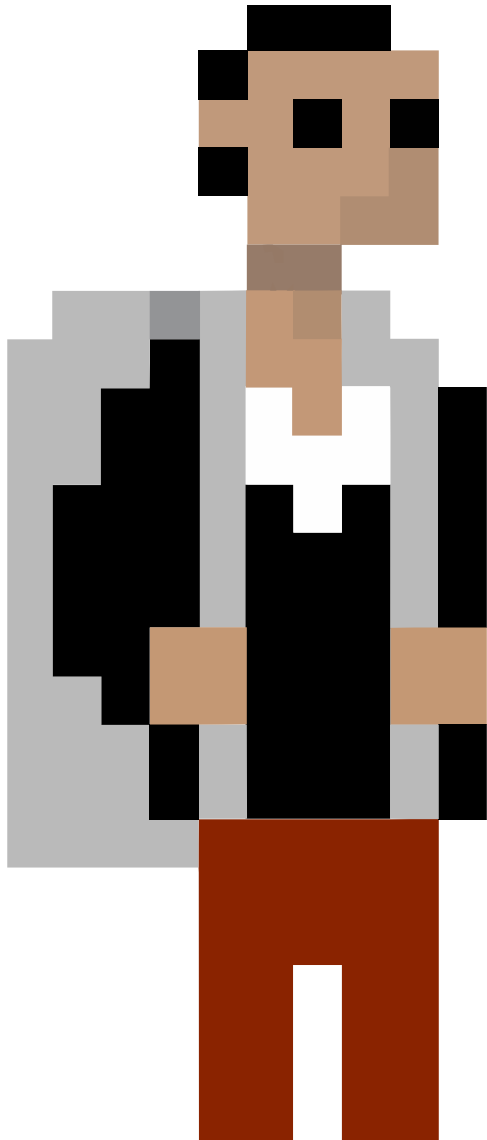


Mobile DevOps Made Easy: Build, Test, Deploy, & Monitor

James Montemagno
Program Manager,
Microsoft

Who's this guy?



Weekly development podcast
mergeconflict.fm

Weekly development show
xamarinshow.com



James
Montemagno

Principal Program Manager – Mobile Developer Tools,
Microsoft

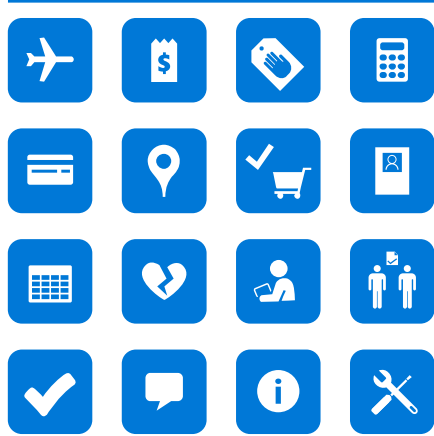
motz@microsoft.com

motzcod.es

[@JamesMontemagno](https://twitter.com/JamesMontemagno)

Mobile Development Challenges

100+ apps



Rapid Mobile
Development and
Appification of Business



Short Sessions & High
Mobile User Expectations

1000+ devices



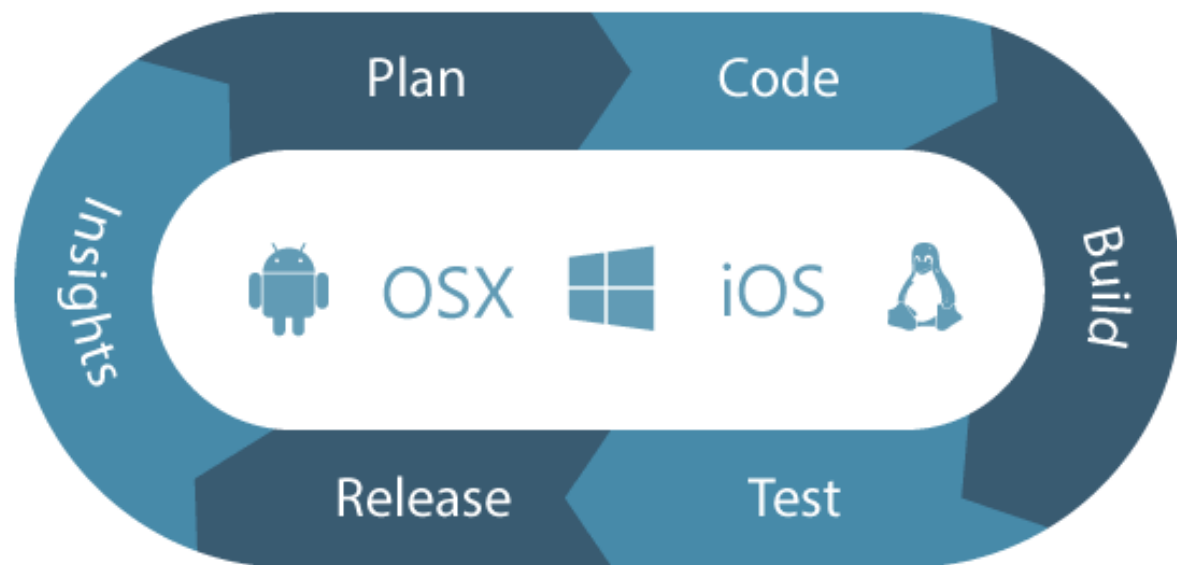
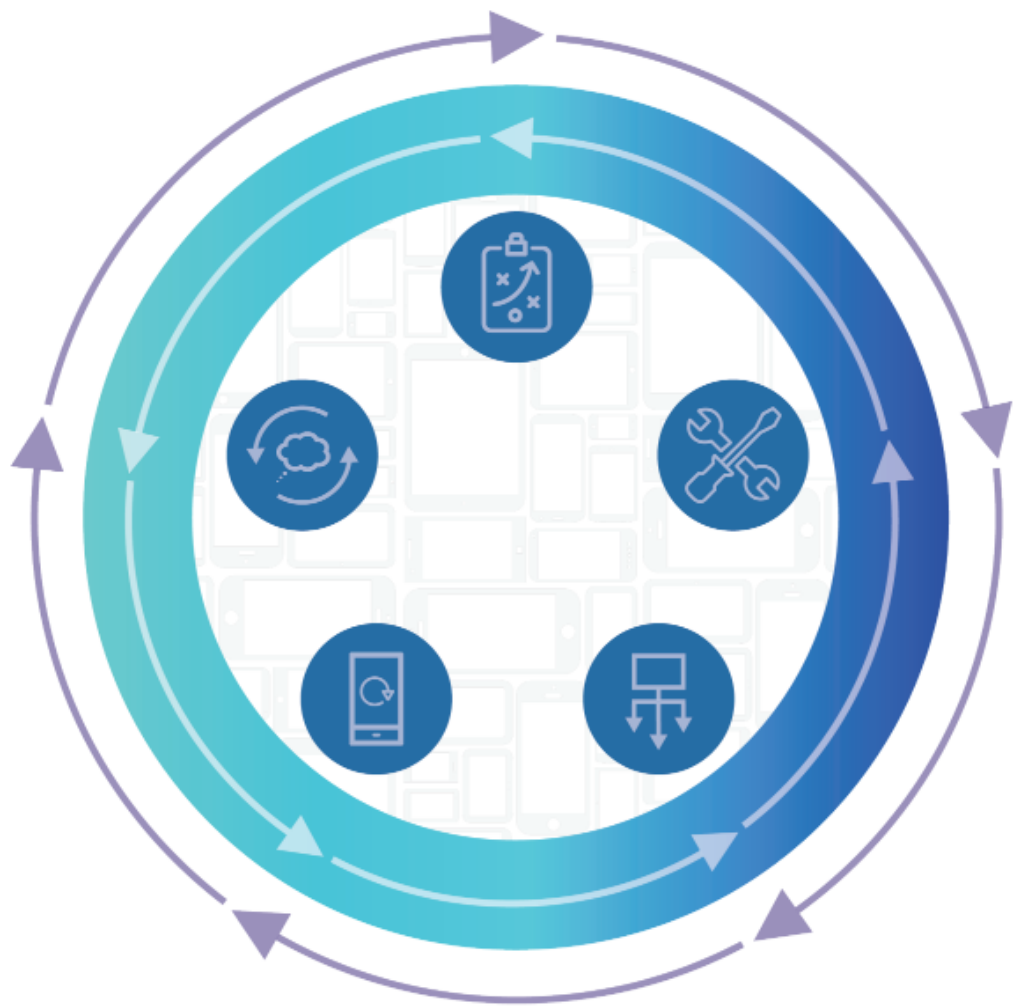
Complex Ecosystem of Devices
& Manufacturers

