
Xamarin Evolve 2014
The home button is not the end: Backgrounding and multitasking on iOS
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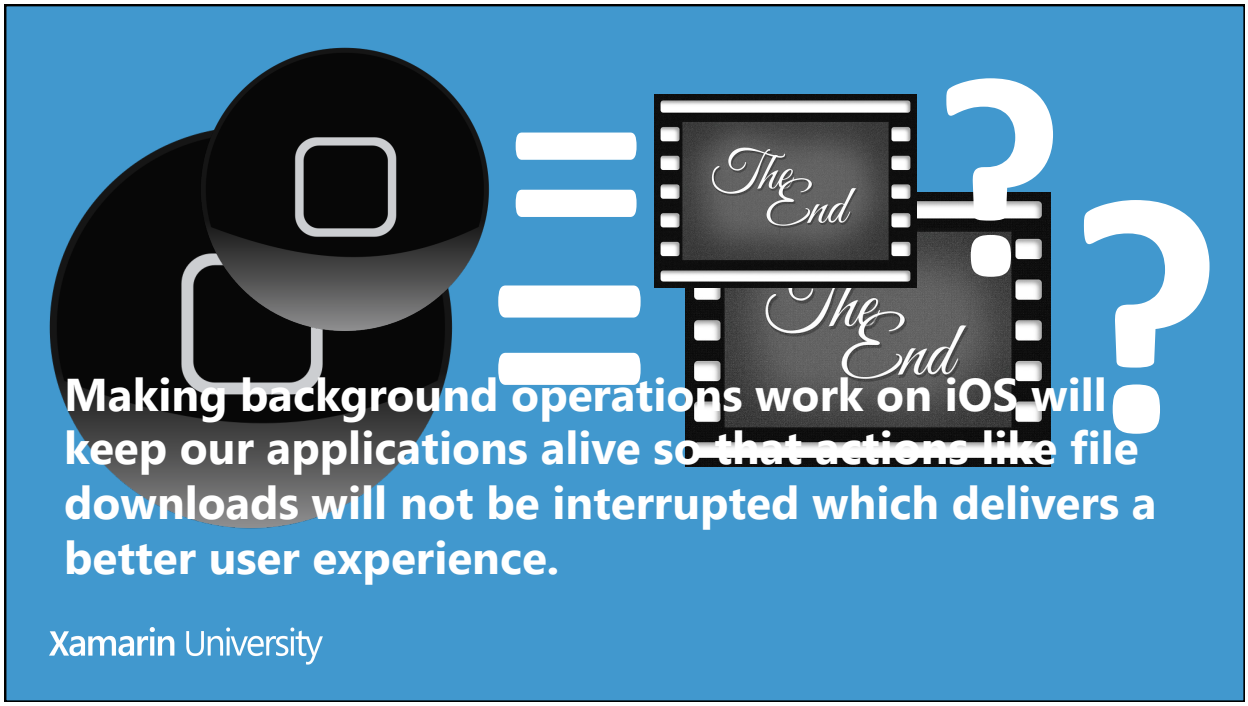
The End
The End
Making background operations work on iOS will keep our applications alive so that actions like file downloads will not be interrupted which delivers a better user experience.
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Agenda

1. Why multitasking?
2. The Application Lifecycle
3. Long Running Tasks
4. Multi Tasking APIs

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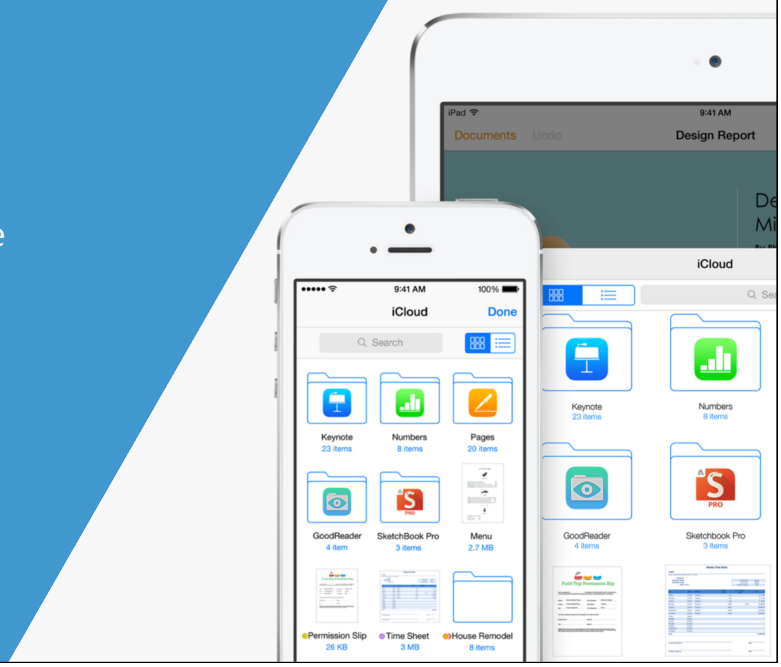

Why Multitasking?

