Foggy Friday: Java 11

22 March 2019 @ **11:00**

Agenda:

- Current state of Java
- What is in Java 11
- Choosing container images
- Multi stage builds
- What is next?

Current state of Java

- What was the process until 2018?
  - OracleJDK = OpenJDK + oracle sauce(BEA JMC, flight recorder)
    - macOS, Linux, Solaris, windows, x86-amd64, ARM,
    - Free for commercial usage
    - Support from oracle
  - OpenJDK = OpenJDK + binaries from oracle without JMC and Flight recorder
    - Linux, X86-amd64
    - Free for any usage
    - Support from RED HAT, azul systems
- What is the process from 2019?
  - Oracle JDK is licensed, Free only for dev, No security updates after 6 months
  - OpenJDK – 100% opensource + support from IBM, RedHAT, Azul, SAP, AWS

What is new in Java 11

- Many improvements in language (var in lambda)
- ZGC – low latency garbage collector
- Flight recorder, JMC
- Better security algo, TLS 1.3
- JAVA EE and CORBA are removed
- XX:+UseContainerSupport – Yay……..

Choosing container images

https://adoptopenjdk.net/index.html

https://hub.docker.com/r/adoptopenjdk/openjdk11/tags

Provider	Free Builds from Source	Free Binary Distributions	Extended Updates*	Commercial Support
AdoptOpenJDK	Yes	Yes	Yes	No
Azul	No	Yes	Yes	Yes
IBM	No	No	Yes	Yes
Mercurial	Yes	Yes	No	No
Oracle	No	Yes	No**	Yes
RedHat	Yes	Yes	Yes	Yes
SapMachine	Yes	Yes	Yes	Yes
Amazon – Corretto	Yes	Yes	Yes	No

Multi stage builds

- Multi-stage build allows multiple FROM statements in a Dockerfile.
- Compile and build image in single Dockerfile
- Reduce layers and image size

1

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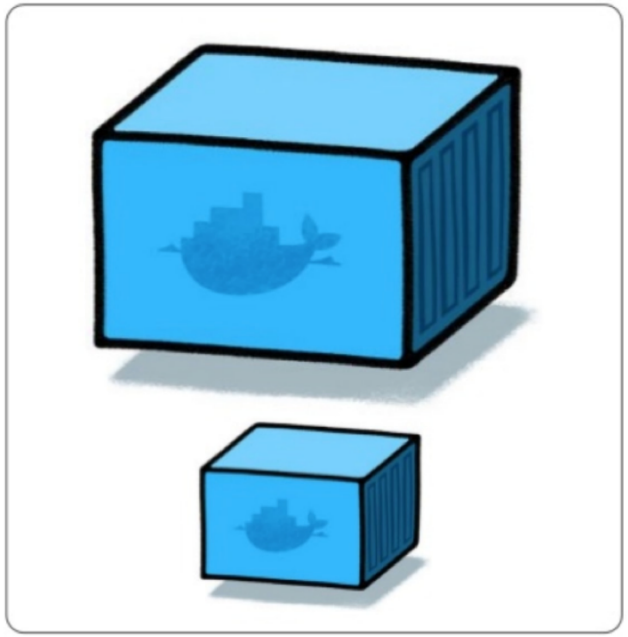
```
# Dockerfile
# build stage
FROM buildbase as build
...
...
...

# production ready stage
FROM runbase
...
COPY --from=build
/artifact /app
```



Multi stage build contd..

- Do we need Jenkins Java 11 build agent?
- We move faster without dependency on Jenkins agents

- https://docs.docker.com/develop/develop-images/multistage-build/
- http://blog.arungupta.me/smaller-java-image-docker-multi-stage-build/

What is next?

- JIB
  - **Build -** Java app images without a Docker daemon
  - **Fast** - Deploy your changes fast.
  - **Reproducible** - Rebuilding your container image
  - **Daemonless** - Reduce your CLI dependencies
  - **Maven** – Available as maven plugin

https://github.com/GoogleContainerTools/jib

What is next?

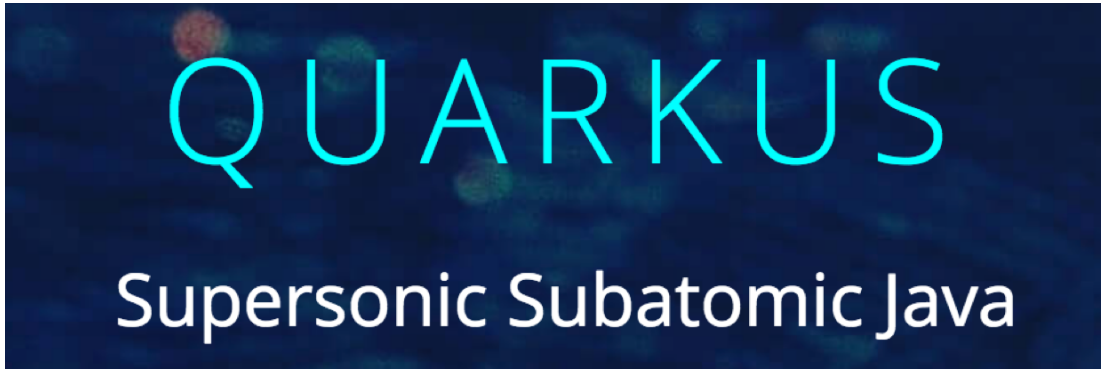
- GraalVM
  - High-performance polyglot VM
  - **Polyglot** JavaScript, Python, Ruby, R, Java, Scala, Kotlin, Clojure, c, c++
  - **Native** Native images compiled with AOT improve the startup time
  - **Memory** reduce memory which is useful in server less env

- https://www.graalvm.org/

What is next?

- Quarkus
  - A Kubernetes Native Java stack tailored for GraalVM & OpenJDK HotSpot
  - Based on libs (JAX RS, JPA, Vertx)
  - Container first
  - Fast boot time
  - Low RSS memory
  - Unifies imperative and reactive style
  - Live reload

- https://quarkus.io/



Quarkus : a quick overview of benefits