DevOps!

DevOps

=

Developer Operations



What really is DevOps?

“DevOps is the union of people, process, and products to enable continuous delivery of value to our end users.”

- Donovan Brown

Principal Program Manager, Microsoft

“DevOps i
want to d



Donovan L Brown
@DonovanBrown

Following

Great Quote:

“DevOps isn’t about automation, just as
astronomy isn’t about telescopes.” -

Christopher Little

#DevOps #RubDevOpsOnIt

RETWEETS 32
LIKES 34



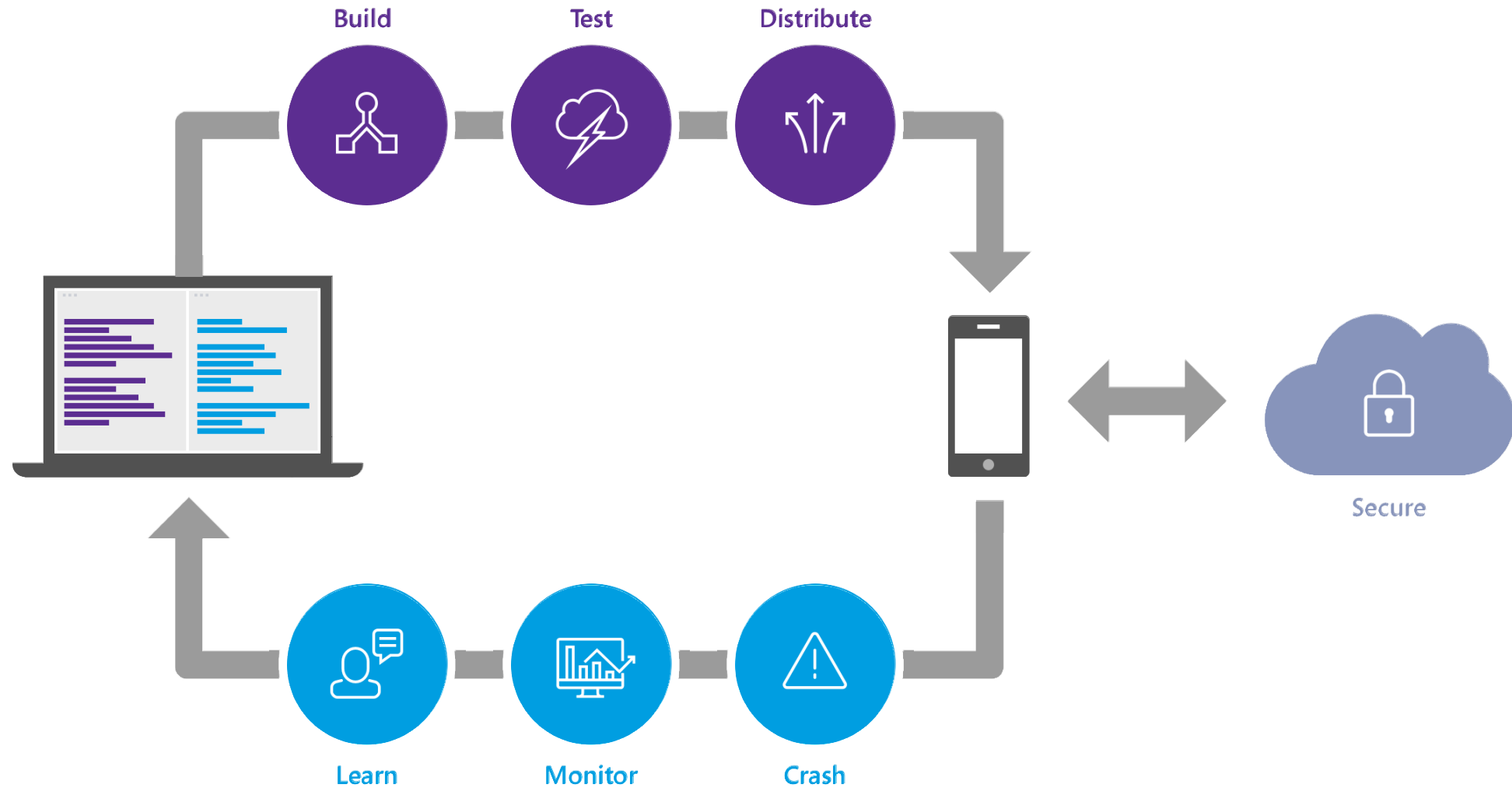
10:00 AM · 04/15/2017

u don’t
l.”

