

Challenges

- Device coverage
- Tests aren't parallelized
- iOS Specific
 - Automating installing app on devices
 - Core Data schema changes - require manual app delete
- Android
 - Integration test failures
 - Wakeup scripts
 - Stale VPN connections

The Future

- Move all CI jobs to grade
- Build out integration phase
- Code coverage reports
- OTA distribution via Google Play Beta
- API project merges trigger Integration jobs on verify full system
 - Custom static code analysis rules
 - Enhancing OTA distribution
 - Moving testing to the cloud
 - More devices, more parallelization
 - Moving builds to the cloud
 - Automated provisioning of cloud-based build machines (Chef?)

The End

Questions?

Bibliography: <http://bit.ly/mobileci>

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Matt Ren
wmattis@gmail.com
@mattren

Mobile Continuous Integration

A Guided Tour

April 15, 2014

Andy Obusek
Matt Rein

Bibliography: <http://bit.ly/mobileci>



Who are these guys?

Andy Obusek 

@obusek

iOS Engineer, Dad, Guitarist

Matt Rein 

@misterrein

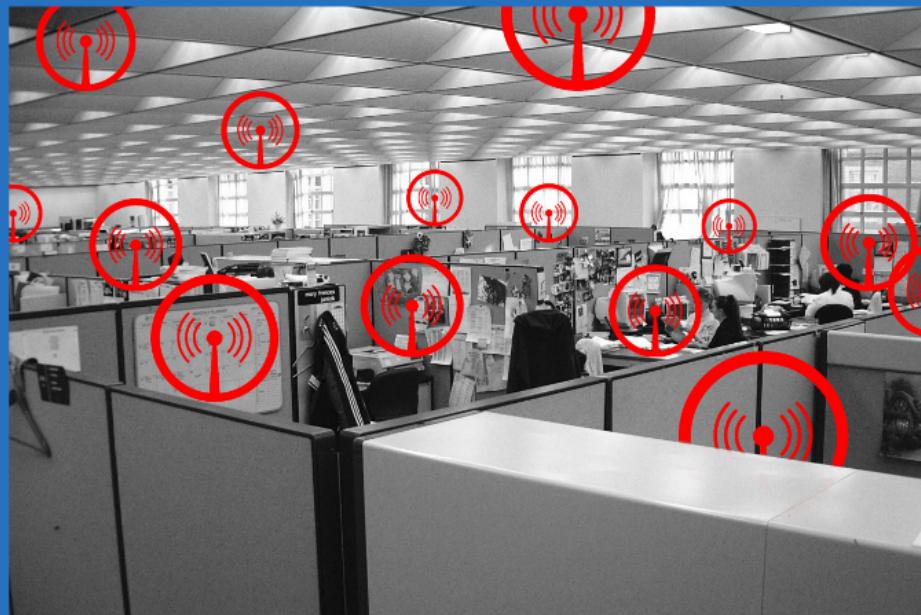
Android Engineer, C+ Multi-Instrumentalist

What are they talking about?

- Mobile Development Process Overview
- How continuous integration helps us write AWesome code
- Challenges along the way
- Thoughts for the future

Mobile Development is unique

- OTA APKs & IPAs
- No automated releases
- Secure Wifi or VPN



 AWeber
EMAIL MARKETING DELIVERED

Mobile C.I.

Push Code

- Code pushed to gerrit remote
- Auto-trigger Jenkins **verify** jobs ✓
- Pre-commit hook (android)
 - Lint check
 - Codestyle check



Write Code

- Cohesive user stories
- Analysis & feedback
- One commit per card
- < 500 lines per commit
- Test driven development



XCTest



Genymotion

Android

Review Code



Merge Code

- Designer review
- Stakeholder review
- Repeat cycle:
 - Address feedback on this story
 - Or, start next story.



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XCTest





OC Mock

XCTest



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Gerrit sits on top of git.

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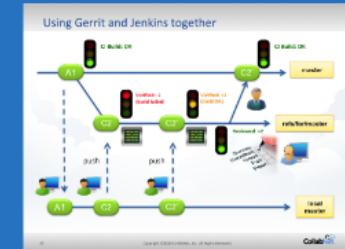


Review Code



Ready to merge?

