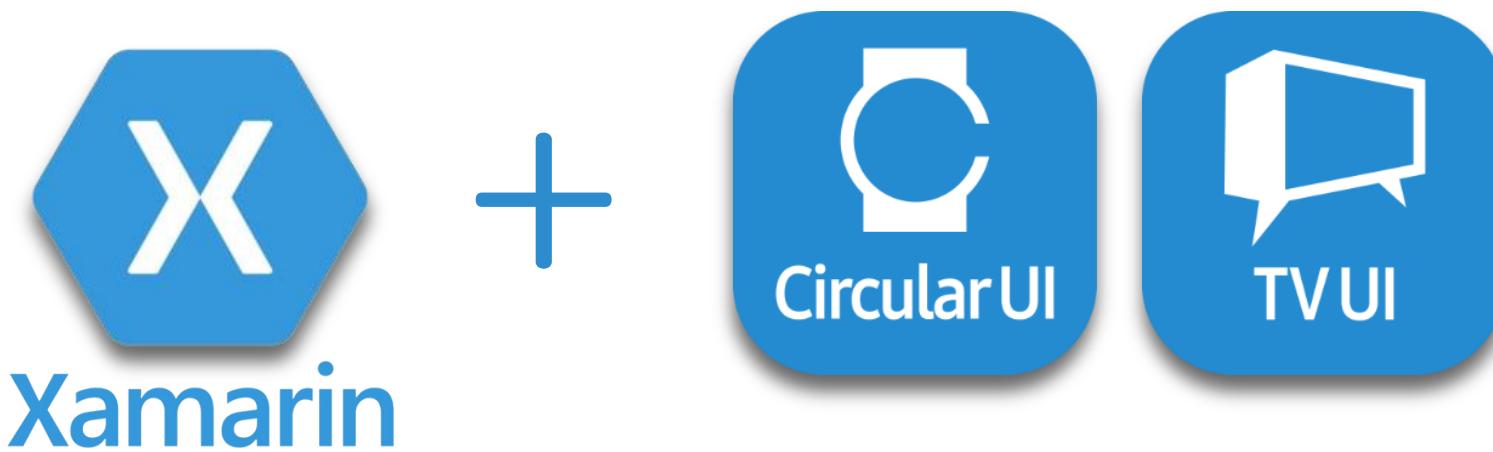
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# Xamarin.Forms Extensions

