Automate Tutorial Testing in the Cloud with GitHub Actions, Visual Studio App Center and Xcode Cloud

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Tutorials at Couchbase

- Previous Tutorial Model
  - Tutorial was written for a specific version of Couchbase Server and SDK or Couchbase Lite SDK
  - When a major release or a release with new features is scheduled to release, tutorials are update
- Problems with this approach
  - We “assume” the tutorials won’t break from SDK updates
  - We “assume” the tutorials won’t break from platform updates (iOS, Android)
  - We “assume” the tutorials work with new versions of the IDE when they ship
- But wait, aren’t Tutorials just code? Why don’t regular mobile development teams have these problems?

Solution for code with less bugs?

Agenda

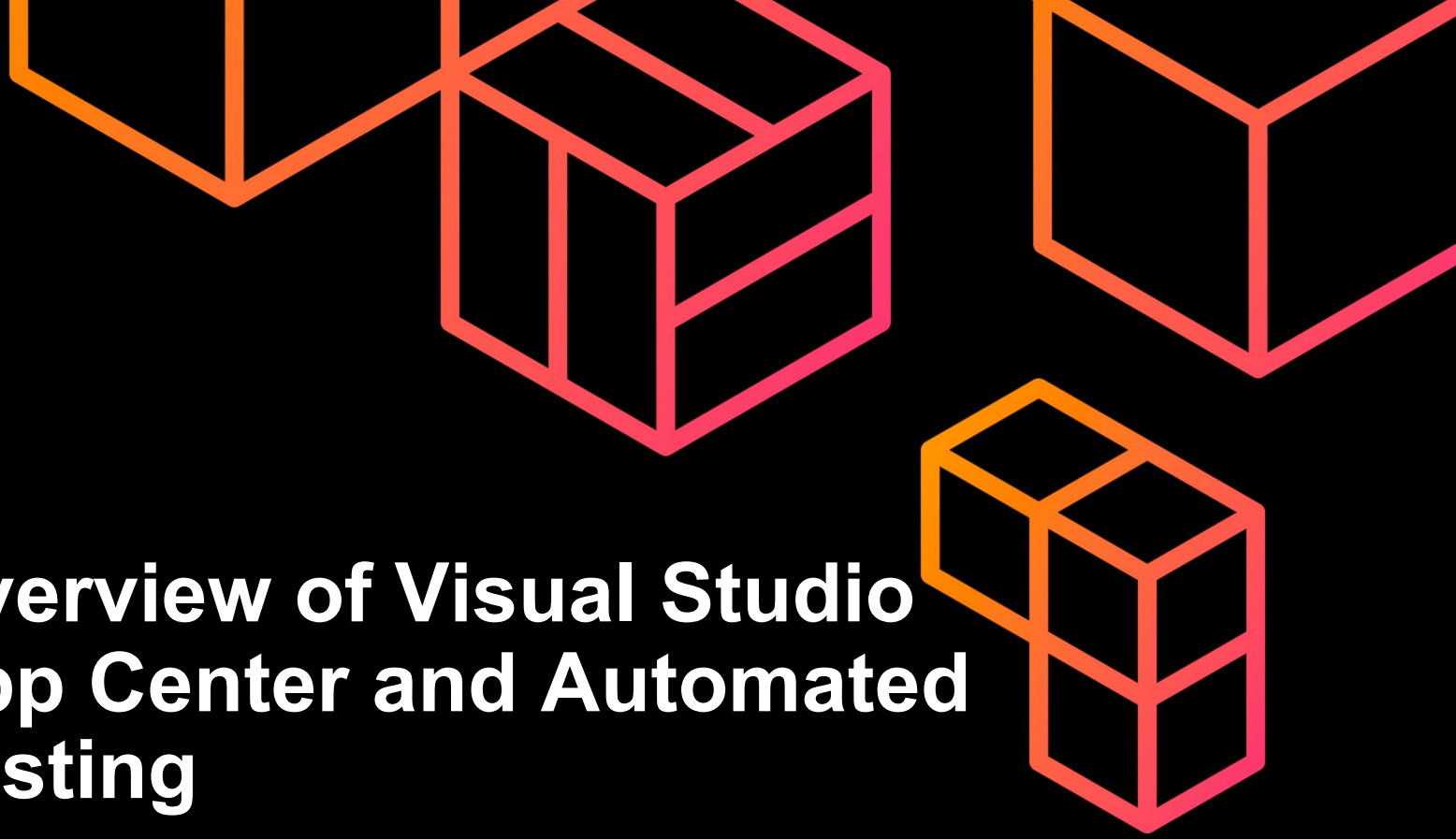
01/ Overview of Visual Studio App Center and Automated Testing

02/ Automation with GitHub Actions

03/ Automation Results in App Center

04/ Xcode Cloud and iOS

05/ Comparisons between App Center and Xcode Cloud



1 Overview of Visual Studio App Center and Automated Testing

What is App Center?