Scenario 1 Scenario 2 Scenario 3



Merge

- Designer review



Jenkins verify jobs



Verify

- Compile code
 - xcdebuild
- Execute unit tests in both 32-bit and 64-bit simulators
 - Tool: XCTest
- Measure and report unit test code coverage
 - Tool: Cobertura Jenkins Plugin
- Static code analysis
 - Tool: OCLint



Verify

- Update version name & code
- Compile debug build
- Compile unit & espresso tests
- Lint check & report
- Execute unit tests & report





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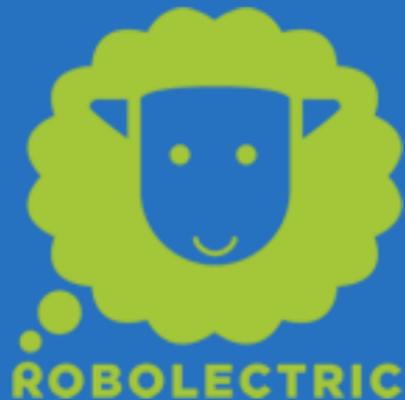
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Android Test Kit

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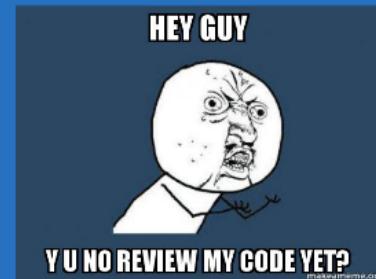


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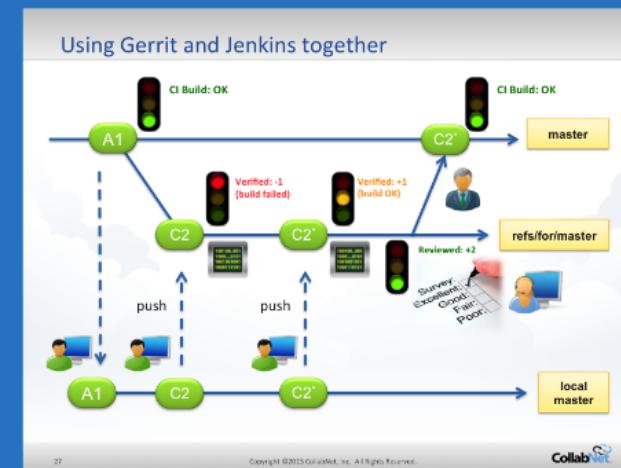
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Scenario 1 Scenario 2 Scenario 3

Reviewer	Code Reviewer	Code Review Status
John Doe	John Doe	Not Yet Done
John Doe	John Doe	Not Yet Done
John Doe	John Doe	Not Yet Done



HEY GUY



YU NO REVIEW MY CODE YET?

makeameme.org

Ready to merge?

Scenario 1

Reviewer	Code-Review	Verified
Mike Stanziano		
Matt Rein		
Andy Obusek	☒	+1
Jenkins		✗