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„Multitasking is the single best way to screw up both jobs at the same time."

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Your iPhone never sleeps

- Downloads / Uploads
- Notifications
- Music
- Navigation
- Bluetooth Communication

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Application Lifecycle

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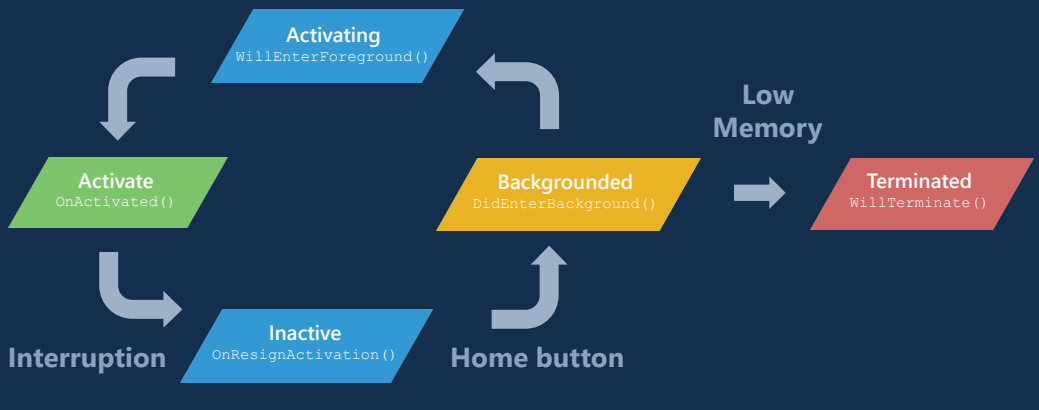
Lifecycle states

AppDelegate provides callback methods



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Lifecycle states

Observing state changes

```
public override void ViewDidLoad()
{
    base.ViewDidLoad();

    UIApplication.Notifications.ObserveDidEnterBackground(
        (object sender, NSNotificationEventArgs e) => {
            // AppDelegate.DidEnterBackground() triggered
        } );
}
```

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iOS is very strict

- Very strict time limits
- Better keep your app responsive…
- …or it will be terminated

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Long running Tasks

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Fire and don't forget

```
var app = UIApplication.SharedApplication;

int id = app.BeginBackgroundTask();

DoSomeBackgroundWork();

app.EndBackgroundTask(id);
```

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Fire and don't forget

- Long running tasks can be kicked off from the lifecycle callbacks…
- …but also everywhere else
- Can be nested
- Have to be ended
- Do not perform anything in the background on their own

