

# Performance Improvements

---

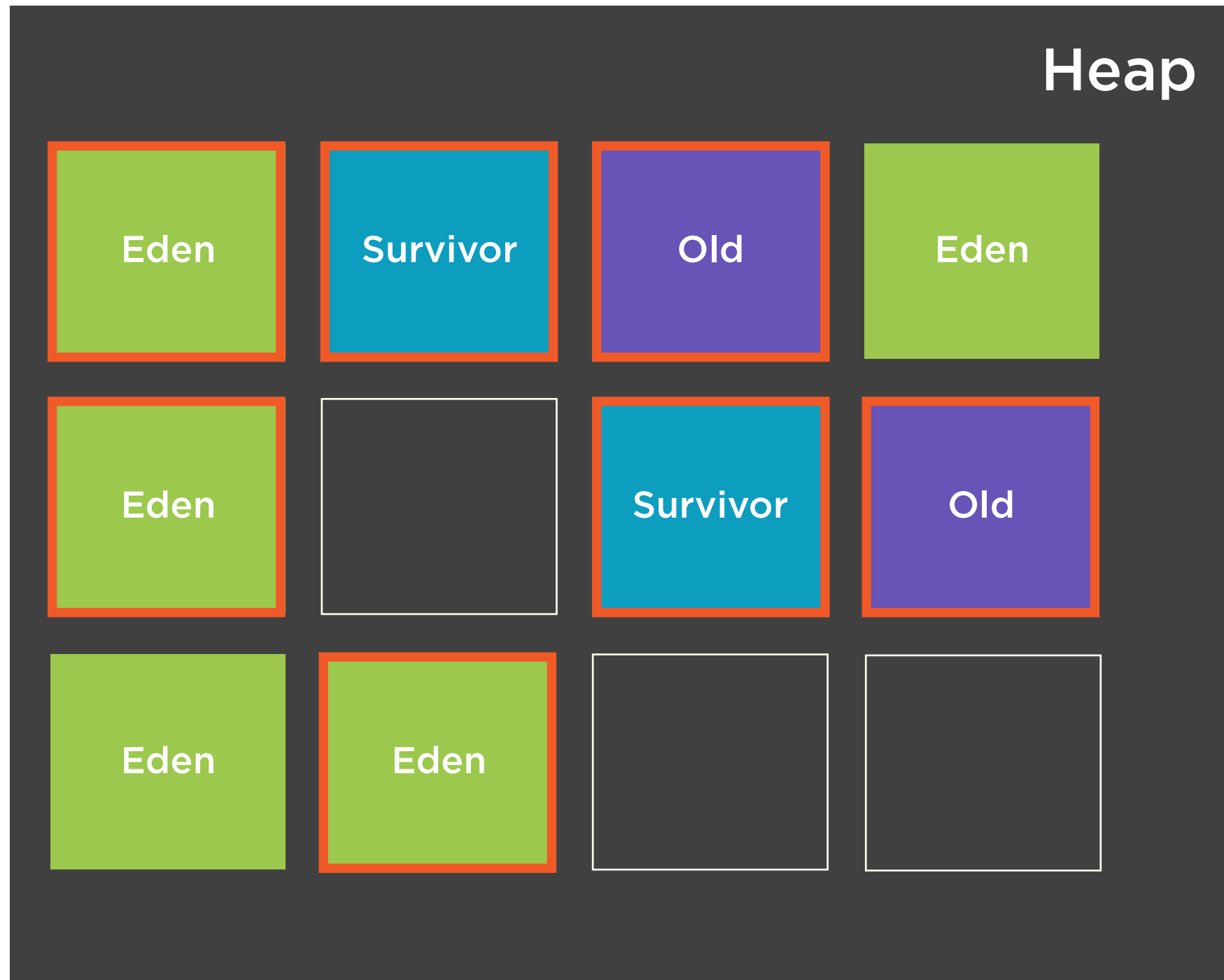


**Sander Mak**

FELLOW & SOFTWARE ARCHITECT

@Sander\_Mak

# G1GC Overview



**Incremental GC**

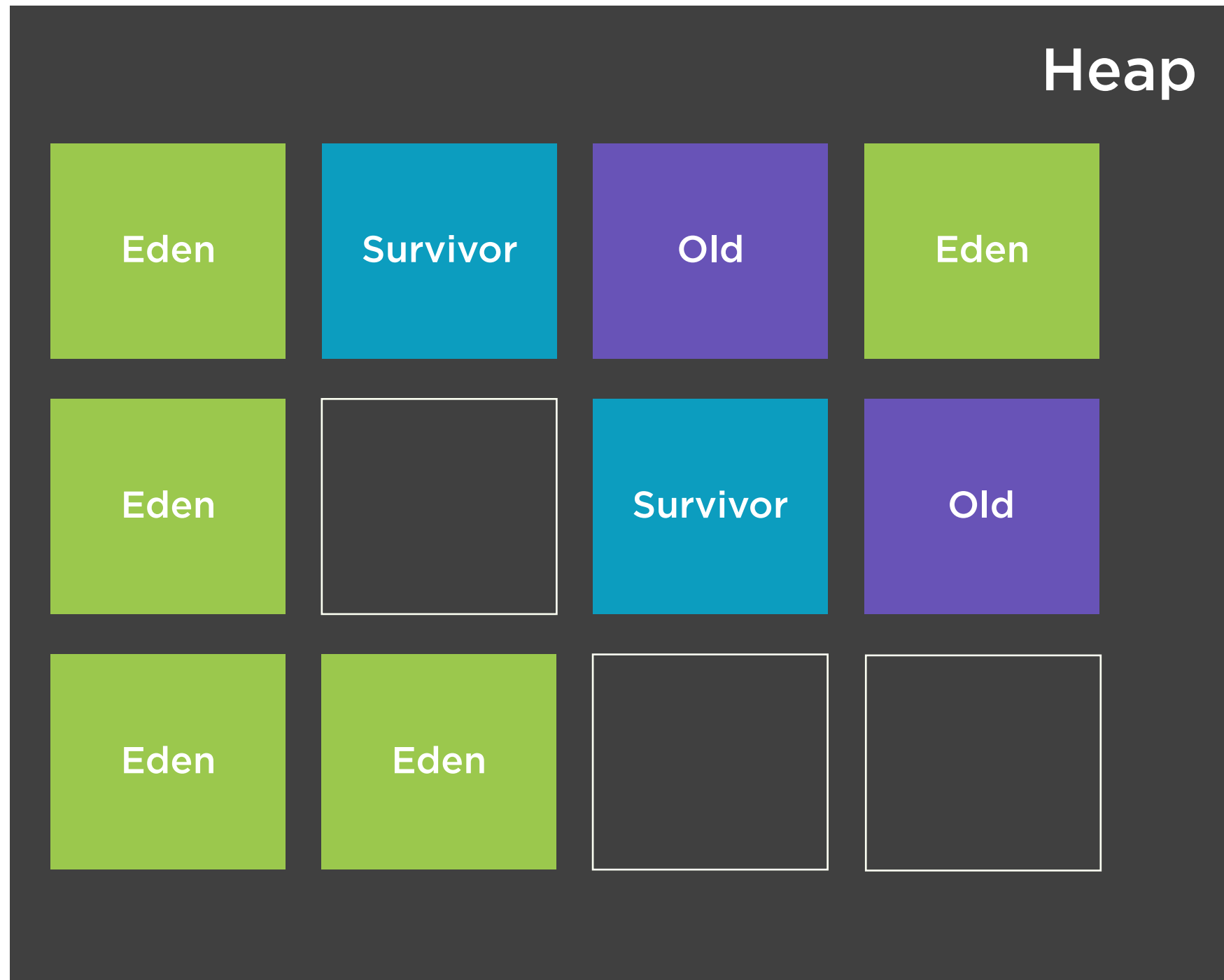
**Parallel marking**

**Designed for large heaps**

**Tunable pause goal**

**Slightly more CPU intensive**

# G1GC Overview



Full explanation of G1GC:  
last module of "What's  
New in Java 9"



