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        The comparison of Java and C, shows that Java must make many more calls in order to complete this task than C does. Java being a higher level OO language, has many more levels to call through before it reaches low level open/read/write calls, and each level can potentially add to the number of system calls. Whereas, C can communicate "more directly" with the OS.

        Java makes many more calls to open, because in order for it to complete its task, it must open and make use of many more libraries. Specifically in this example, over 100 extra open calls are made in order to open Java libraries.

```
execve("/usr/bin/java", ["java", "SysCalls"], [/* 63 vars */]) = 0
brk(0)                         = 0xf6b000
access("/etc/ld.so.nohwcap", F_OK)     = -1 ENOENT (No such file or directory)
mmap(NULL, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) =
0x7f3a360ad000
readlink("/proc/self/exe", "/usr/lib/jvm/java-7-openjdk-amd6"..., 4096) = 46
access("/etc/ld.so.preload", R_OK)     = -1 ENOENT (No such file or directory)
open("/usr/lib/jvm/java-7-openjdk-amd64/jre/bin/../lib/amd64/jli/tls/x86_64/libjli.so", O_RDONLY|
O_CLOEXEC) = -1 ENOENT (No such file or directory)
stat("/usr/lib/jvm/java-7-openjdk-amd64/jre/bin/../lib/amd64/jli/tls/x86_64", 0x7fffbde4ccb0) = -1
ENOENT (No such file or directory)
open("/usr/lib/jvm/java-7-openjdk-amd64/jre/bin/../lib/amd64/jli/tls/libjli.so", O_RDONLY|
O_CLOEXEC) = -1 ENOENT (No such file or directory)
stat("/usr/lib/jvm/java-7-openjdk-amd64/jre/bin/../lib/amd64/jli/tls", 0x7fffbde4ccb0) = -1 ENOENT
(No such file or directory)
open("/usr/lib/jvm/java-7-openjdk-amd64/jre/bin/../lib/amd64/jli/x86_64/libjli.so", O_RDONLY|
O_CLOEXEC) = -1 ENOENT (No such file or directory)
stat("/usr/lib/jvm/java-7-openjdk-amd64/jre/bin/../lib/amd64/jli/x86_64", 0x7fffbde4ccb0) = -1
ENOENT (No such file or directory)
open("/usr/lib/jvm/java-7-openjdk-amd64/jre/bin/../lib/amd64/jli/libjli.so", O_RDONLY|
O_CLOEXEC) = 3
read(3, "\177ELF\2\1\1\0\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\220%\0\0\0\0\0\0"..., 832) = 832
fstat(3, {st_mode=S_IFREG|0644, st_size=56072, ...}) = 0
mmap(NULL, 2151624, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) =
0x7f3a35c7f000
mprotect(0x7f3a35c8c000, 2093056, PROT_NONE) = 0
mmap(0x7f3a35e8b000, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|
MAP_DENYWRITE, 3, 0xc000) = 0x7f3a35e8b000
close(3)                       = 0
open("/usr/lib/jvm/java-7-openjdk-amd64/jre/bin/../lib/amd64/jli/libc.so.6", O_RDONLY|
O_CLOEXEC) = -1 ENOENT (No such file or directory)
open("bootstrap/jre/lib/amd64/jli/tls/x86_64/libc.so.6", O_RDONLY|O_CLOEXEC) = -1 ENOENT
(No such file or directory)
open("bootstrap/jre/lib/amd64/jli/tls/libc.so.6", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such
file or directory)
open("bootstrap/jre/lib/amd64/jli/x86_64/libc.so.6", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No
such file or directory)
open("bootstrap/jre/lib/amd64/jli/libc.so.6", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file
or directory)
open("/usr/lib/jvm/java-7-openjdk-amd64/jre/bin/../lib/amd64/tls/x86_64/libc.so.6", O_RDONLY|
O_CLOEXEC) = -1 ENOENT (No such file or directory)
stat("/usr/lib/jvm/java-7-openjdk-amd64/jre/bin/../lib/amd64/tls/x86_64", 0x7fffbde4cc80) = -1
ENOENT (No such file or directory)
open("/usr/lib/jvm/java-7-openjdk-amd64/jre/bin/../lib/amd64/tls/libc.so.6", O_RDONLY|
O_CLOEXEC) = -1 ENOENT (No such file or directory)
stat("/usr/lib/jvm/java-7-openjdk-amd64/jre/bin/../lib/amd64/tls", 0x7fffbde4cc80) = -1 ENOENT (No
```

```
such file or directory)
