

# JVM Memory/GC

吴雪峰@ThoughtWorks

OutOfMemory



JVM Memory

JVM Memory

PermGen

-XX:MaxPermSize

-XSS Per Thread

-XX:MaxPermSize

JVM Memory

Stack

PermGen

-Xmx

-Xms

-XSS Per Thread

-XX:MaxPermSize

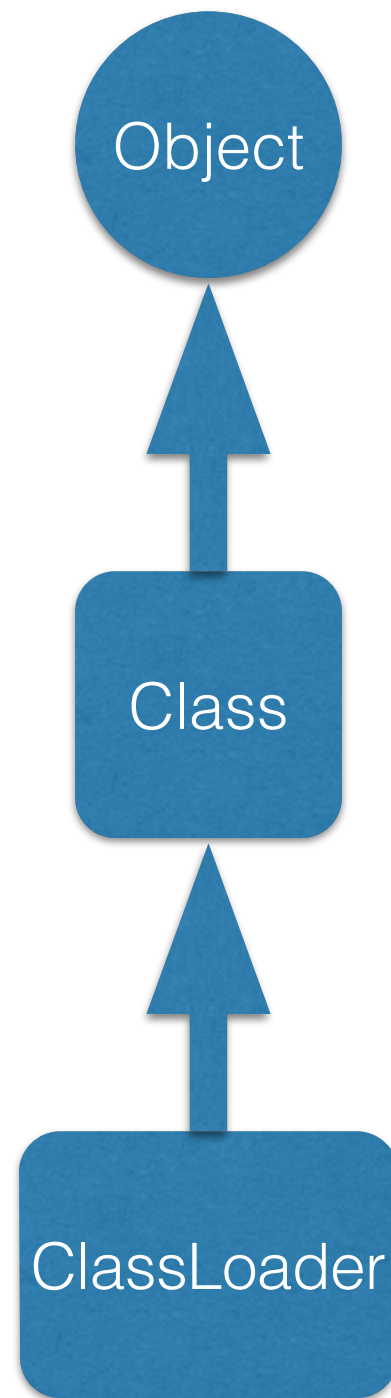
