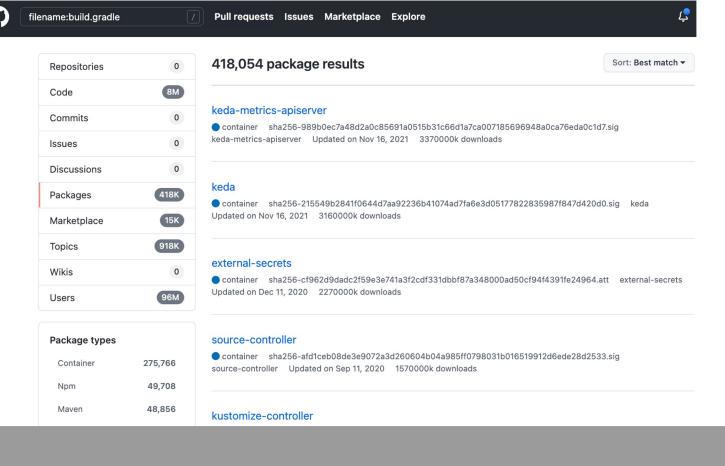
### **Developer Productivity Engineering**

For Open Source Software Communities









#### Lots of Gradle Activity Overall Within OSS Projects

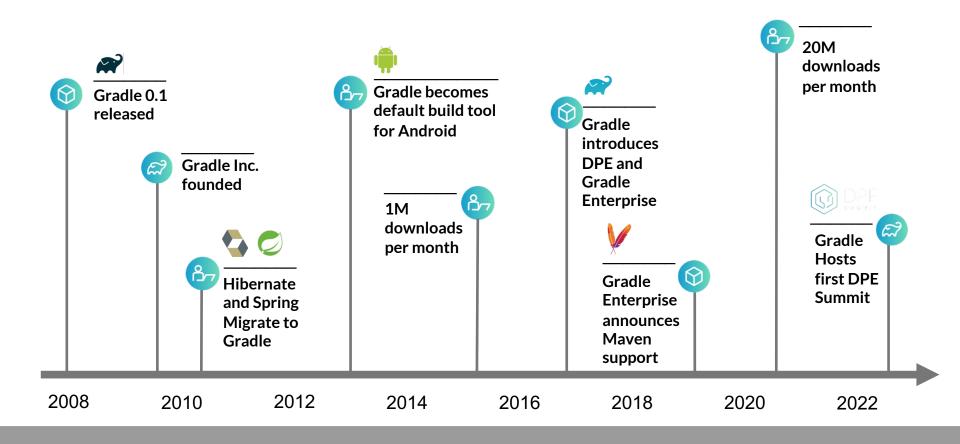
How did we get here?

The Evolution of Gradle, Inc

Developer Productivity Engineering

And where are we going?

**DPE for OSS Communities** 



#### **Evolution of Gradle and Gradle Enterprise**



DPE is a new software development practice used by leading software development organizations to maximize developer productivity and happiness.

#### Gradle is Pioneering DPE

#### Agile and DevOps are Not Enough

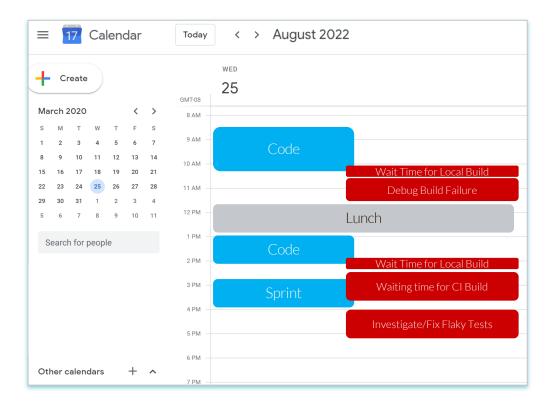
The best code is written by happy developers, so we should strive to foster developer joy.

But instead, bottlenecks in the SDLC continue to impede creative flow.

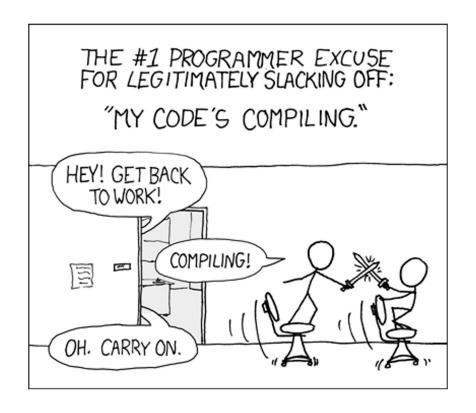
## "It's no longer the big beating the small, but the fast beating the slow."