open("/usr/lib/jvm/java-7-openjdk-amd64/jre/bin/../lib/amd64/x86_64/libc.so.6", O_RDONLY|
O_CLOEXEC) = -1 ENOENT (No such file or directory)
stat("/usr/lib/jvm/java-7-openjdk-amd64/jre/bin/../lib/amd64/x86_64", 0x7fffbde4cc80) = -1 ENOENT
(No such file or directory)
open("/usr/lib/jvm/java-7-openjdk-amd64/jre/bin/../lib/amd64/libc.so.6", O_RDONLY|O_CLOEXEC)
= -1 ENOENT (No such file or directory)
stat("/usr/lib/jvm/java-7-openjdk-amd64/jre/bin/../lib/amd64", {st_mode=S_IFDIR|0755, st_size=4096,
...}) = 0
open("bootstrap/lib/amd64/tls/x86_64/libc.so.6", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such
file or directory)
open("bootstrap/lib/amd64/tls/libc.so.6", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or
directory)
open("bootstrap/lib/amd64/x86_64/libc.so.6", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such
file or directory)
open("bootstrap/lib/amd64/libc.so.6", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or
directory)
open("/usr/lib/jvm/java-7-openjdk-amd64/jre/bin/../jre/lib/amd64/tls/x86_64/libc.so.6", O_RDONLY|
O_CLOEXEC) = -1 ENOENT (No such file or directory)
stat("/usr/lib/jvm/java-7-openjdk-amd64/jre/bin/../jre/lib/amd64/tls/x86_64", 0x7fffbde4cc80) = -1
ENOENT (No such file or directory)
open("/usr/lib/jvm/java-7-openjdk-amd64/jre/bin/../jre/lib/amd64/tls/libc.so.6", O_RDONLY|
O_CLOEXEC) = -1 ENOENT (No such file or directory)
stat("/usr/lib/jvm/java-7-openjdk-amd64/jre/bin/../jre/lib/amd64/tls", 0x7fffbde4cc80) = -1 ENOENT
(No such file or directory)
open("/usr/lib/jvm/java-7-openjdk-amd64/jre/bin/../jre/lib/amd64/x86_64/libc.so.6", O_RDONLY|
O_CLOEXEC) = -1 ENOENT (No such file or directory)
stat("/usr/lib/jvm/java-7-openjdk-amd64/jre/bin/../jre/lib/amd64/x86_64", 0x7fffbde4cc80) = -1
ENOENT (No such file or directory)
open("/usr/lib/jvm/java-7-openjdk-amd64/jre/bin/../jre/lib/amd64/libc.so.6", O_RDONLY|
O_CLOEXEC) = -1 ENOENT (No such file or directory)
stat("/usr/lib/jvm/java-7-openjdk-amd64/jre/bin/../jre/lib/amd64", 0x7fffbde4cc80) = -1 ENOENT (No
such file or directory)
open("bootstrap/jre/lib/amd64/tls/x86_64/libc.so.6", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No
such file or directory)
open("bootstrap/jre/lib/amd64/tls/libc.so.6", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file
or directory)
open("bootstrap/jre/lib/amd64/x86_64/libc.so.6", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No
such file or directory)
open("bootstrap/jre/lib/amd64/libc.so.6", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or
directory)
open("/etc/ld.so.cache", O_RDONLY|O_CLOEXEC) = 3
fstat(3, {st_mode=S_IFREG|0644, st_size=90022, ...}) = 0
mmap(NULL, 90022, PROT_READ, MAP_PRIVATE, 3, 0) = 0x7f3a36097000
close(3)                         = 0
access("/etc/ld.so.nohwcap", F_OK)      = -1 ENOENT (No such file or directory)
open("/lib/x86_64-linux-gnu/libc.so.6", O_RDONLY|O_CLOEXEC) = 3
read(3, "\177ELF\2\1\1\0\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\320\37\2\0\0\0\0\0"..., 832) = 832
fstat(3, {st_mode=S_IFREG|0755, st_size=1845024, ...}) = 0
mmap(NULL, 4096, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) =
0x7f3a36096000
mmap(NULL, 3953344, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) =
0x7f3a358b9000
mprotect(0x7f3a35a74000, 2097152, PROT_NONE) = 0
mmap(0x7f3a35c74000, 24576, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|
MAP_DENYWRITE, 3, 0x1bb000) = 0x7f3a35c74000
mmap(0x7f3a35c7a000, 17088, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|
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MAP_ANONYMOUS, -1, 0) = 0x7f3a35c7a000
close(3)                        = 0
open("/usr/lib/jvm/java-7-openjdk-amd64/jre/bin/../lib/amd64/jli/libdl.so.2", O_RDONLY|