Scenario 2

Reviewer	Code-Review	Verified
Matt Rein	☒	
Mike Stanziano		-1
Jenkins	☒	✓

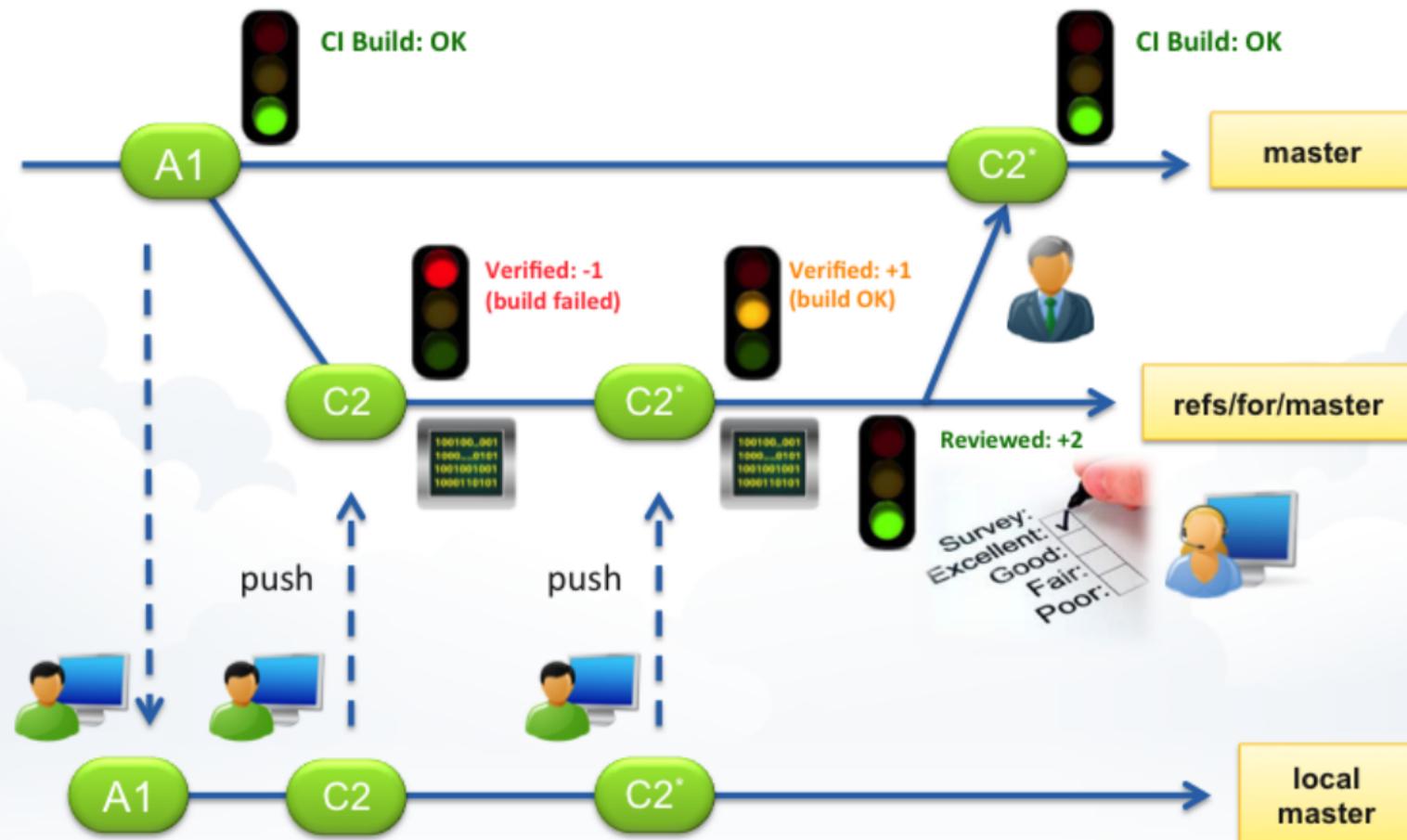


Scenario 3

Reviewer	Code-Review	Verified
Mike Stanziano	+1	
Matt Rein	✓	
Jenkins		✓



Using Gerrit and Jenkins together



Mobile C.I.

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Genymotion



Android Studio

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XCTest



Genymotion

Android

apk

Jenkins jobs per master merge

Jenkins jobs per master merge



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- Execute unit tests on 32-bit
 - Primarily to install application on device
- Execute integration tests on 32-bit
 - Tool: UIAutomation
- Create AdHoc build for internal distribution

Jenkins jobs per master merge



Debug

- Same as **Verify** job against gerrit/master

Integration

- Espresso automated UI tests on real devices



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- Execute unit tests against release build
- Compile and sign release APK