# Parallel Full GC for G1GC



Stop-the-world garbage collection

**Java 9:** serial full GC

**Java 10:** parallel full GC

`-XX:ParallelGCThreads`

# Application Class Data Sharing

**Improve VM start-up time**

**Reduce memory footprint**

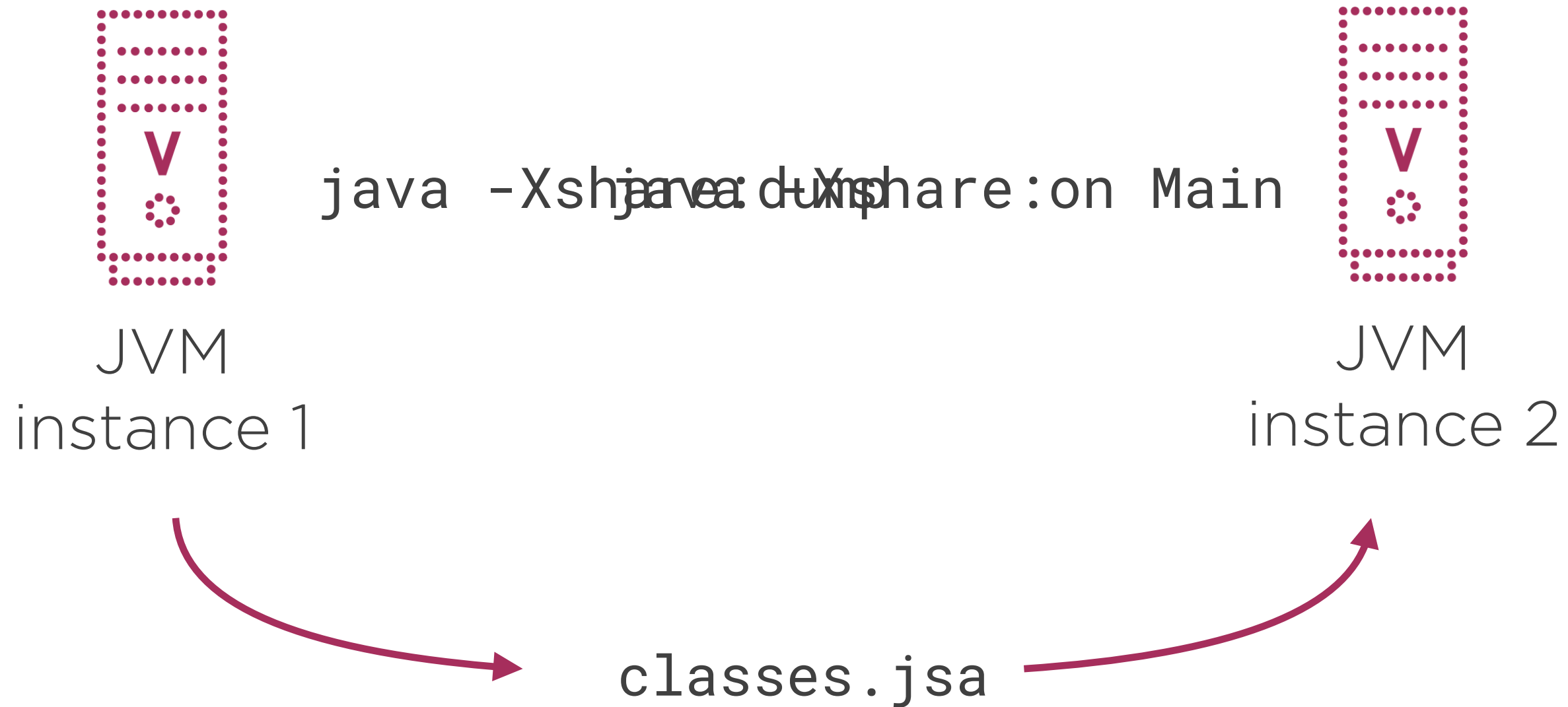
**Shared lib of class metadata**

**Originally system classes only**



Useful with multiple VMs running same code, or with repeated executions

# System Class Data Sharing



Saves ~10-30% startup time

# Application Class Data Sharing



# Application Class Data Sharing

How do I create a class list file?