- `Visual Studio` App Center brings together services for building, testing, and distributing applications along providing monitoring services like analytics and diagnostic services
- App Center building and distribution is based on Hocky App, a popular service used by iOS and Android developers to test mobile applications
- App Center testing solution is based on Xamarin Test Cloud, a solution for providing physical devices on the cloud to run automated tests

App Center Features

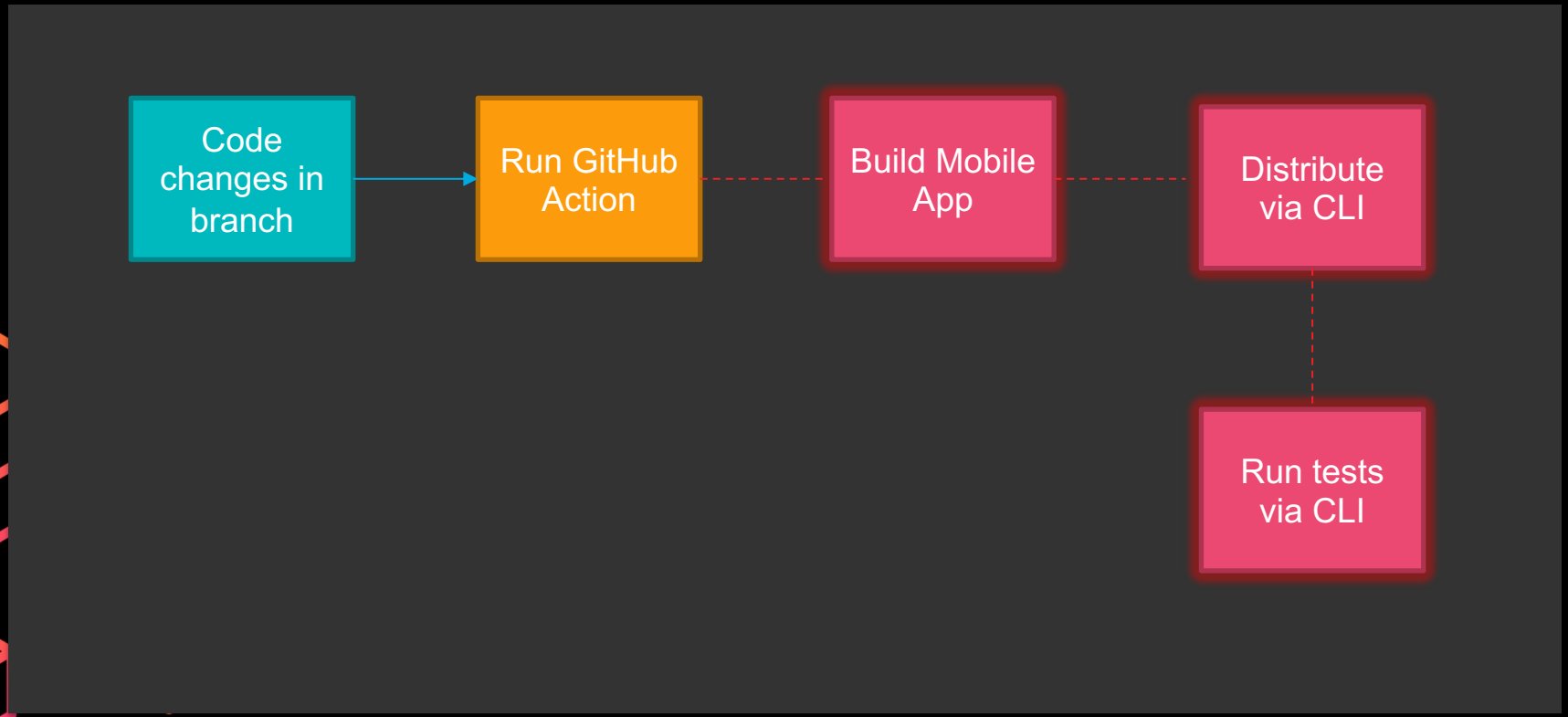
- **Test** – **allows you to perform automated UI tests of iOS and Android apps on ”hundreds” of configurations and ”thousands” of real devices, including latest flagship phone and older hard to find phones**
- **Build** – App Center build service allows you to connect your existing repos from GitHub or Azure Dev Ops and gives you some “lifecycle” scripts (post-clone, pre-build, and post-build). Supports code repos hosted in GitHub, Azure DevOps, Bitbucket, and GitLab *(Use the tools you already have)*
- **Distribute** – allows you to distribute your app to testers, Google Play, Apple’s App Store, and Microsoft InTune (MDM)
- **Analytics** – allows you to use the SDK to follow custom events along with information about your audience including active users, popular device models, and activity.
    - Warning: Information isn’t stored very long on the free account, need to export to Azure App Insights or Azure Blog storage
- **Crash** – get crash reports throughout the lifecycle of your app regardless of what you use to distribute