HEAP

Stack

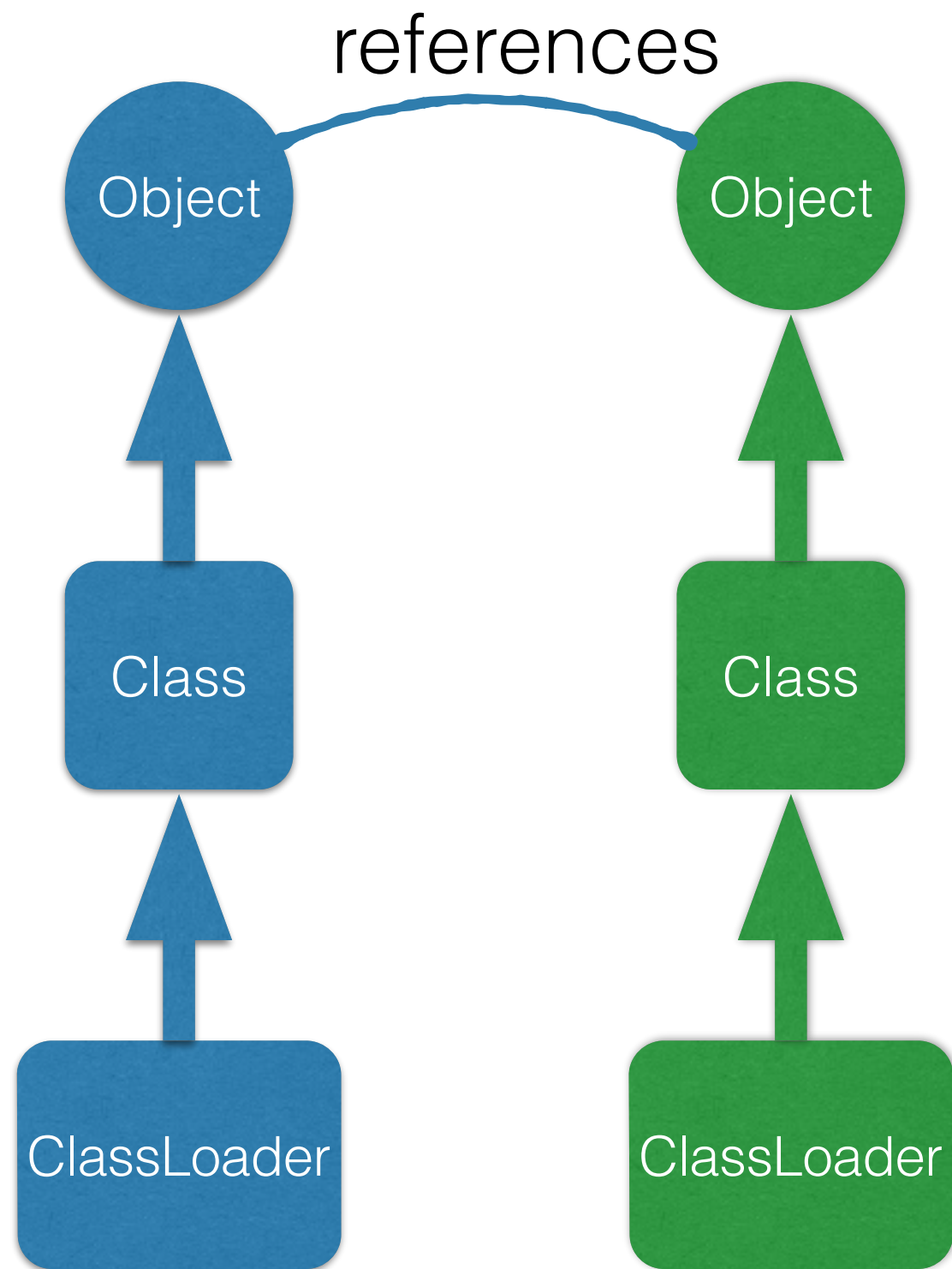
PermGen

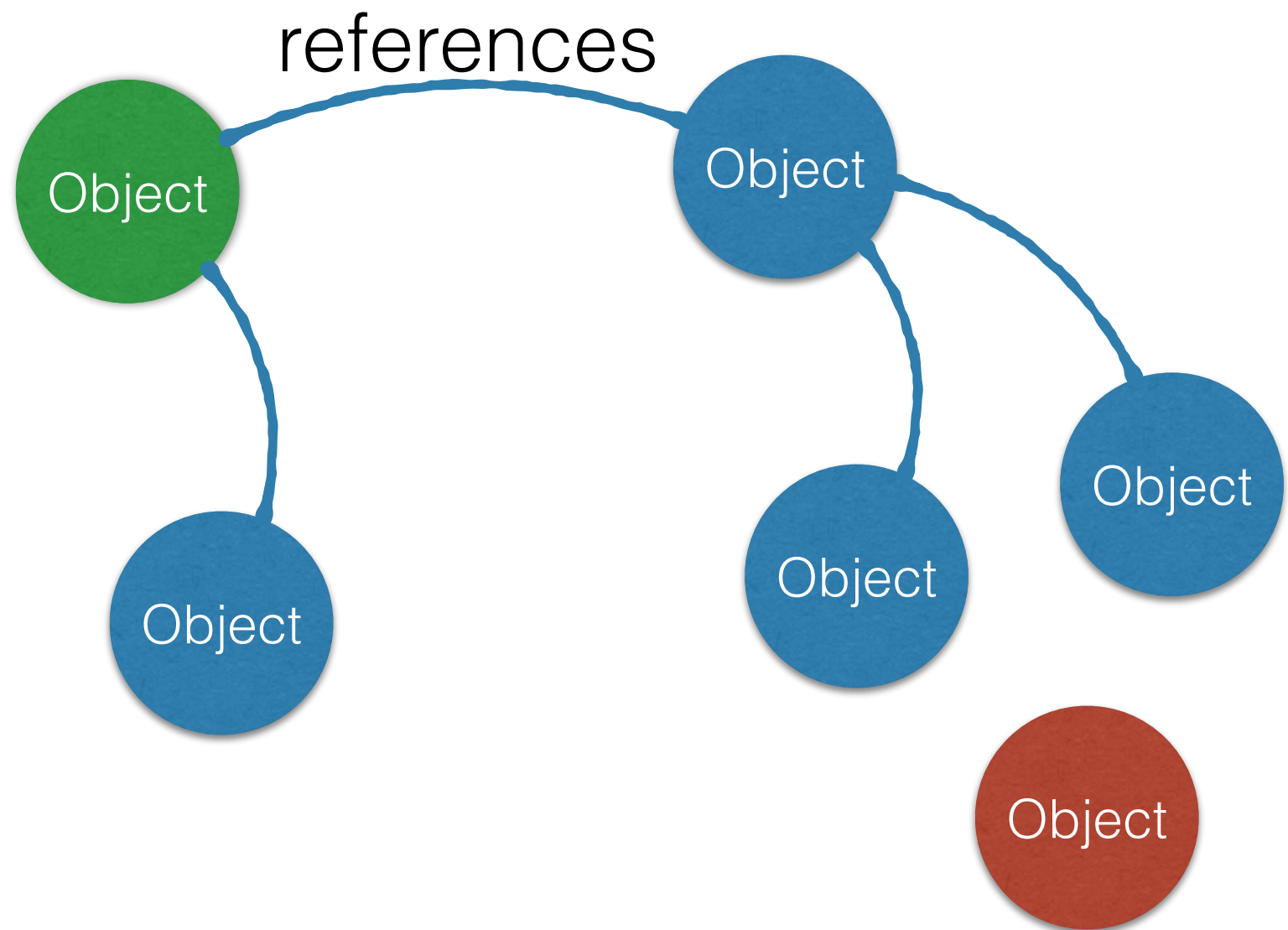
# OutOfMemoryError

- Java heap space
- PermGen space
- GC overhead limit exceeded `-XX:-UseGCOverheadLimit`
- Unable to create new native thread







