

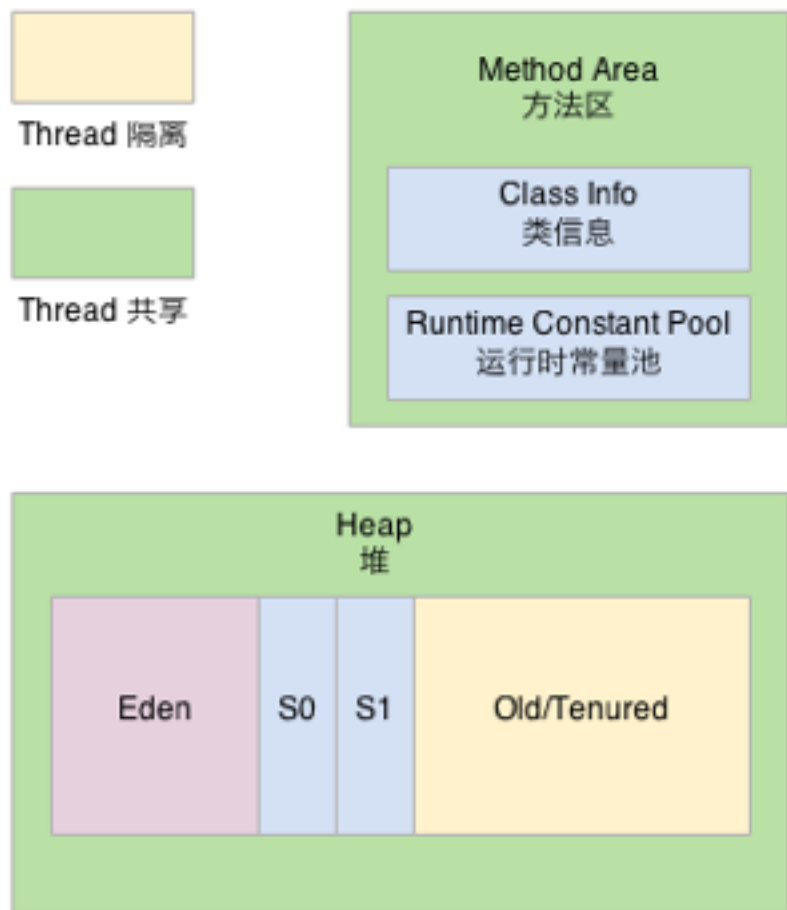
java 内存管理与实践

胡峰 @云下山巅

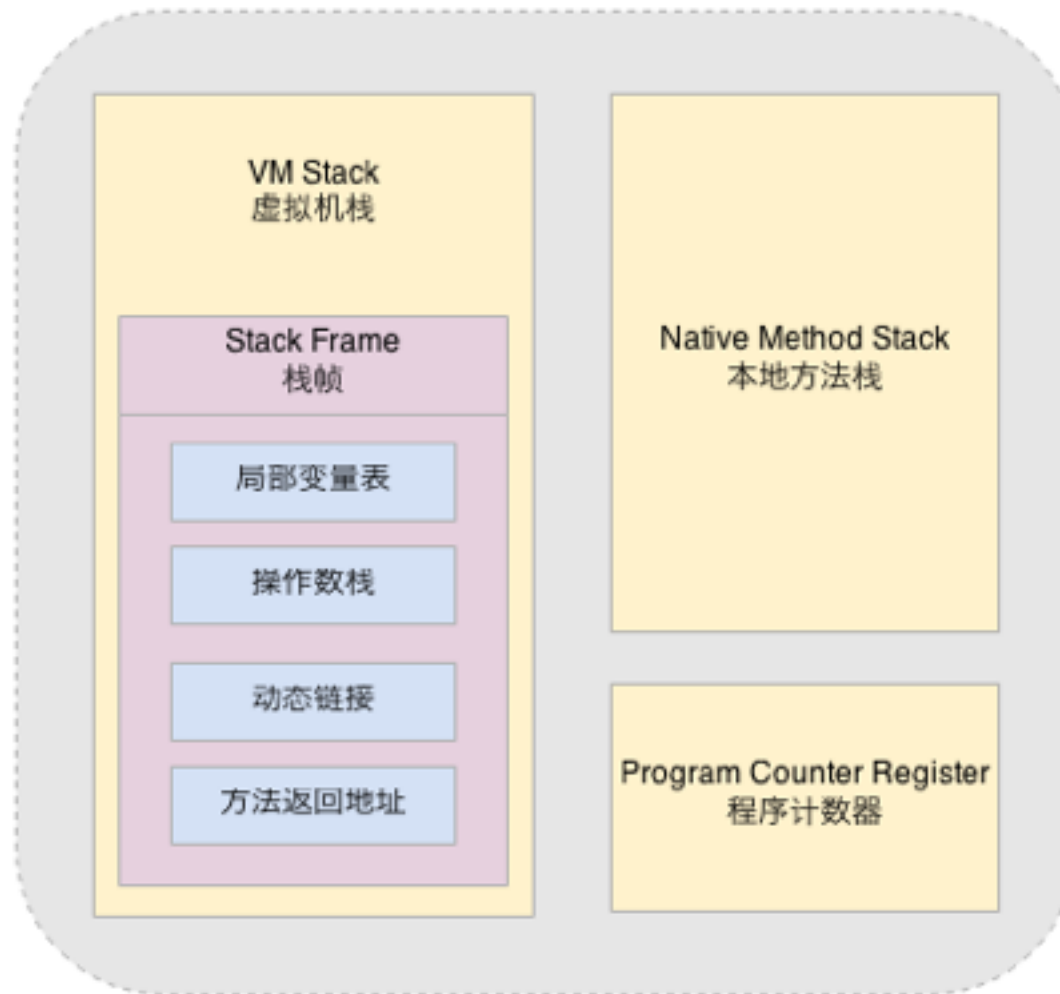
产品创新 - 通讯交互平台部

2014-03-10

Runtime Data Area 运行时数据区



Thread 线程

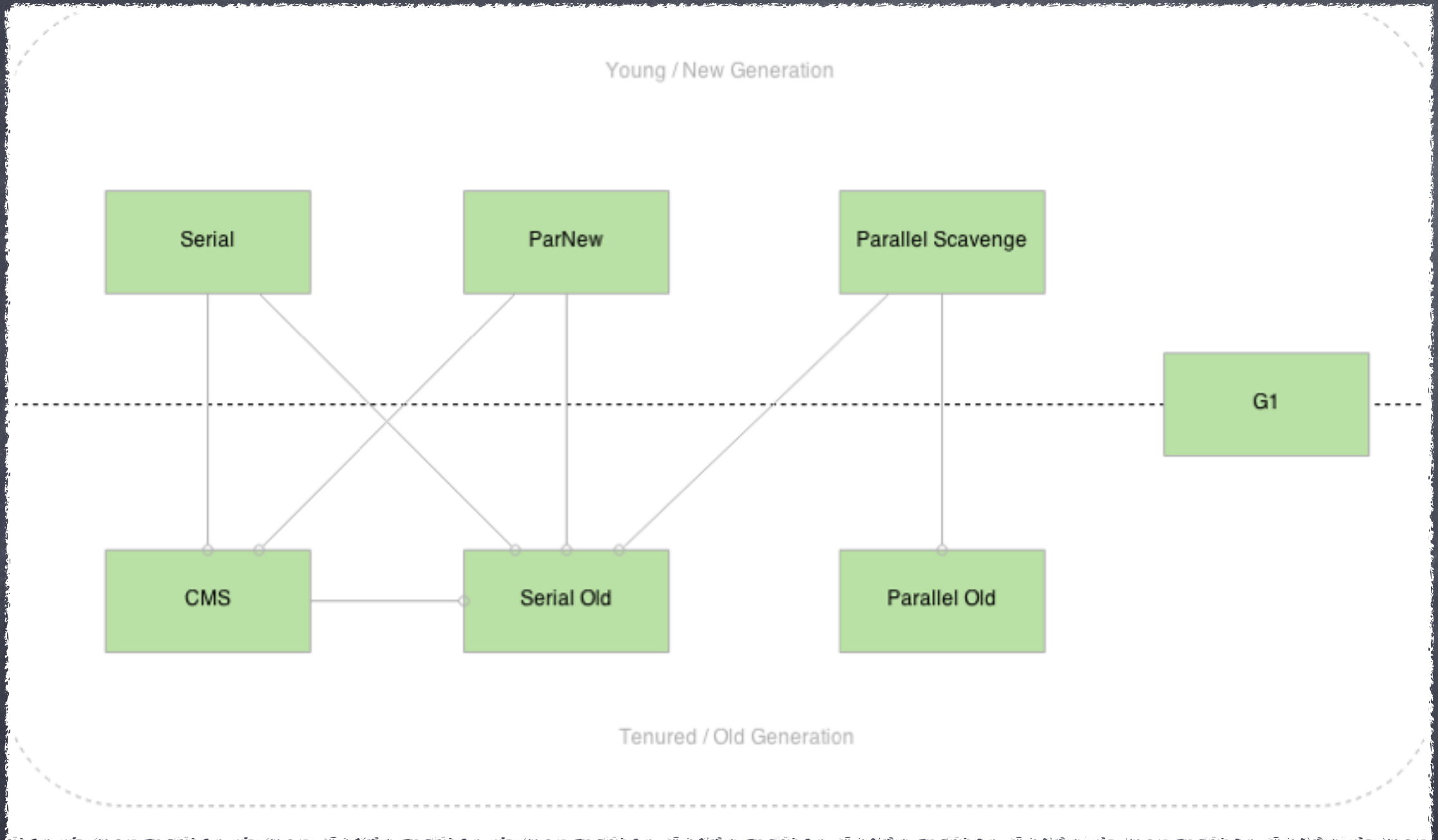


内存区域

内存分配

- 栈上分配
- 堆上分配
 - Eden 优先分配