Jenkins jobs per master merge



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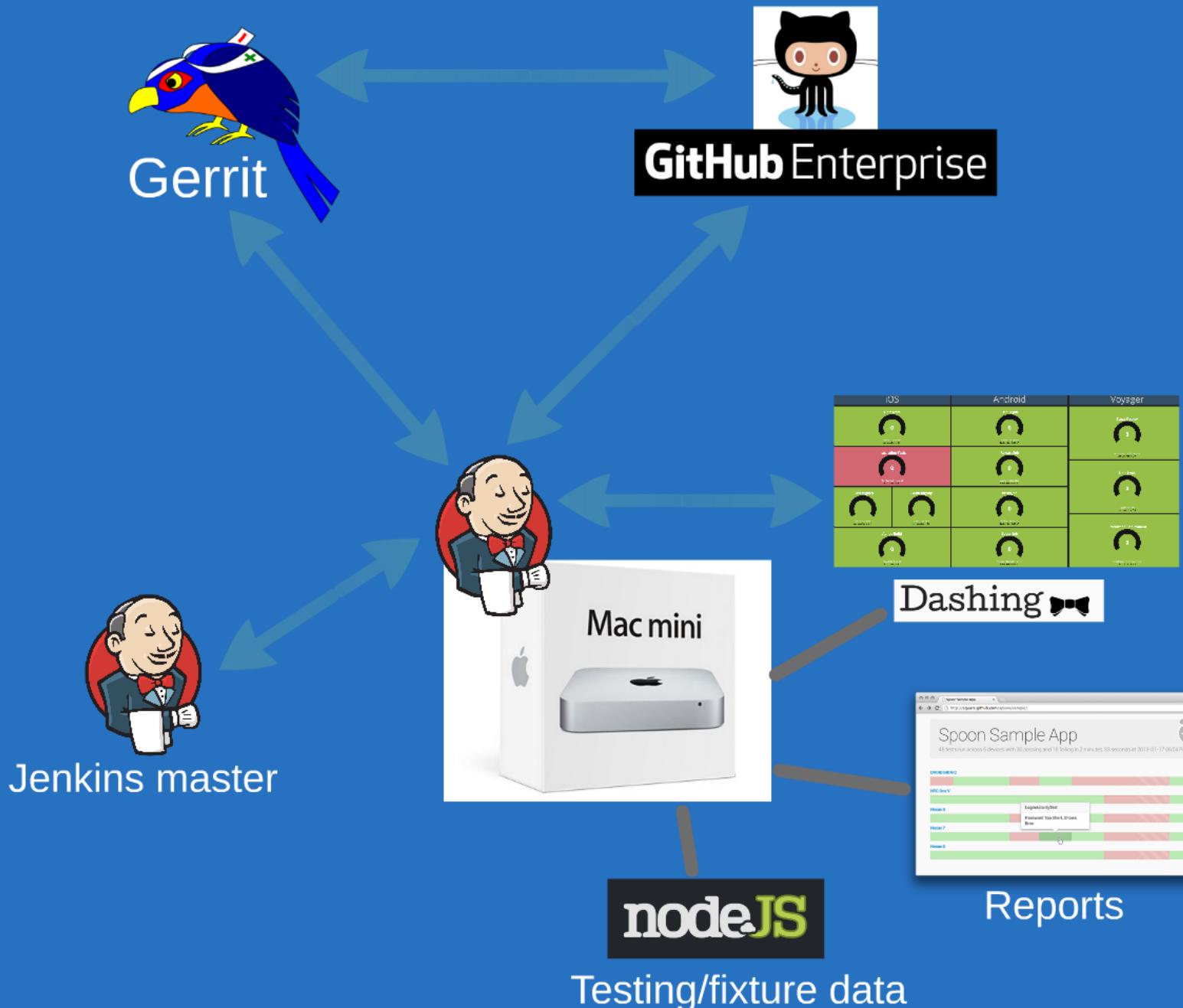