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Demo

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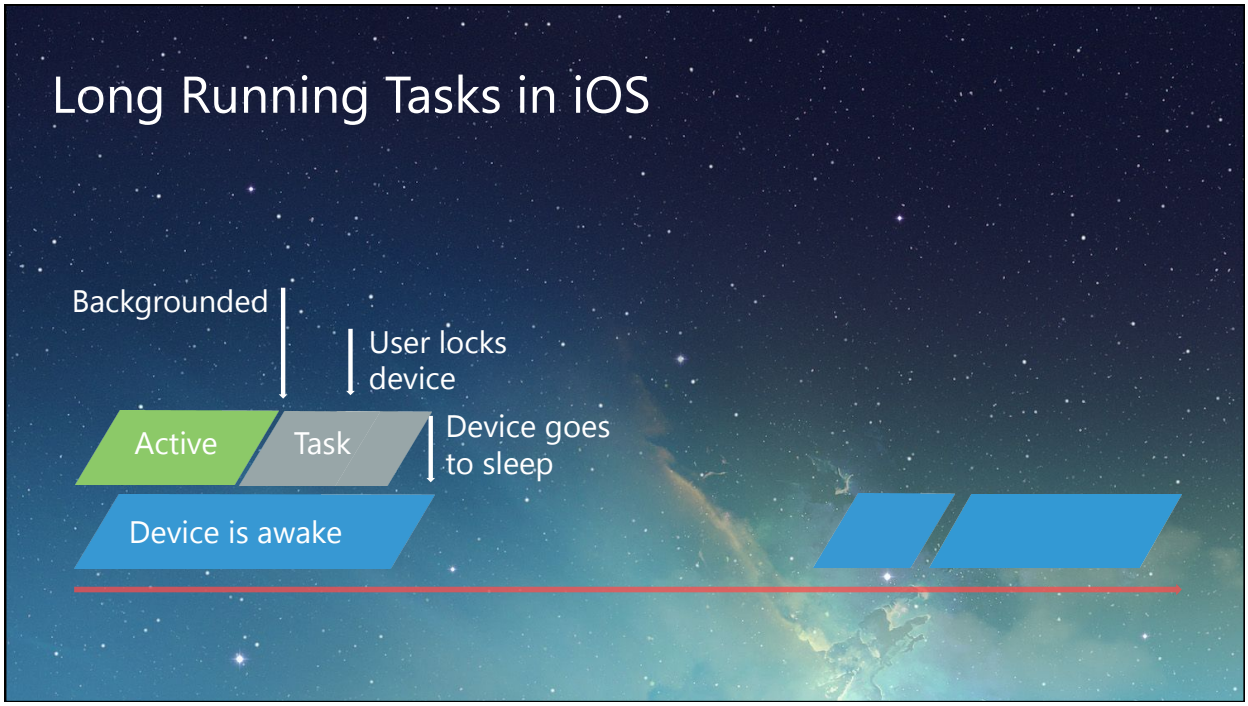

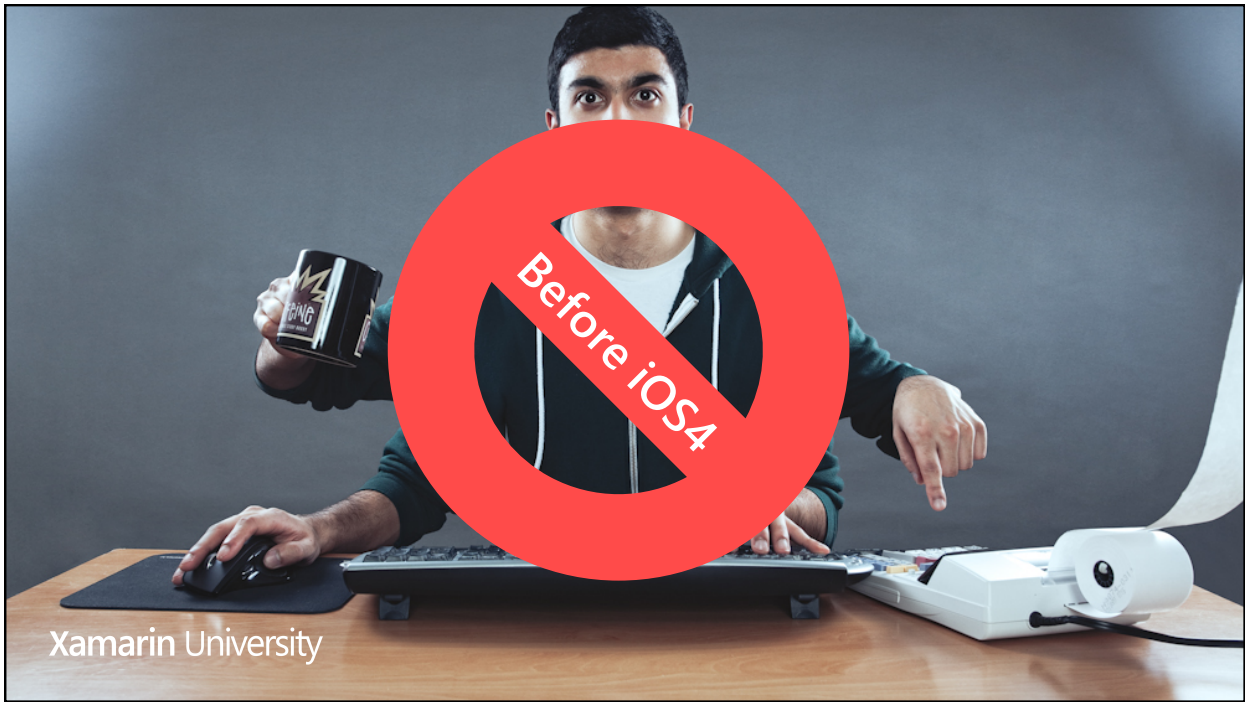

Specific features only

- Audio & Video / AirPlay
- Location Updates
- Voice over IP
- Newsstand downloads
- External accessories
- Bluetooth LE accessories
- Act as Bluetooth LE accessory
- Local and Remote notifications
- Background updates