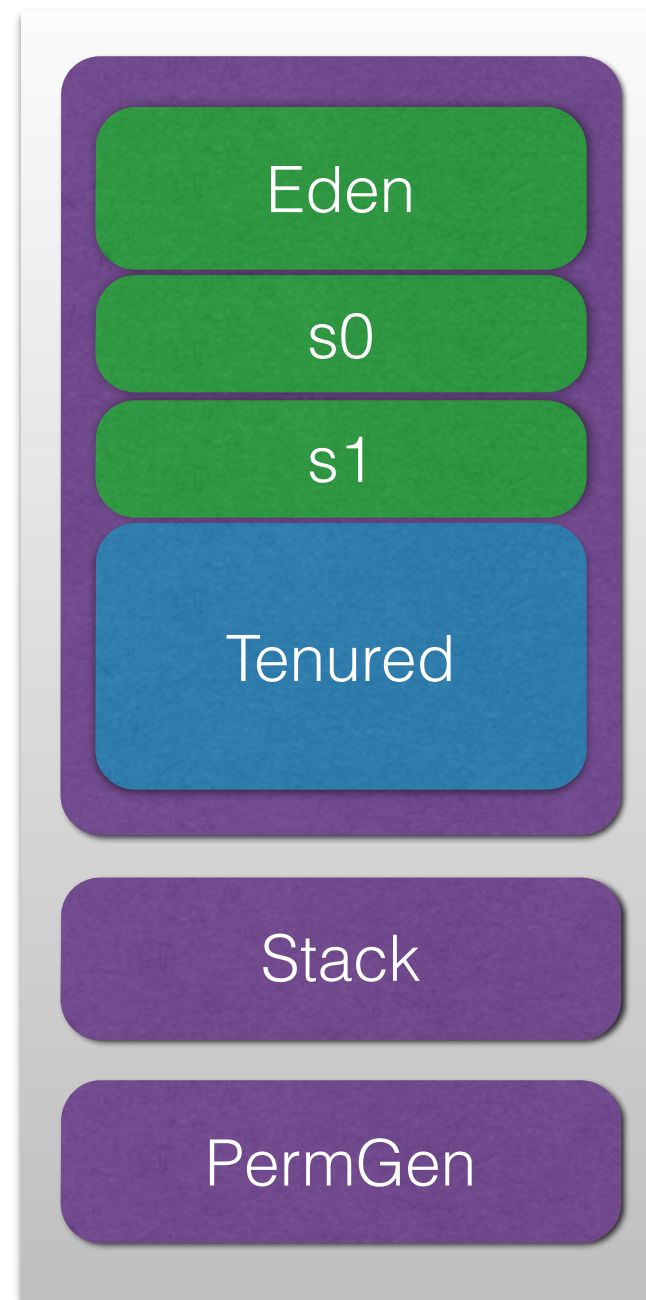


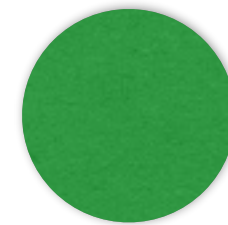
-Xmx

-Xms

-XSS Per Thread

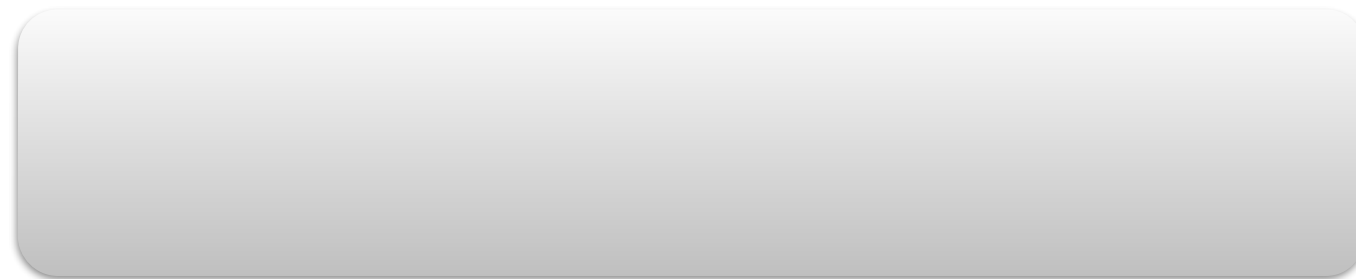
-XX:MaxPermSize



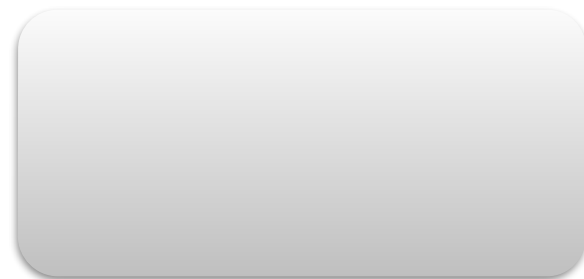


new

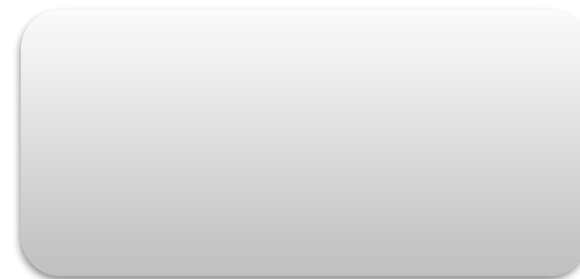
Eden

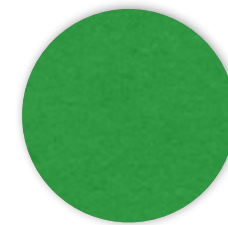


To



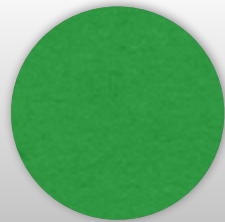