magno

Microsoft

The App Lifecycle



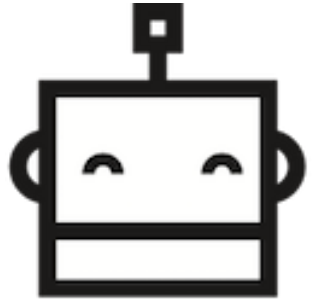
Continuous Integration Services



Jenkins



circleci



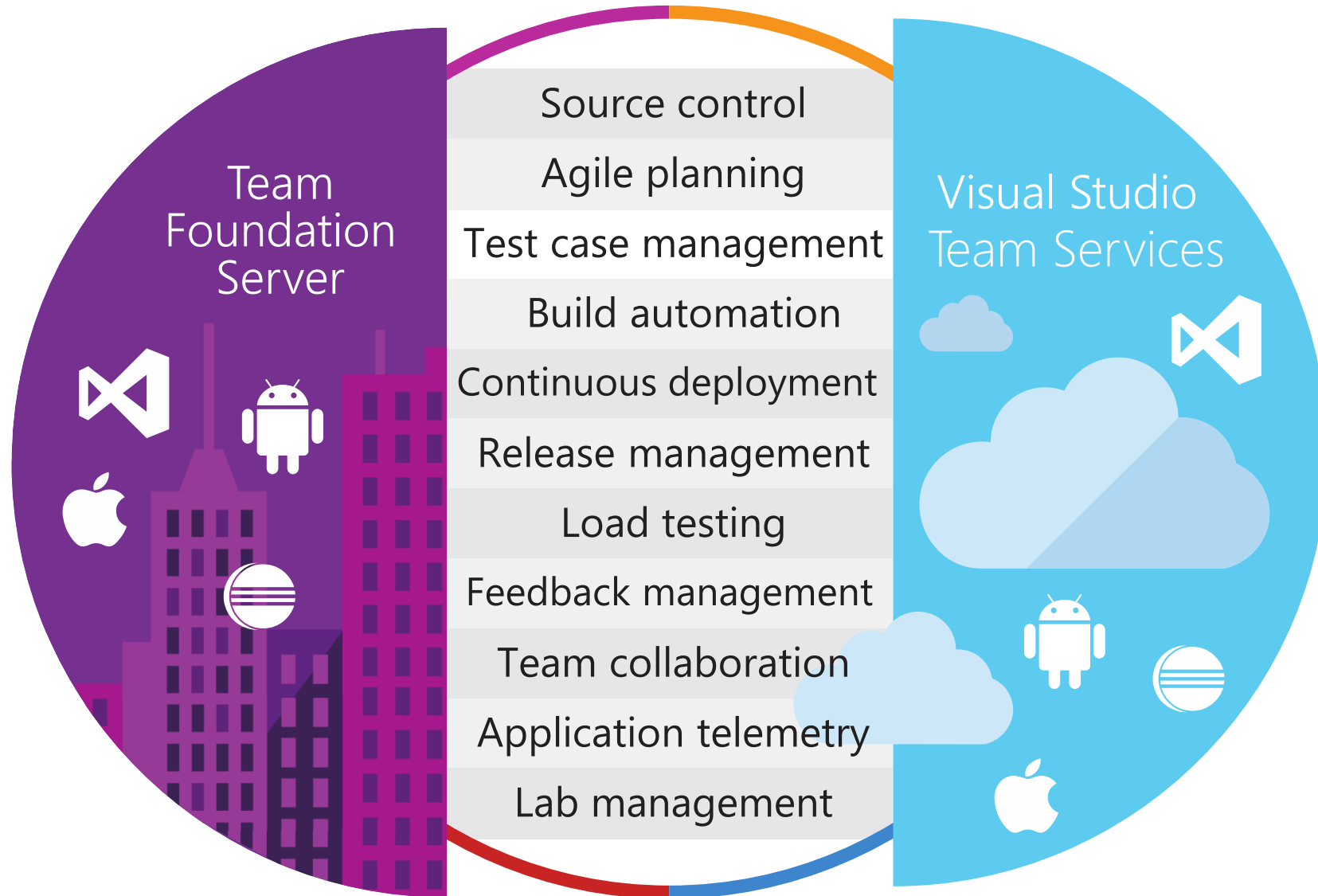
BITRISE



TeamCity

buddybuild

Your Complete DevOps Solution



Visual Studio Team Services (VSTS)/TFS

Version control

Git and Team Foundation version control (TFVC)
Unlimited private repos


Agile planning

Work item tracking
Kanban, backlogs, task boards


Continuous Integration


Cloud-hosted build agents
Build support for all mobile platforms
Integration with test clouds

Pull Request 4: Merge users/raisa/instructors_new to master


 Jamal Hartnett commented on the file [InstructorController.cs](#)

```
41 //TODO, implement support for null courses
37 42 if (courseID != null)
38 43 {
39 44     ViewBag.CourseID = courseID.Value;
40 45     // Lazy loading
41 46     //viewModel.Enrollments = viewModel.Courses.Where(
42 47     //     x => x.CourseID == courseID).Single().Enrollments;
```

 Why didn't you enable the lazy loading?
Jamal Hartnett - 2 weeks ago Status: Active ▾

 I haven't had a chance to do the perf tuning yet. I want to get this unblocked for the upcoming release, then we can implement lazy loading.

✓ Master.CI / Build 20150216.1

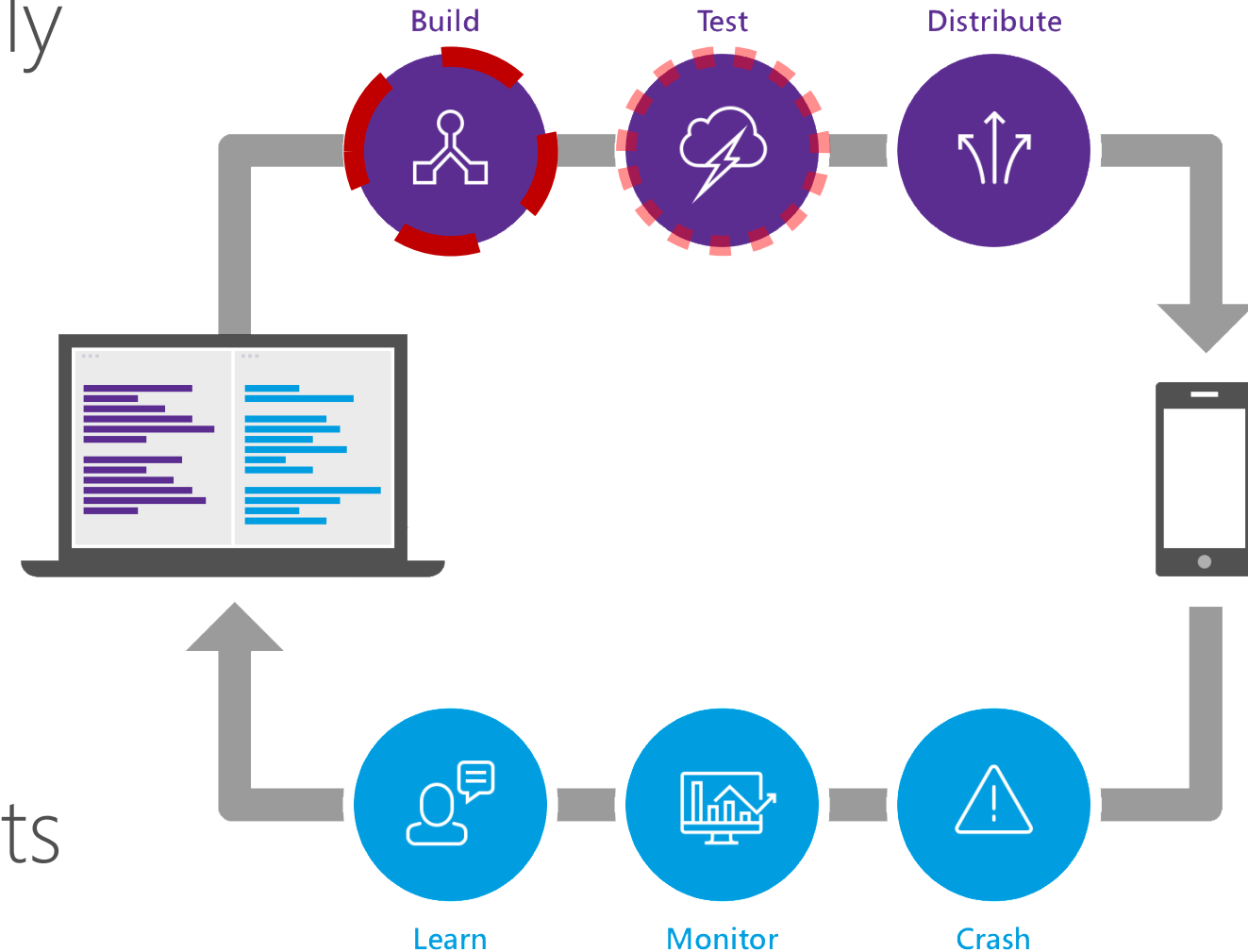
 Build 20150216.1
Ran for 16 seconds (default), completed 4 days ago

Build details

Definition	Master.CI (edit)
Source branch	refs/pull/31/merge
Source version	0945638f1c78656a28ea5a82b95585def9a7cddb
Started	Mon Feb 16 2015 12:50:31 GMT-0500 (Eastern Standard Time)
Finished	Mon Feb 16 2015 12:50:47 GMT-0500 (Eastern Standard Time)

Continuous Integration

- Every Commit...Continuously
- Build
- Integrate
 - Version Bumping
 - Replacing Private Variables
 - Testing
 - Unit Tests
 - UI Tests
 - Other SDKs
- Sign, Package, Drop Artifacts



Talk Later
Demo Now!