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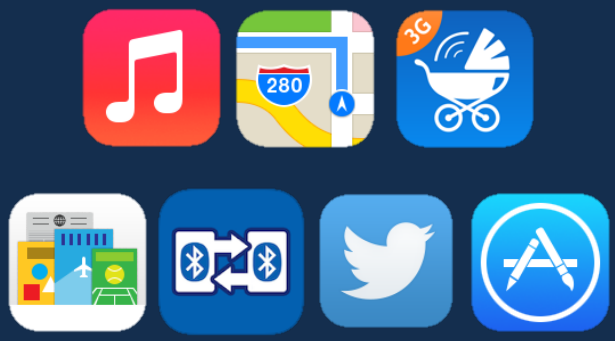

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Demo

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iOS7

- Background Updates
- Background Fetch
- Remote Notifications
- Background Transfer Service

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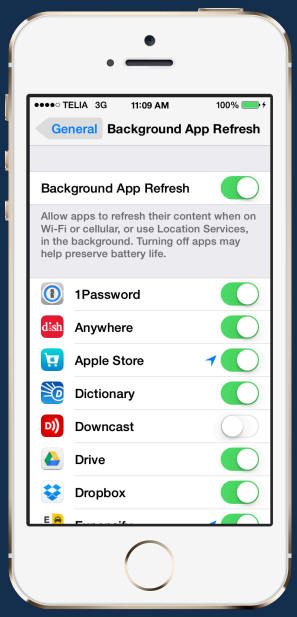

Specific iOS7 APIs

- Background Fetch
- Use for apps that require frequent, uncritical updates
- Have data ready when user comes back to your app...
- ...instead of showing „please wait"
- iOS observes app usage
- Will update „just in time"

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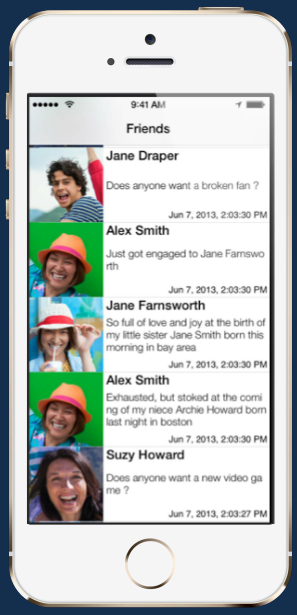

Specific iOS7 APIs

- Remote Notifications
- App is launched before notification is shown
- Supports silent notifications
- Use for updates with higher importance

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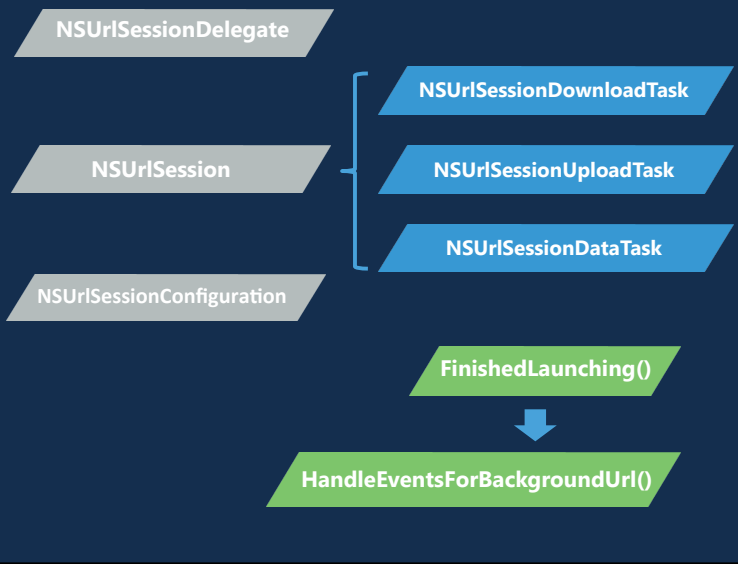
Specific iOS7 APIs

- Background Transfer Service
- Transfers managed by iOS
- No time limits
- Continue when app exits



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What's new in iOS8

- APIs changed
- Location usage notifications
- Recent contacts
- Rumor: split screen support

Summary

- Background operations are necessary
- Watch out for device capabilities and limitations
- Use appropriate APIs: background task vs. background necessary app

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