Automated Testing (UI Tests)

- UI Tests can run on real physical devices and grab screenshots for you to review
- Frameworks
  - iOS (10.0 and higher)
    - Appium (Java/JUnit)
    - Calabash (Ruby/Cucumber)
    - XCUITest (Swift/Obj-C)
  - Android (5.0 and higher)
    - Appium (Java/JUnit)
    - Espresso (Java or Kotlin)
  - Xamarin
    - Xamarin.UITest (C#/F#)

2 Automation with GitHub Actions

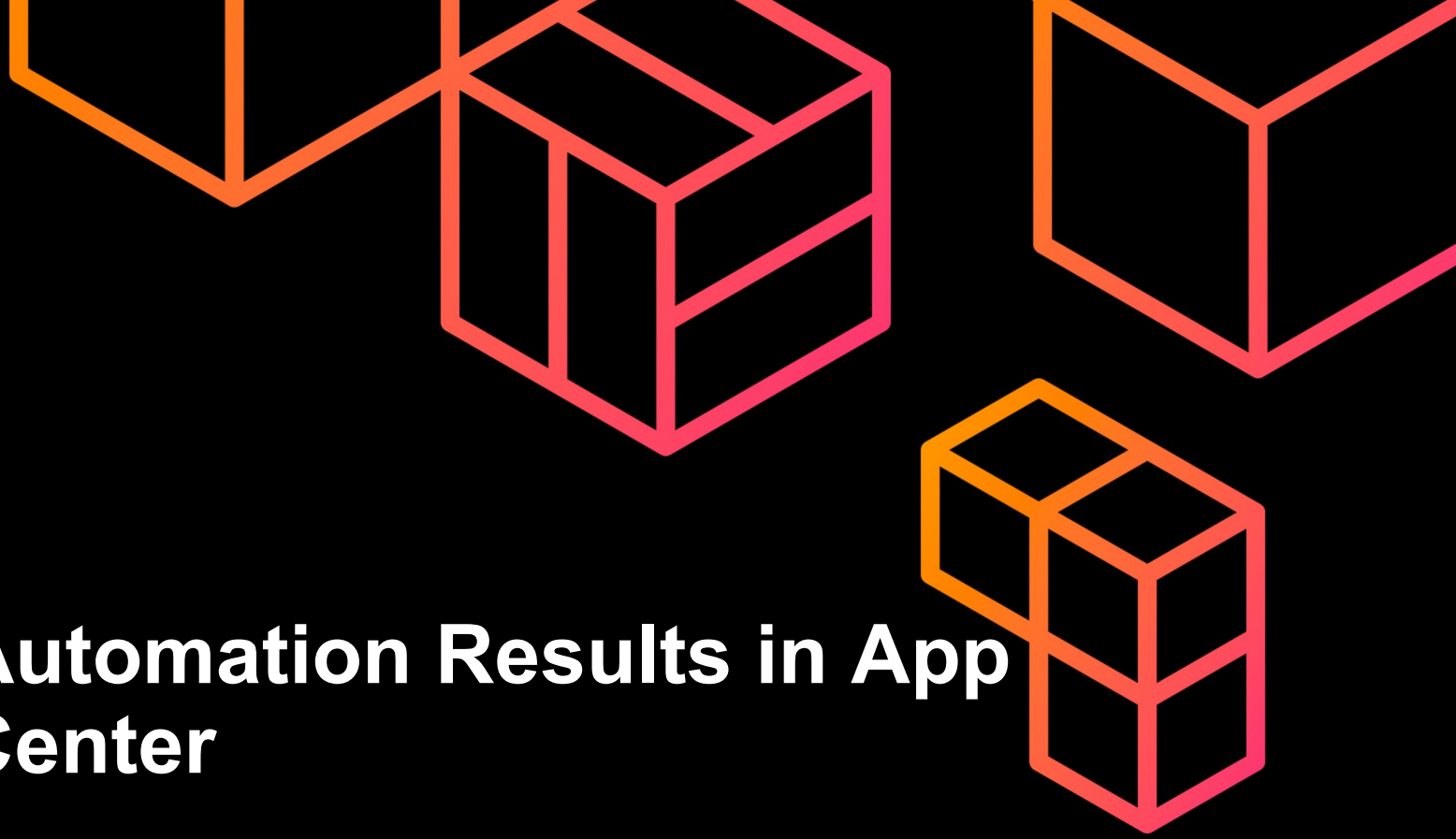
Workflow Using GitHub Actions



Live Demo

What about GitHub Actions and iOS and Certificates/Profiles

- With iOS it's highly recommended to review Microsoft's documentation
  - https://docs.microsoft.com/en-us/appcenter/test-cloud/ios-sign-for-testing
  - https://docs.microsoft.com/en-us/appcenter/test-cloud/frameworks/xcuitest/
- With iOS App Center can resign your application, which means it can run on there devices. They can only do this for apps that are signed with a Developer profile/Cert
- App Center can't resign apps that are signed with a App Store Profile/Cert



3 Automation Results in App Center

Live Demo

4 Xcode Cloud and iOS

What is Xcode Cloud

- Xcode Cloud is a full CI/CD pipeline build and automated testing platform that is build specifically for testing iOS, iPadOS, MacOS, tvOS, and WatchOS applications
- Xcode Cloud is built into the IDE so you never have to leave your IDE to setup workflows