`-XX:DumpLoadedClassList=myapp.lst`

<https://github.com/simonis/cl4cds>



# Improved Container Awareness

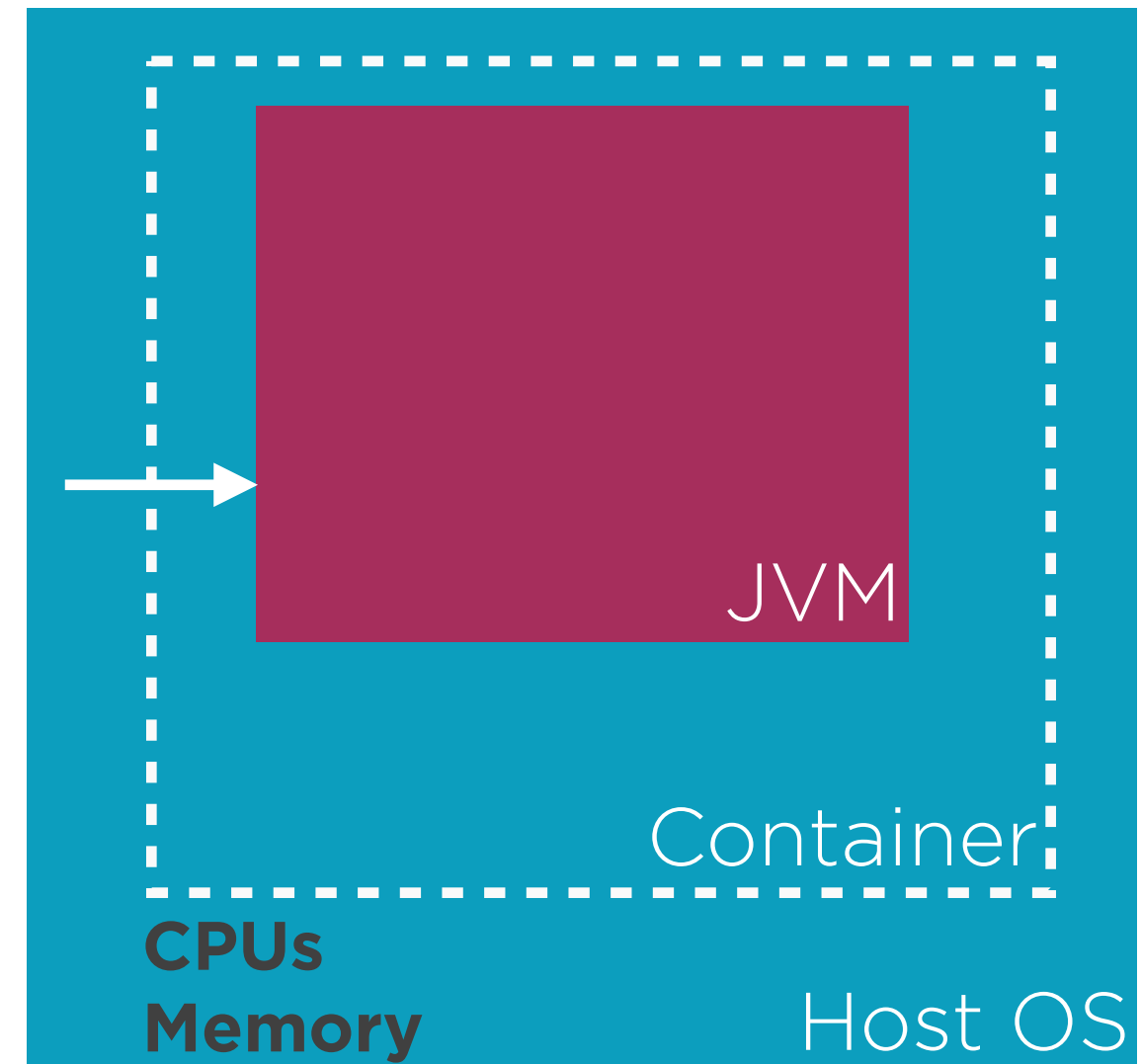
Java now detects container

Query container instead of host OS

Can attach to Java process

Linux & Docker only

- XX:ActiveProcessorCount=<n>
- XX:InitialRAMPercentage
- XX:MaxRAMPercentage
- XX:MinRAMPercentage

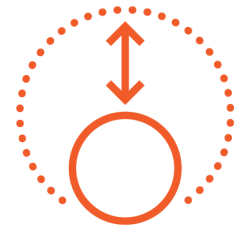


Summary

What's New in Java 10

# Course Wrap-up

## Java 10 Introduction



Smaller, more frequent Java releases



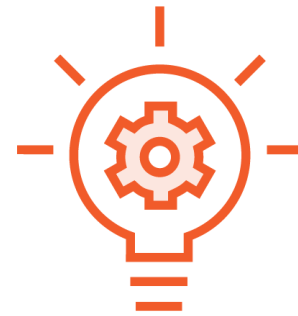
Convergence Oracle JDK & OpenJDK



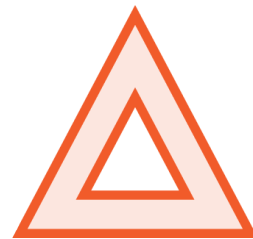
Deprecations & removals in JDK 10

# Course Wrap-up

## Local-variable Type Inference



Type inference: local variables with **var**



Prevent abuse, use **var** responsibly



Inferred types may be non-denotable

# Course Wrap-up

## Performance Improvements



Parallel full GC for G1GC



Application class data sharing



Improved container awareness

# Additional Resources

12 Java Enhancement Proposals:  
[openjdk.java.net/projects/jdk/10/](https://openjdk.java.net/projects/jdk/10/)


## What's New in Java 9

by Sander Mak

It is time to get up to speed with the release of Java 9 and its developments. In this course, you'll learn about the new features, such as the module system, newly introduced APIs, and changes to the language.

[▶ Resume Course](#) [Bookmark](#) [\(\(p\)\) Add to Channel](#) [🔥 Live mentoring](#)

Course author

 **Sander Mak**

Sander is a Fellow at Luminis in The Netherlands, where he crafts modular and scalable software, most often on the JVM, but with a touch of TypeScript when needed. He also is a Java Champion and...

Course info

Level	Intermediate
Rating	★★★★★ (27)
My rating	★★★★★
Duration	3h 33m
Released	14 Sep 2017

Share course

[f](#) [t](#) [g+](#) [in](#)

**Table of contents** Description Transcript Exercise files Discussion Learning Check

Recommended

[Expand all](#)

▶ Course Overview	✓	🔖	1m 35s	▼
▶ The Java Platform Module System		🔖	39m 45s	▼
▶ Introducing JShell		🔖	24m 41s	▼