From



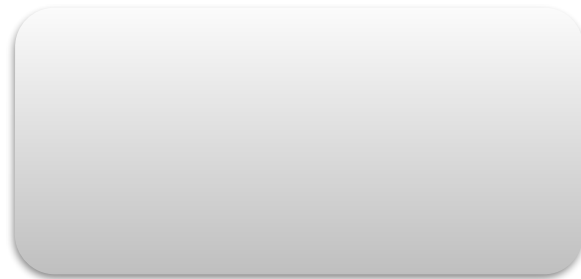


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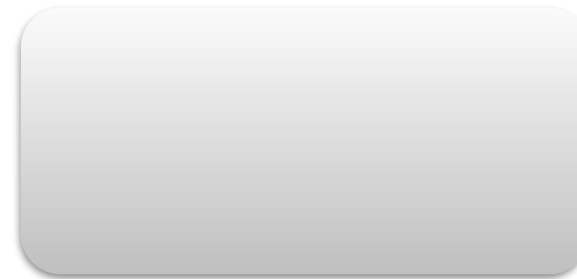
Eden



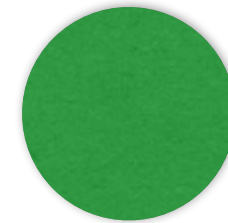
To



From



Fill

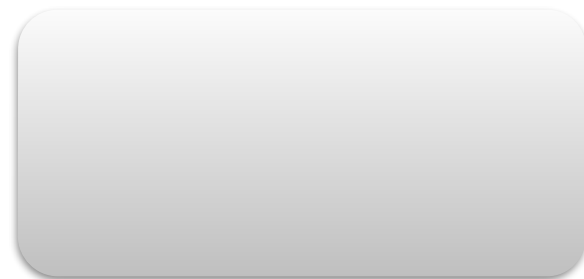


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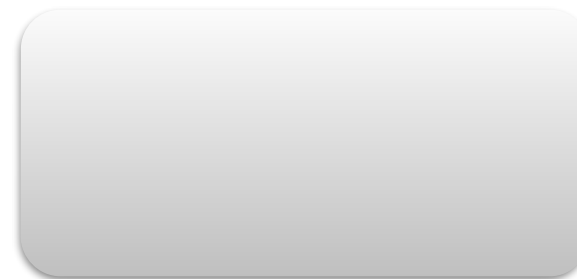
Eden



