

# Java Trends Report 2020

Jakarta Tech Talk  
November 24, 2020

# Meet the Co-Authors

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- [Ben Evans](#) (lead editor)
- [Michael Redlich](#)
- [Erik Costlow](#)
- [Uday Tatiraju](#)



<https://www.infoq.com/articles/java-jvm-trends-2020/>

# Agenda

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- What is the Java Trends Report?
- Key Takeaways
- GraalVM
- Quarkus
- Java 11
- MicroProfile
- Live Demos!

# Disclaimer

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The viewpoints of our contributors only tell part of the story - and different parts of the Java ecosystem and localities may well have very different experiences.

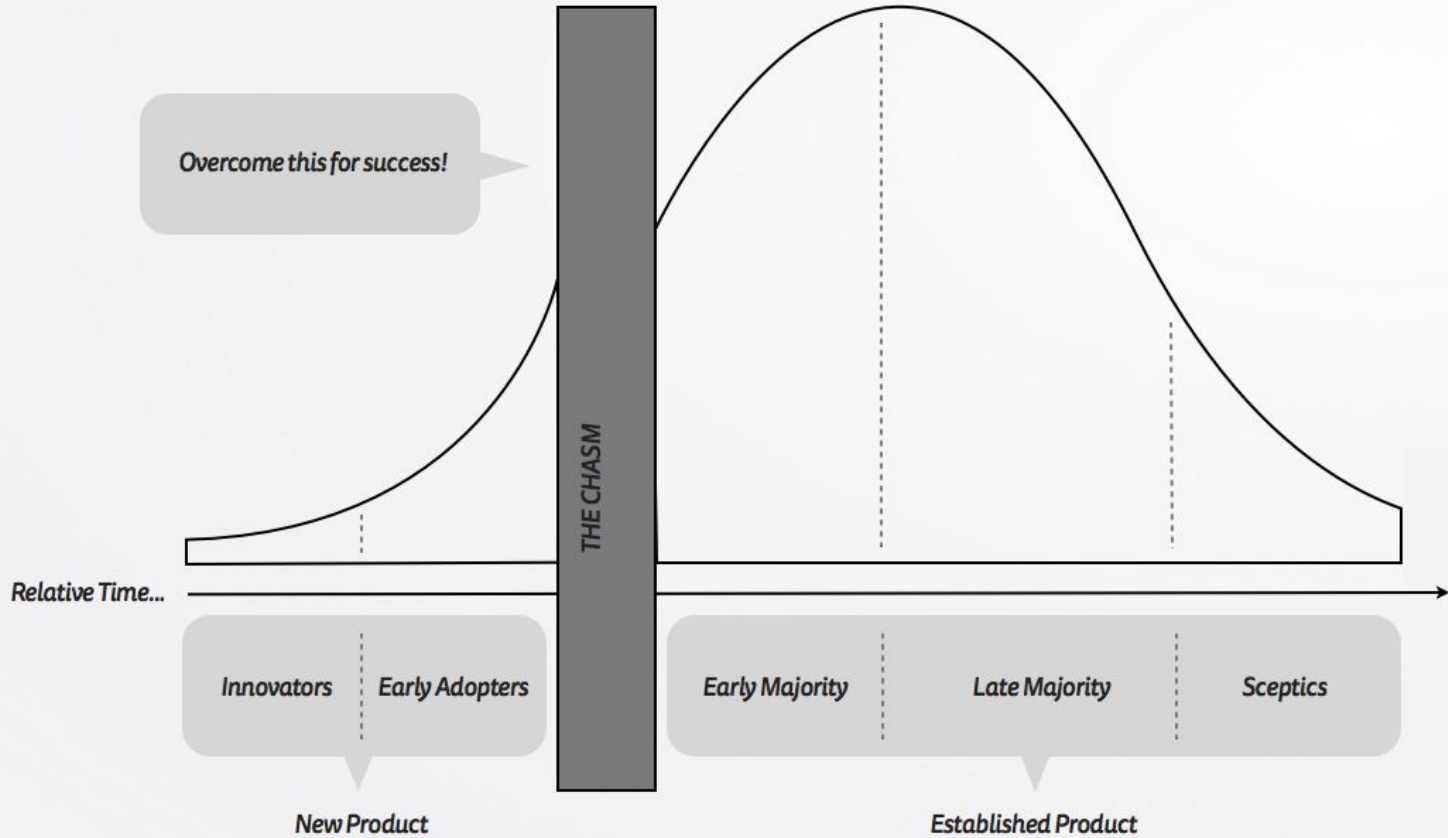
The views expressed in our trends piece should be seen as the starting point for debate rather than a definitive statement, and an invitation to an open discussion about the direction the industry is taking.

