



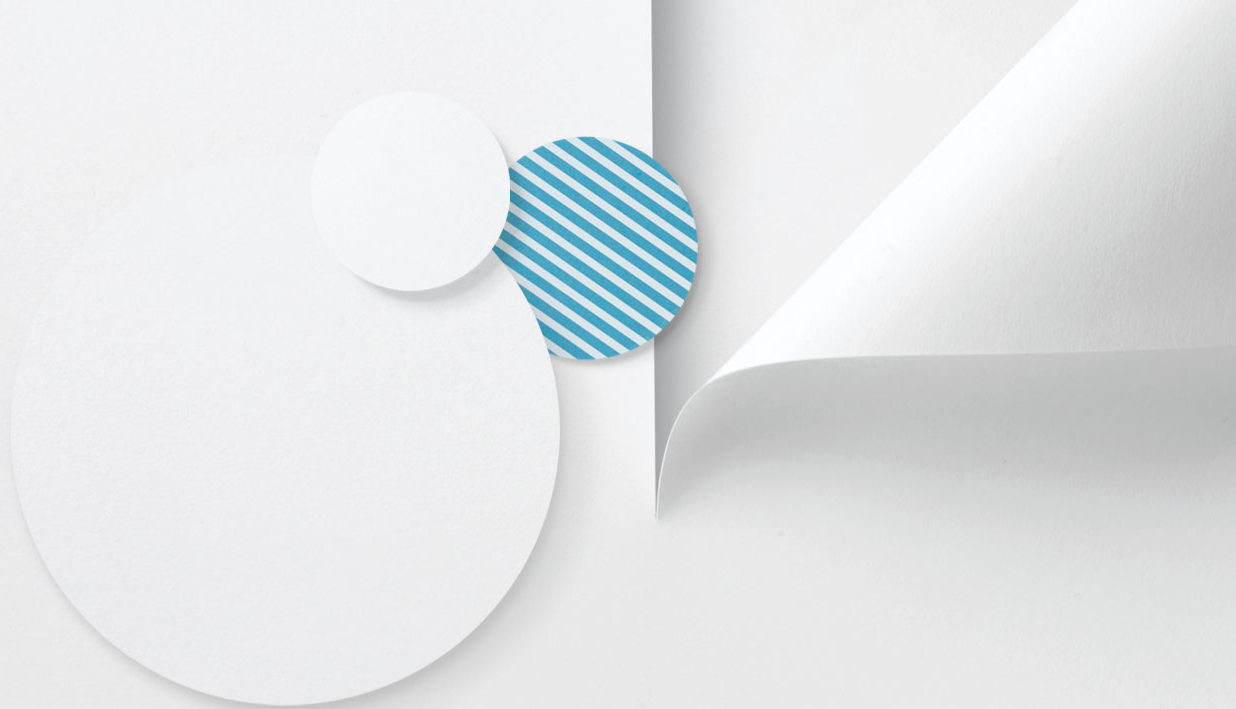
Entering Tizen world for iOS & Android developers

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Samsung Platform Evangelist

TIZEN™
**DEVELOPER
CONFERENCE**
2013
SAN FRANCISCO

Contents

1. Platform Overview
2. Frameworks
3. Native UI
4. Application Life Cycle
5. Event Handling



1. Platform Overview

Native

iOS

Tizen

Android

Objective C

C++

Java / C++

IDEs

iOS



Tizen



Android



Target Device

iOS



Tizen



Android



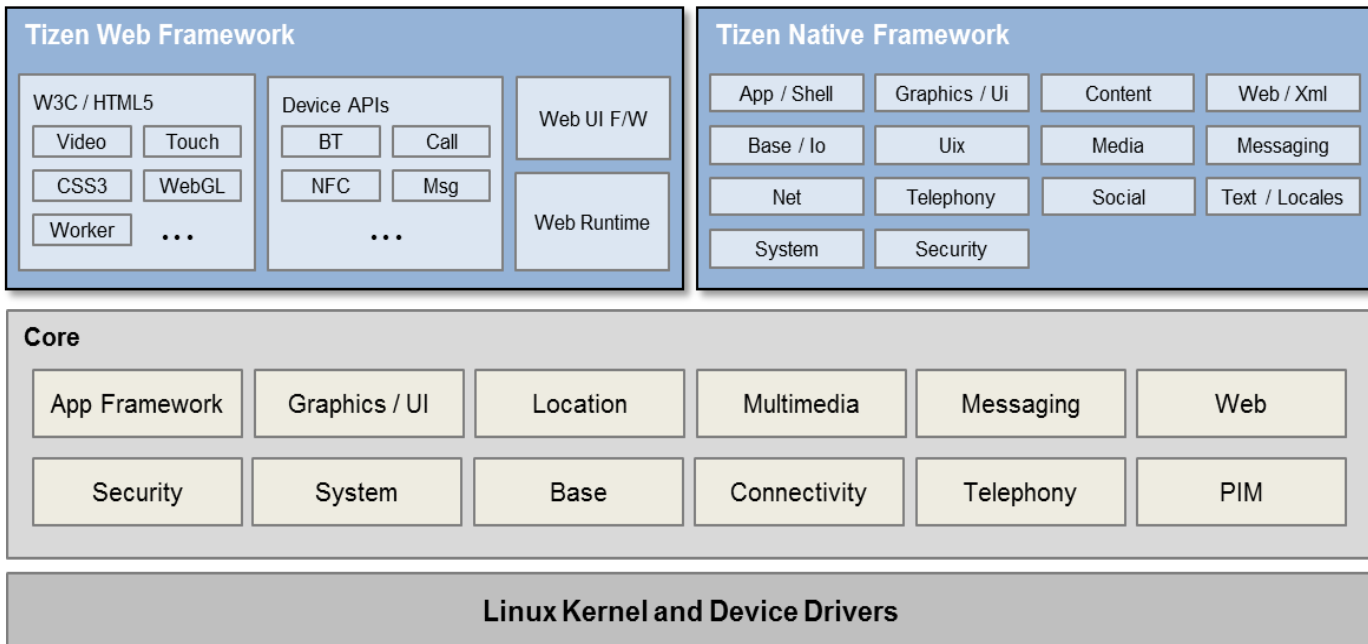


2. Frameworks

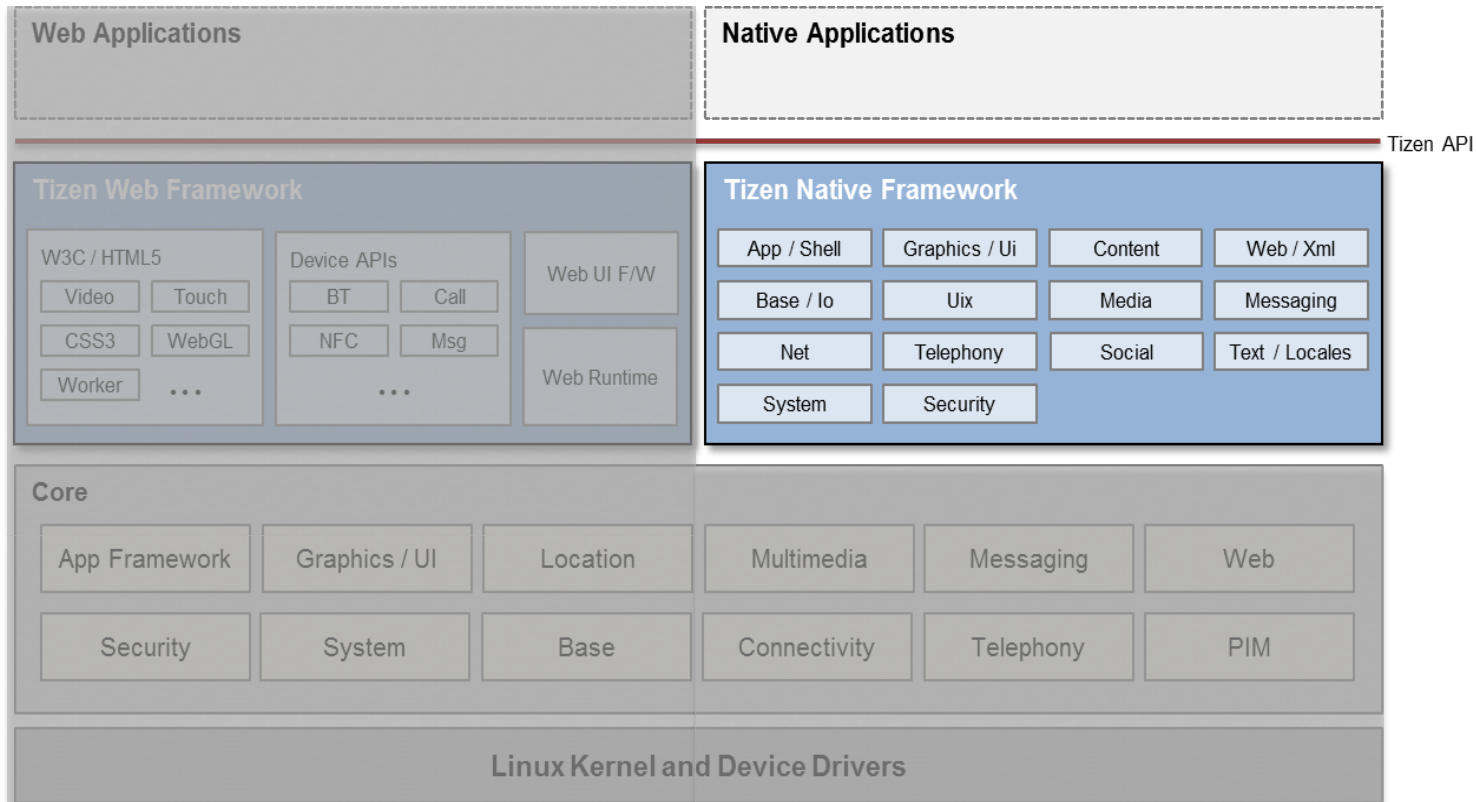
Frameworks of Tizen

Web Applications

Native Applications



Frameworks of Tizen



Frameworks of Tizen

Native Applications

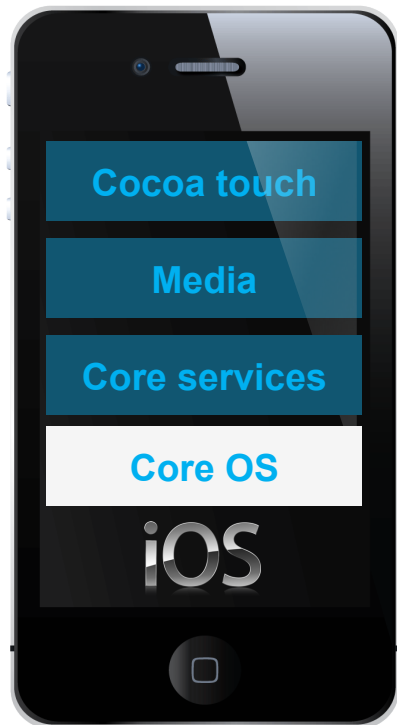
Tizen API

Tizen Native Framework

App / Shell	Graphics / Ui	Content	Web / Xml
Base / Io	Uix	Media	Messaging
Net	Telephony	Social	Text / Locales
System	Security		

iOS to Tizen

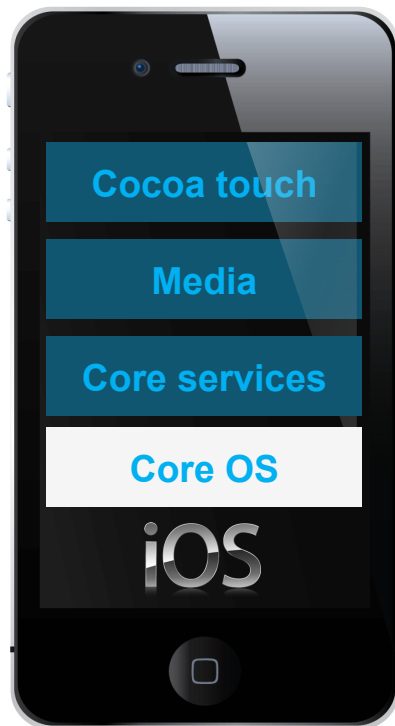
Framework of iOS



iOS

- Accelerate Framework
- Core Bluetooth Framework
- External Accessory Framework
- Generic Security Service Framework
- Security Framework
- System

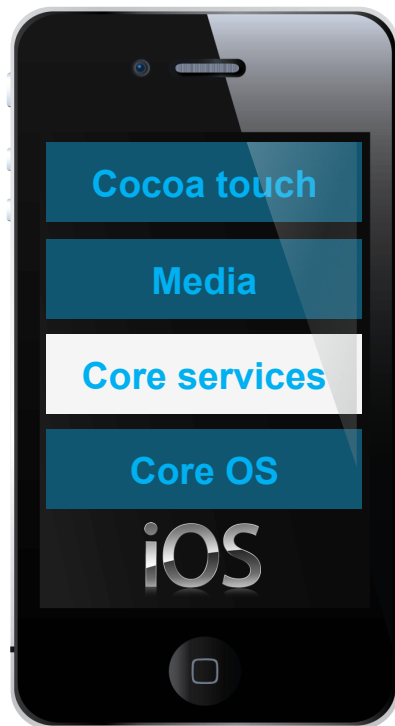
Framework of Tizen



Tizen

- Tizen::Uix::Sensor
- Tizen::Net::Bluetooth
- Tizen::System::DeviceManager
- Tizen::Security
- Tizen::Base