 - Old/Tenured 区大对象分配
 - 对象按年龄晋升



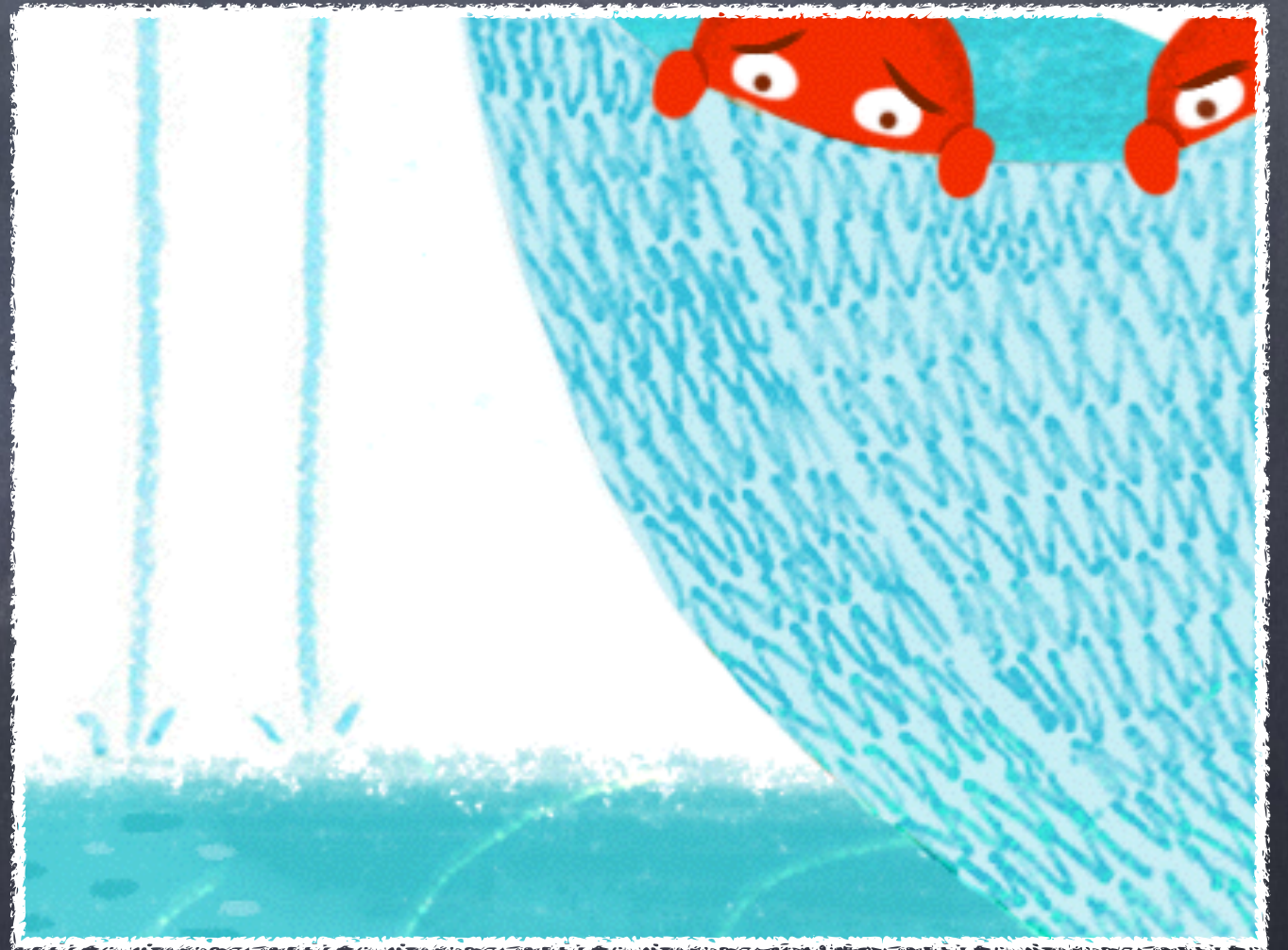


内存回收

GC

内存溢出

- memory leak
- memory overflow



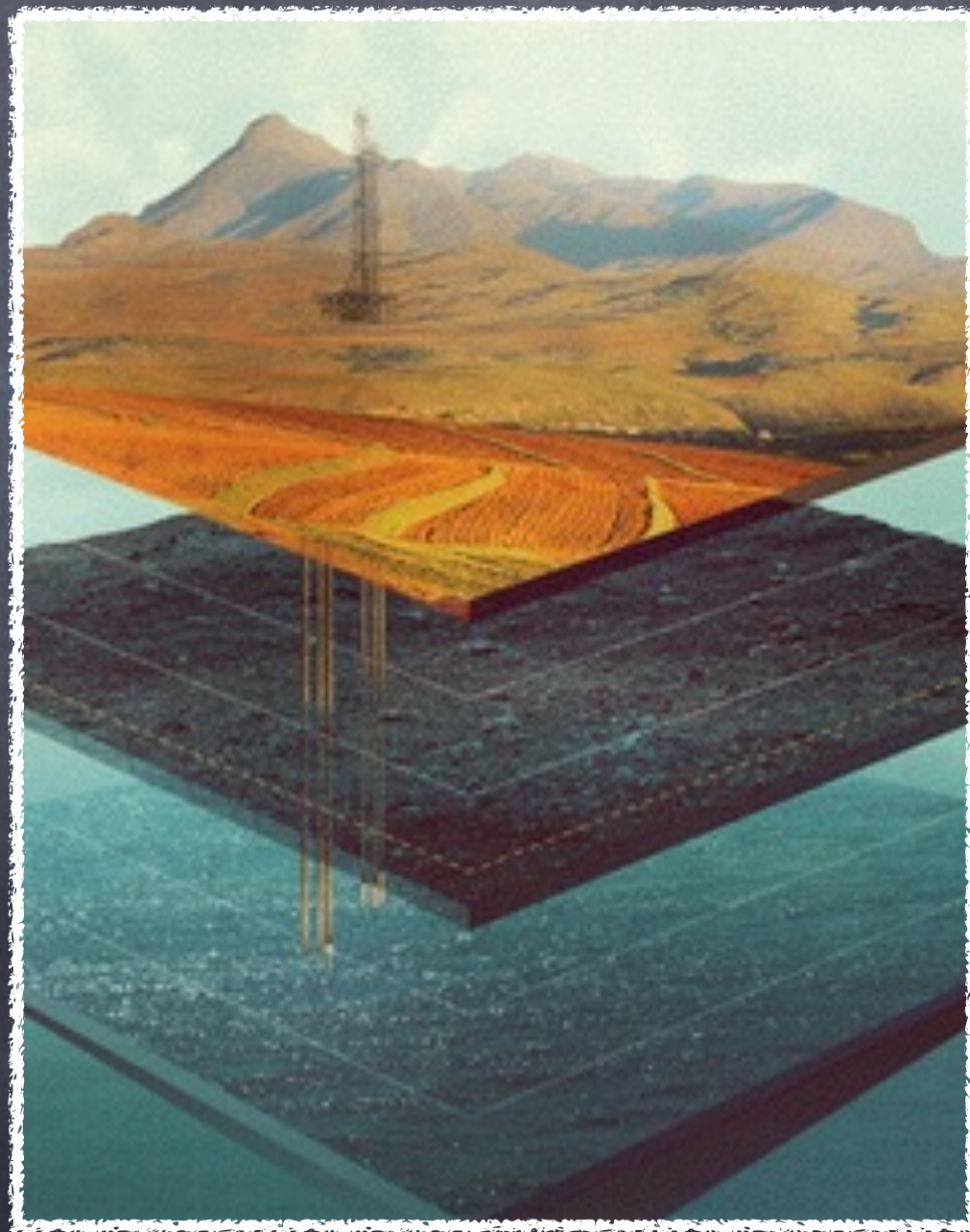
堆溢出

`java.lang.OutOfMemoryError: Java heap space`



栈溢出

- `java.lang.StackOverflowError`