# What is the Java Trends Report?

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- An annual report that provides the following goals for the Java community:
  - To assist technical leaders in making mid- to long-term technology investment decisions
  - To assist individual developers in choosing where to invest their valuable time and resources for learning and skill development
- Based on how the InfoQ Java Queue editorial team sees the adoption of technology and emerging trends within the Java space
- First kicked-off in 2019
- Utilize the “[crossing the chasm](#)” mental model

# The Chasm / Diffusion Model



# Key Takeaways (1)

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- Cloud deployment and containerization is the megatrend in the industry
  - Java is no exception
- GraalVM and static compilation are key building blocks to the acceleration to the cloud
  - Red Hat Mandrel, similar build
  - Project Leydon could be an interesting new direction for this trend, but this is in its early stages
- Quarkus is attracting a lot of attention and has very quickly moved into the Early Adopters space

<https://www.infoq.com/news/2020/07/mandrel-graalvm/>

# Key Takeaways (2)

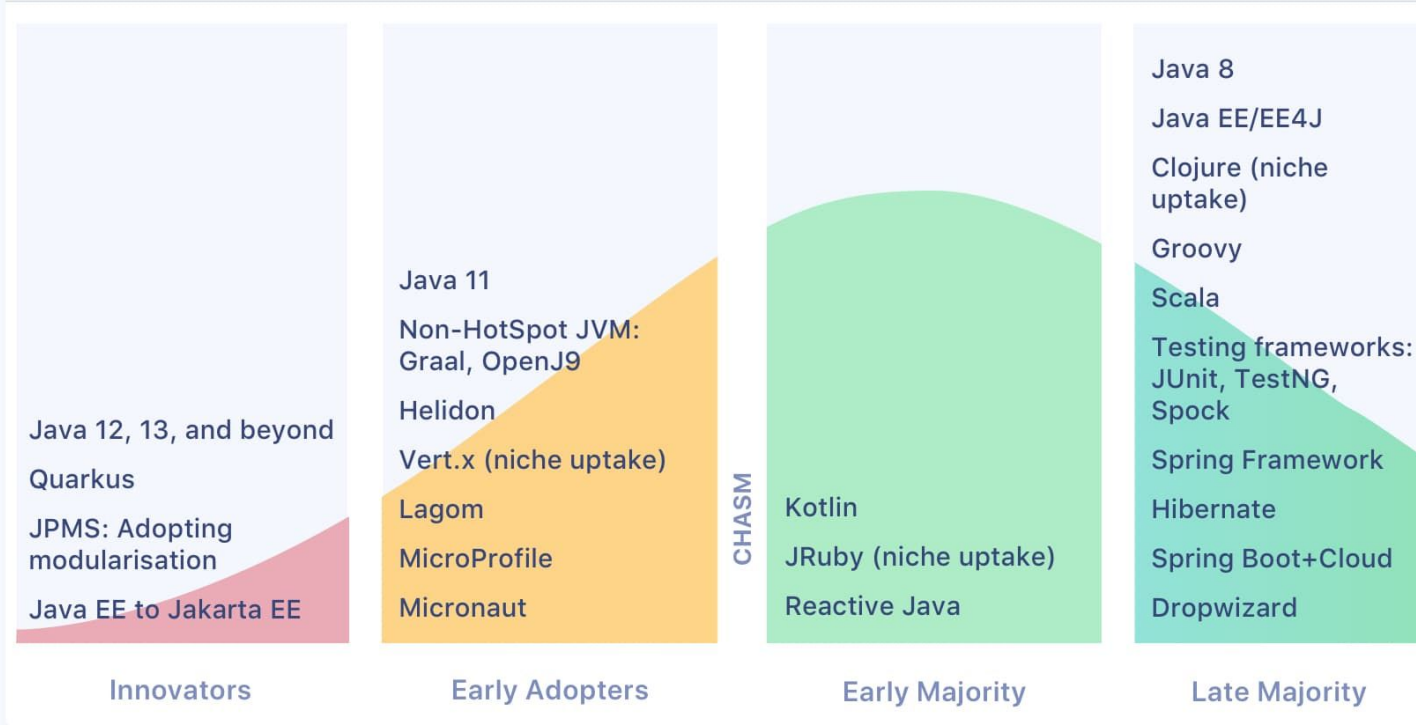
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- Adoption of Java 11 has now achieved approximately 20% of production deployments with Java 8 making up the remaining 80%
  - There has been no significant deployment of non-LTS releases