On Mobile, Quality is Hard



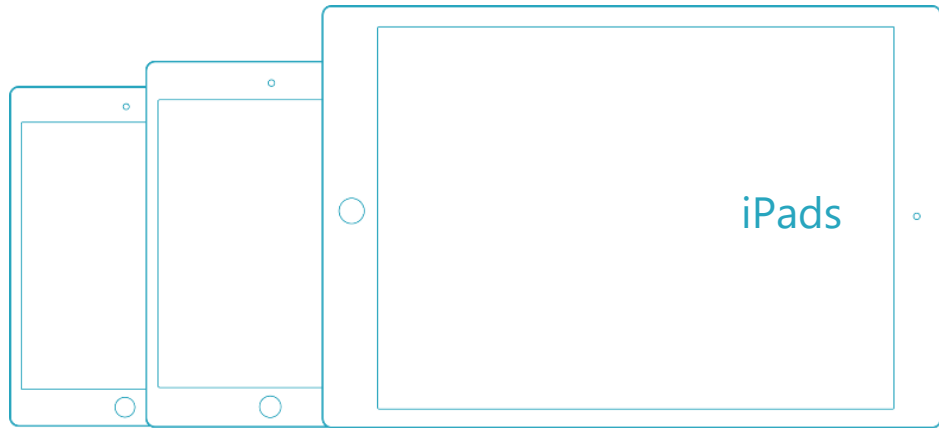
5 OS versions
20 Devices
20 Languages
35 Locales
6 Screen sizes



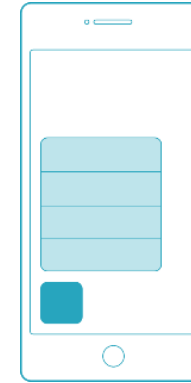
9 OS versions
24K+ Distinct devices
39 Languages
57 Locales
27 Screen sizes
1,294 Brands
6 Screen configurations



iOS Fragmentation: It does exist!



Form factors



3D Touch
*iPhone 6s
series only*



Apple pencil
iPad Pro only



Multi Tasking
Only select iPads

iOS 9 features

Xamarin Test Cloud

Cloud Device Lab

Automatically test w/ 2,400+ devices
Provision directly in the browser

VSTS Integration

Automate the upload of new builds
Parallel test execution

Testing Frameworks

Xamarin.UITest (C#)

Espresso (Java)

Appium (Java)

Calabash (Ruby)

The screenshot displays the Xamarin Test Cloud marketplace interface. On the left, a sidebar lists categories: All, Build, Utility, Test (highlighted), Package, and Deploy. The main area shows a list of integration options, each with an icon, a description, and an 'Add' button. The options are:

- Runs a quick web performance test in the cloud with Visual Studio Team Services
- Perfecto Mobile Configuration
Perfecto Mobile Configuration for Web and Device Application Testing
- Publish Code Coverage Results
Publish code coverage results to VSTS/TFS
- Publish Test Results
Publish Test Results to VSTS/TFS
- Run Functional Tests
Run Coded UI/Selenium/Functional tests on a set of machines (using Test Agent)
- Visual Studio Test
Run tests with Visual Studio test runner
- Visual Studio Test Agent Deployment
Deploy and configure Test Agent to run tests on a set of machines
- Xamarin Test Cloud**
Test mobile apps with Xamarin Test Cloud using Xamarin.UITest

At the bottom, there is a link: [Don't see what you need? Check out our Marketplace.](#) and a blue 'Close' button.