Eric Pearson, CIO, InterContinental Hotels Group

We've Accepted That This is True

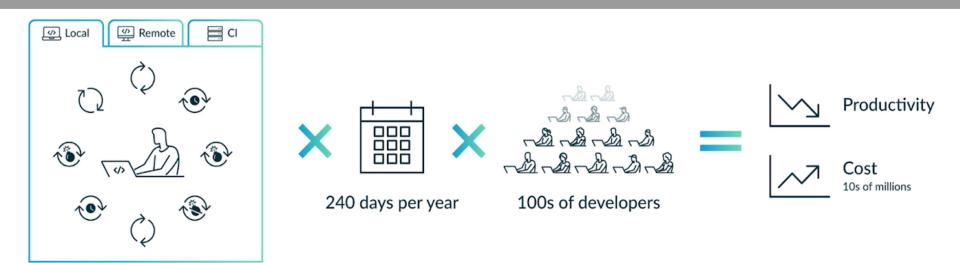


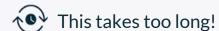
#### But Bottlenecks to Productivity are Everywhere



#### This Doesn't Have To Be Our Reality

#### What Problems Does DPE Solve?

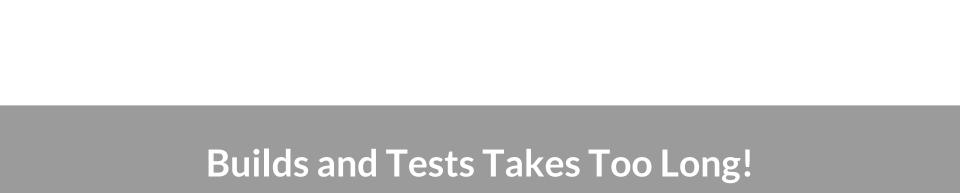




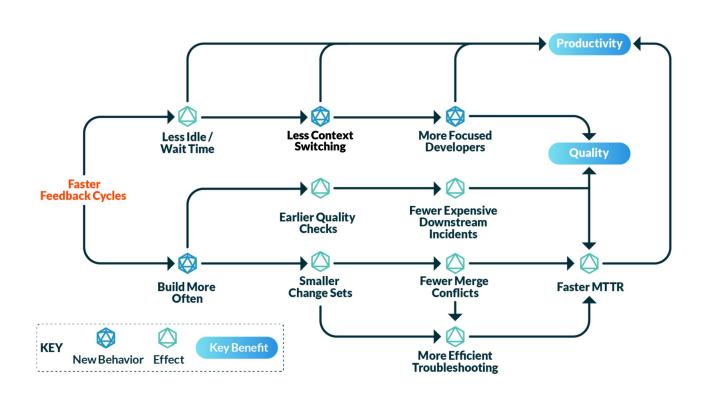
This takes too long to fix

This should have been observable

1970s+	1980s+	1990s+	2000s+	2010s+	2020+
JIT Manufacturing	Business Process Reengineering	Change management	Agile, Lean Six Sigma	DevOps	DPE

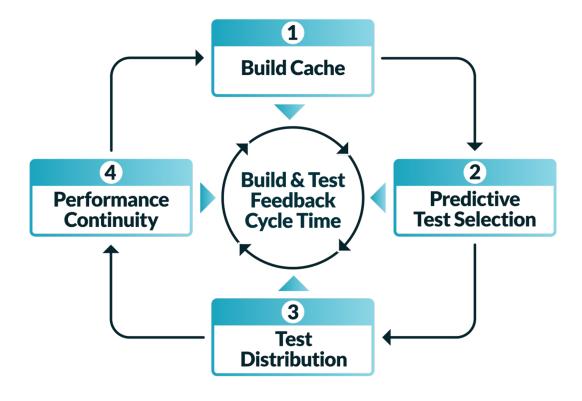


#### Very Fast Feedback Is Important



#### **Faster Builds Improve Creative Flow**

	Team 1	Team 2
No. of Devs	11	6
Build Time	4 mins	1 mins
No. of local builds	850	1010