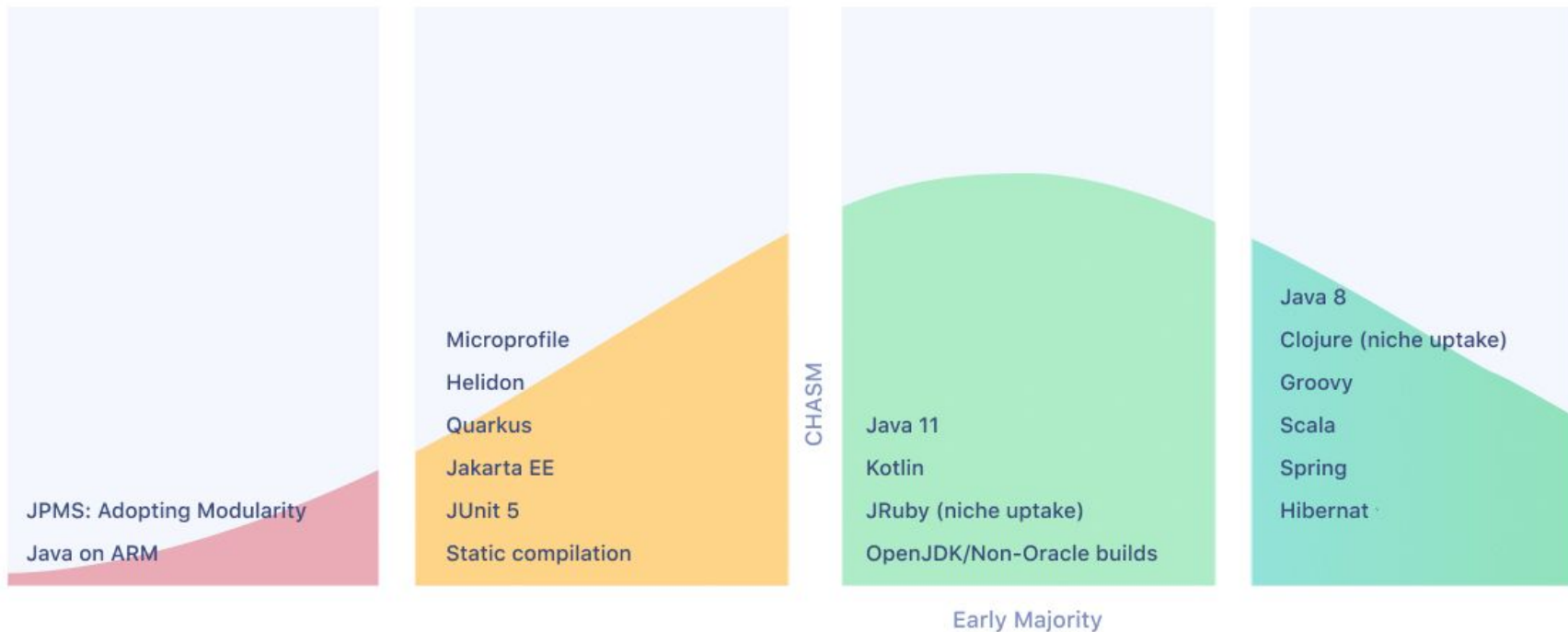
# Software Development Java and JVM 2019 Q3 Graph