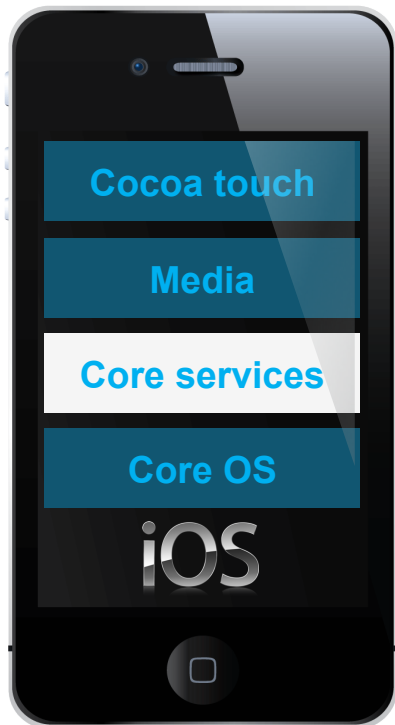
Framework of iOS



iOS

- Accounts Framework
- Address Book Framework
- Ad Support Framework
- CFNetwork Framework
- Core Data Framework
- Core Foundation Framework
- Core Location Framework
- Core Media Framework
- Core Motion Framework
- Core Telephony Framework
- Event Kit Framework
- Foundation Framework
- Mobile Core Services Framework
- Newsstand Kit Framework
- Pass Kit Framework (iOS 6)
- Quick Look Framework
- Social Framework (iOS 6)
- Store Kit Framework
- System Configuration Framework

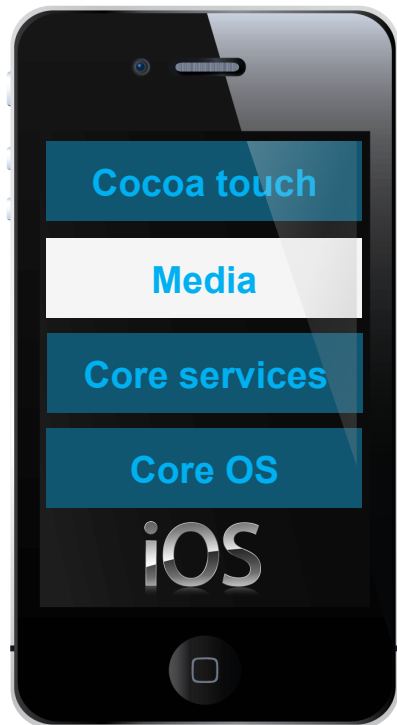
Framework of Tizen



Tizen

- Tizen::Social::Addressbook
- Tizen::Net
- Tizen::Base
- Tizen::IO
- Tizen::Location
- Tizen::Media
- Tizen::Telephony
- Tizen::System::SystemInfo

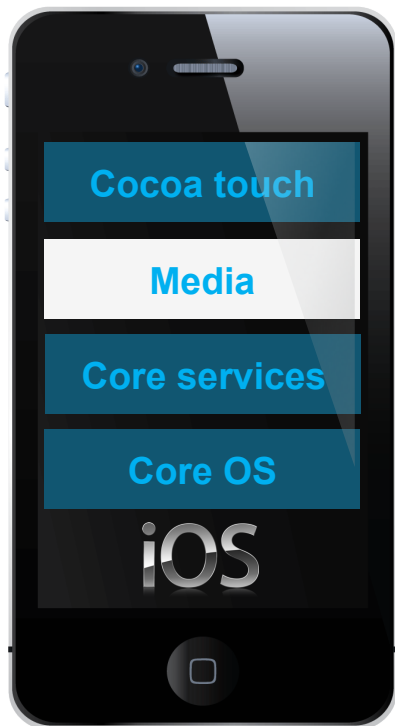
Framework of iOS



iOS

- Assets Library Framework
- AV Foundation Framework
- Core Audio
- Core Graphic Framework
- Core Image Framework
- Core MIDI Framework
- Core Text Framework
- Core I/O Framework
- GLKit Framework
- Media Player
- OpenAL, OpenGL ES
- Quartz Core Framework

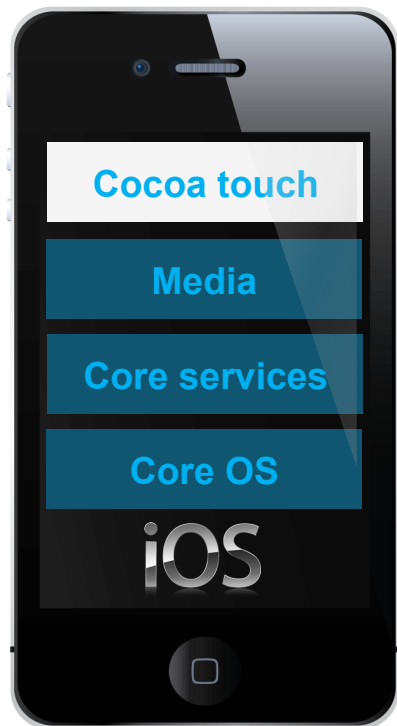
Framework of Tizen



Tizen

- Tizen::Media
- Tizen::Graphics
- Tizen::Io
- Tizen::Text
- OpenGL ES
- OpenAL

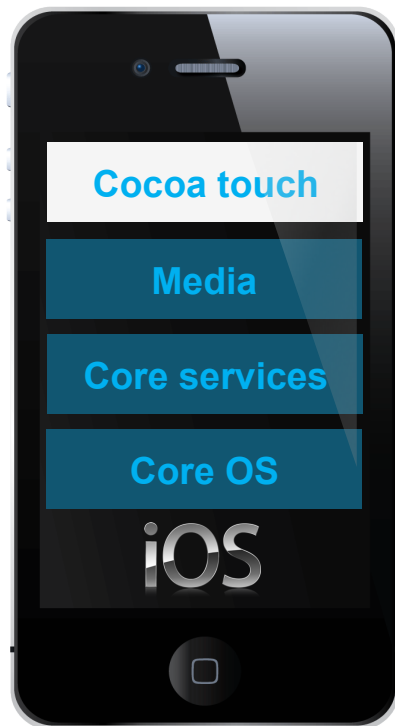
Framework of iOS



iOS

- Address Book UI Framework
- Event Kit UI Framework
- Game Kit Framework
- iAd Framework
- Map Kit Framework
- Message UI Framework
- Twitter Framework
- UIKit Framework

Framework of Tizen



Tizen

- Tizen::App::AppControl
- Tizen::UI

Android to Tizen

Application Framework

Android api17 vs. Tizen2.1

Android♪		Tizen♪
Activity	UI application ♪	UI application ♪
Service Content Provider♪	Non-UI application♪	Service Application App::SqlDataControlProvider App::MapDataControlProvider♪
App Widgets ♪	Home Screen Widget♪	Shell::AppWidgetProvider♪
Preference Intent(Call Action) Binder(IPC)	App♪	AppRegistry AppControl MessagePort(IAC)♪

Base

Android(android.)♪

Tizen(Tizen::)

java.lang
collection

Base
Collection

Base, Text
Base::Collection
Collection::stlConverter(STL)

util(regex,zip)
util(locale,timezone)

Utility

Base::Utility,
Base::Locales

util.concurrent(lock, semaphore
)
os (system info.) hardware.inpu
t

Thread
System

Base::Runtime
System(system info.,external device
)

IO
Database

IO♪

IO
IO::Database

Graphics & Multimedia

Android(android.)♪

Tizen(Tizen::)♪

Graphics (Canvas)
Opengl (1.1, 2.0)

Graphics

Graphics (Canvas)
Graphics::Opengl (1.1,2.0)♪

Media.mediaplayer
- Audio, Video
- Streaming
hardware.camera
media:Facedetector

Multimedia

Media::Player
- Audio, Video
- Streaming: http,rtsp
Media::Camera
Uix::Vision(Facedetector, Image Recognizer, QR code)♪

Communication

Android(android.)♪

net
bluetooth
net.http
Java.socket
net.wifi
nfc
telephony
Notification

Communication♪

Tizen(Tizen::)♪

Net
Net::Bluetooth
Net::Http
Net::Sockets
Net::Wifi
Net::Nfc♪
Telephony♪
Messaging(sms,mms,email,push receive)♪

Web & Contents

Android(android.)♪

Webkit
Webkit.webview
org.json
org.xml, javax.xml

Web

Tizen(Tizen::)♪

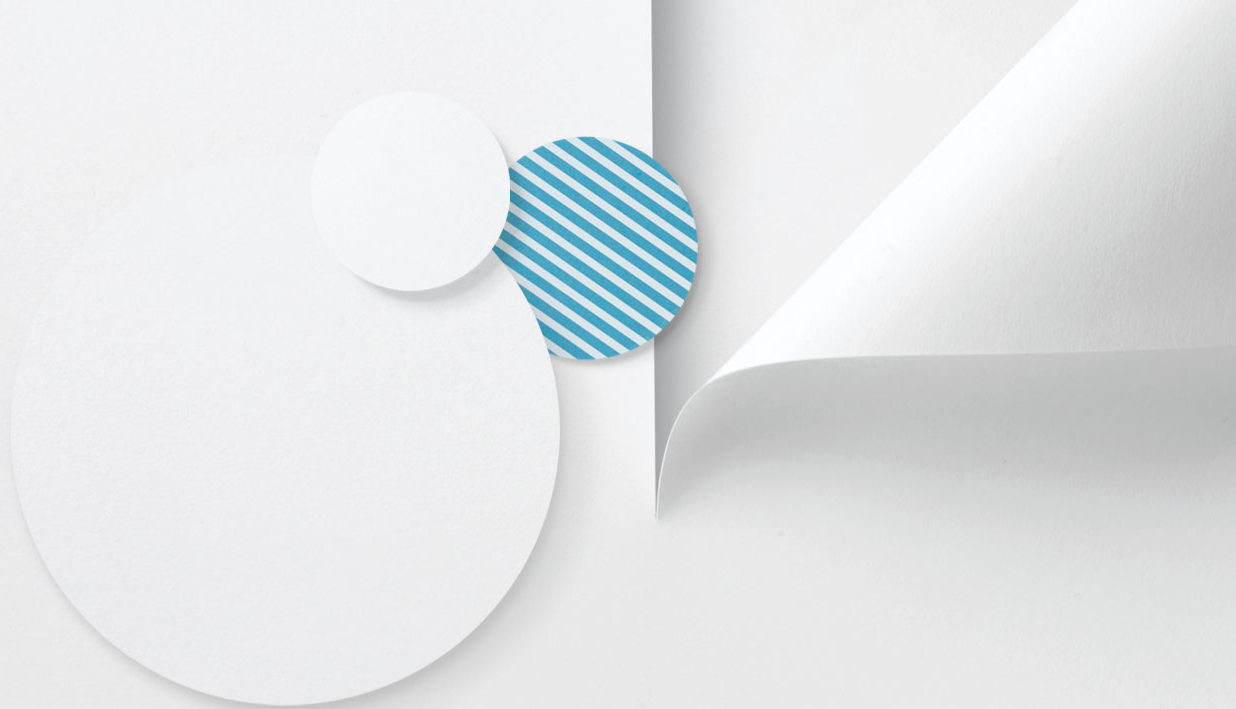
Web
Web::Controls
Web::Json
Libxml2
♪

User Interface

Android(android.)♪

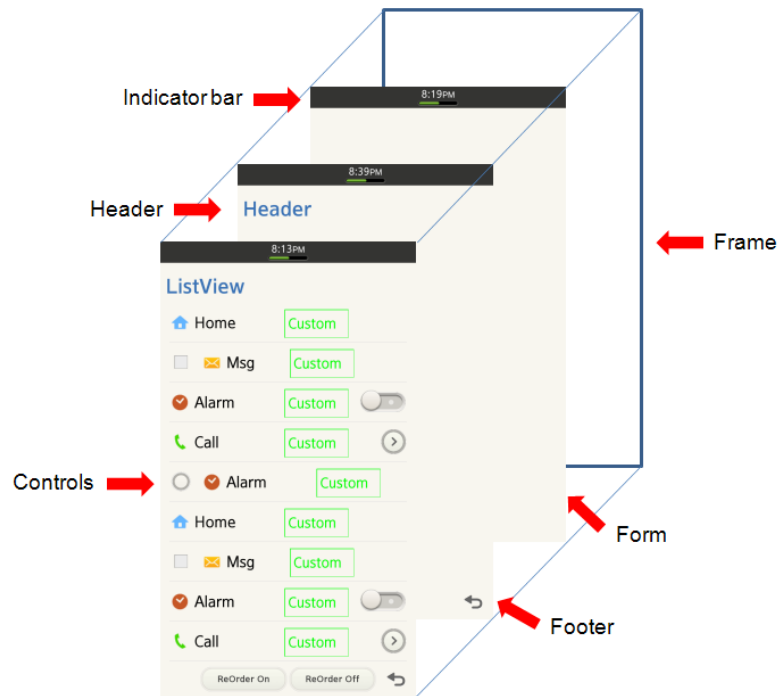
Tizen(Tizen::)♪

View	UI	Ui
view.animation	♪	Ui::Animations
View.widget♪		Ui::Controls
view.inputmethodservice		Ui::Ime
Activity, Intent		Ui::Scenes
gesture		Ui::GestureDetector
		Ui::Effects
hardware.sensor	UX	Uix::Sensor
speech	♪	Uix::Speech
os.vibrator		Uix::Vibrator♪