O_CLOEXEC) = -1 ENOENT (No such file or directory)
open("bootstrap/jre/lib/amd64/tls/x86_64/libdl.so.2", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No
such file or directory)
open("bootstrap/jre/lib/amd64/tls/libdl.so.2", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file
or directory)
open("bootstrap/jre/lib/amd64/x86_64/libdl.so.2", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No
such file or directory)
open("bootstrap/jre/lib/amd64/libdl.so.2", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or
directory)
open("bootstrap/jre/lib/amd64../tls/x86_64/libdl.so.2", O_RDONLY|O_CLOEXEC) = -1 ENOENT
(No such file or directory)
open("bootstrap/jre/lib/amd64../tls/libdl.so.2", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such
file or directory)
open("bootstrap/jre/lib/amd64../x86_64/libdl.so.2", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No
such file or directory)
open("bootstrap/jre/lib/amd64../libdl.so.2", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file
or directory)
open("/usr/lib/jvm/java-7-openjdk-amd64/jre/bin/../lib/amd64/jli/libdl.so.2", O_RDONLY|
O_CLOEXEC) = -1 ENOENT (No such file or directory)
open("bootstrap/jre/lib/amd64/jli/tls/x86_64/libdl.so.2", O_RDONLY|O_CLOEXEC) = -1 ENOENT
(No such file or directory)
open("bootstrap/jre/lib/amd64/jli/tls/libdl.so.2", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such
file or directory)
open("bootstrap/jre/lib/amd64/jli/x86_64/libdl.so.2", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No
such file or directory)
open("bootstrap/jre/lib/amd64/jli/libdl.so.2", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file
or directory)
open("/usr/lib/jvm/java-7-openjdk-amd64/jre/bin/../lib/amd64/libdl.so.2", O_RDONLY|O_CLOEXEC)
= -1 ENOENT (No such file or directory)
open("bootstrap/lib/amd64/tls/x86_64/libdl.so.2", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No
such file or directory)
open("bootstrap/lib/amd64/tls/libdl.so.2", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or
directory)
open("bootstrap/lib/amd64/x86_64/libdl.so.2", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such
file or directory)
open("bootstrap/lib/amd64/libdl.so.2", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or
directory)
open("bootstrap/jre/lib/amd64/tls/x86_64/libdl.so.2", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No
such file or directory)
open("bootstrap/jre/lib/amd64/tls/libdl.so.2", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file
or directory)
open("bootstrap/jre/lib/amd64/x86_64/libdl.so.2", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No
such file or directory)
open("bootstrap/jre/lib/amd64/libdl.so.2", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or
directory)
access("/etc/ld.so.nohwcap", F_OK)      = -1 ENOENT (No such file or directory)
open("/lib/x86_64-linux-gnu/libdl.so.2", O_RDONLY|O_CLOEXEC) = 3
read(3, "\177ELF\2\1\1\0\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\320\16\0\0\0\0\0\0"..., 832) = 832
fstat(3, {st_mode=S_IFREG|0644, st_size=14664, ...}) = 0
mmap(NULL, 2109744, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) =
0x7f3a356b5000
mprotect(0x7f3a356b8000, 2093056, PROT_NONE) = 0
mmap(0x7f3a358b7000, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|
MAP_DENYWRITE, 3, 0x2000) = 0x7f3a358b7000
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close(3)                       = 0
open("/usr/lib/jvm/java-7-openjdk-amd64/jre/bin/../lib/amd64/jli/libpthread.so.0", O_RDONLY|
O_CLOEXEC) = -1 ENOENT (No such file or directory)
open("bootstrap/jre/lib/amd64/tls/x86_64/libpthread.so.0", O_RDONLY|O_CLOEXEC) = -1 ENOENT
(No such file or directory)