<http://infoq.link/java2019>



# Software Development Java and JVM 2020 Q3 Graph

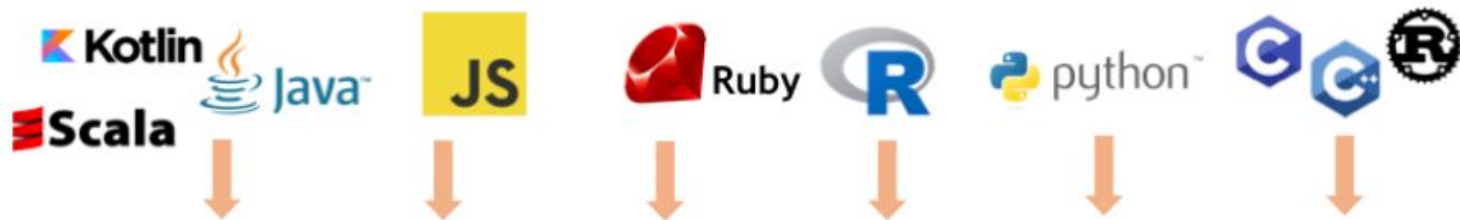
<http://infoq.link/java2020>



# GraalVM

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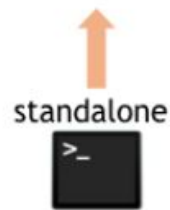
- *“A universal virtual machine for running applications in JavaScript, Python, Ruby, R, JVM-based and LLVM-based languages.”*
- A high-performance runtime that provides significant improvements in application performance and efficiency
  - Ideal for microservices
- Now supports COBOL!
- **native-image** utility
- Latest version: 20.3.0



Automatic transformation of interpreters to compiler

# GraalVM™

Embeddable in native or managed applications





# Quarkus

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- *“A Kubernetes Native Java stack tailored for OpenJDK HotSpot and GraalVM, crafted from the best-of-breed Java libraries and standards.”*
- Supersonic, subatomic Java!
- A cohesive, fun-to-use, full-stack framework
- A portmanteau of:
  - Quark
  - Us
- Latest version: 1.9.2
- Get Started: <https://code.quarkus.io/>

# Best of Breed Libraries

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- MicroProfile
- Vert.x
- JAX-RS
- RESTEasy
- CDI
- Netty
- Hibernate
- JPA
- JTA
- Kafka
- Camel
- etc.