Multiple Acceleration Technologies are Best

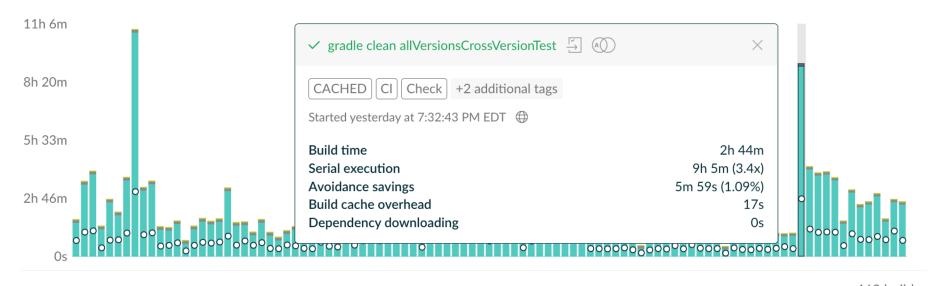
## Watch The Maven Build Cache Video





#### **Performance Insights**

# Are you tracking local build and test times?



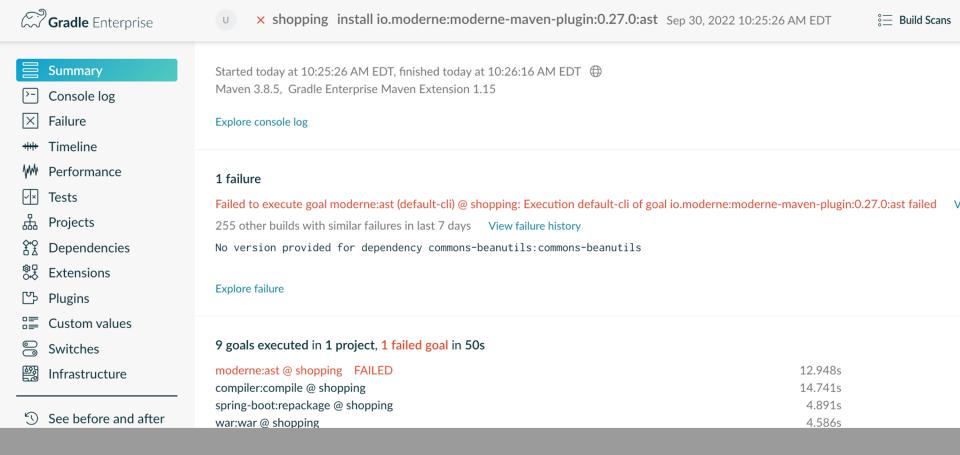
463 builds

#### **DPE Organizations Track Build and Test Times**



#### **Improved Troubleshooting**





#### Build Scan - scans.gradle.com

### This Should Have Been Observable!

#### **Eliminating Avoidable Failures**





Non-verification

Verification

All failures

54%

52%

50%

46%



#### Failed builds (50 most recent)

∀ Failures → Execution failed for task \*

Start time	Project	Requested tasks/goals	User	Hostname	
today at 1:00:47 AM	gradle	:core:embeddedIntegTesttests org.g	rad jvandort	Justins-MBP.home	
	CACHED LOCAL IDEA dirty				
	Execution failed for task ':core:embeddedIntegTest'. > There were failing tests. See the report at: file:///Users/jvandort/work/gradle/subprojects/core/build/reports/tests/embeddedIntegTest/index.html				

#### **DPE Organizations Track Failure Rates**

#### Dealing with Flaky Tests

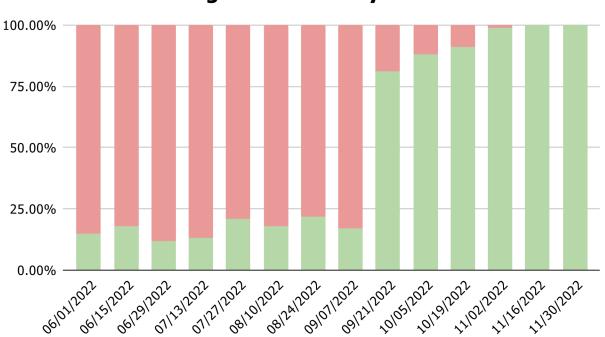
The test is flaky. What do you do now?