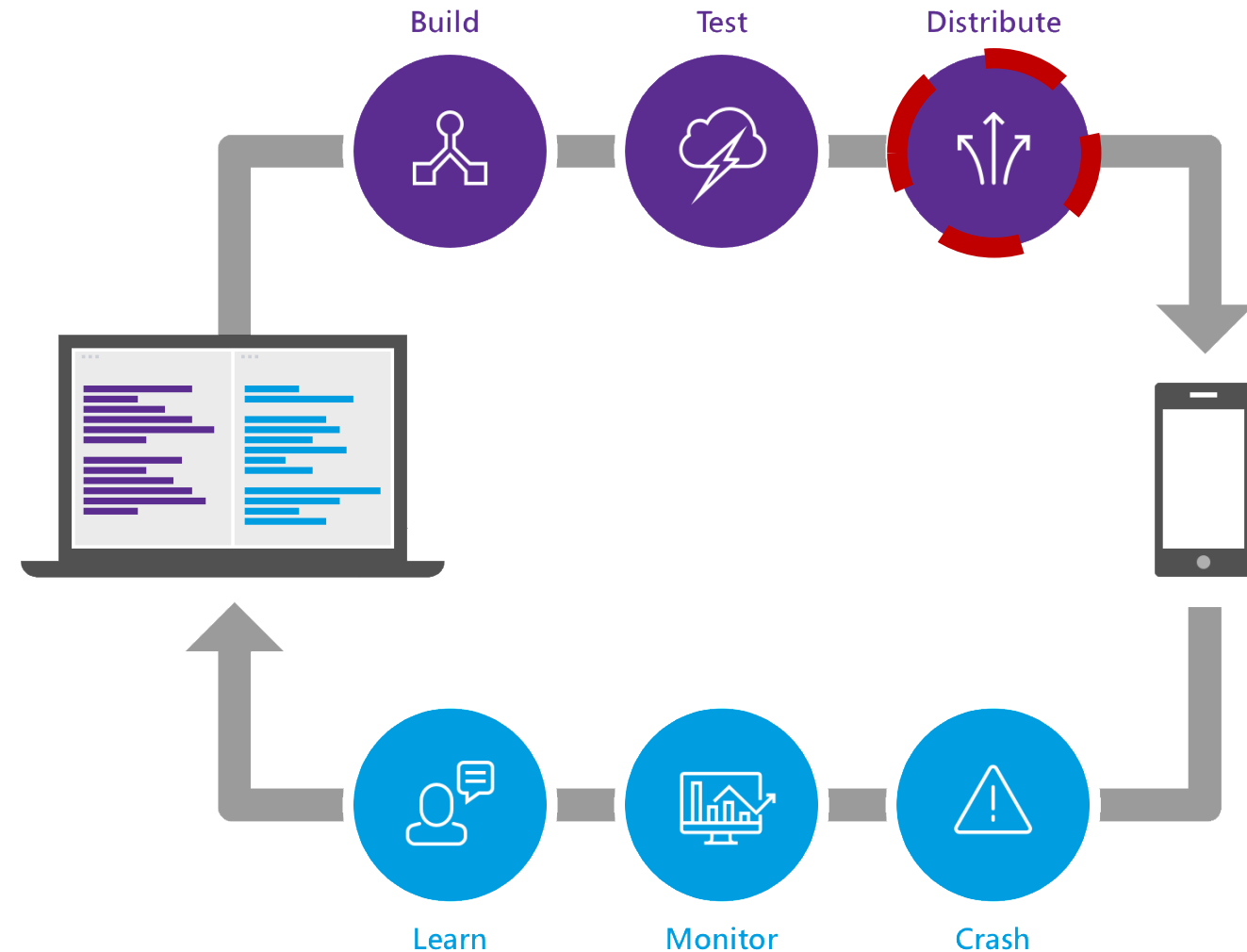
Demo

Xamarin Test Cloud

Continuous Deployment

Continuous Deployment – Alpha/Beta

- Development Builds
- Send to Testers
- Release to App Store
- Promote Store Channel
 - Alpha -> Beta -> Production





HOCKEYAPP

HockeyApp

Distribution

Upload apps through web UI, API, or CLI

Notify testers via email

Over-the-air installation

Add the SDK for in-app updates

Open-Source SDK

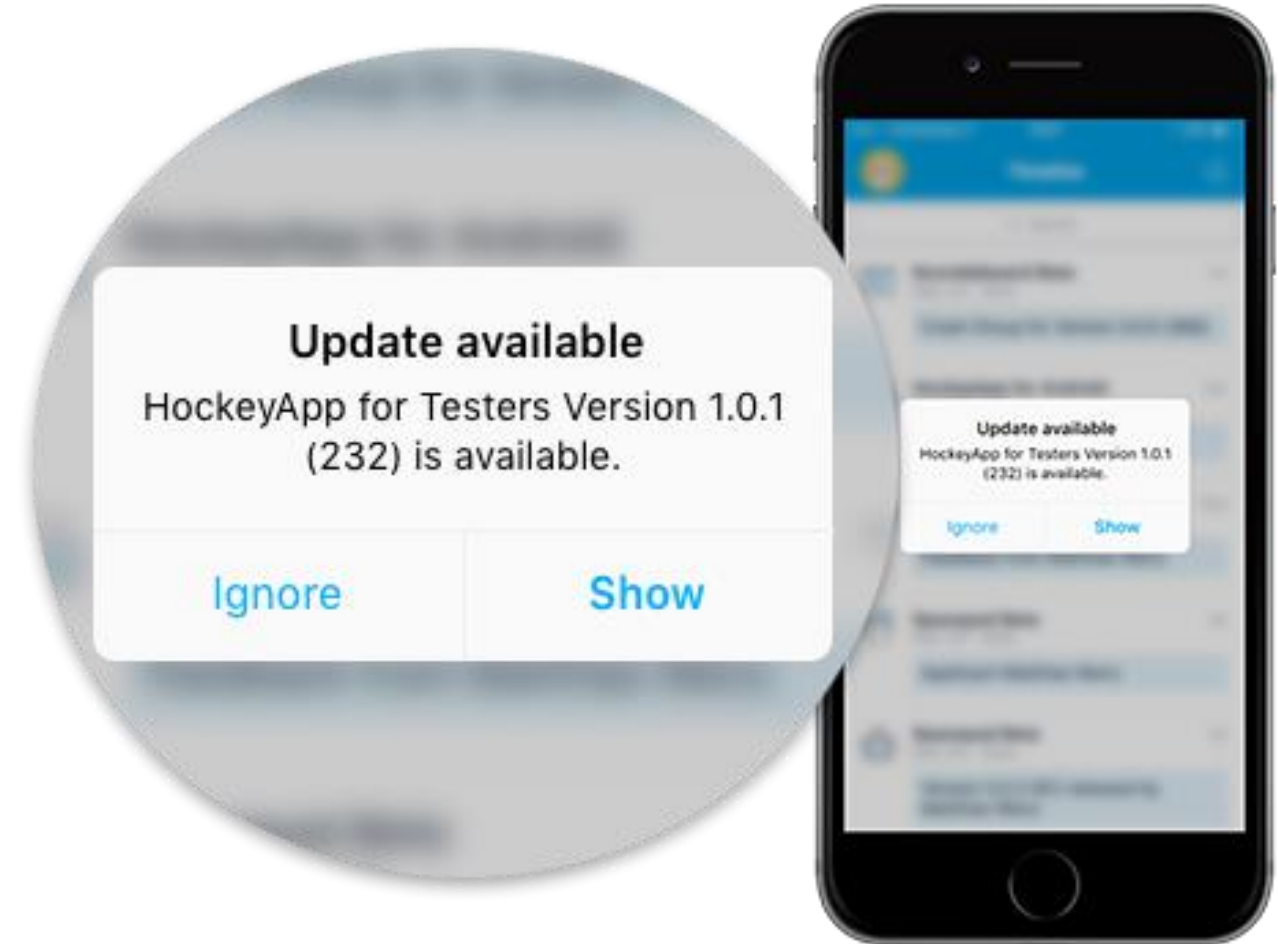
Android, iOS, macOS, Windows

Xamarin, Cordova, React Native, Unity plugins

Integrations

Extensions for VSTS, Jenkins, etc.

Easy sign-in with Microsoft accounts (MSA & AAD)



The State of Side Loading

Android	iOS	macOS	Windows
Any certificate works	Certificate needs to be created in Apple Developer Portal	Apps can be signed or unsigned	Apps can be signed or unsigned on desktop
	Paid developer program required	Paid developer program required for signed apps	Paid certificate required for signed apps on phone
	Limited numbers of device IDs	Limited numbers of device IDs	
User needs to enable "Unknown Sources"	User needs to trust developer in settings	Users needs to change settings (unsigned apps only)	User needs to enable side-loading or developer mode

Release Management (VSTS)