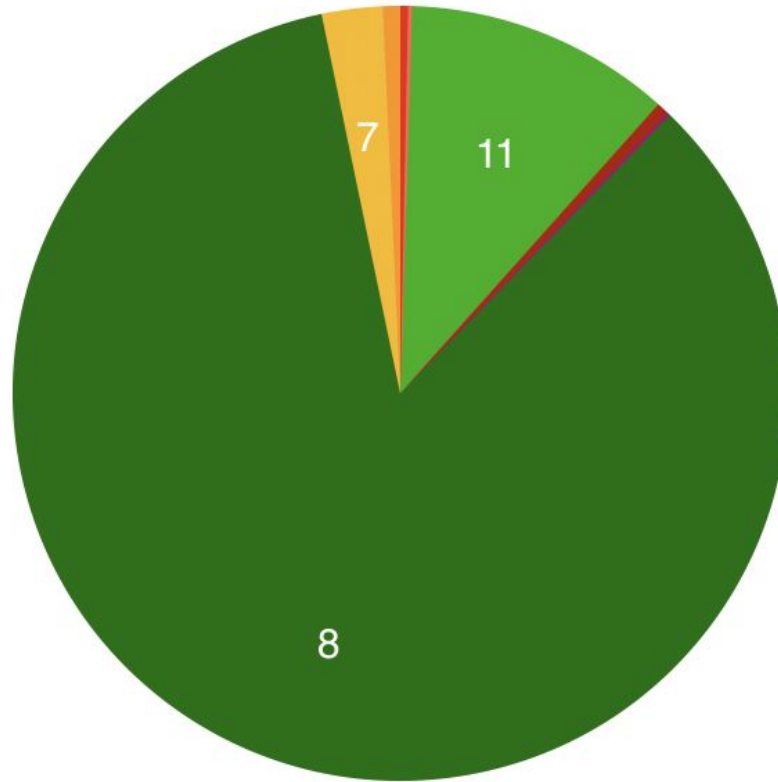


# Java 11

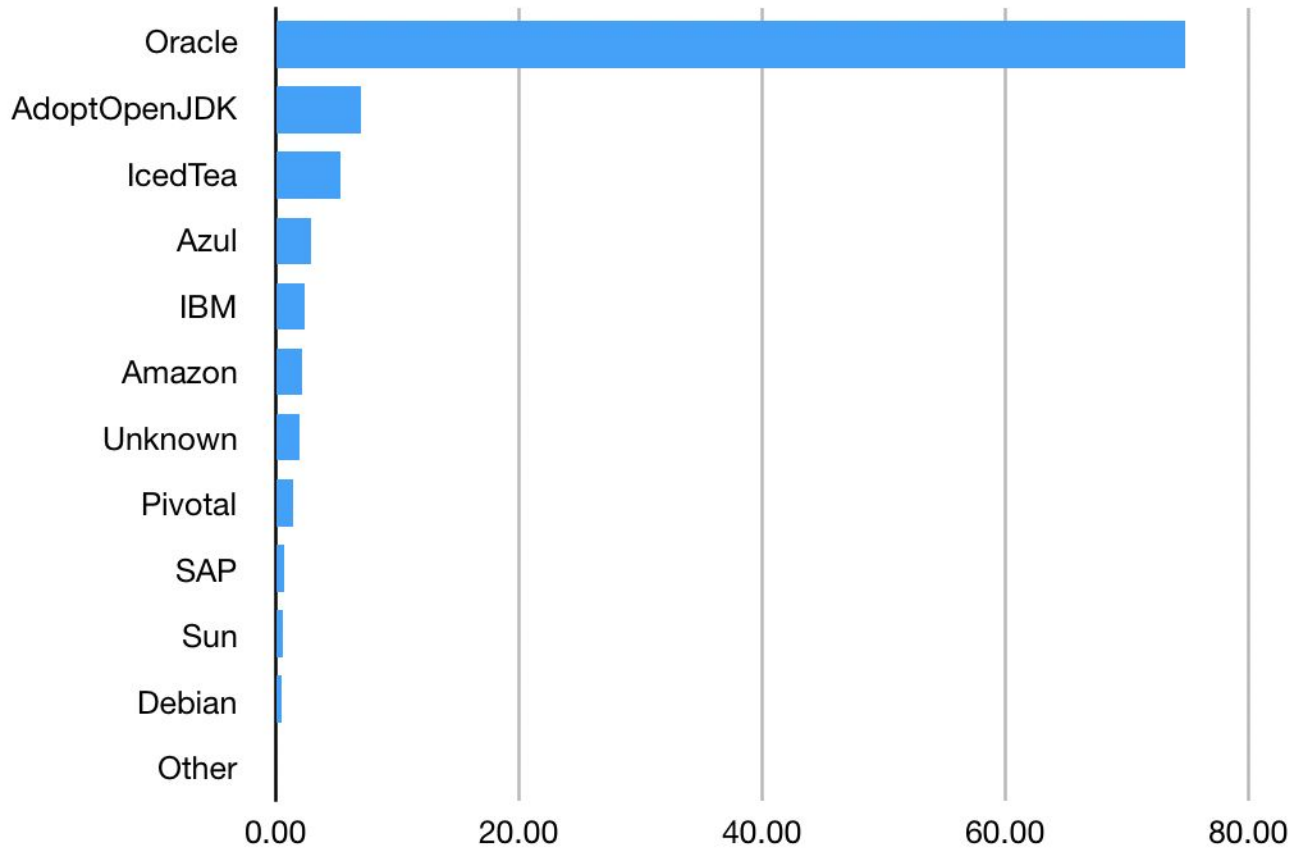
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- Latest long-term support (LTS) version
- Sharp decline of the use of Oracle's Java binaries
- Market isn't choosing to adopt the six-month upgrade cycle of Oracle's feature releases
  - Organizations remaining with LTS versions, Java 8 and Java 11
  - Oracle doesn't provide support for zero-cost Java binaries for more than six-months after a release
- Instead, the market is turning to non-Oracle providers of Java binaries
  - AdoptOpenJDK (now Eclipse Adoptium)
  - Azul Zulu
  - Amazon Corretto

14 13 12 11 10 9 8 7 Older



JVM Provider Percentage



# MicroProfile

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- A full suite of APIs for optimizing enterprise Java in a microservices architecture
- Introduced in May 2016 by a collaboration of Java EE vendors
- Latest version: 3.3
  - MicroProfile 4.0 on the verge of being released
- Get Started: <https://start.microprofile.io/>

Open  
Tracing 1.3

Open API 1.1

Rest Client 1.4

Config 1.4

Fault  
Tolerance 2.1

Metrics 2.3

JWT  
Propagation 1.1

Health 2.2

CDI 2.0

JSON-P 1.1

JAX-RS 2.1

JSON-B 1.0



# Resources

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- [Java InfoQ Trends Report—July 2019](#) by InfoQ Java Queue Editorial Team
- [Java on iOS and Android via Gluon](#) by Erik Costlow (August 29, 2019)
- [New Relic – the State of Java Report](#) by Alex Blewitt (March 13, 2020)
- [Red Hat Mandrel Makes Java Native](#) by Erik Costlow (July 1, 2020)
- [Java InfoQ Trends Report—September 2020](#) by InfoQ Java Queue Editorial Team (September 29, 2020)
- [The Road to MicroProfile 4.0](#) by Michael Redlich (November 5, 2020)

# Thanks!

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