open("bootstrap/jre/lib/amd64/tls/libpthread.so.0", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No
such file or directory)
open("bootstrap/jre/lib/amd64/x86_64/libpthread.so.0", O_RDONLY|O_CLOEXEC) = -1 ENOENT
(No such file or directory)
open("bootstrap/jre/lib/amd64/libpthread.so.0", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such
file or directory)
open("bootstrap/jre/lib/amd64../tls/x86_64/libpthread.so.0", O_RDONLY|O_CLOEXEC) = -1
ENOENT (No such file or directory)
open("bootstrap/jre/lib/amd64../tls/libpthread.so.0", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No
such file or directory)
open("bootstrap/jre/lib/amd64../x86_64/libpthread.so.0", O_RDONLY|O_CLOEXEC) = -1 ENOENT
(No such file or directory)
open("bootstrap/jre/lib/amd64../libpthread.so.0", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such
file or directory)
open("/usr/lib/jvm/java-7-openjdk-amd64/jre/bin/../lib/amd64/jli/libpthread.so.0", O_RDONLY|
O_CLOEXEC) = -1 ENOENT (No such file or directory)
open("bootstrap/jre/lib/amd64/jli/tls/x86_64/libpthread.so.0", O_RDONLY|O_CLOEXEC) = -1
ENOENT (No such file or directory)
open("bootstrap/jre/lib/amd64/jli/tls/libpthread.so.0", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No
such file or directory)
open("bootstrap/jre/lib/amd64/jli/x86_64/libpthread.so.0", O_RDONLY|O_CLOEXEC) = -1 ENOENT
(No such file or directory)
open("bootstrap/jre/lib/amd64/jli/libpthread.so.0", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No
such file or directory)
open("/usr/lib/jvm/java-7-openjdk-amd64/jre/bin/../lib/amd64/libpthread.so.0", O_RDONLY|
O_CLOEXEC) = -1 ENOENT (No such file or directory)
open("bootstrap/lib/amd64/tls/x86_64/libpthread.so.0", O_RDONLY|O_CLOEXEC) = -1 ENOENT
(No such file or directory)
open("bootstrap/lib/amd64/tls/libpthread.so.0", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such
file or directory)
open("bootstrap/lib/amd64/x86_64/libpthread.so.0", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No
such file or directory)
open("bootstrap/lib/amd64/libpthread.so.0", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file
or directory)
open("bootstrap/jre/lib/amd64/tls/x86_64/libpthread.so.0", O_RDONLY|O_CLOEXEC) = -1 ENOENT
(No such file or directory)
open("bootstrap/jre/lib/amd64/tls/libpthread.so.0", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No
such file or directory)
open("bootstrap/jre/lib/amd64/x86_64/libpthread.so.0", O_RDONLY|O_CLOEXEC) = -1 ENOENT
(No such file or directory)
open("bootstrap/jre/lib/amd64/libpthread.so.0", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such
file or directory)
access("/etc/ld.so.nohwcap", F_OK)      = -1 ENOENT (No such file or directory)
open("/lib/x86_64-linux-gnu/libpthread.so.0", O_RDONLY|O_CLOEXEC) = 3
read(3, "\177ELF\2\1\1\0\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0po\0\0\0\0\0\0\0"..., 832) = 832
fstat(3, {st_mode=S_IFREG|0755, st_size=141574, ...}) = 0
mmap(NULL, 2217264, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) =
0x7f3a35497000
mprotect(0x7f3a354b0000, 2093056, PROT_NONE) = 0
mmap(0x7f3a356af000, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|
MAP_DENYWRITE, 3, 0x18000) = 0x7f3a356af000
mmap(0x7f3a356b1000, 13616, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|
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                         MAP_ANONYMOUS, -1, 0) = 0x7f3a356b1000
close(3)                      = 0
open("/usr/lib/jvm/java-7-openjdk-amd64/jre/bin/../lib/amd64/jli/libz.so.1", O_RDONLY|
O_CLOEXEC) = -1 ENOENT (No such file or directory)
open("bootstrap/jre/lib/amd64/tls/x86_64/libz.so.1", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No