Continuous Delivery

Define per-environment release pipeline

Trigger manually or automatically via successful builds

Approval Policies

Configure per-environment sign-offs

Manual validation requirements

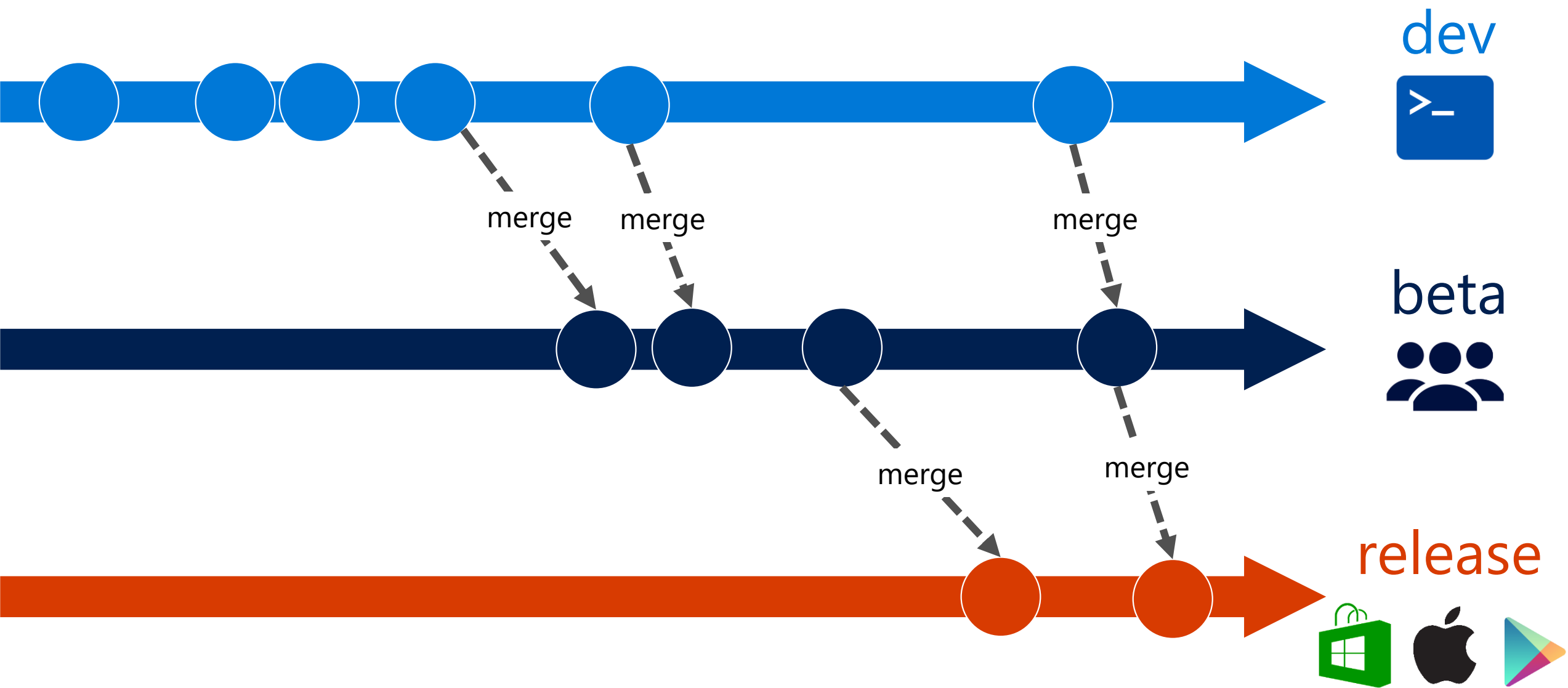
Traceability

View per-environment release status

Track release back to commits

The screenshot displays the 'Releases Overview' page in VSTS. It shows a grid of release status cards for three projects: Fabrikam, FabrikamCallCenter, and FabrikamPurchasing. Each card represents a specific environment and a release instance.

Project	Environment	Release Name	Status	Timestamp
Fabrikam	Dev	Release-15	Success (Green checkmark)	26/10/2015
	QA	Release-15	Failure (Red X)	26/10/2015
	INT	-	No deployments yet	-
FabrikamCallCenter	Dev	Release-16	Success (Green checkmark)	7 hours ago
	INT	Release-16	Success (Green checkmark)	7 hours ago
	Staging	Release-16	Success (Green checkmark)	7 hours ago
FabrikamPurchasing	INT	Release-3	Success (Green checkmark)	8 hours ago



Continuous Delivery

Continuous Monitoring

Monitor real world use

How can you better understand your users and how they engage with your app?

Recommendations

Collect feedback from your end users, talk directly to them.

Crash line

Track Daily/Monthly Active Users (DAU/MAU) to understand user acquisition and retention

Instrument your app with custom events to better understand user engagement of specific features

HockeyApp

Monitoring

SDK tracks crashes, users, sessions, custom events

Fully symbolicated crash reports

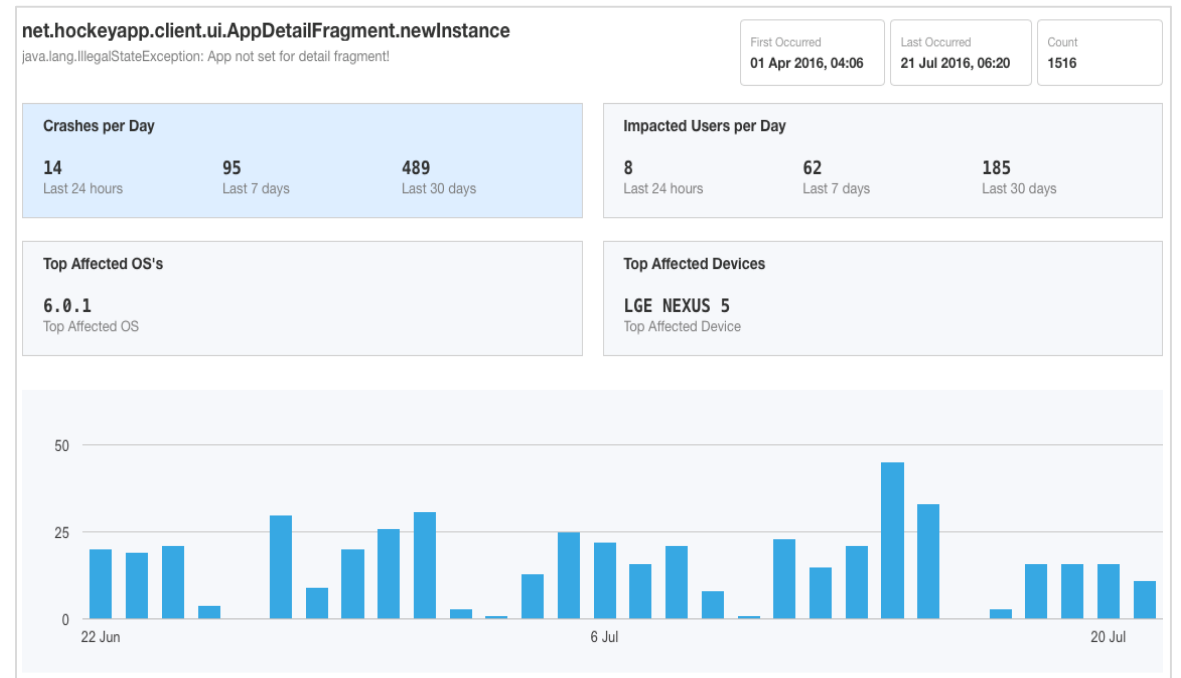
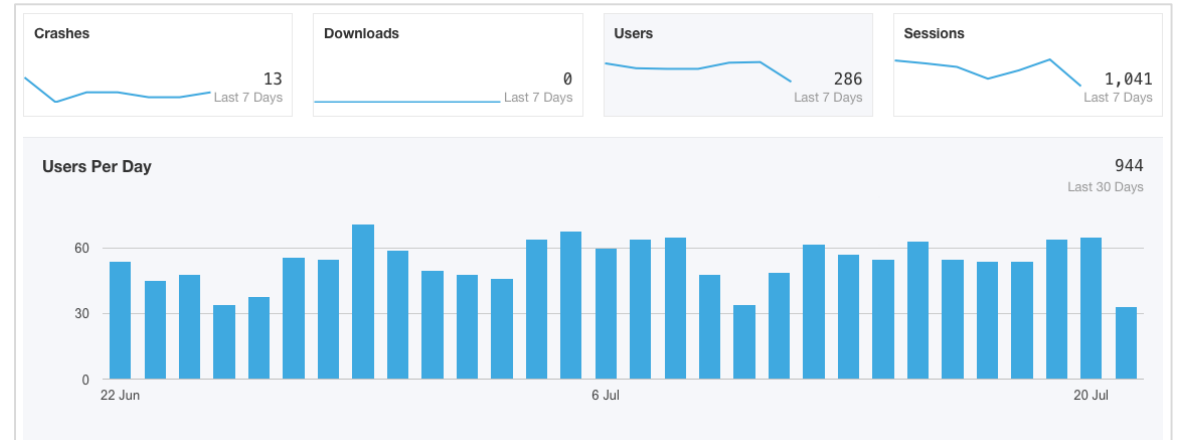
Features can be individually disabled

Data access

Aggregated metrics as counts and charts

Crash logs, descriptions and attachments

Raw events through Application Insights



Continuous Monitoring with HockeyApp

Simplified DevOps

 Test

 Analytics

 Build

 Distribute

 Live Update

 Crash Reporting

 Storage

 A/B Testing

 Push Notifications

 Identity

 Tables

 Remote Config.