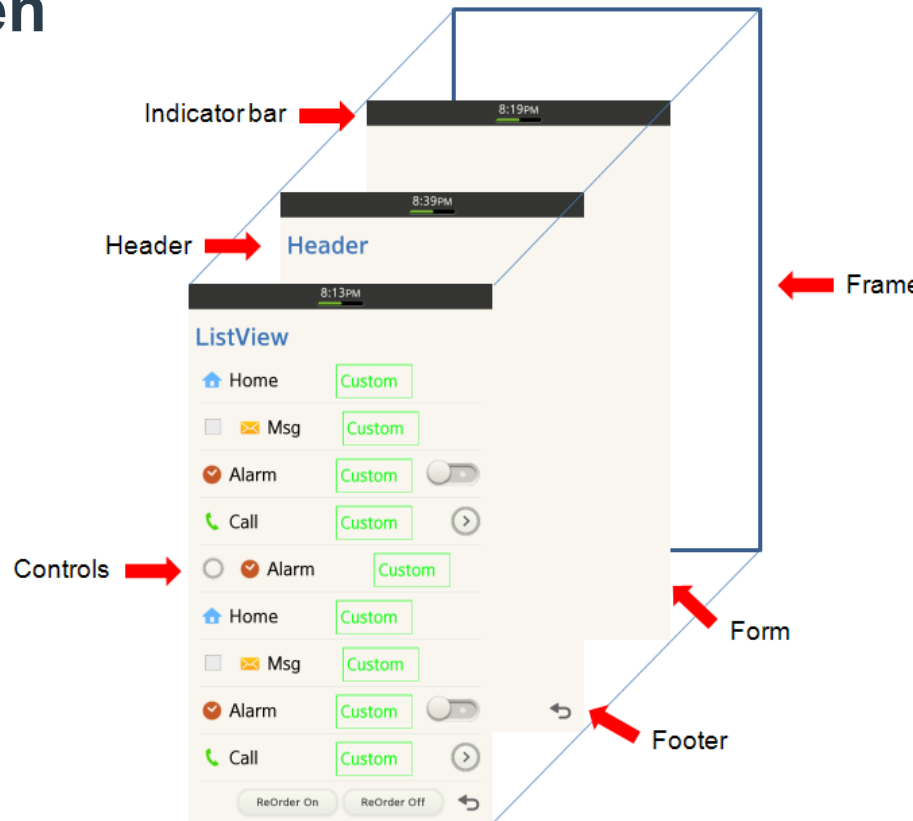
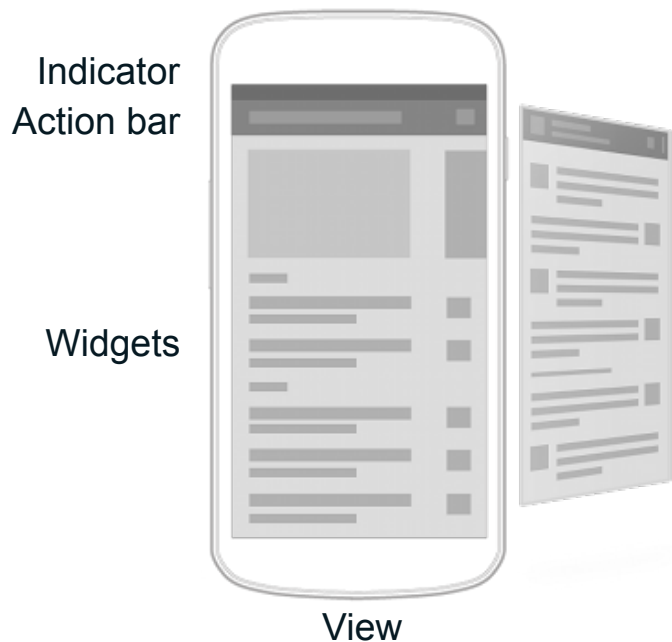


Native UI

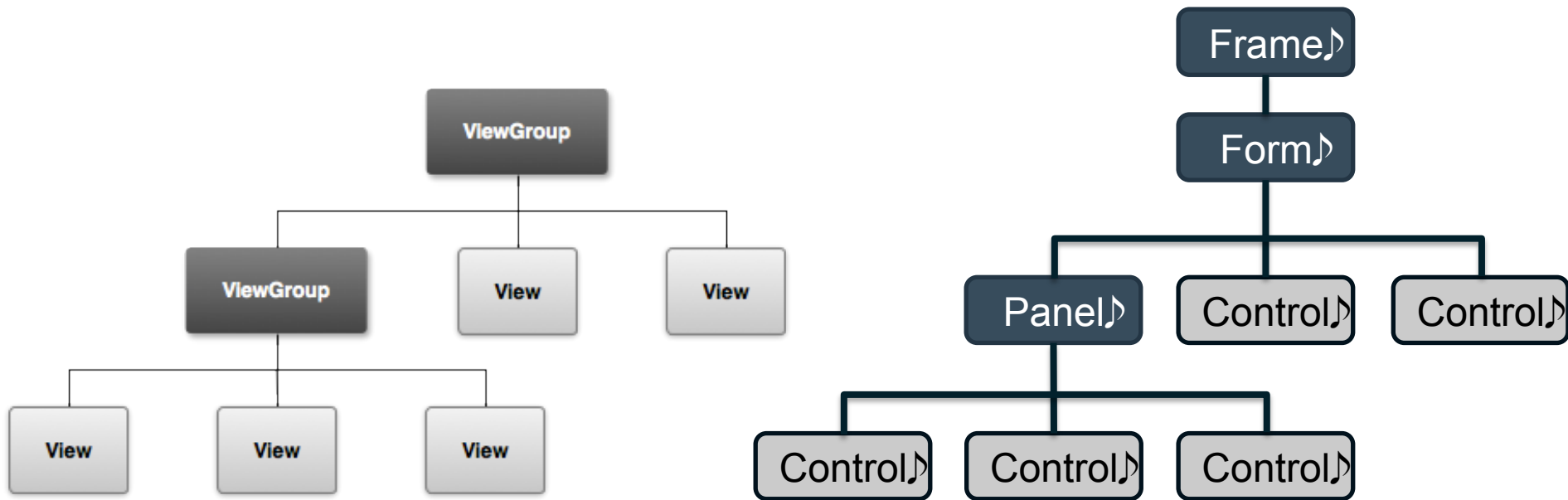
UI Structure – iOS



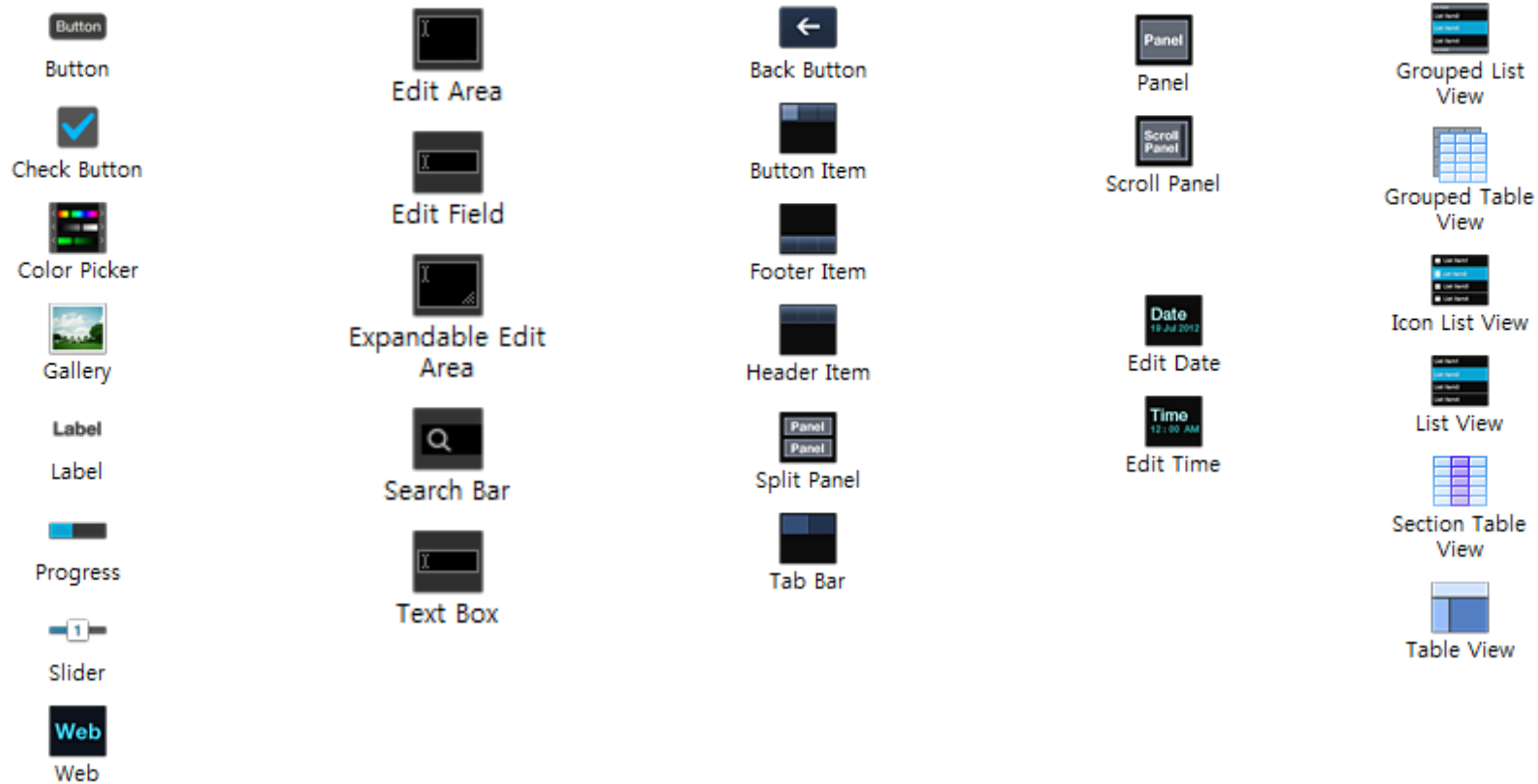
UI Structure – Android to Tizen







































UI Structure – Android to Tizen


























Controls - Tizen



Controls – iOS

	Label		Table view		Date picker		View		Tab bar
	Round Rect Button		Table view cell		Picker view		Container view		Tab bar item
	Segmented Control		Collection view		Ad Banner view		Navigation bar		
	Text field		Collection view cell		GLKit view		Navigation item		
	Slider		Collection reusable view				Search bar		
	Switch		Image view				Search bar and search display controller		
	Active indicator view		Text view				Toolbar		
	Progress view		Web view				Bar button item		
	Page control		Map view				Fixed space bar button item		
	Stepper		Scroll view				Flexible space bar button item		

Controls – iOS vs. Tizen (native)

	Label		Table view		Date picker		View		Tab bar
	Round Rect Button		Table view cell		Picker view		Container view		Tab bar item
	Segmented Control		Collection view		Ad Banner view		Navigation bar		
	Text field		Collection view cell		GLKit view		Navigation item		
	Slider		Collection reusable view				Search bar		
	Switch		Image view				Search bar and search display controller		
	Active indicator view		Text view				Toolbar		
	Progress view		Web view				Bar button item		
	Page control		Map view				Fixed space bar button item		
	Stepper		Scroll view				Flexible space bar button item		

Widgets – Android

TextView Large Medium Small

Button

Small

OFF


☒ CheckBox ☐ RadioButton



CheckedTextView


Spinner


Sub Item





 ImageView


 ImageButton  Gallery


 MediaController


 VideoView


 GridLayout


 LinearLayout (Vertical)


 LinearLayout (Horizontal)



 RelativeLayout


 FrameLayout


 Include Other Layout

 Fragment


 TableLayout

 TableRow  Space

 TimePicker

 DatePicker



 Chronometer





ListView


Sub Item

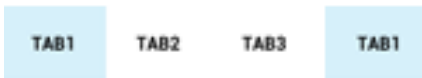
 ExpandableList
Sub Item


 GridView  ScrollView

 HorizontalScrollView











 SearchView

 SlidingDrawer



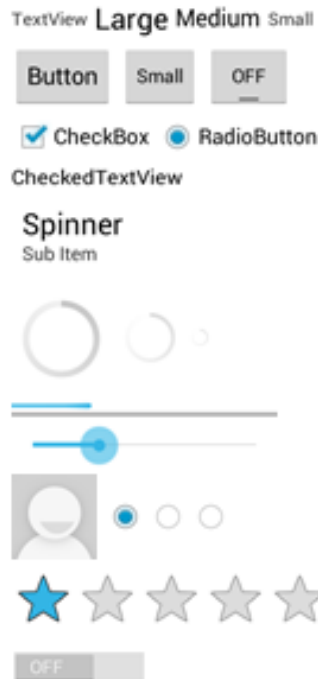
 WebView

Android to Tizen - Layouts

	GridLayout
	LinearLayout (Vertical)
	LinearLayout (Horizontal)
	RelativeLayout
	FrameLayout
	Include Other Layout
	Fragment
	TableLayout
	TableRow
	Space

Android		Tizen
GridLayout	Grid layout	GridLayout
	Card layout	Card layout
RelativeLayout	Relative layout	RelativeLayout
LinearLayout	Linear layout	HorizontalBox VerticalBox
FragmentLayout	Fragment layout	SplitPanel
TableLayout	Table layout	TableView

Android to Tizen - Form widgets



Android

TextView
Label

Button

On/Off button
Switch

Checkbox

Spinner

Rating, Contact badge

Text

Button

On/Off button
Button

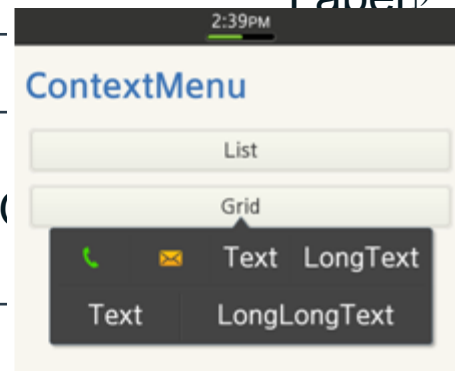
Checkbox Button

Expanding Items

Pre-Made
widgets

Tizen

TextBox
Label



(radio Style)