- a. Try it again
- b. Re-run it
- c. Re-run it again
- d. Ignore it and approve PR
- e. All of the above

#### DPE Organizations Analyze Flaky Tests

#### All Of This Will Improve CI



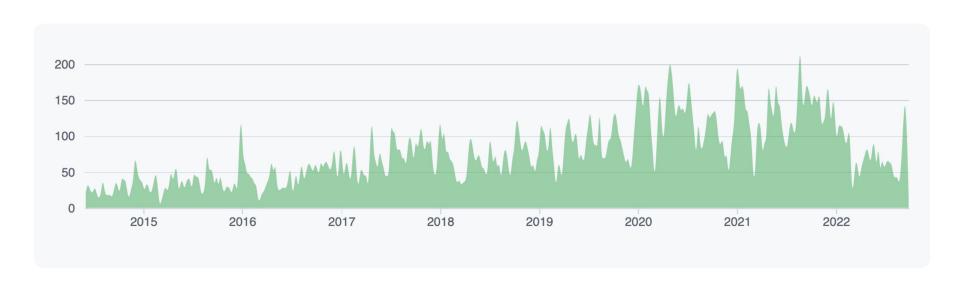




Contributing to an Open Source Project Should Be As Painless as Possible

No Good Deed Goes Unpunished

#### **DPE Encourages Code Contribution**



#### DPE Helps OSS Projects Move Even Faster





**DPE Manages Contributor Expectations** 

#### **DPE Can Increase Project Adoption Rates**



























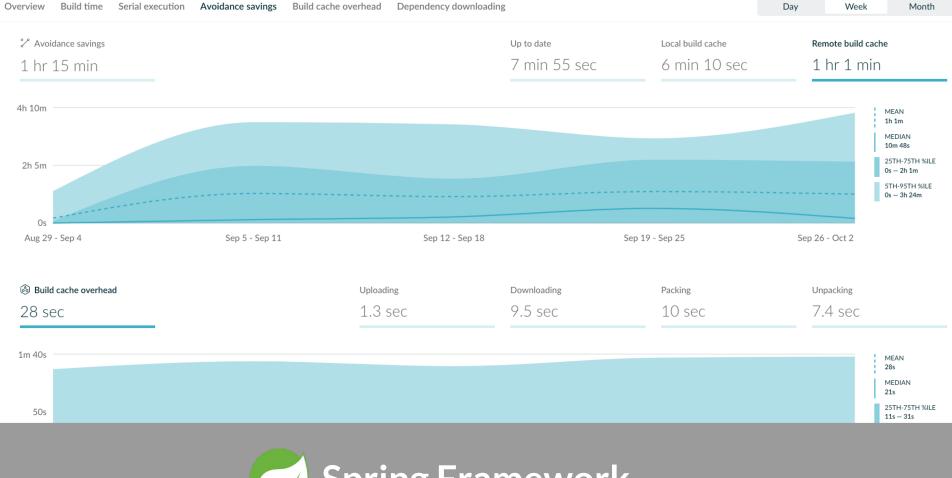








#### OSS Revved Up By Gradle Enterprise





# Predictive Test Selection  $\rightarrow \textcircled{}$  Find test task/goal

Usage (2.16K builds)

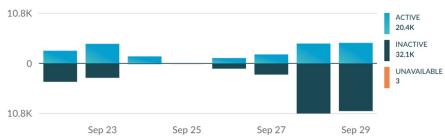
Mean build time: 6 min 40 sec

Simulations (25.7K builds)

Mean build time: 1 min 56 sec

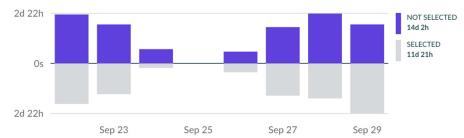
Test tasks/goals which enabled Predictive Test Selection ②

20.4K (39% of total)



Serial test time saved ②

14 d 2 hr (64% of 22 d 1 hr total savings potential)