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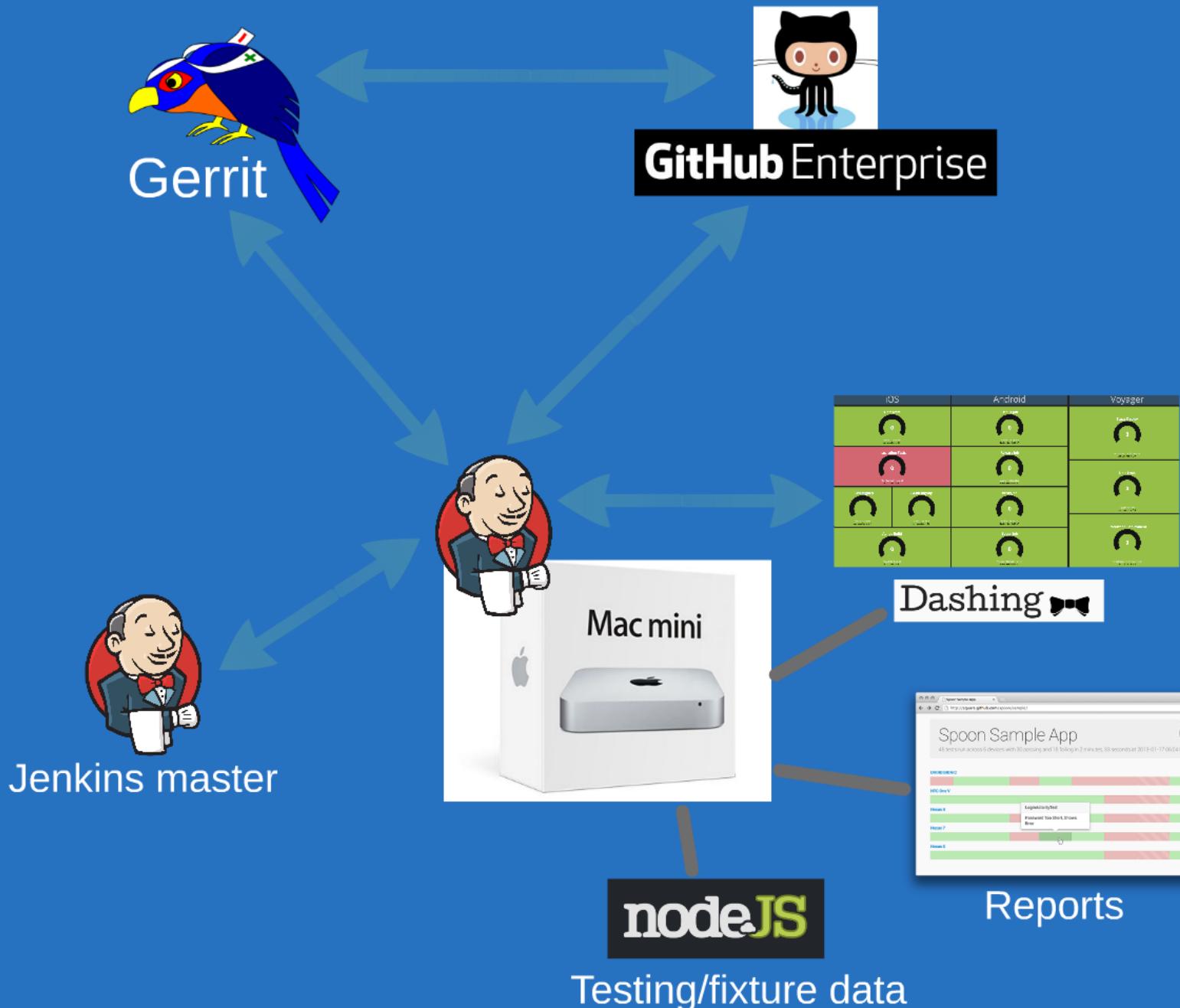
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CI Stack Powered By