Context Menu

Custom Control

Android to Tizen - Layouts

ListView

Sub Item

ExpandableList

Sub Item

GridView ScrollView

HorizontalScrollView

SearchView

SlidingDrawer

TAB1

TAB2

TAB3

TAB1

WebView

Android

Tizen

ListView

List View

ListView

ExpandableList

ExpandableList

TableView

Grid View

Grid View

Panel & GridLayout

ScrollView

Scrollable page

ScrollPanel

SearchView

Search

SearchBar

Tab

Tab

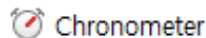
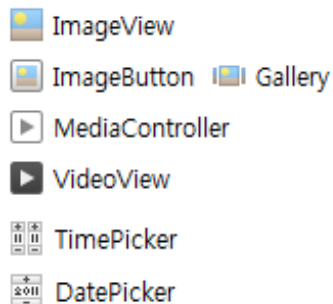
Tab (Form property)

WebView

Web view

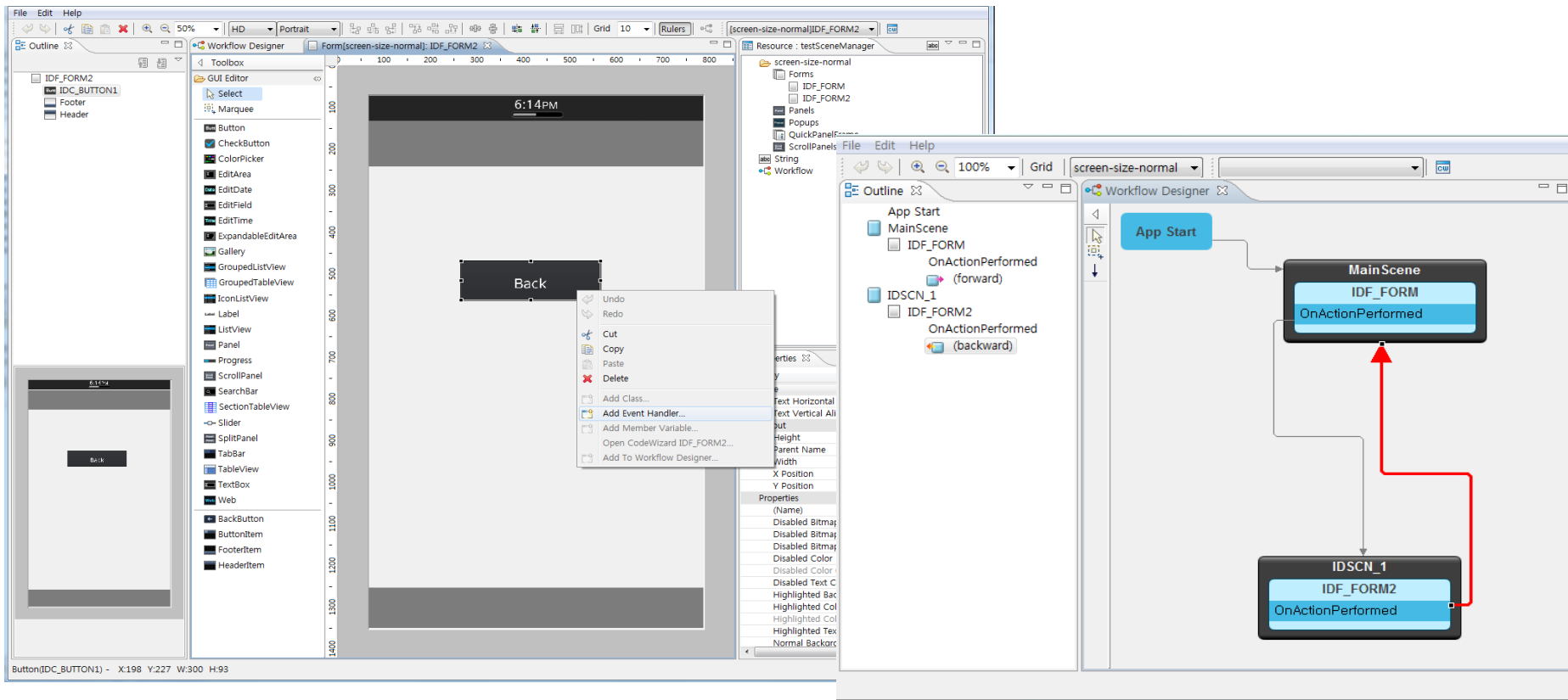
WebControl

Android to Tizen – Image, Medias, Data and Time

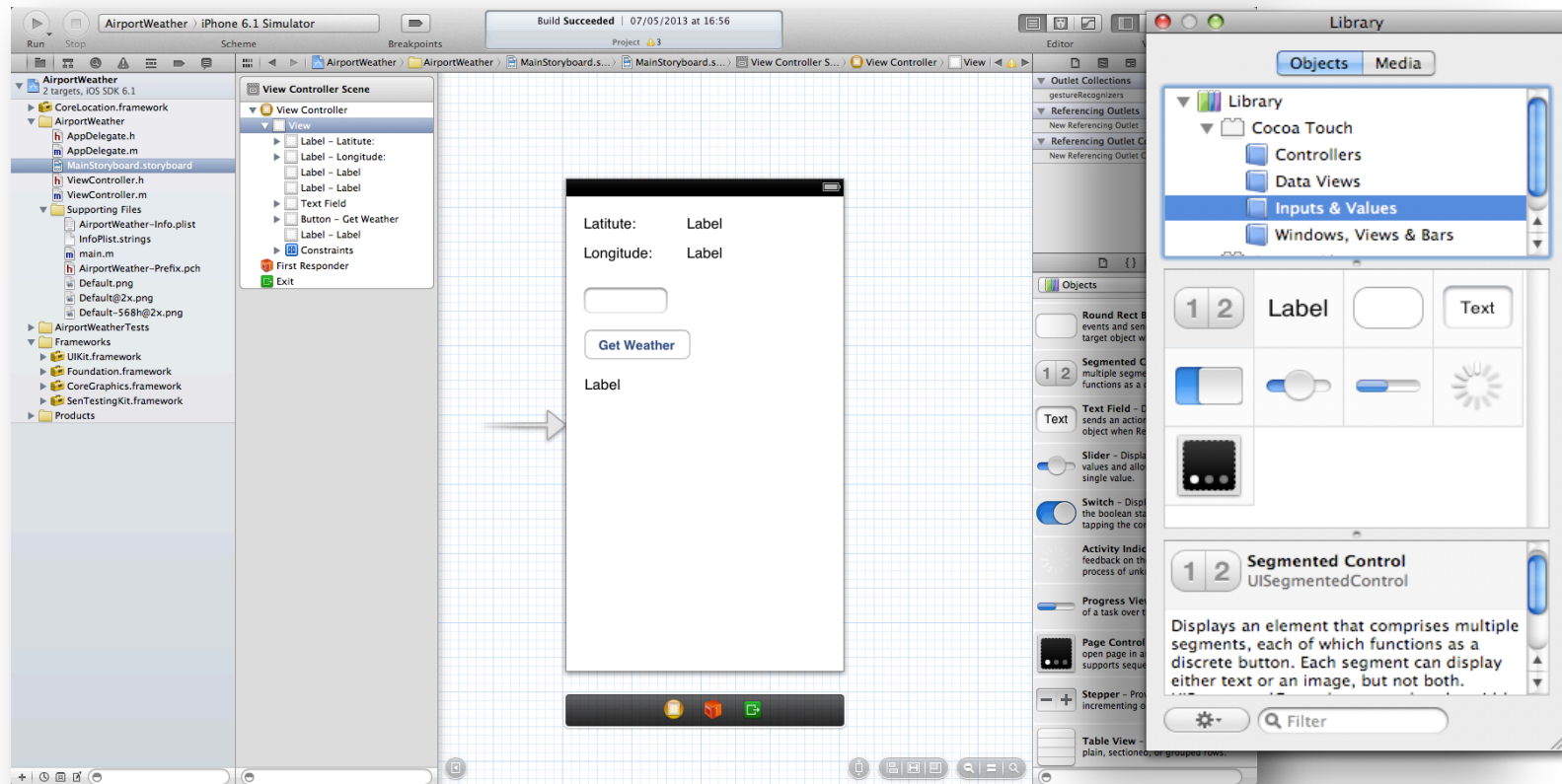


Android	Tizen	
ImageView	Image View	Panel
ImageButton	Image Button	Button(with image)
Gallery	Gallery	Gallery
VideoView	Video View	OverlayRegion
TimePicker	Time Picker	EditTime
DatePicker	Date Picker	EditDate
CalendarView	Date & Time Picker	DateTimePicker CustomControl
Chronometer, Digital Clock	Pre-Made widgets	CustomControl

