Don’t Let Ephemeral CI Kill Your Developer Productivity

Louis Jacomet - Gradle
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- Enable the Gradle daemon
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- Enable incremental build for custom tasks
- Enable the build cache
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- Increase the heap size
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- Optimize dependency resolution
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Ephemeral environments

- Industry trend

- Isolation $\rightarrow$ no state problems

- Short lived $\rightarrow$ no clean up jobs
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- Enable parallel execution
  - ✔️
- Enable the Gradle daemon
  - ❓
- Enable the configuration cache
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- Enable incremental build for custom tasks
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Create build for specific developer workflows
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- Enable the build cache  
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- Create build for specific developer workflows
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- Optimize configuration
- Optimize dependency resolution
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- Enable parallel execution ✅
- Enable the Gradle daemon ❓
- Enable the configuration cache ❓
- Enable incremental build for custom tasks ❌
- Enable the build cache ✅
- Create build for specific developer workflows ✅
- Increase the heap size
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  ❓
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  ❌
- Enable the build cache
  ✅
- Create build for specific developer workflows
  ✅
- Increase the heap size
  ✅
- Optimize configuration
Gradle Build Tool performance

● Enable parallel execution  
  ✔️

● Enable the Gradle daemon  
  ❓

● Enable the configuration cache  
  ❓

● Enable incremental build for custom tasks  
  ❌

● Enable the build cache  
  ✔️

● Create build for specific developer workflows  
  ✔️

● Increase the heap size  
  ✔️

● Optimize configuration
Gradle Build Tool performance

- Enable parallel execution ✅
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- Optimize configuration
Key Gradle Build Tool performance elements

- Caches
  - Dependency cache
  - Task cache
  - ...
- Incrementality
  - Execution history
- Parallelism
  - Tasks
  - Tests
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- Caches
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Gradle Build profile
Possible actions
Dealing with performance

- Measure
- Change
- Measure
- Compare

https://xkcd.com/1691/
Optimize Gradle startup

- Distribution availability
  - Always use the `-bin` one
  - Already in the image / docker file / ...
  - OR Downloaded from a closer location
  - OR Save and restore `<GUH>/wrapper/dists`

- Prime distribution
  - Run it once to have the first use elements
  - OR Save and restore `<GUH>/caches/<version>/generated-gradle-jars`
Optimize Gradle configuration

● Dependency cache
  ○ Read-only cache feature
  ○ OR save and restore `<GUH>/caches/modules-2`

● Script compilation cache
  ○ Remote build cache
  ○ OR save and restore `<GUH>/caches/<version>/kotlin-dsl` and `<GUH>/caches/<version>/scripts` and `<GUH>/caches/jars-9`
Optimize Gradle execution

- **Dependency cache**
- Task execution cache
  - Remote build cache
  - OR save and restore `<GUH>/caches/build-cache-1`
  - (Android mostly) save and restore `<GUH>/caches/transforms-3`
Thank you!