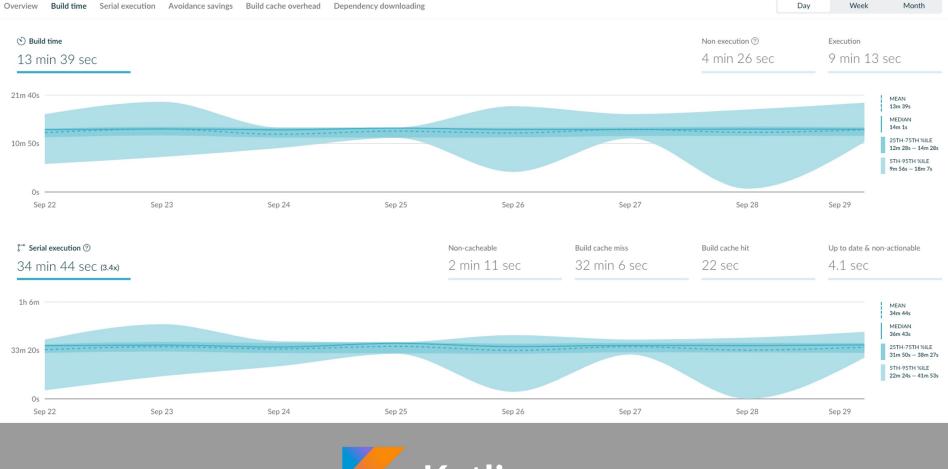
Top tasks/goals by mean duration ②

 Name
 Mean duration ⊙ ▼
 Usage ⊙
 Est. savings ⊙ ▼
 Total test time ⊙ ▼

 micronaut-starter > :test-features:test
 1 hr 10 min
 32/79 ■
 15 hr 15 min
 11 d 10 hr

 micronaut-starter > :test-aws:test
 43 min 21 sec
 24/69 ■
 14 hr 17 min
 6 d 5 hr

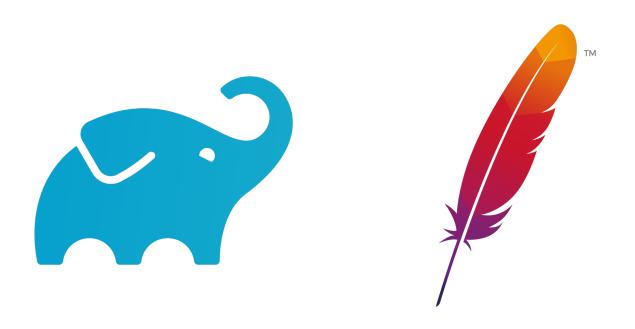




Day



#### Coming Soon to an ASF Project Near You



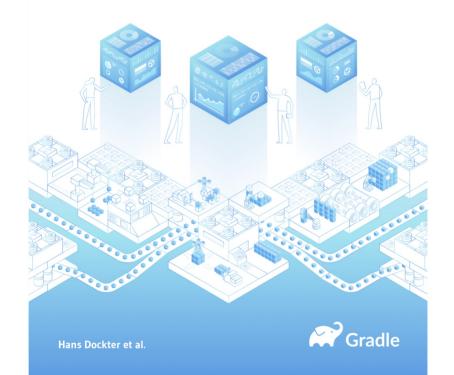
## Next Steps

#### There's a Book for This

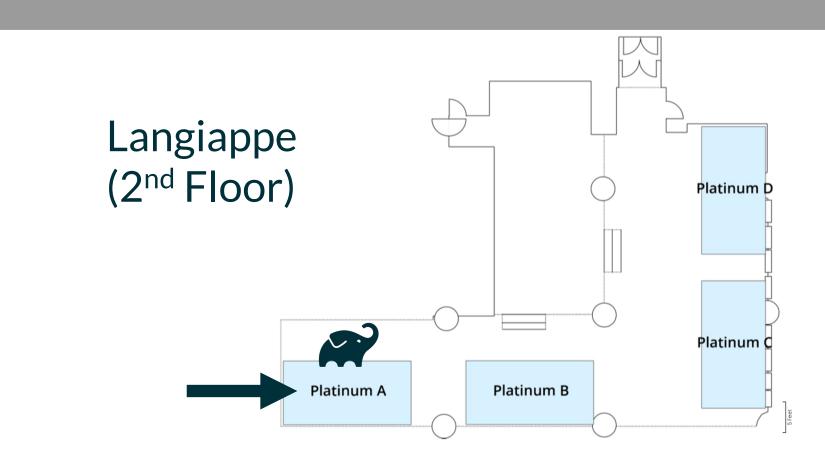


#### THE DEVELOPER PRODUCTIVITY ENGINEERING HANDBOOK

A Complete Guide to Developer Productivity Engineering for Practitioners



#### Stop By Our Booth



#### Try A Build Scan

https://scans.gradle.com