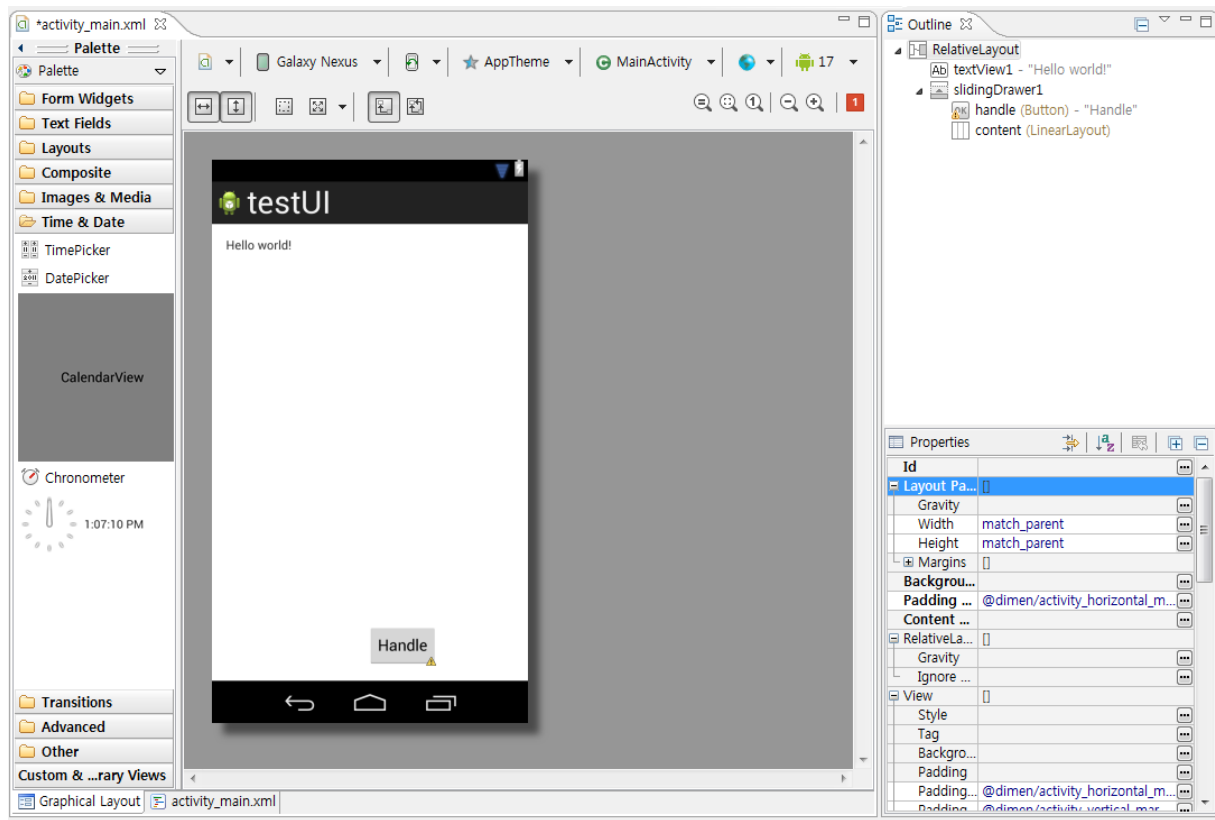
UI builder & Workflow – Tizen



Interface Builder & Storyboard – iOS



Using Interface Builder – Android

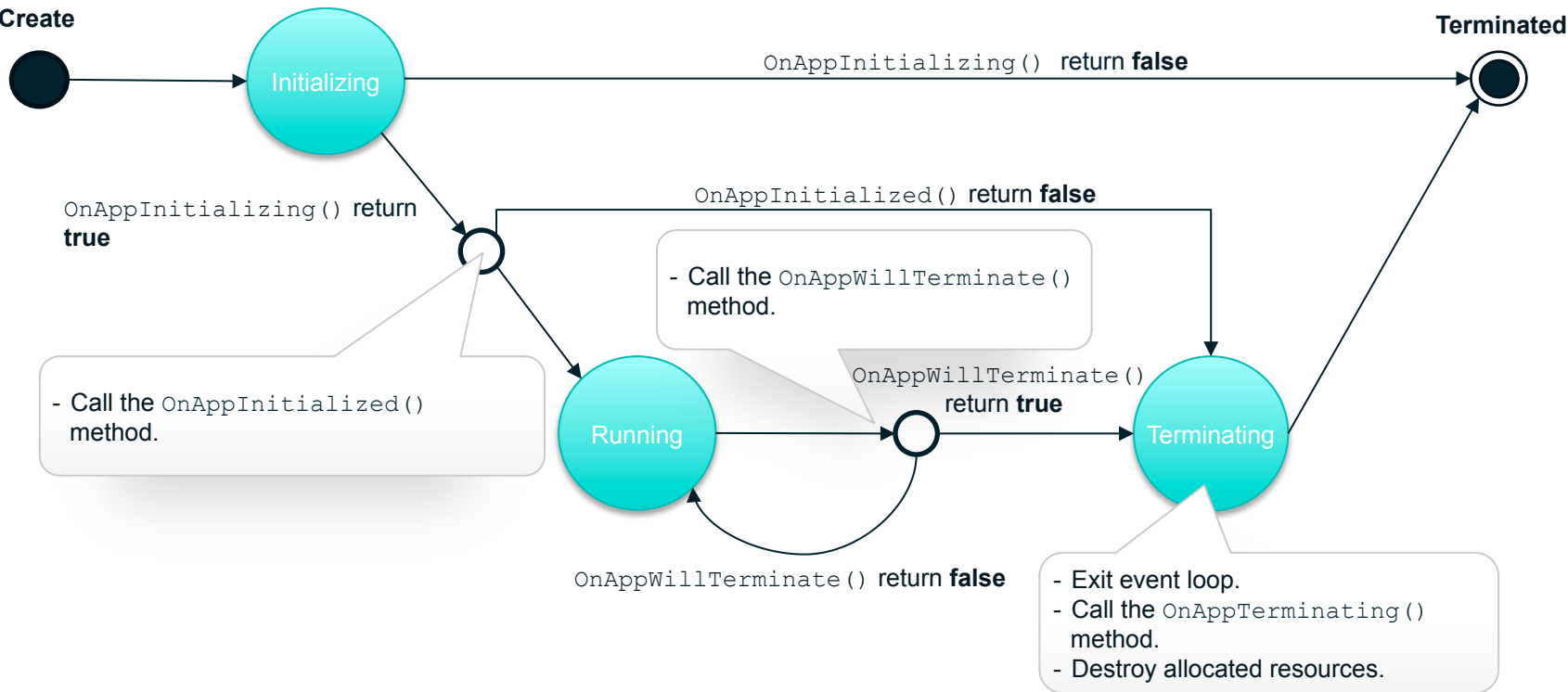




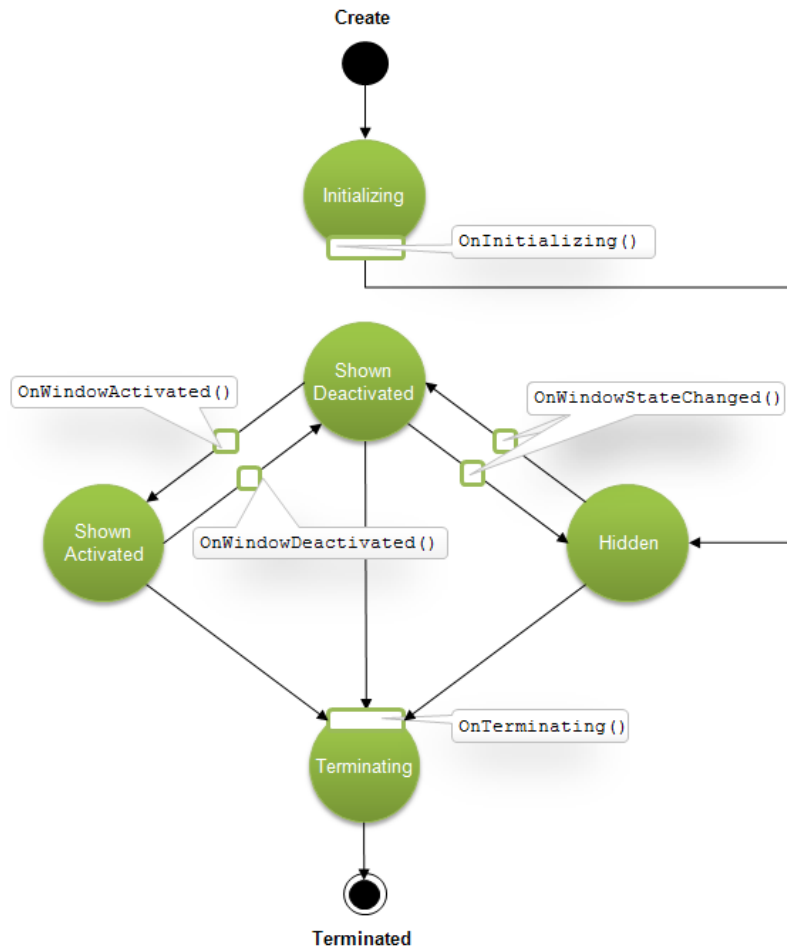
Application Life Cycle

Tizen

Create

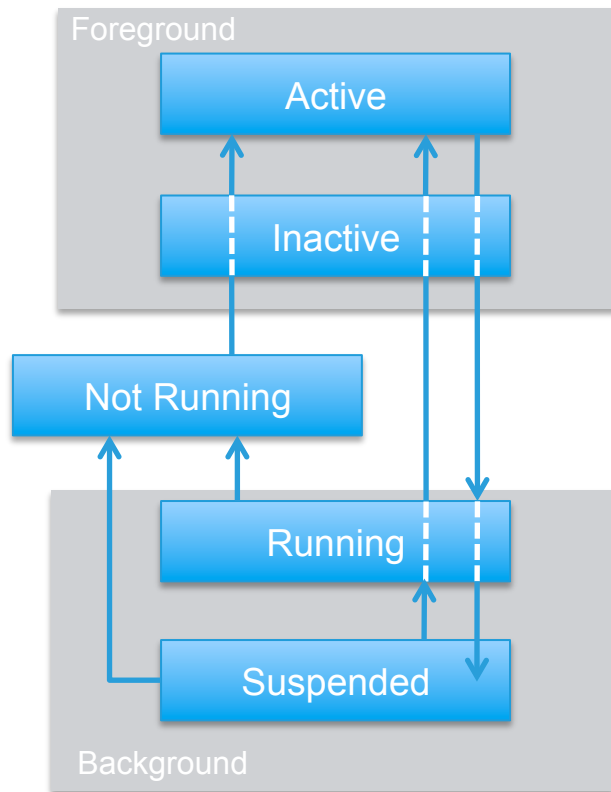


Frame states

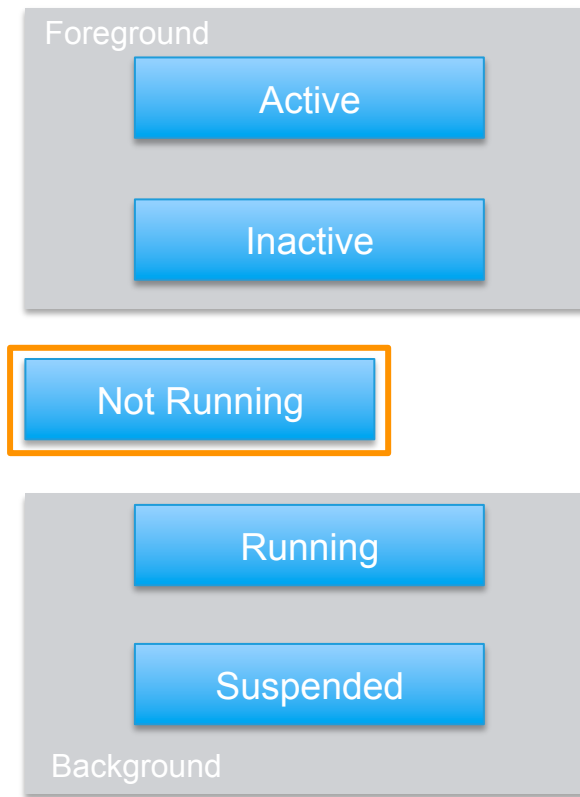


iOS to Tizen

iOS App Lifecycle - Status



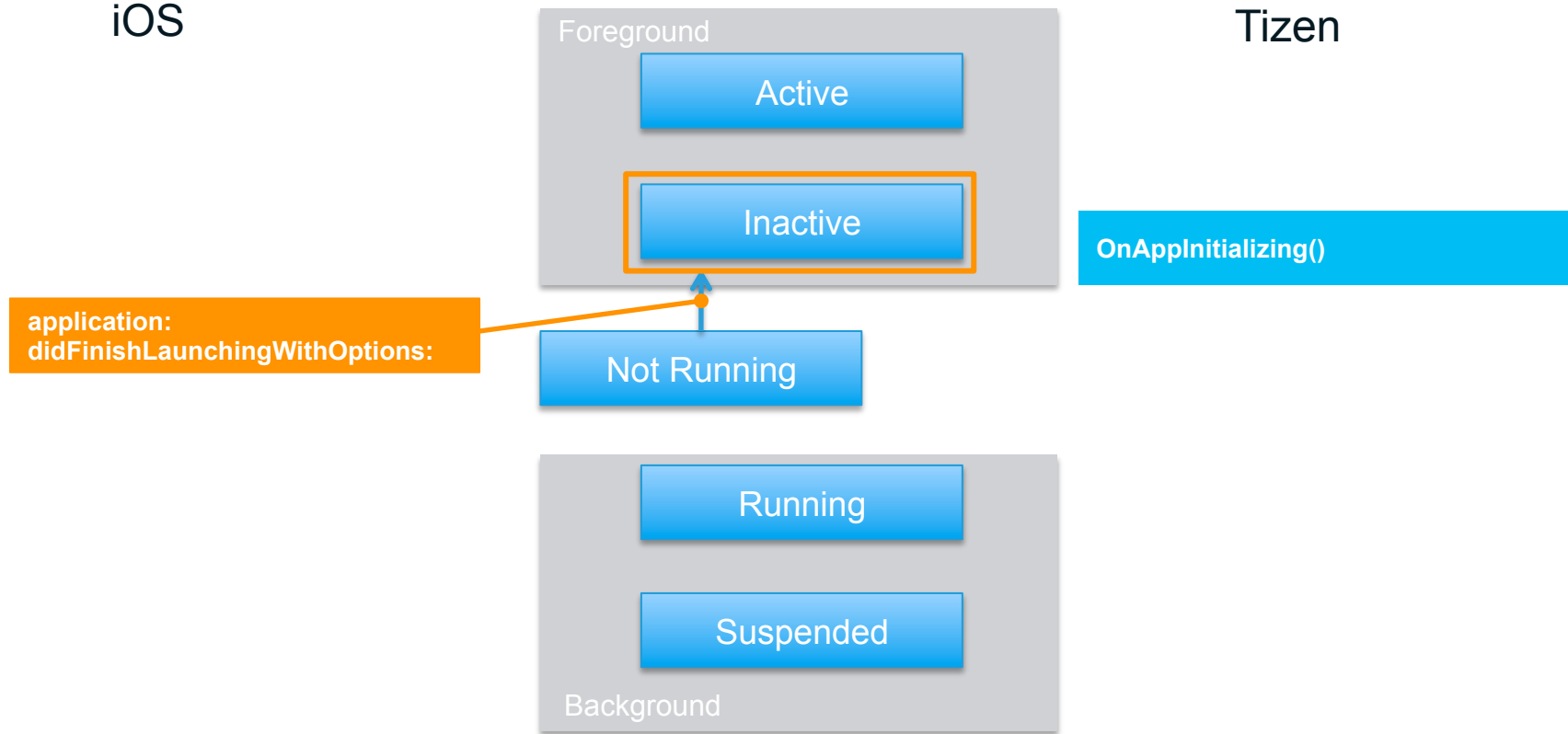
Launching an app



Launching an app

iOS

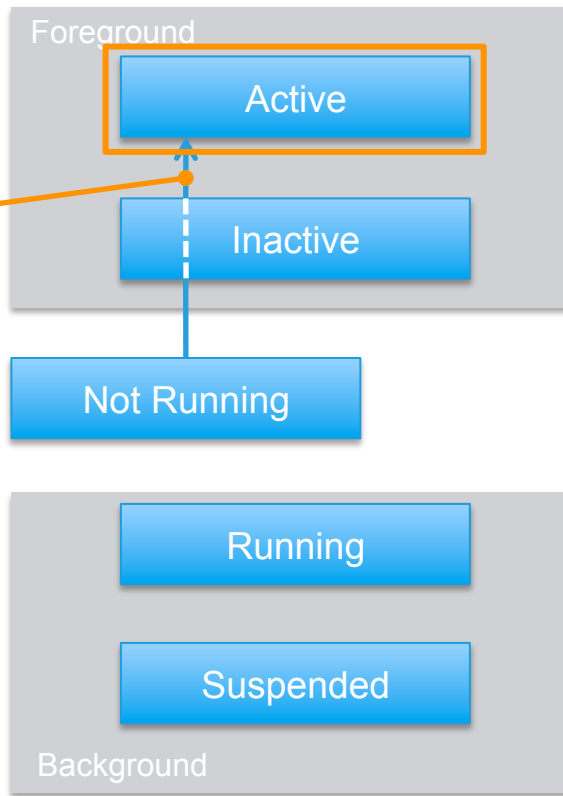
Tizen



Launching an app

iOS

`applicationDidBecomeActive:`



Tizen

`OnAppInitialized()`

Switching from an app

iOS

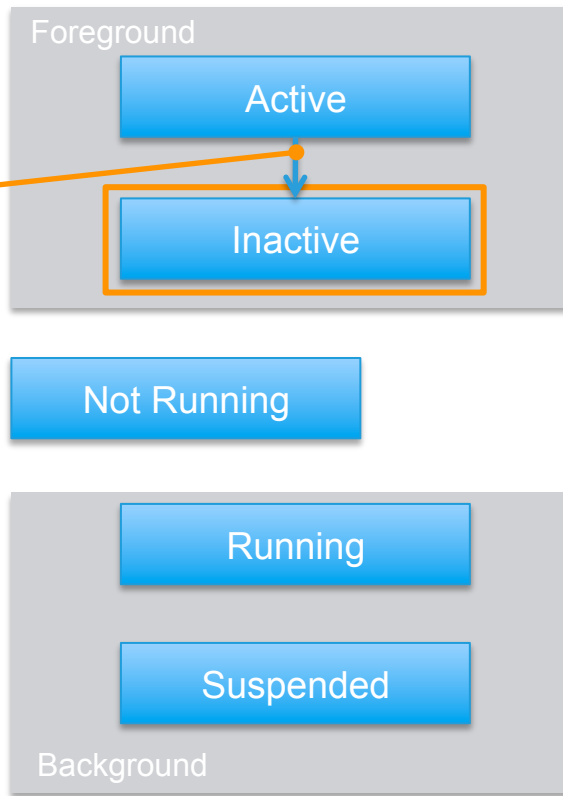


Tizen

Switching from an app

iOS

`applicationWillResignActive:`



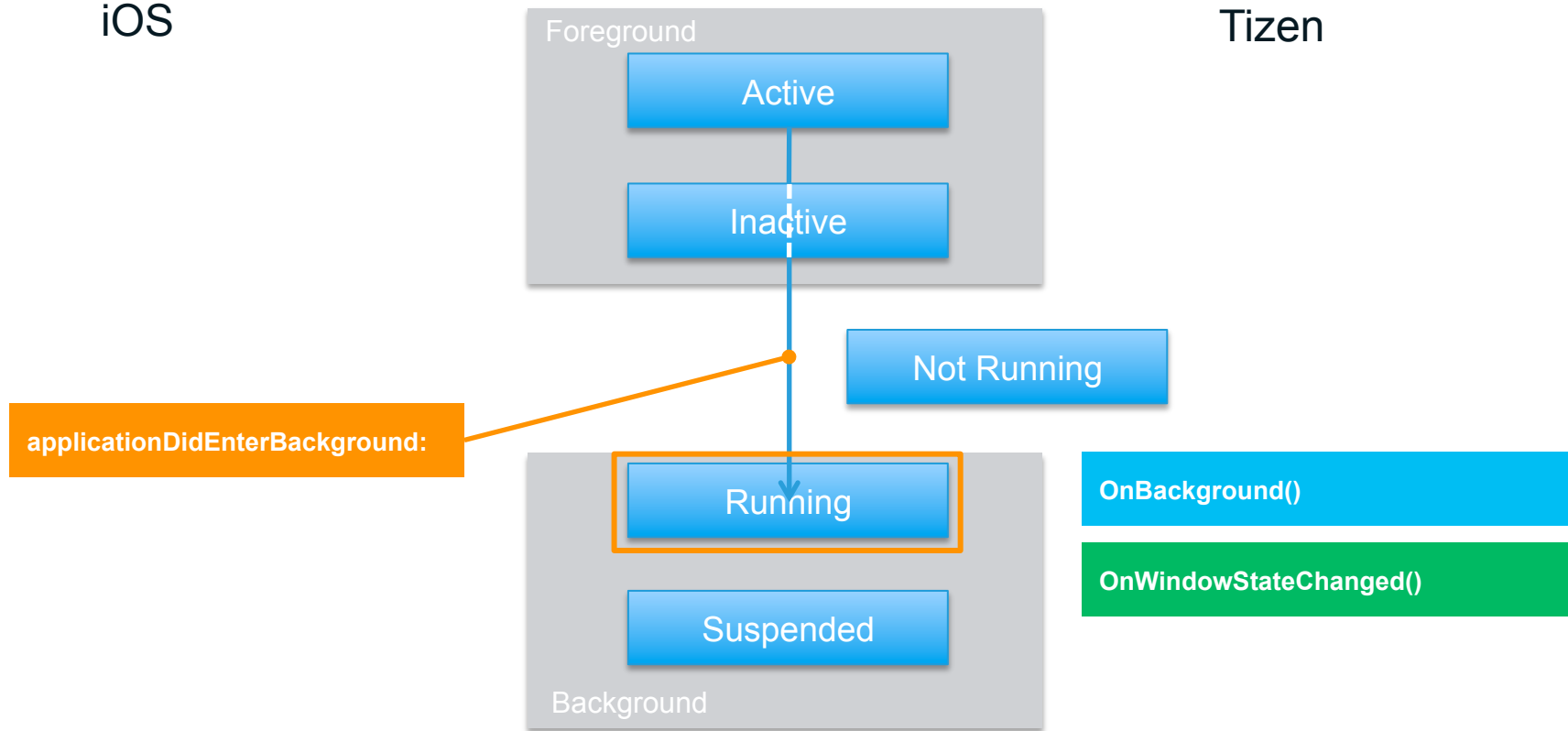
Tizen

`OnWindowDeactivated()`

Entering background

iOS

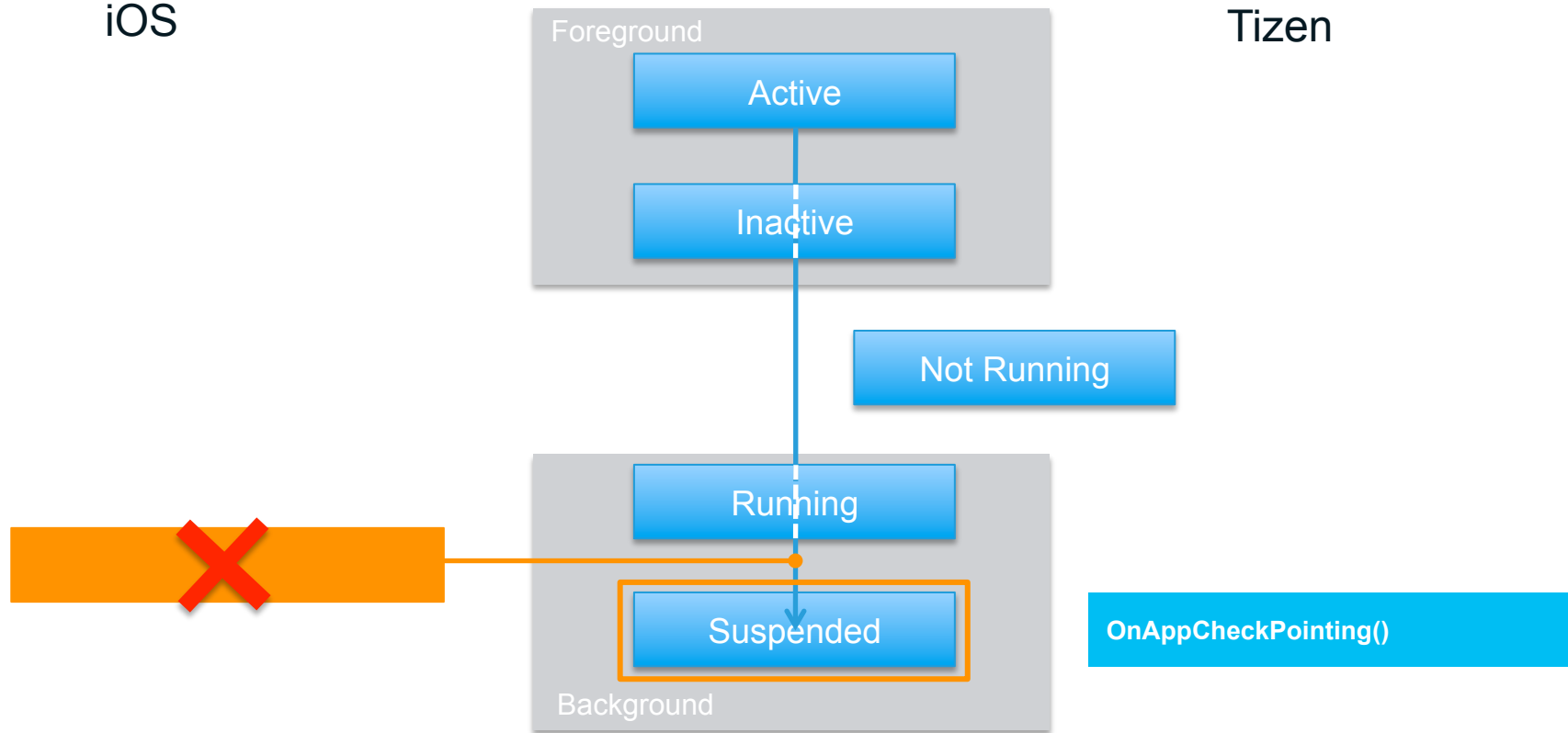