Build



Test



Analytics



Push Notifications



Distribute



A/B Testing



Crash Reporting



Remote Config



Identity



Tables



Live Update



Storage

Visual Studio Mobile Center



Connect all of your mobile apps

Automate your entire mobile app lifecycle in a few easy steps

Lifecycle Services

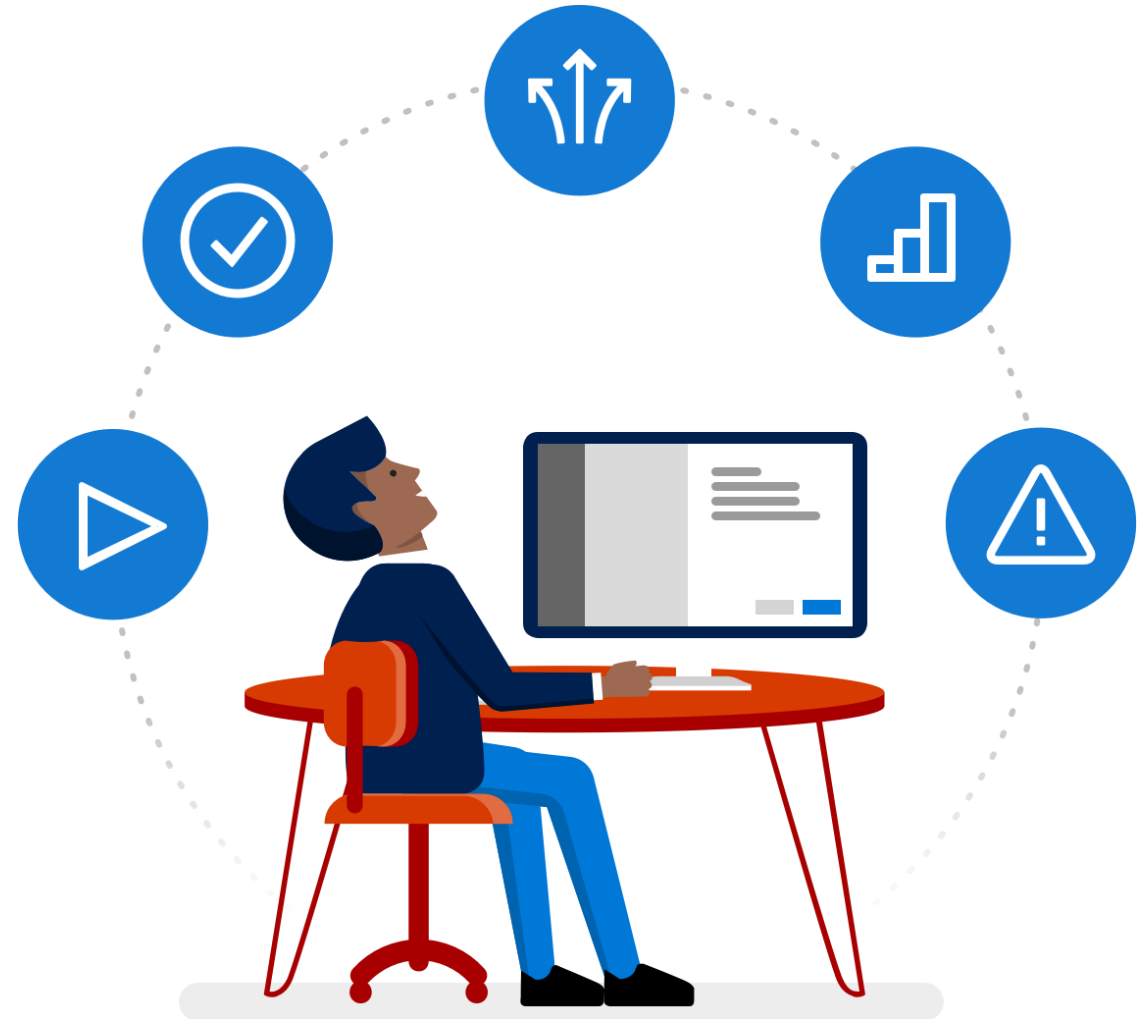
- Continuous Integration
- Automated User Interface Testing
- Continuous Delivery

