



# Graal Native Image

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Graal workshop  
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# Agenda

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**Why startup time is  
matter for us?**

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**Prior state of the  
art**

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3

**State of the art**



# Why startup time is matter for us?



Why startup time is matter for us?

- 1 Strato is PaaS with custom QL**
- 2 StratoQL has compiler & IDE**
- 3 90k LOC on StratoQL**
- 4 Hundreds of engineers use it every day**



Why startup time is matter for us?

- 1 NOP compiler's run was ~1 minute**
- 2 Slow down development cycle**
- 3 Impossible to integrate with build system**



# Prior state of the art



Prior state of the art

- 1 JVM flags and CDS**
- 2 NOP compiler's run ~5 second**
- 3 Avg compiler's run ~1 minute**
- 4 Impossible to integrate with build system**



Prior state of the art

- 1 Nailgun**
- 2 NOP compiler's run is instant**
- 3 Avg compiler's run ~5 second**
- 4 Last release Oct 2018**



- 1 Nailgun is stateful**
- 2 Hard to troubleshoot**
- 3 Has zero introspection tools**
- 4 A lot of mystery behaviour in our case**



Prior state of the art

- 1 Graal Native Image v1.0-RC#**
- 2 Reflection is a pain**
- 3 None of dependencies are ready**
- 4 Eventually gave up**



# State of the art



- 1 Graal Native Image v20.1.0**
- 2 NOP compiler's run is instant**
- 3 P50 compiler's run less than 1 sec**
- 4 P90 compiler's run ~10 sec**



- 1 Reflection is a pain**
- 2 Automatic Detection is awesome**
- 3 Scala macros are helpful**
- 4 Dependencies are ready**



- 1 No cross compilation support**
- 2 Time to time hitting problem with initialization at build vs runtime**



**Thank you**