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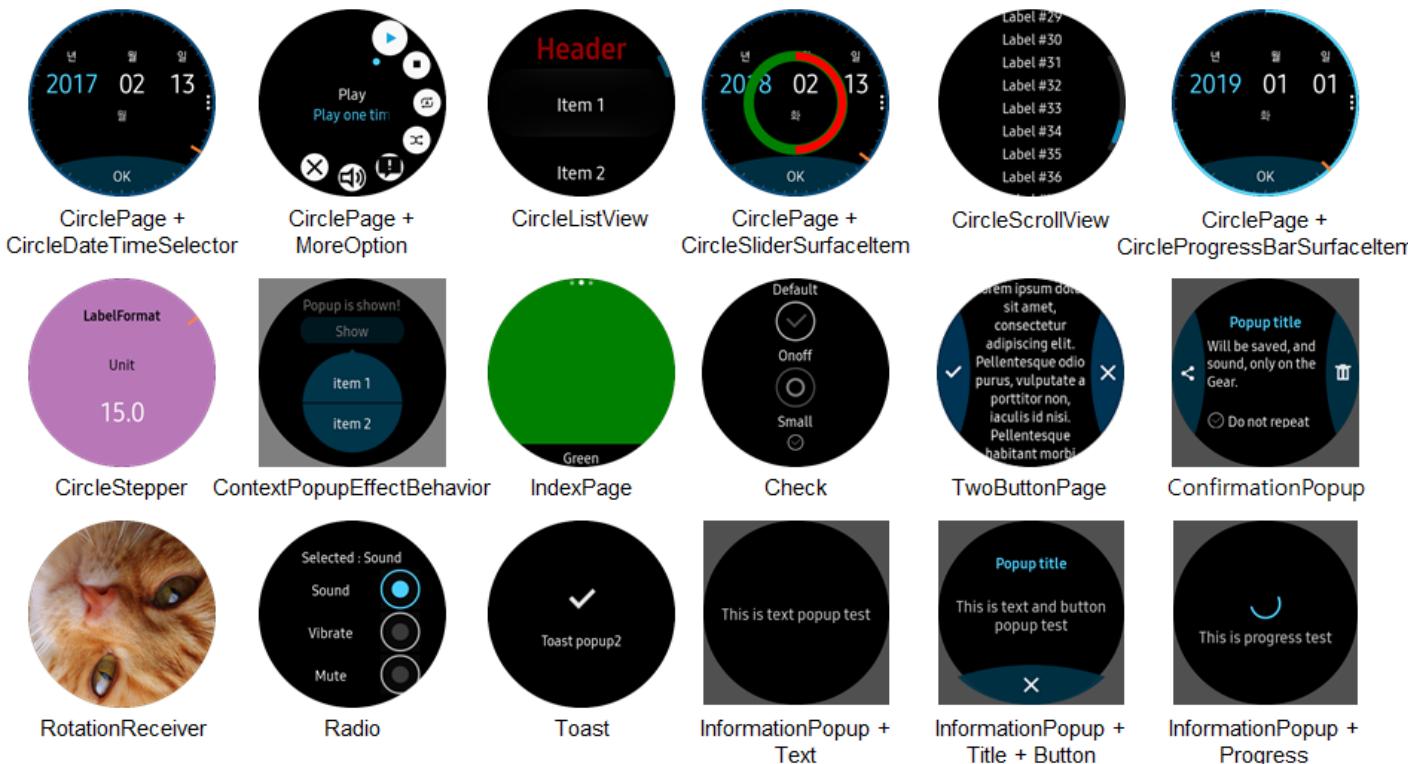
- Make Galaxy Watch Apps more easily with Circular UI
- Make Samsung Smart TV Apps more easily with TV UI



# Tizen Circular UI for Wearables

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- Provides UI controls that fit perfectly on Watch
- Included in a project template “Tizen Wearable App”



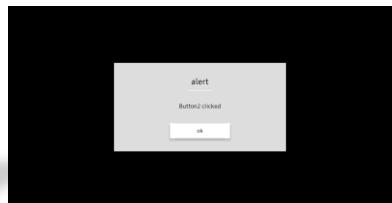
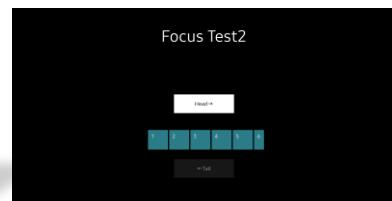
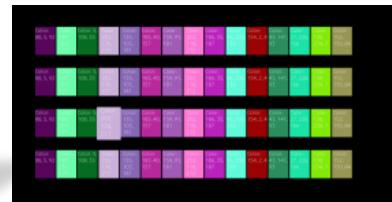
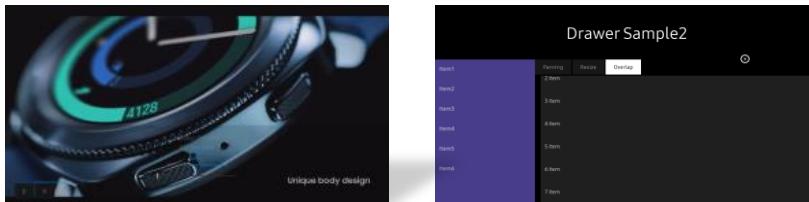
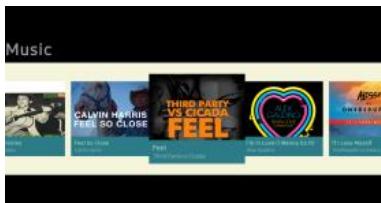
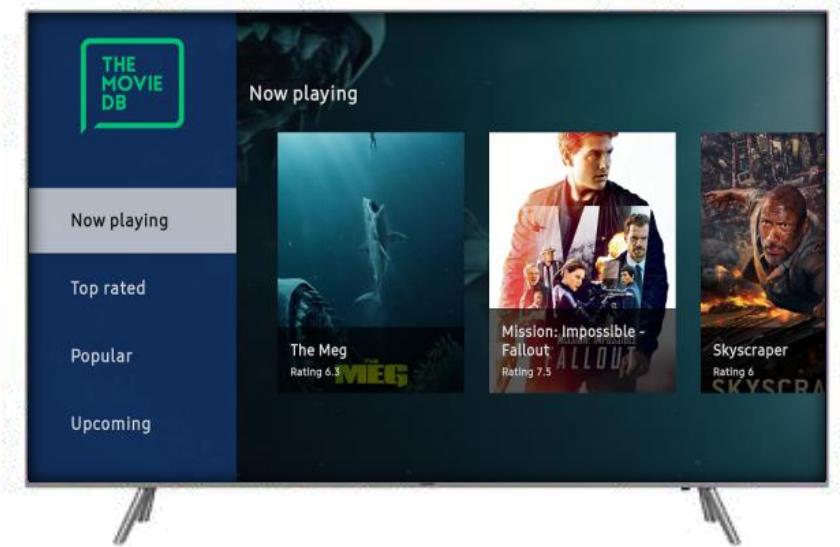
Source code: <https://github.com/Samsung/Tizen.CircularUI>