Tizen



Entering background

iOS

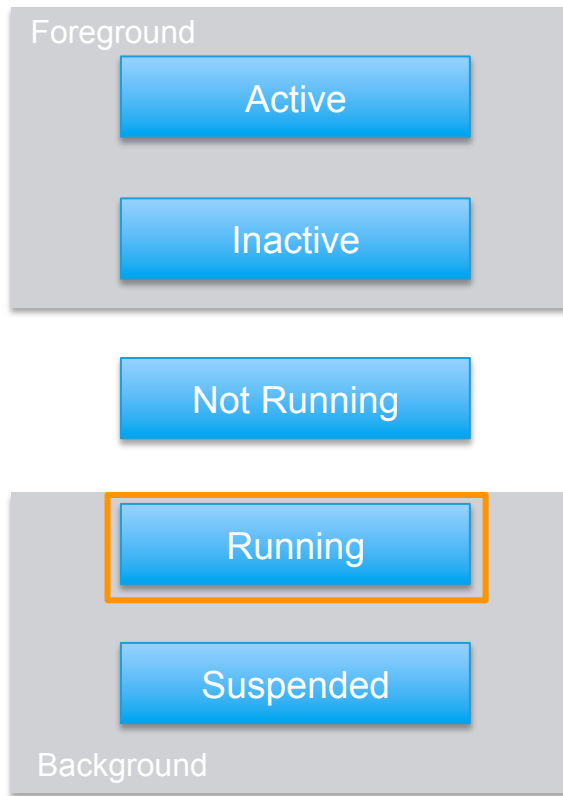
Tizen



Terminating

iOS

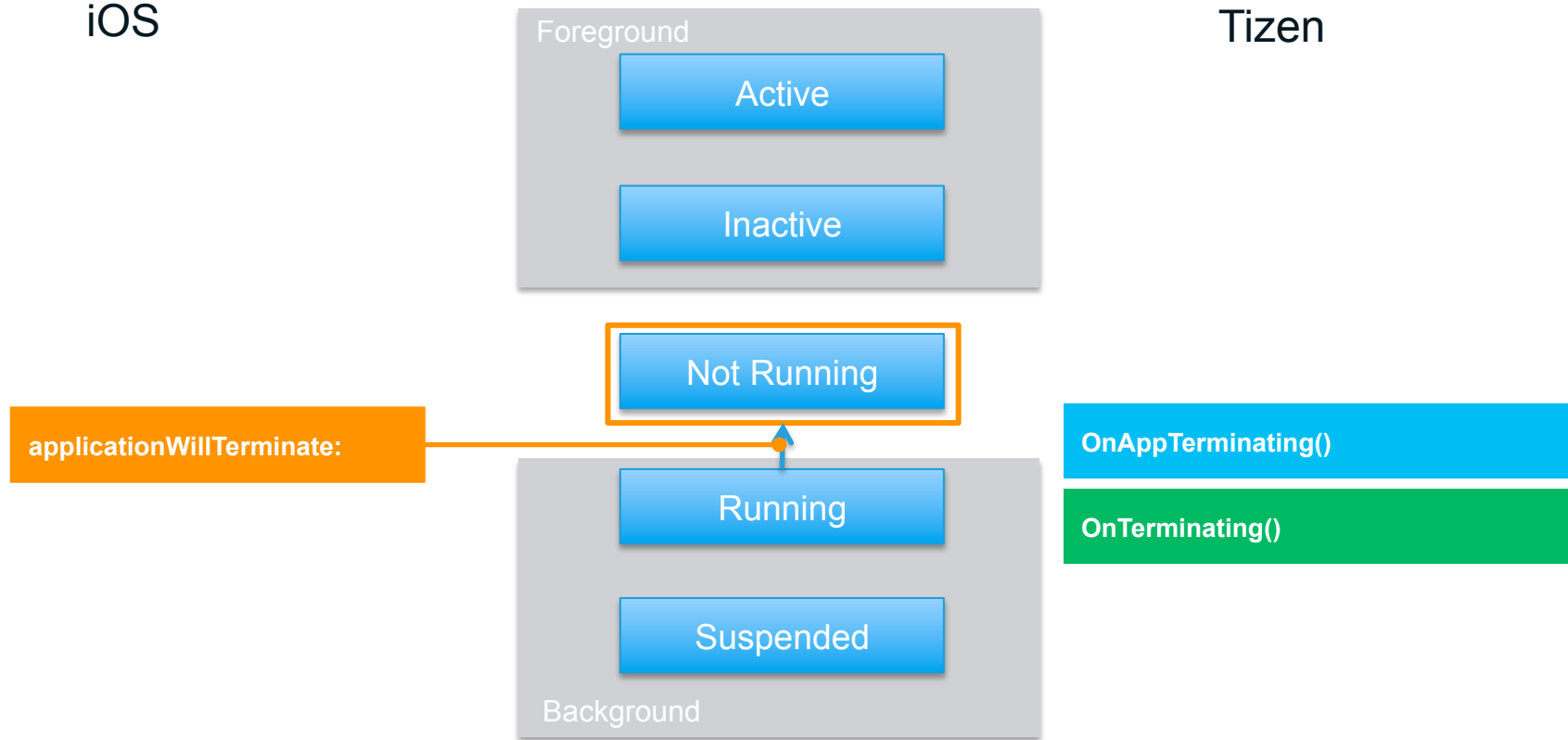
Tizen



Terminating

iOS

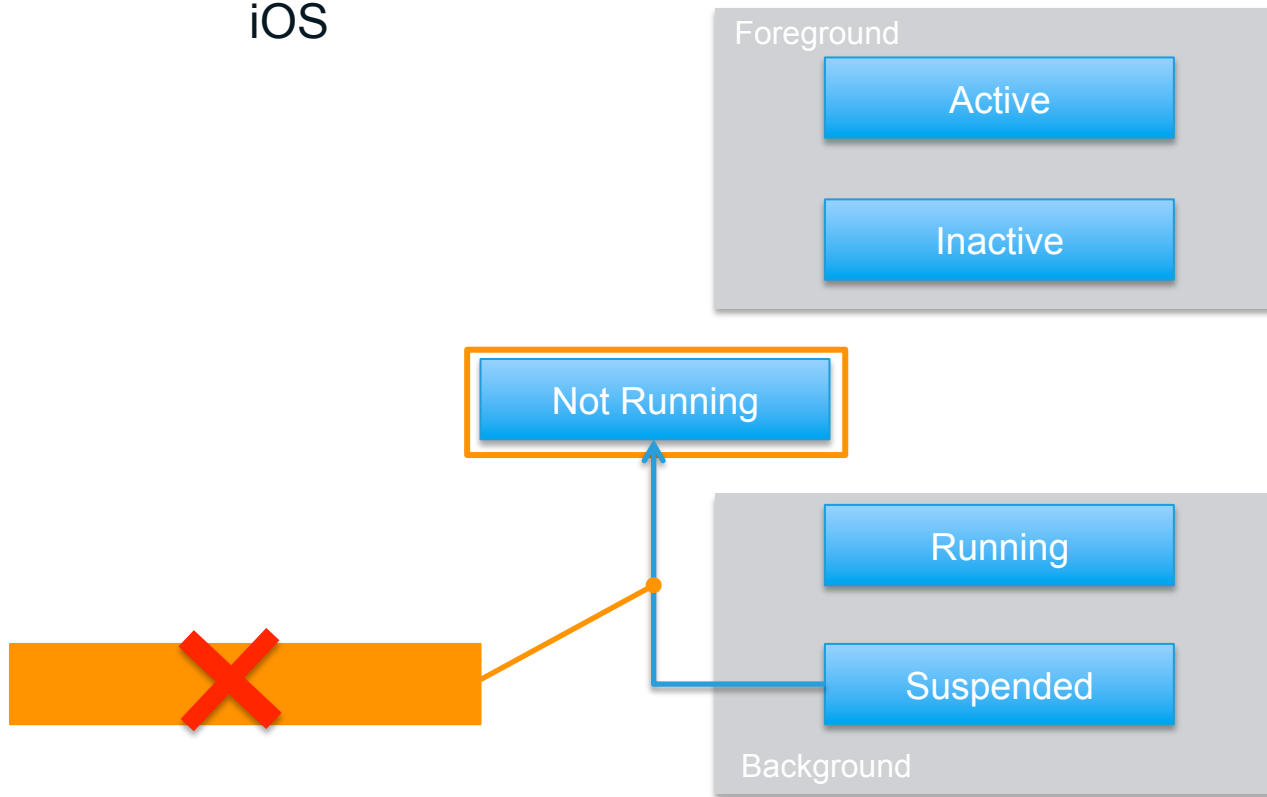
Tizen



Terminating

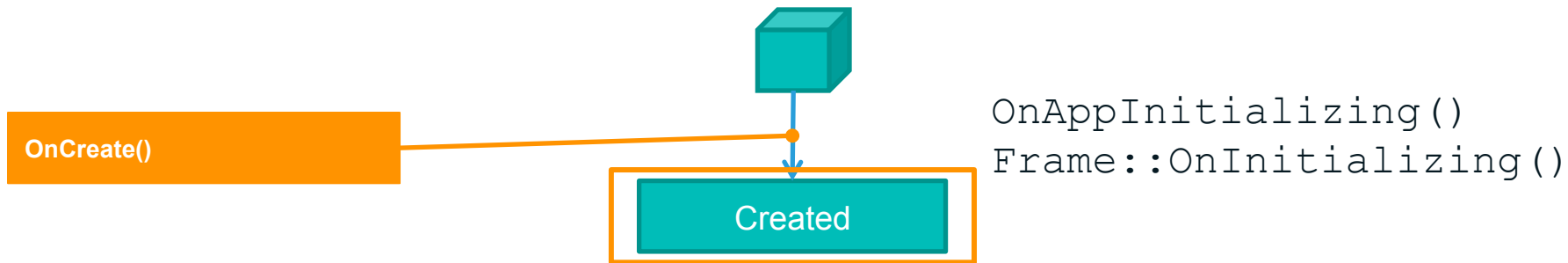
iOS

Tizen

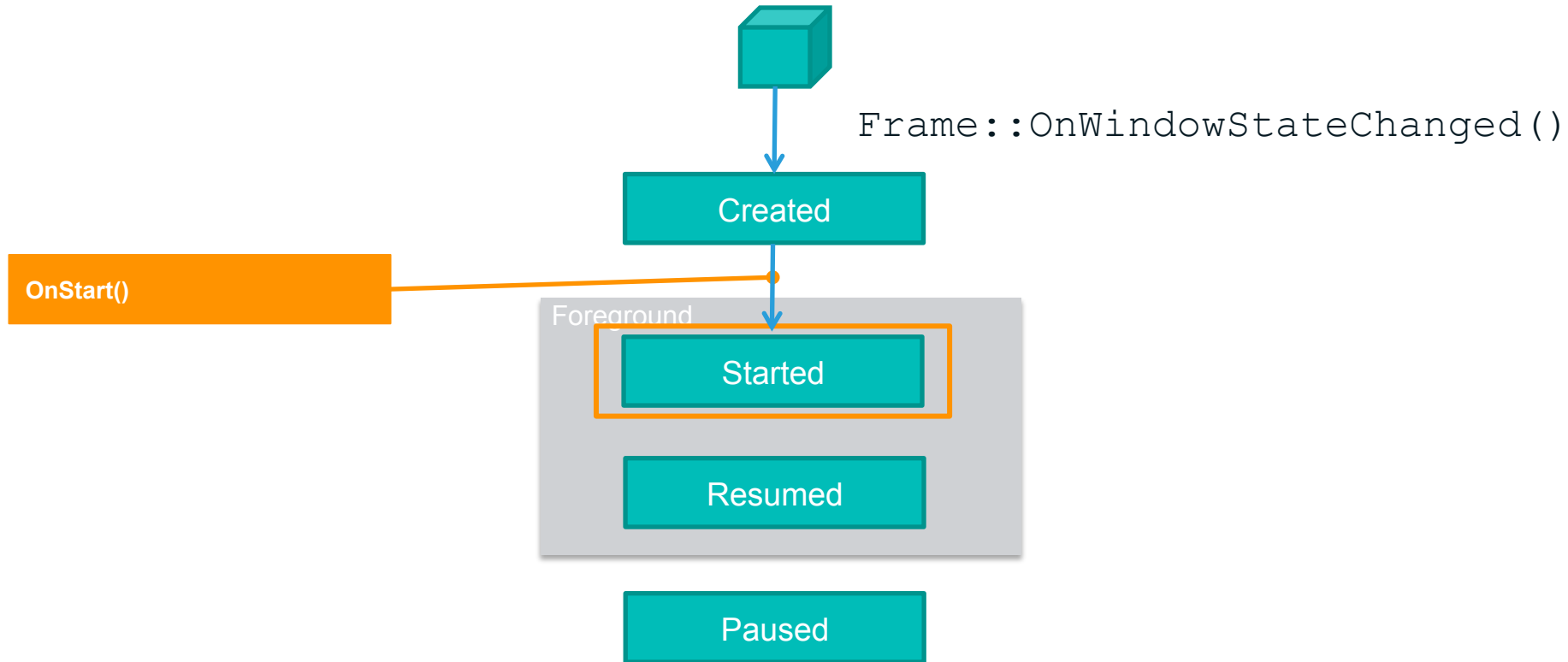


Android to Tizen

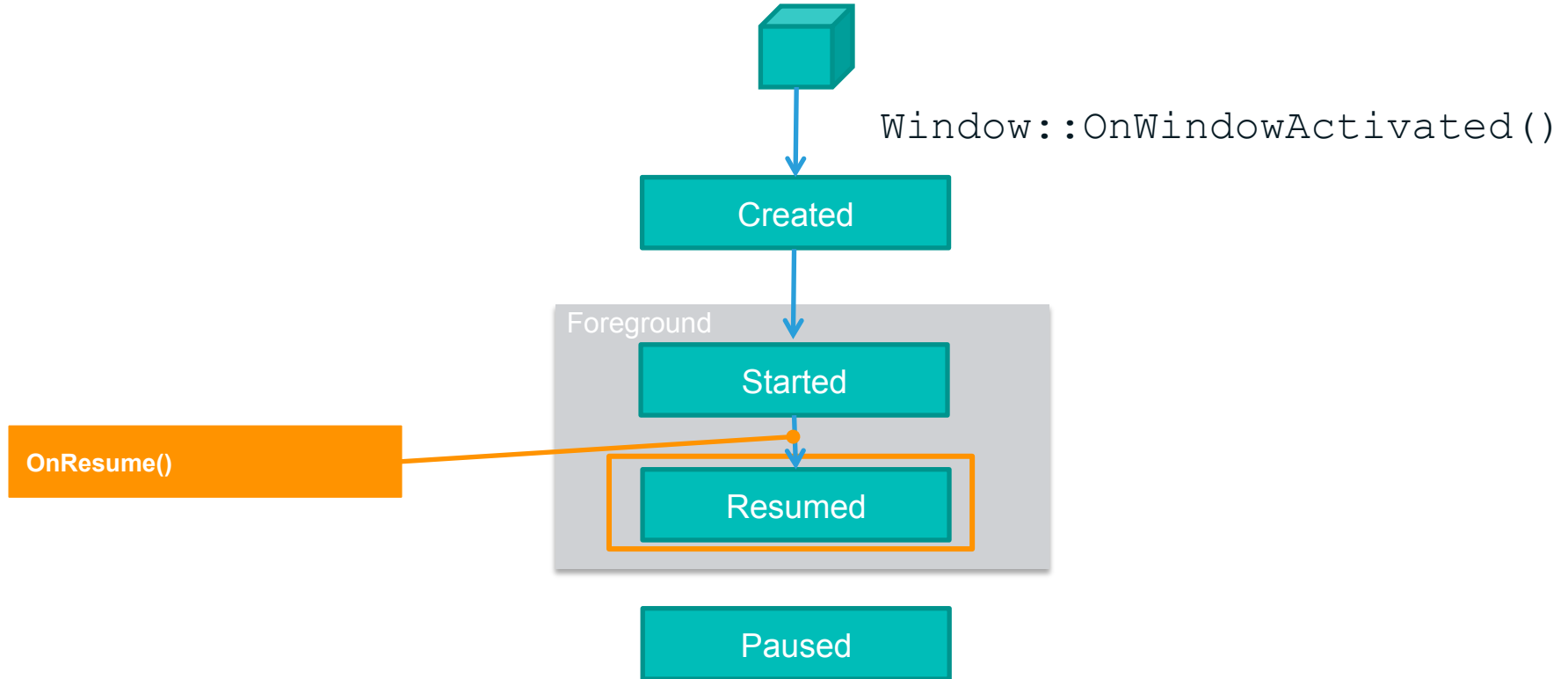
Life Cycle - Android vs. Tizen



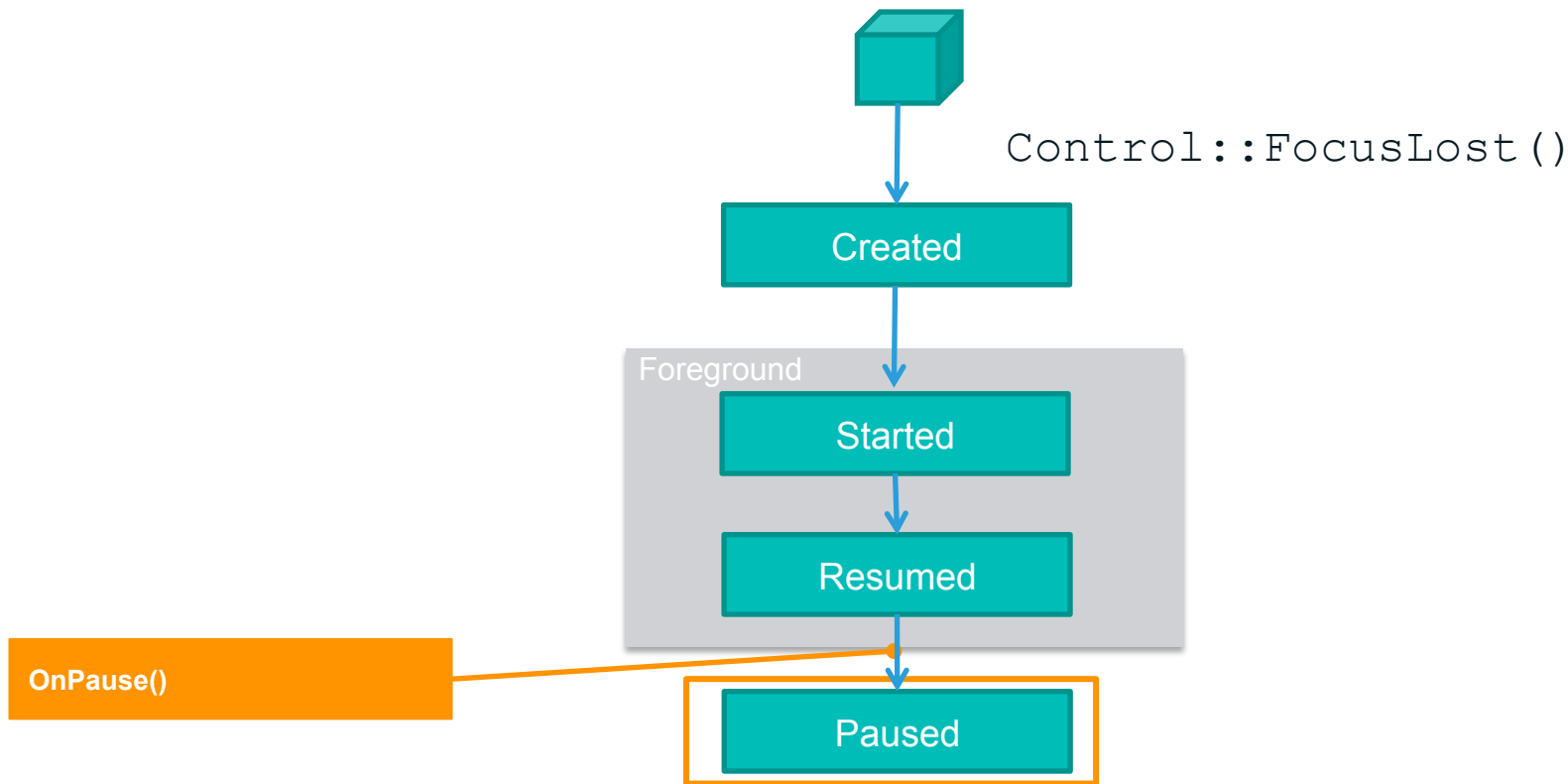
Life Cycle - Android vs. Tizen



Life Cycle - Android vs. Tizen

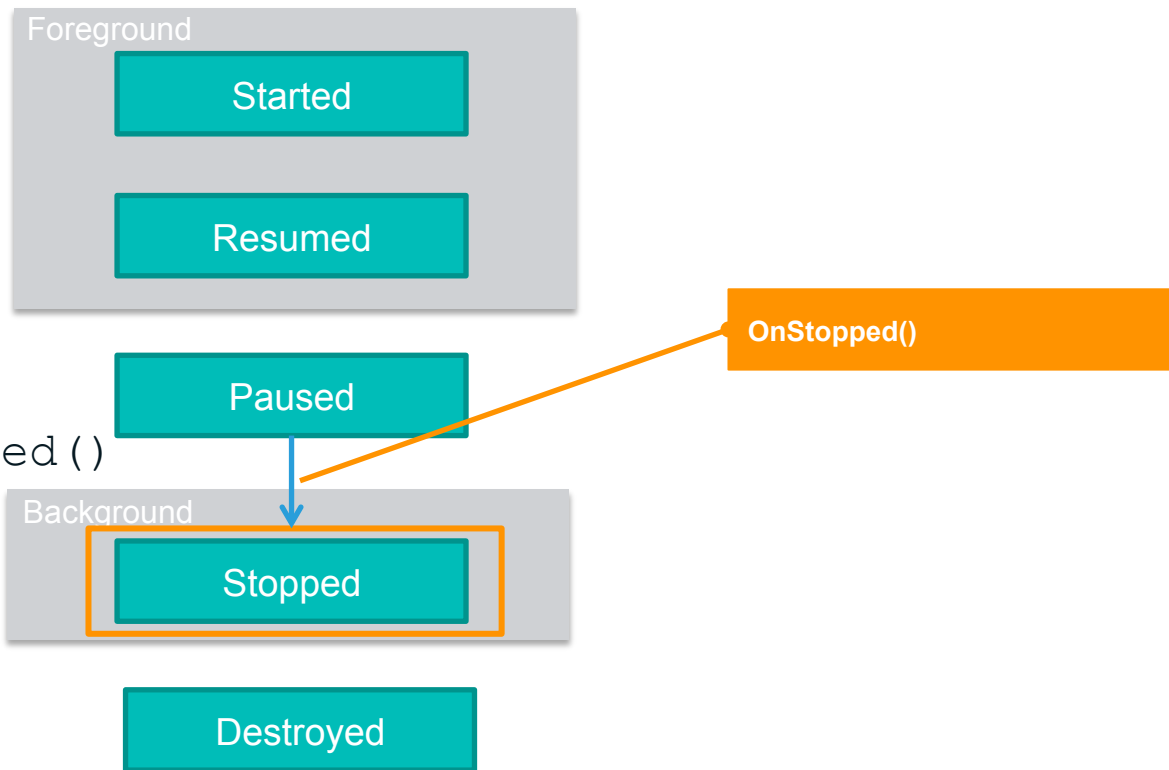


Life Cycle - Android vs. Tizen



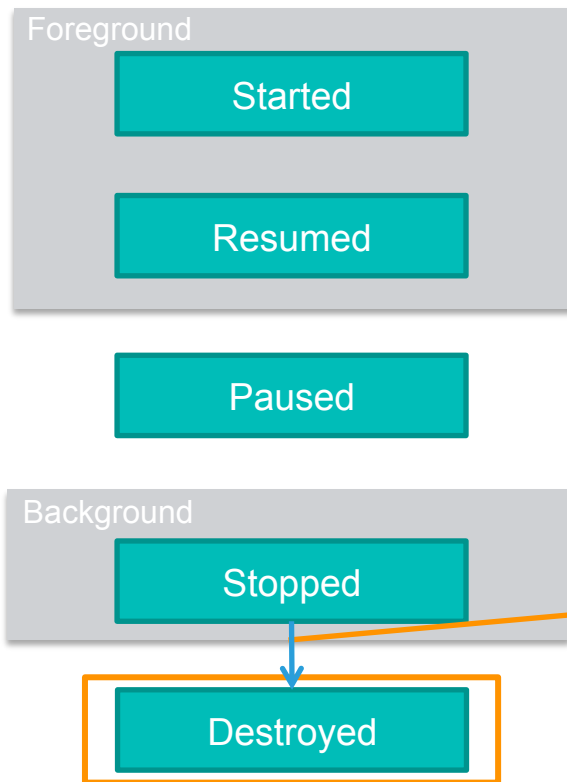
Android App Lifecycle - Status

```
UIApp::OnBackground()  
Window::OnWindowDeactivated()
```

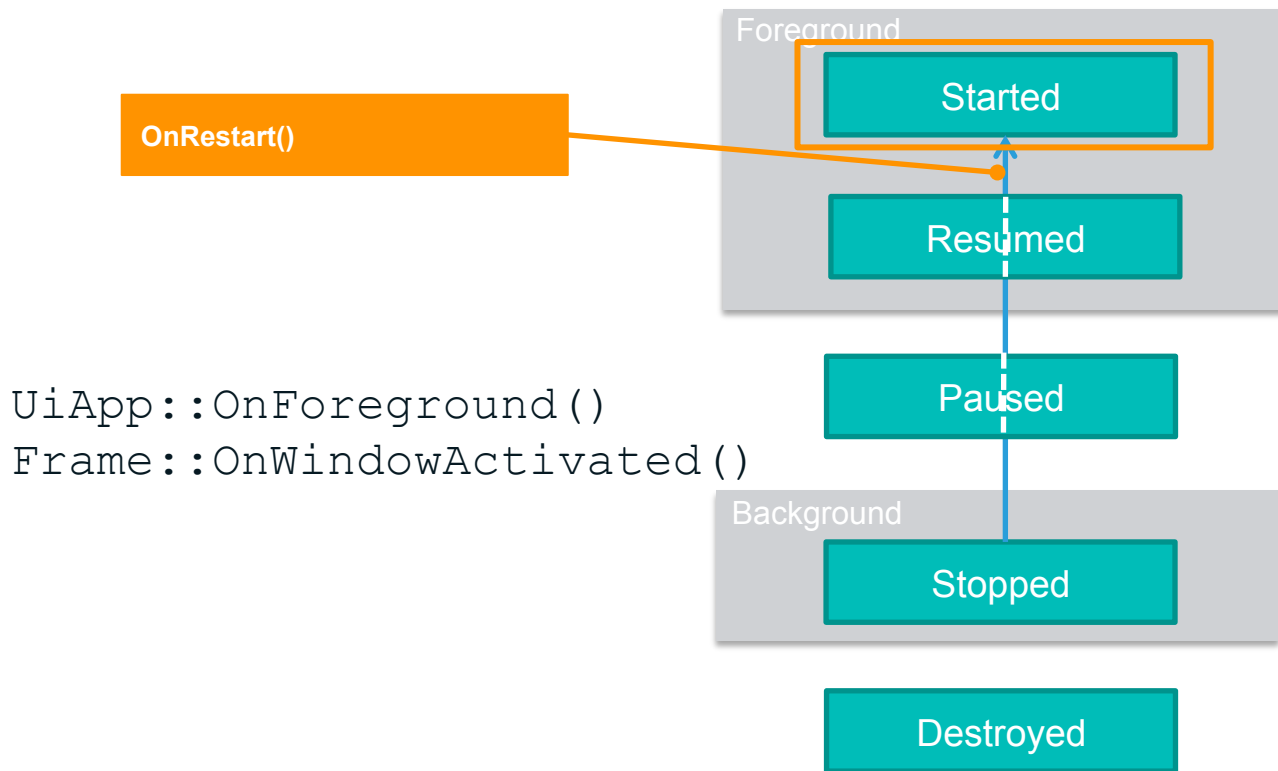


Android App Lifecycle - Status

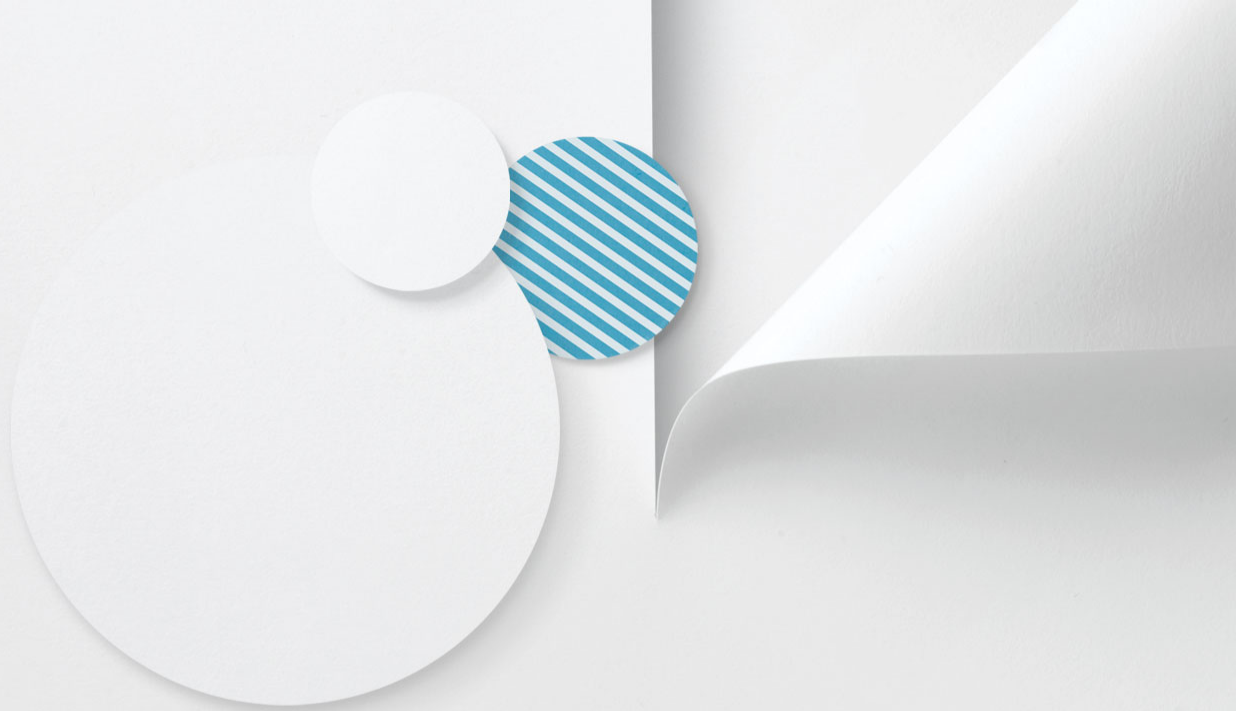
`OnAppWillTerminate()`
`Frame::OnTerminating()`
`OnAppTerminating()`