CI Stack Powered By



iOS



iOS Unit Tests Job
Last updated at 8:31



iOS Integration Tests Job
Last updated at 8:31



Built from master
Last updated at 8:31



Built from master
Last updated at 8:31



iOS Adhoc Build Job
Last updated at 8:31

Android



Android Debug Job
Last updated at 8:31



Android Release Job
Last updated at 8:31



Android Verify Job
Last updated at 8:31



Android Integration Test Job
Last updated at 8:31

Voyager



voyager staging deployment
Last updated at 8:31



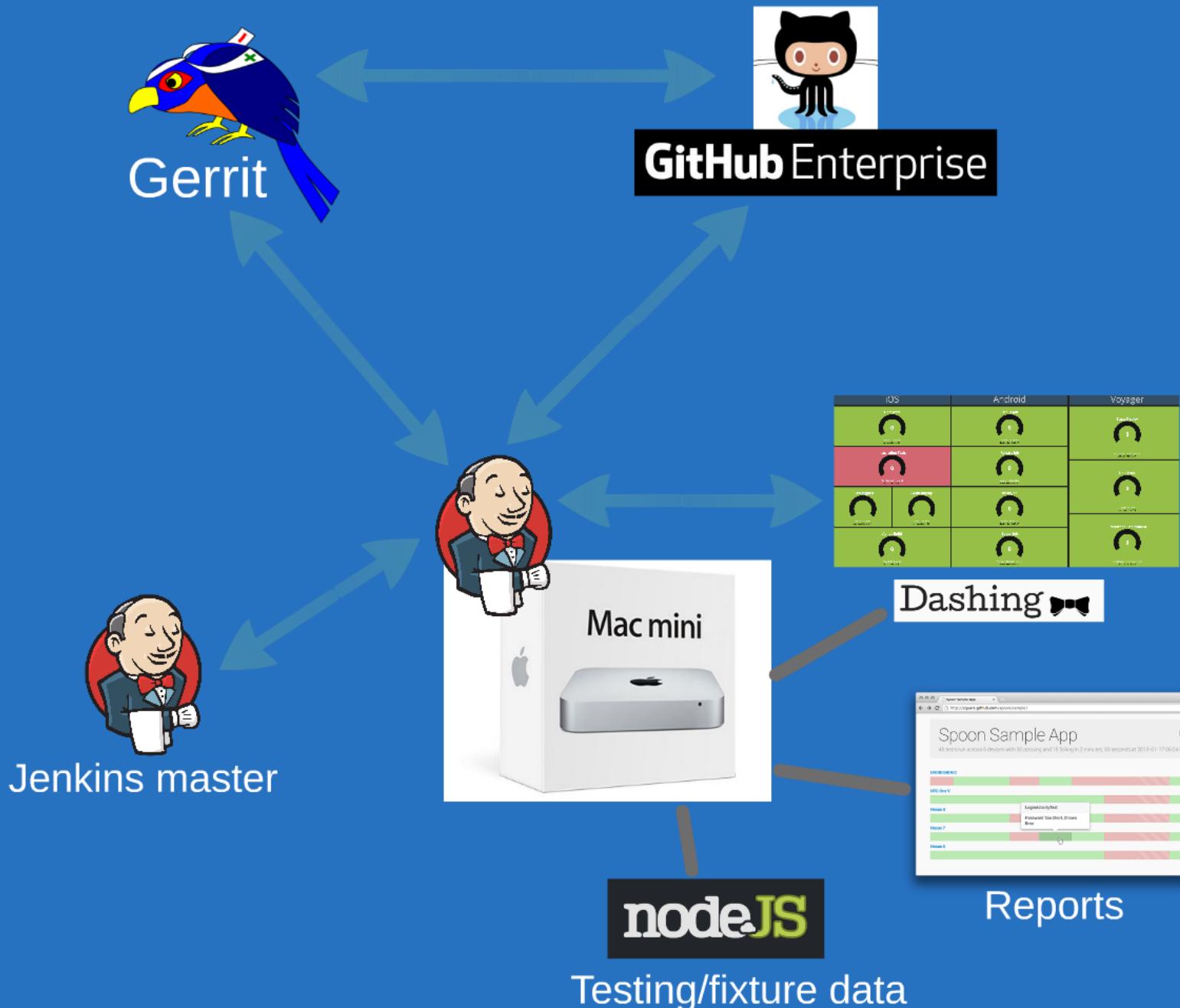
voyager unit tests
Last updated at 8:31

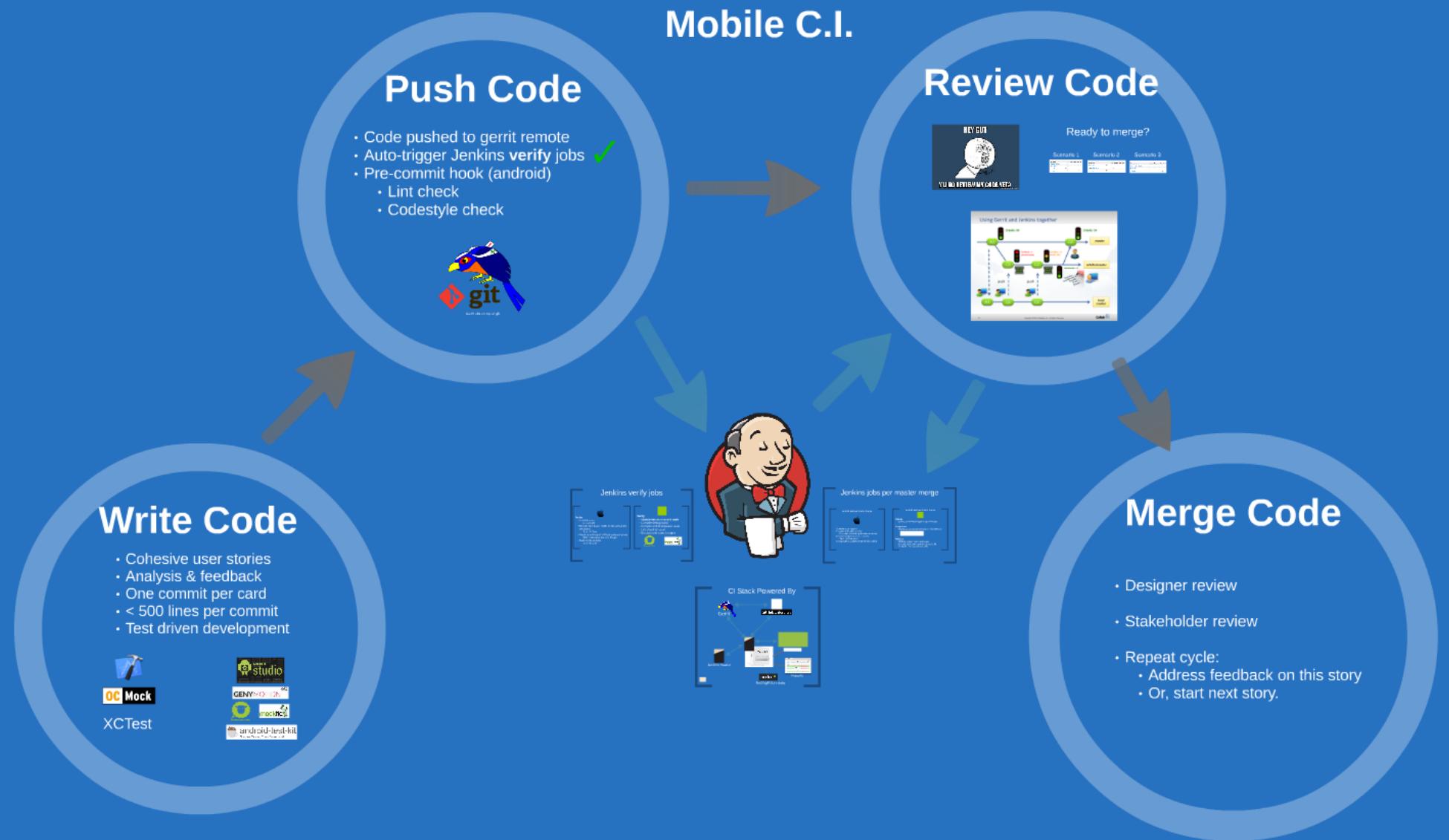


voyager production deployment
Last updated at 8:31

Dashing

CI Stack Powered By





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