Nuget: <https://www.nuget.org/packages/Tizen.Wearable.CircularUI/>

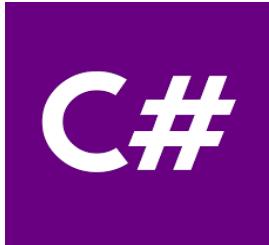
# Tizen TV UI for Samsung Smart TV

SAMSUNG Research

- Provides frequently used features on TV



Source code: <https://github.com/Samsung/Tizen.TV.UIControls>  
Nuget : <https://www.nuget.org/packages/Tizen.TV.UIControls/>



**Powerful as Java  
Object-oriented, strong typed  
New advanced features added**



**Open source on Linux, Mac, Windows  
+32,000 APIs (.NET standard 2.0)  
Strong community (estimated 8 million)**



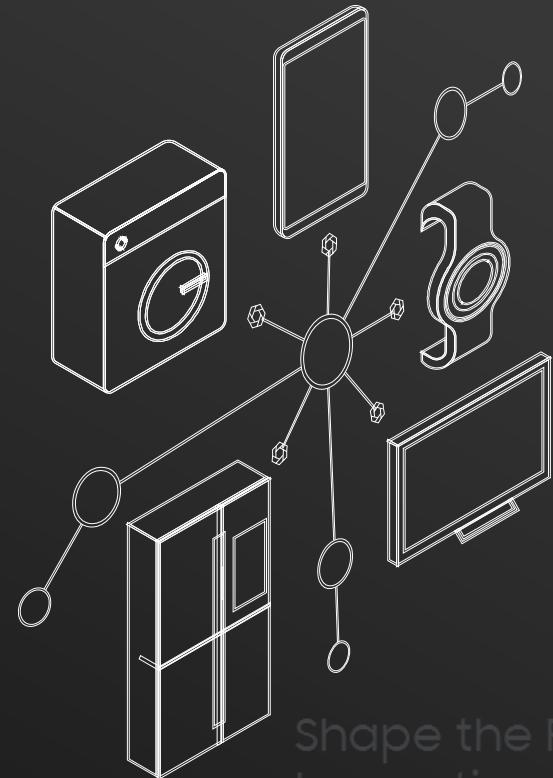
Visual Studio®

**High productivity (Intellisense)  
Tons of extensions & tools  
NuGet package managers**



**TizenFX**  
**(Tizen-specific features)**





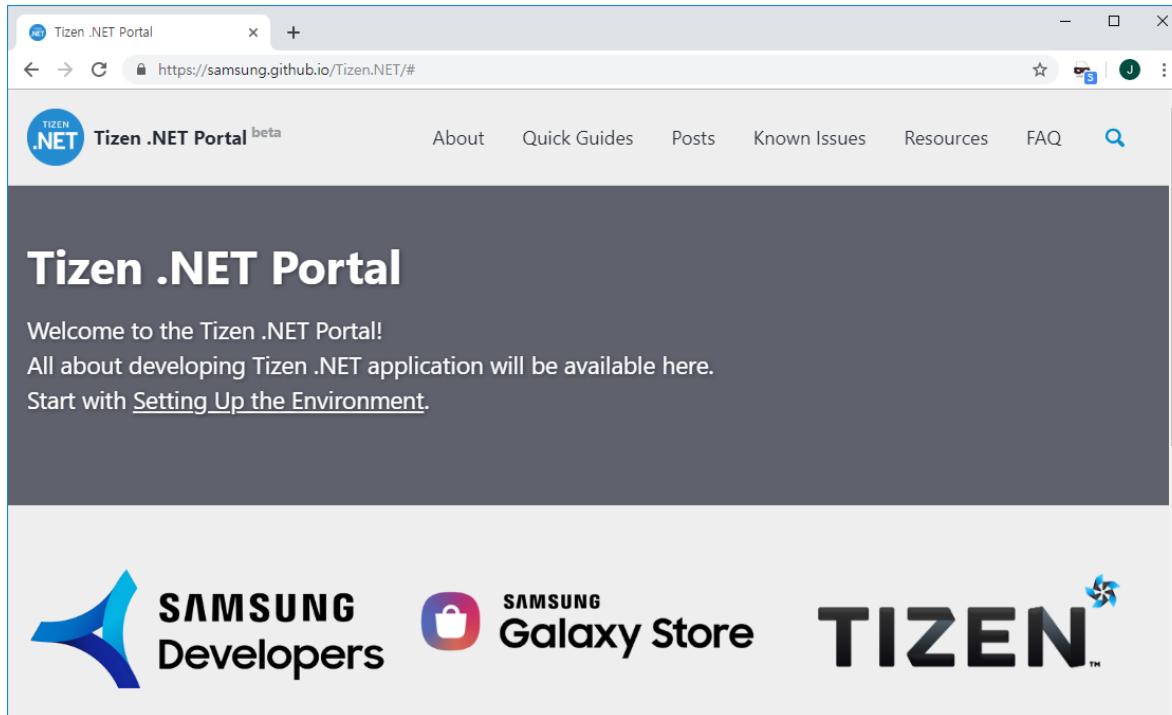
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# Agenda

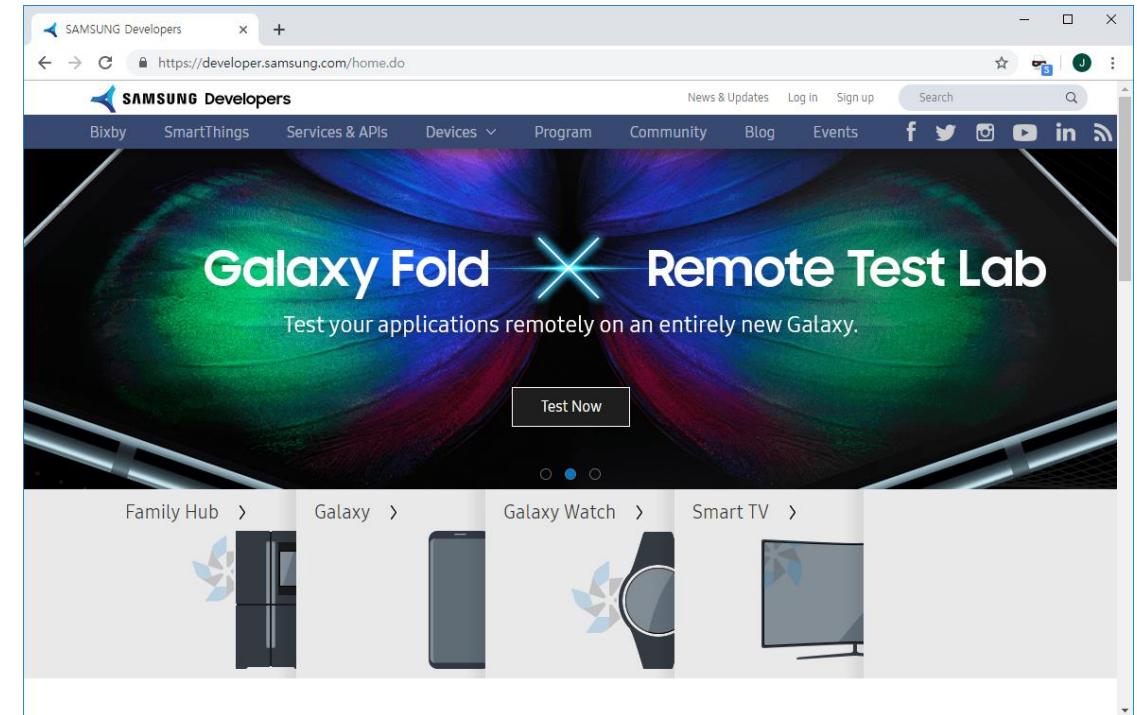
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# Samsung Developers