Android App Lifecycle - Status



`UiApp::OnForeground()`
`Frame::OnWindowActivated()`



Event Handling

iOS to Tizen

Delegate vs. Listener

iOS

Handle the events from UI controls/objects

Protocol methods

Tizen

Handle events from the registered controls

Pre-defined virtual methods

Delegate vs. Listener

iOS

Handle the events from UI controls/objects

Protocol methods

Connection between control, action and delegate has to be made from Interface builder

Tizen

Handle events from the registered controls

Pre-defined virtual methods

Connection between control and listener normally made by calling **AddXXXListener()** function

iOS Event Handling

```
#import <CoreMotion/CoreMotion.h>

@interface RootViewController : UIViewController {
@public
    CMotionManager *motionManager;
}
@property (nonatomic, retain) CMMotionManager *motionManager;
```

```
#import "RootViewController.h"
@implementation RootViewController
@synthesize motionManager;

(Void (^accelerometerHandler) (CMAccelerometerData *, NSError *)) = ^(CMAccelerometerData *accelerometerData,
NSError *error)
{
    NSLog(@"X= %.04f, Y=%.04f, Z=%.04F", accelerometerData.acceleration.x, accelerometerData.acceleration.y, ac
celerometerData.acceleration.z);
};

[self.motionManager startAccelerometerUpdatesToQueue: [NSOperationQueue mainQueue]
withHandler: accelerometerHandler];
```

Android to Tizen

Tizen Listener vs. Android Listener

Tizen

```
class myClickListener : public Tizen::Ui::IActionEventListener {  
  
    Button *pButtonOK  
    //...  
    pButtonOk->AddActionEventListener(*myClickListener);  
}
```

Android

```
class myClickListener implements OnClickListener {  
  
    Button button;  
    //...  
    Button.setOnClickListener(myClickListener)  
}
```



Thank you

TIZENTM

**DEVELOPER
CONFERENCE**

2013

SAN FRANCISCO