Developer Productivity Engineering
For Open Source Software Communities

APACHECON NORTH AMERICA
OCTOBER 3 - 6, 2022
NEW ORLEANS LOUISIANA
WWW.APACHECON.COM
Lots of Gradle Activity Overall Within OSS Projects
How did we get here?

The Evolution of Gradle, Inc

And where are we going?

Developer Productivity Engineering

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

Gradle is Pioneering DPE
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
But Bottlenecks to Productivity are Everywhere
This Doesn’t Have To Be Our Reality
What Problems Does DPE Solve?

- This takes too long!
- This takes too long to fix
- This should have been observable
Builds and Tests Takes Too Long!
Very Fast Feedback Is Important
Faster Builds Improve Creative Flow

<table>
<thead>
<tr>
<th></th>
<th>Team 1</th>
<th>Team 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Devs</td>
<td>11</td>
<td>6</td>
</tr>
<tr>
<td>Build Time</td>
<td>4 mins</td>
<td>1 mins</td>
</tr>
<tr>
<td>No. of local builds</td>
<td>850</td>
<td>1010</td>
</tr>
</tbody>
</table>
Multiple Acceleration Technologies are Best
Watch The Maven Build Cache Video
Performance Insights

Are you tracking local build and test times?
DPE Organizations Track Build and Test Times
Builds and Tests Take Too Long to Fix!
Improved Troubleshooting
Build Scan - scans.gradle.com

Summary

Started today at 10:25:26 AM EDT, finished today at 10:26:16 AM EDT
Maven 3.8.5, Gradle Enterprise Maven Extension 1.15

1 failure
Failed to execute goal moderne:ast (default-cli) @ shopping: Execution default-cli of goal io.moderne:moderne-maven-plugin:0.27.0:ast failed
255 other builds with similar failures in last 7 days View failure history
No version provided for dependency commons-beanutils:commons-beanutils

Explore failure

9 goals executed in 1 project, 1 failed goal in 50s

moderne:ast @ shopping FAILED
compiler:compile @ shopping
spring-boot:repackage @ shopping
war:war @ shopping

12.948s
14.741s
4.891s
4.586s
This Should Have Been Observable!
Eliminating Avoidable Failures
DPE Organizations Track Failure Rates

1.23K (2% of 59K total builds)

Failed builds (50 most recent)

Start time
Today at 1:00:47 AM

Project
Gradle

Requested tasks/goals
:core:embeddedIntegTest --tests org.jvandort

User
Justins-MBP.home

Hostname

Affected users
18 users

- gcagent1: 626 (50.89%)
- stresansen: 144 (11.71%)
- javadot: 108 (8.78%)
- 15 OTHERS: 152 (28.62%)

Affected hosts
247 hosts

- Thomas-MacB.: 144 (11.71%)
- Justins-MBP.home: 97 (7.89%)
- GradleBook.local: 80 (6.5%)
- 244 OTHERS: 909 (73.9%)

Top Tags

- Cached: 100%
- CI: 54%
- PTS: 52%
- Check: 50%
- Local: 46%
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

160 builds

Mean execution time for test class

2 min 47 sec

Tests by flaky count

Name

performs static validation of plugins used by the Gradle build

Outcome trend

Failed Flaky Passed Mean execution time

5 (3%) 144 (90%) 11 (7%) 2 min 47 sec
All Of This Will Improve CI
Contributing to an Open Source Project Should Be As Painless as Possible
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
Micronaut

Test tasks/goals which enabled Predictive Test Selection

20.4K (39% of total)

Serial test time saved

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

Top tasks/goals by mean duration

<table>
<thead>
<tr>
<th>Name</th>
<th>Mean duration</th>
<th>Usage</th>
<th>Est. savings</th>
<th>Total test time</th>
</tr>
</thead>
<tbody>
<tr>
<td>micronaut-starter:test-features:test</td>
<td>1 hr 10 min</td>
<td>32/79</td>
<td>15 hr 15 min</td>
<td>11 d 10 hr</td>
</tr>
<tr>
<td>micronaut-starter:test-aws:test</td>
<td>43 min 21 sec</td>
<td>24/69</td>
<td>14 hr 17 min</td>
<td>6 d 5 hr</td>
</tr>
</tbody>
</table>
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

Hans Dockter et al.
Stop By Our Booth

Langiappe (2\textsuperscript{nd} Floor)
Try A Build Scan

https://scans.gradle.com
Thank You!