To

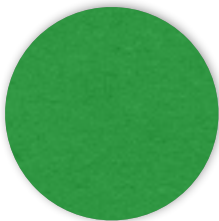


From



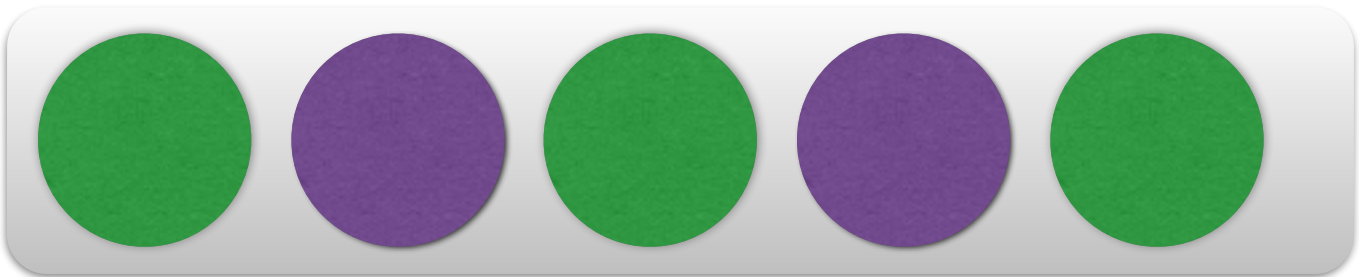
Minor GC

Copy



new

Eden

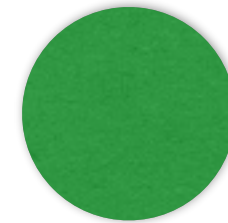


To



From

# Minor Copy

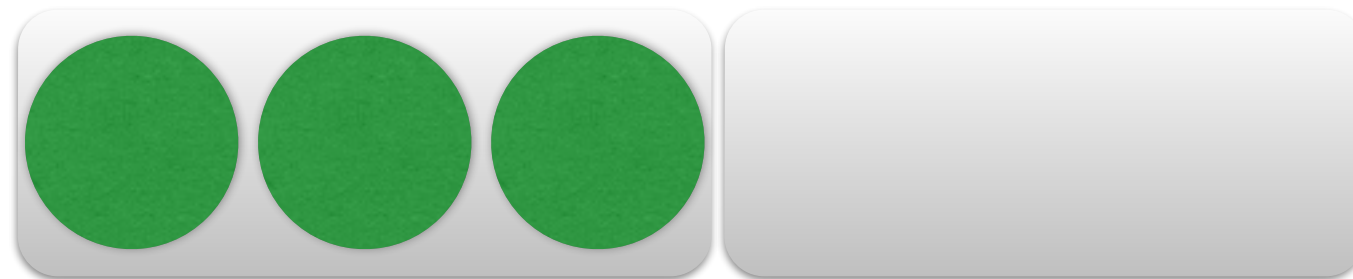


new

Eden



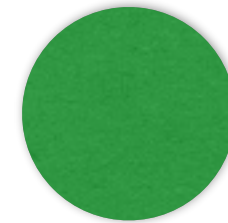
To



From

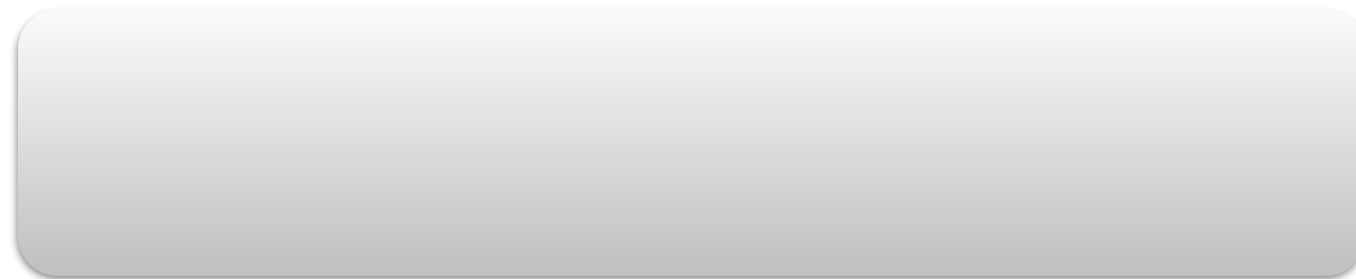