- `java.lang.OutOfMemoryError: unable to create new native thread`



方法区溢出

java.lang.OutOfMemoryError: PermGen space



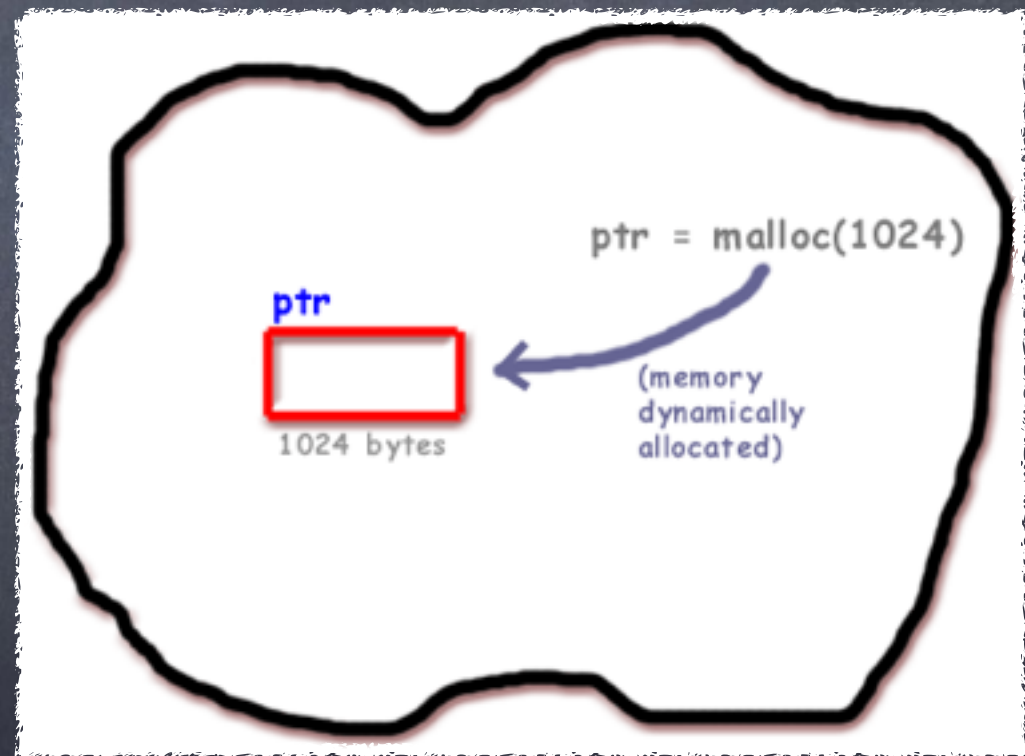
时间溢出

- `java.lang.OutOfMemoryError: GC overhead limit exceeded - JDK1.6`
- more than 98% time spent on gc and less than 2% heap recycle



OS 内存溢出

- `java.lang.OutOfMemoryError: requested {} bytes for {} Out of swap space?`
- OS refuse JVM's request to allocate more memory



OS 地址空间溢出

- `java.lang.OutOfMemoryError: Map failed`
- `cat /proc/sys/vm/max_map_count`

内存工具

- `jstat`

- `jstat -gcutil pid`

- `jmap`

- `jmap -F -dump:format=b,file=java.dump pid`

- `jhat`

- `jhat -J-mx8192m -p 7000 java.dump`

- `jstack`

- `jstack -F pid`



"stay hungry stay foolish."

-Steve Jobs