SAMSUNG Research



Tizen .NET Portal  
<https://samsung.github.io/Tizen.NET/>



Samsung Developers  
<https://developer.samsung.com/>

## ❖ Tizen C# Samples

- [github.com/Samsung/Tizen-CSharp-Samples](https://github.com/Samsung/Tizen-CSharp-Samples)

## ❖ Tizen School

- <http://tizenschool.org/>

## ❖ Tizen.CircularUI for Samsung Wearables

- [github.com/Samsung/Tizen.CircularUI/](https://github.com/Samsung/Tizen.CircularUI/)

## ❖ Tizen.TV.UIControls for Samsung Smart TV

- [github.com/Samsung/Tizen.TV.UIControls](https://github.com/Samsung/Tizen.TV.UIControls)

## ❖ TizenFX API

- [github.com/Samsung/TizenFX](https://github.com/Samsung/TizenFX)

# Technical Support

SAMSUNG Research

A screenshot of a web browser displaying the "Support Requests" section of the Samsung Developers website. The URL in the address bar is https://program.developer.samsung.com/dashboard/support-requests/. The page header includes the Samsung Developers logo, news & updates, log out, my page, and a search bar. Below the header is a navigation menu with links to Bixby, SmartThings, Services & APIs, Devices, Program, Community, Blog, Events, and social media icons for Facebook, Twitter, Instagram, YouTube, LinkedIn, and RSS. A banner at the top says "Ready to submit new content? SELLER OFFICE +". On the left, a sidebar titled "My Dashboard" lists "Support Requests" (selected), "Galaxy Store Promotions", "Remote Galaxy Store", "Galaxy Store Badges", "Cloud Device Farm", and "My Profile". The main content area is titled "Support Requests" and contains a message: "Get help developing Android apps, Themes and watch faces and apps for Tizen Gear wearables. You can also contact us if you have any issues registering and getting your app certified for the Galaxy Store, or if you have general support requests." Below this are fields for "Subject\*" and "Description\*".

Support Requests

Get help developing Android apps, Themes and watch faces and apps for Tizen Gear wearables. You can also contact us if you have any issues registering and getting your app certified for the Galaxy Store, or if you have general support requests.

Subject\*

Description\*

37 / 40

## ❖ Develop a Tizen Application using Xamarin.Forms and .NET

- Friday, July 12, 10:05AM – 1:55PM
- Waterway 6

## ❖ Samsung Lounge

- Open on Thursday & Friday
- Experience Tizen .NET on products
- Q&A

SDC:19

SDC\*19

SDC+19

SDC/19

## Where Now Meets Next

October 29–30, 2019 | San Jose, California

Thousands of developers, creators and technologists will experience two days of hands-on learning, cutting-edge keynotes, technical sessions, and more.



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# Questions

Jay Cho  
Engineer, Samsung Electronics  
[jh5.cho@samsung.com](mailto:jh5.cho@samsung.com)



@Jay\_jhCho