Minor Copy



new

Eden

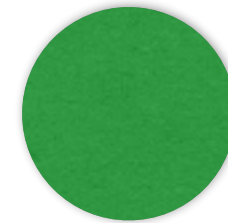


To



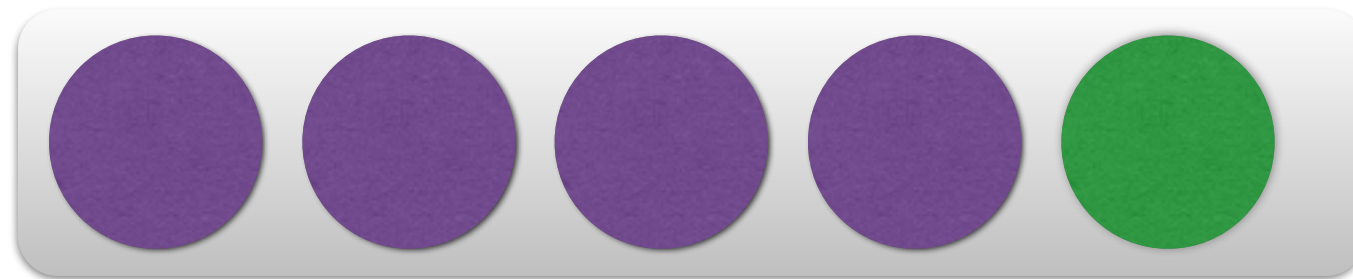
From

next Minor

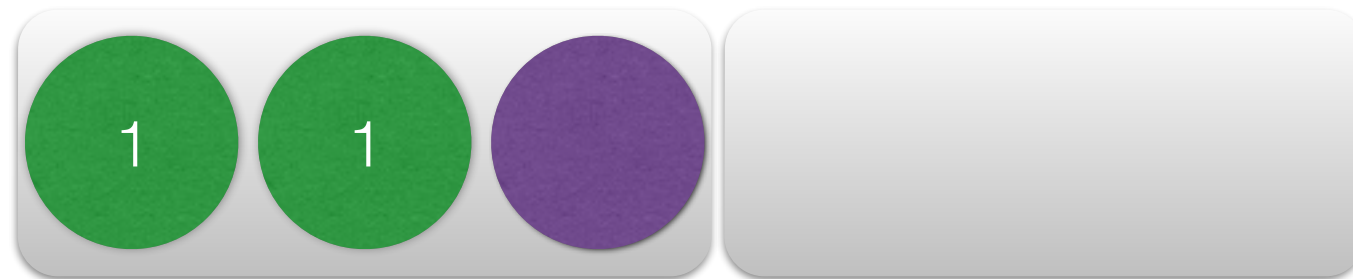


new

Eden

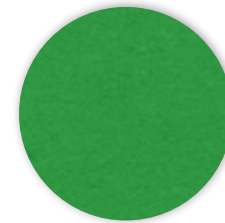


From



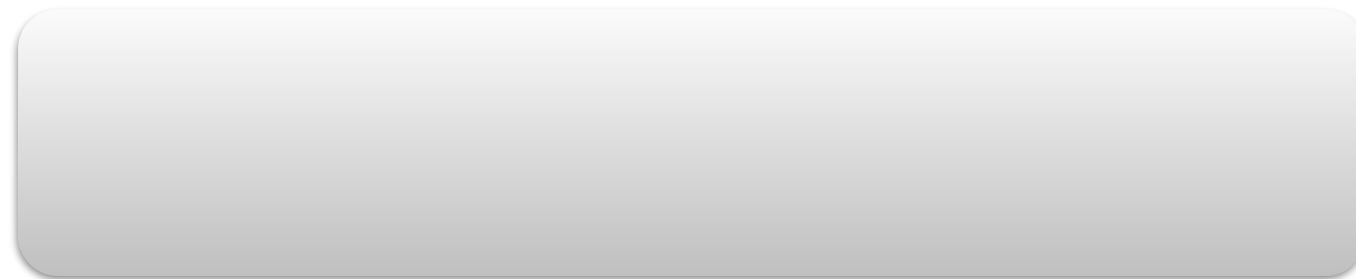
to

next Minor



new

Eden



From