Monitoring Services

- Crash Reporting
- Analytics

Backend Services

- Mobile Backend
- Identity



The flexibility to use what you want



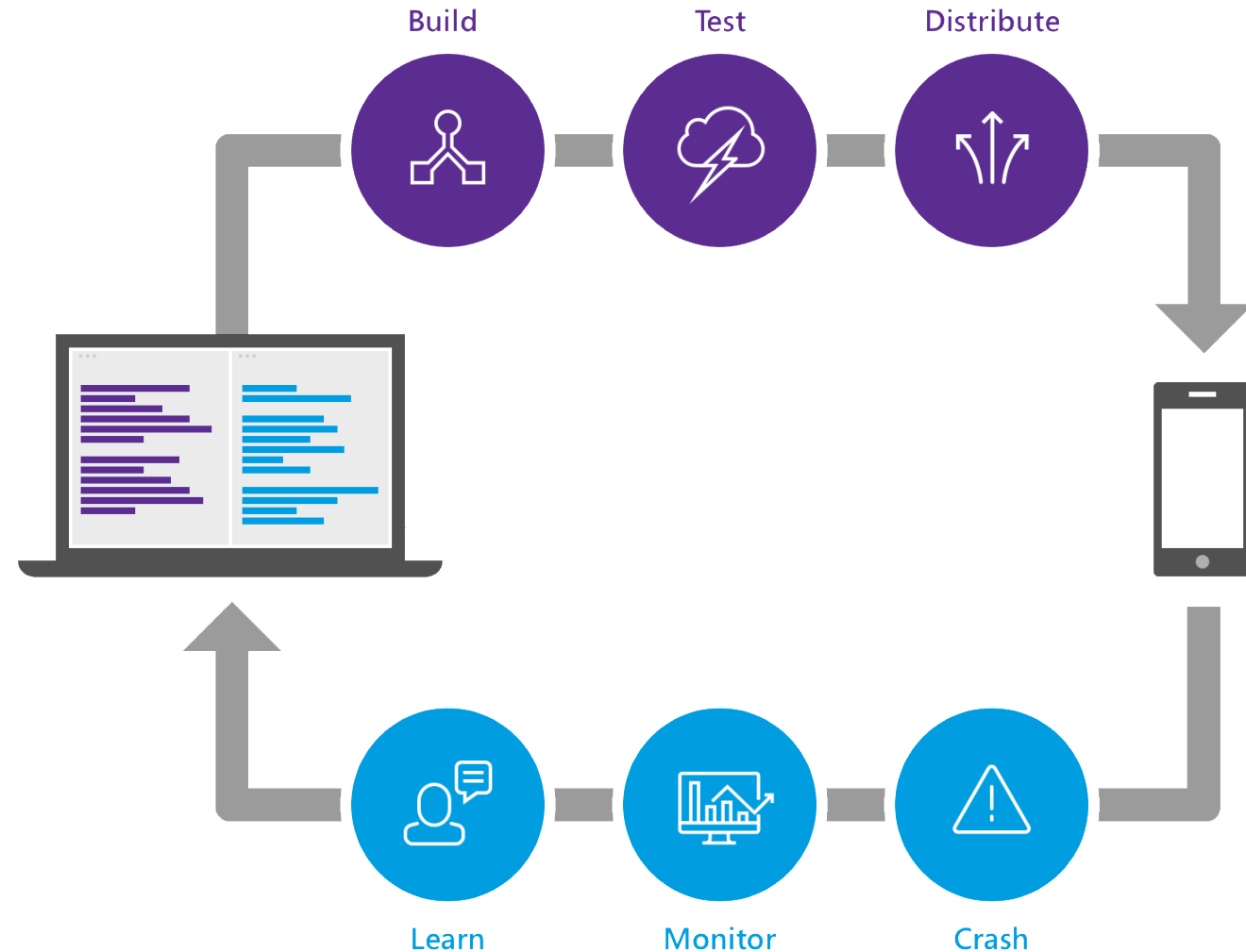
A look at Mobile Center

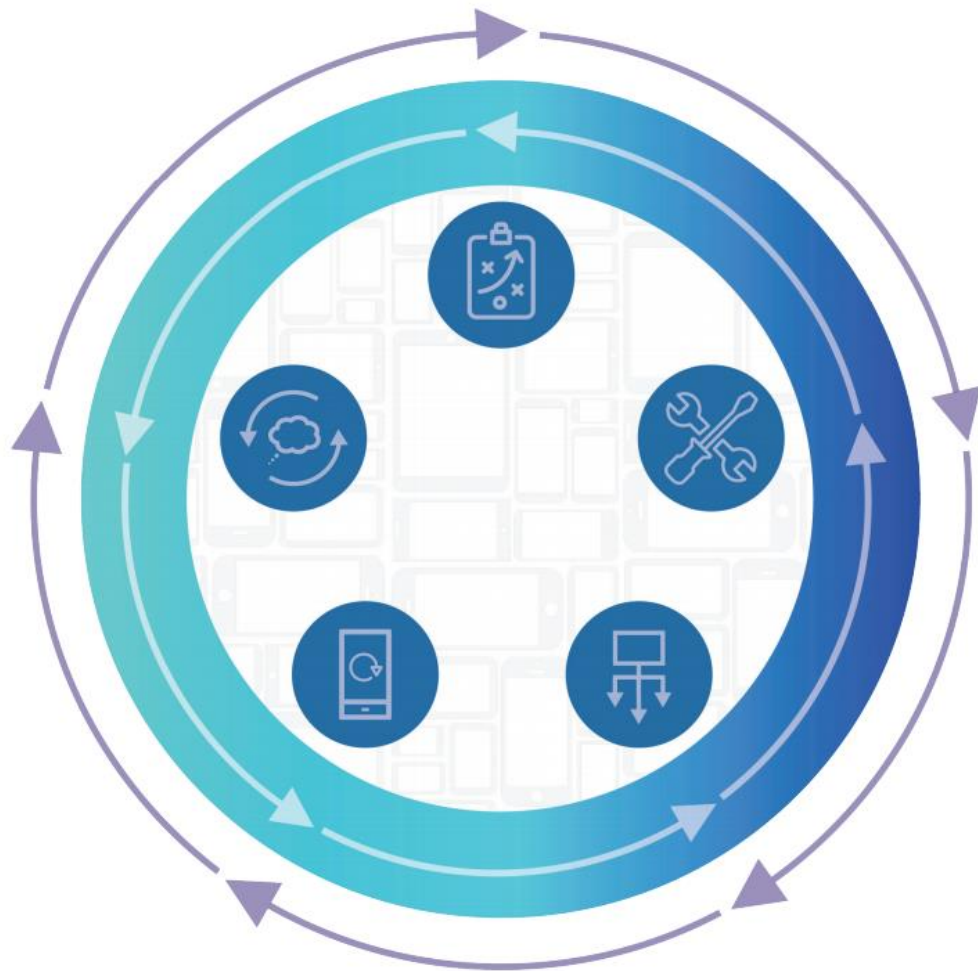
Mobile DevOps

Fast automated build and deployment pipeline for all application lifecycle stages

High quality releases with automated testing on real devices and constant crash monitoring

Real world insight into actual application behavior

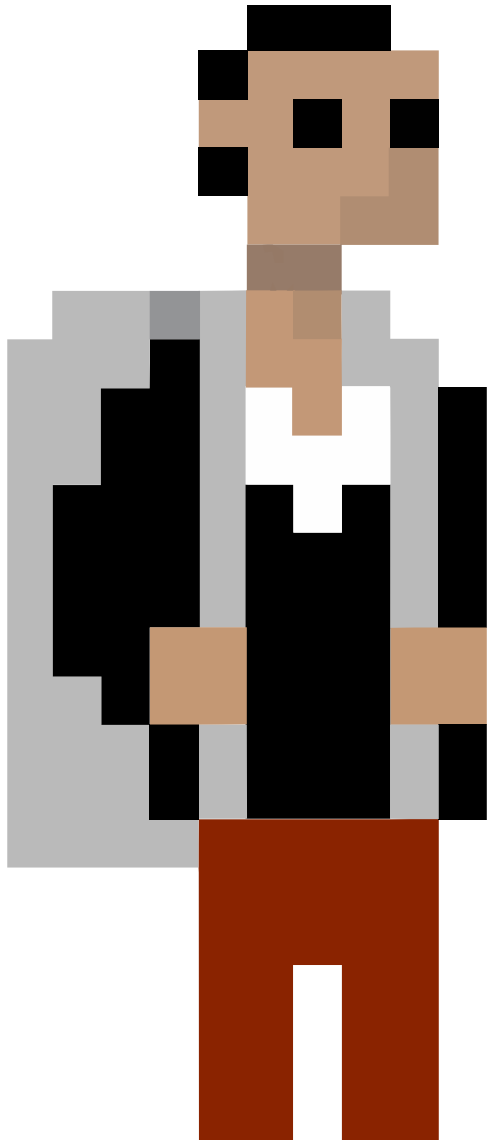




Get Started Today
xamarin.com/mobile-devops
aka.ms/devops
mobile.azure.com

Look, the scary circle is back!!

Thank You! Q&A



James
Montemagno

Principal Program Manager – Mobile Developer Tools,
Microsoft

motz@microsoft.com

motzcod.es

[@JamesMontemagno](https://twitter.com/JamesMontemagno)



Weekly development podcast
mergeconflict.fm