- Xcode Cloud is a near “zero code” solution for setting up build and testing.
    - No YAML
- Xcode Cloud is in beta and currently has some ”restrictions”
    - If you are building apps the simple Apple ”stock” way, it works great.
    - The second you need flexibility, Xcode Cloud shows its rough edges

Live Demo

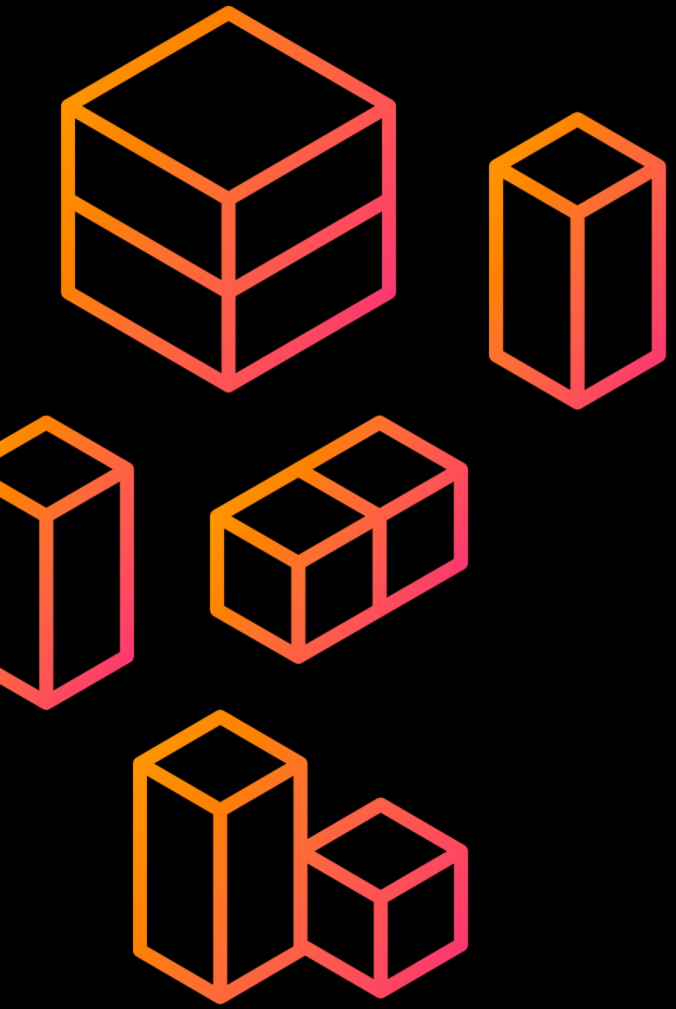
5 Comparisons between App Center and Xcode Cloud

App Center vs Xcode Cloud

- App Center uses real devices to test your applications with and works on both iOS and Android
- App Center has been around for over 5 years
- Xcode Cloud can be completely setup in your IDE with no code for your CI/CD Pipeline
- Xcode Cloud uses simulators to test your applications
- Xcode Cloud can quickly test your code on a very wide range of simulators, iOS versions and Xcode versions
- Xcode Cloud is in beta and pricing hasn't be released yet

Summary

- There are several solutions for testing mobile applications with physical devices in the cloud
- App Center provides support for iOS and Android and supports older devices
- Some code changes may be required in order to get the optimal test experience
- Xcode Cloud while in beta is looking to provide a solid solution for testing multiple versions of Xcode with our code base/tutorials
- Companies using MDM with device enrollment will find very limited support, if any and a lot of challenges



Questions?

Couchbase