to

next Minor

Eden



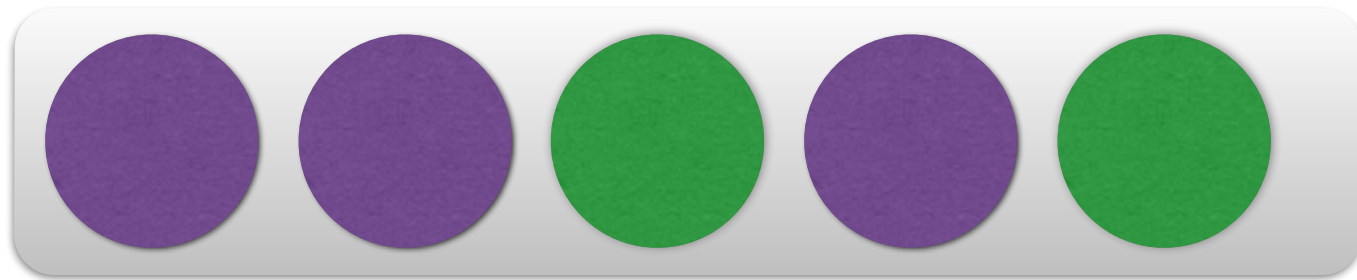
From



to

next Minor

Eden

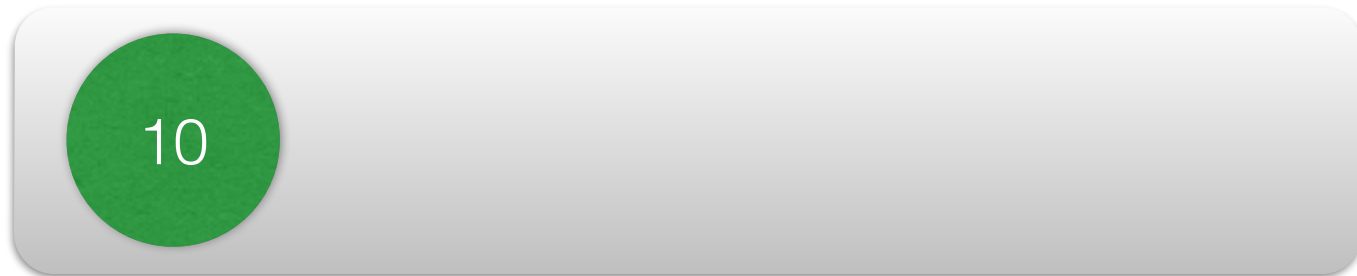


From



to

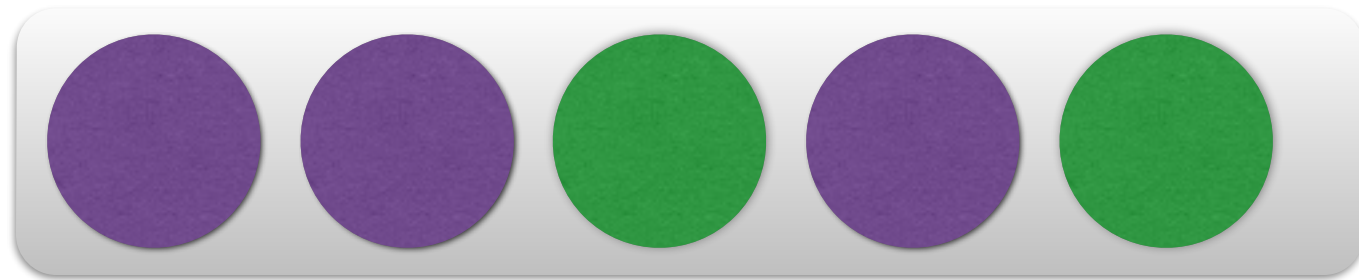
Tenured



# Major GC

Mark-Sweep-Compact

Eden

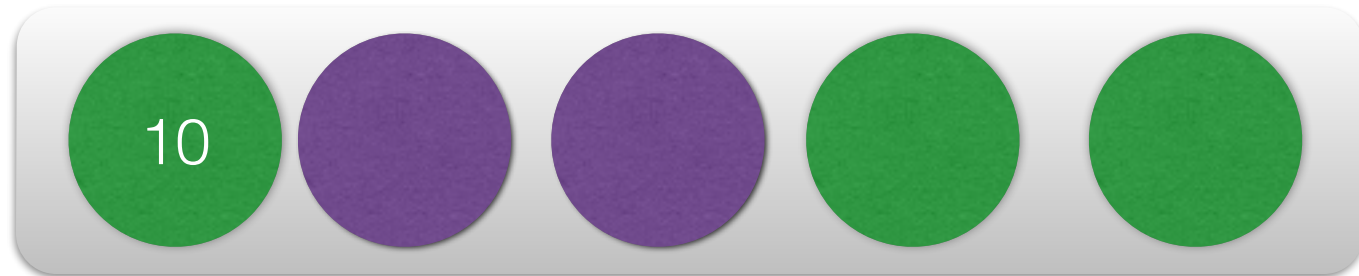


From



to

Tenured



Minor GC

Serial Coping

Parallel  
Scavenge

ParNew

Major GC

Serial MSC

Parallel  
Compacting

CMS

Minor GC

Serial Coping

Parallel  
Scavenge

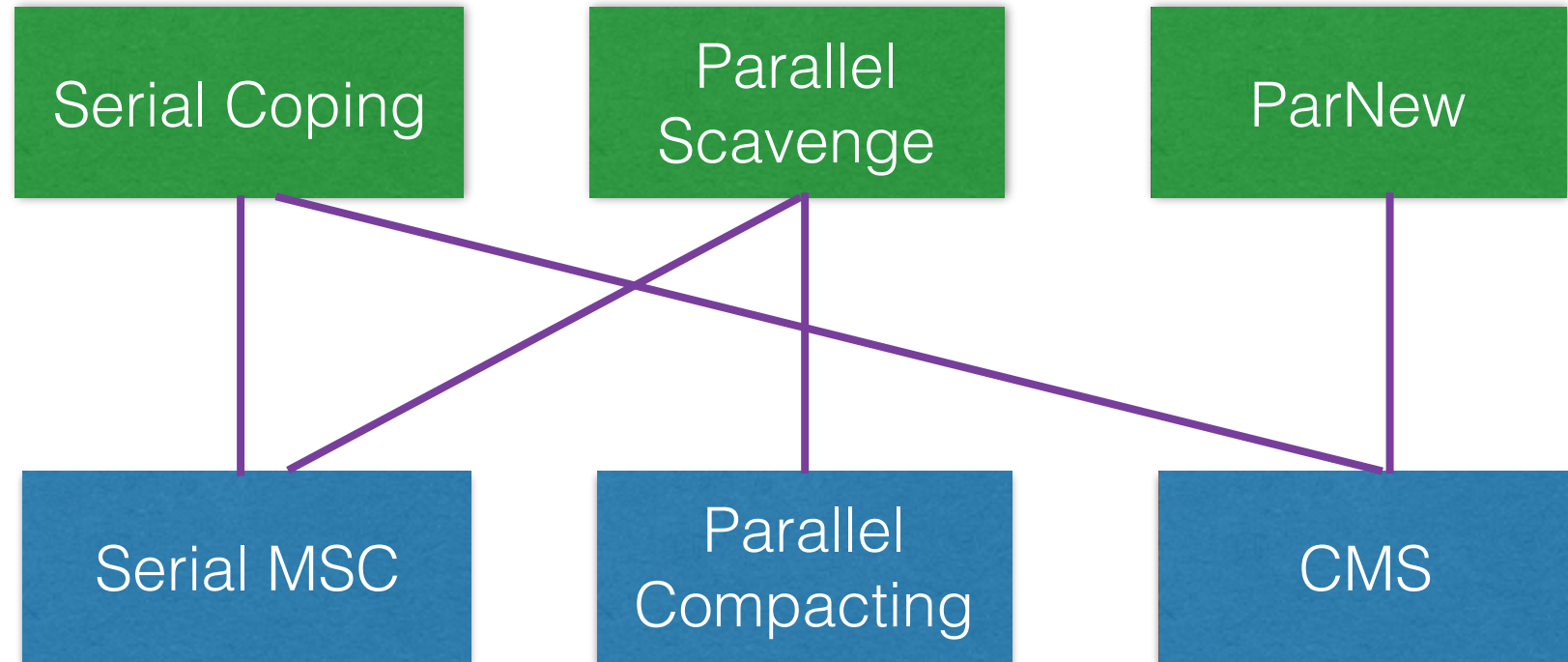
ParNew

Major GC

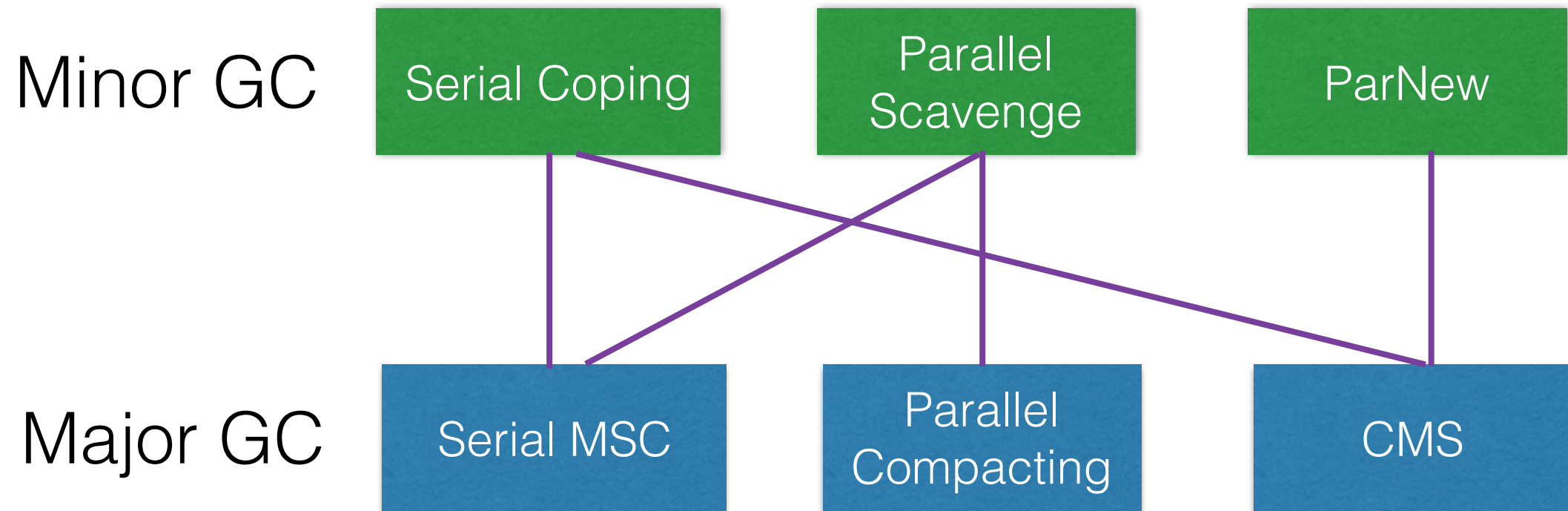
Serial MSC

Parallel  
Compacting

CMS







两个标准

吞吐量(Throughput)

GC总耗时

延迟(Latency)

每次GC造成的应用暂停

END