such file or directory)
open("bootstrap/jre/lib/amd64/tls/libz.so.1", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file
or directory)
open("bootstrap/jre/lib/amd64/x86_64/libz.so.1", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No
such file or directory)
open("bootstrap/jre/lib/amd64/libz.so.1", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or
directory)
open("bootstrap/jre/lib/amd64../tls/x86_64/libz.so.1", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No
such file or directory)
open("bootstrap/jre/lib/amd64../tls/libz.so.1", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such
file or directory)
open("bootstrap/jre/lib/amd64../x86_64/libz.so.1", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No
such file or directory)
open("bootstrap/jre/lib/amd64../libz.so.1", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or
directory)
open("/usr/lib/jvm/java-7-openjdk-amd64/jre/bin/../lib/amd64/jli/libz.so.1", O_RDONLY|
O_CLOEXEC) = -1 ENOENT (No such file or directory)
open("bootstrap/jre/lib/amd64/jli/tls/x86_64/libz.so.1", O_RDONLY|O_CLOEXEC) = -1 ENOENT
(No such file or directory)
open("bootstrap/jre/lib/amd64/jli/tls/libz.so.1", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such
file or directory)
open("bootstrap/jre/lib/amd64/jli/x86_64/libz.so.1", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No
such file or directory)
open("bootstrap/jre/lib/amd64/jli/libz.so.1", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file
or directory)
open("/usr/lib/jvm/java-7-openjdk-amd64/jre/bin/../lib/amd64/libz.so.1", O_RDONLY|O_CLOEXEC)
= -1 ENOENT (No such file or directory)
open("bootstrap/lib/amd64/tls/x86_64/libz.so.1", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such
file or directory)
open("bootstrap/lib/amd64/tls/libz.so.1", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or
directory)
open("bootstrap/lib/amd64/x86_64/libz.so.1", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such
file or directory)
open("bootstrap/lib/amd64/libz.so.1", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or
directory)
open("bootstrap/jre/lib/amd64/tls/x86_64/libz.so.1", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No
such file or directory)
open("bootstrap/jre/lib/amd64/tls/libz.so.1", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file
or directory)
open("bootstrap/jre/lib/amd64/x86_64/libz.so.1", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No
such file or directory)
open("bootstrap/jre/lib/amd64/libz.so.1", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or
directory)
access("/etc/ld.so.nohwcap", F_OK)      = -1 ENOENT (No such file or directory)
open("/lib/x86_64-linux-gnu/libz.so.1", O_RDONLY|O_CLOEXEC) = 3
read(3, "\177ELF\2\1\1\0\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\0\36\0\0\0\0\0\0"..., 832) = 832
fstat(3, {st_mode=S_IFREG|0644, st_size=100728, ...}) = 0
mmap(NULL, 4096, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) =
0x7f3a36095000
mmap(NULL, 2195784, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) =
0x7f3a3527e000
mprotect(0x7f3a35296000, 2093056, PROT_NONE) = 0
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mmap(0x7f3a35495000, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|
MAP_DENYWRITE, 3, 0x17000) = 0x7f3a35495000
close(3)                        = 0
mmap(NULL, 4096, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) =
0x7f3a36094000
mmap(NULL, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) =
0x7f3a36092000
arch_prctl(ARCH_SET_FS, 0x7f3a36092740) = 0
mprotect(0x7f3a35c74000, 16384, PROT_READ) = 0
mprotect(0x7f3a35495000, 4096, PROT_READ) = 0
mprotect(0x7f3a356af000, 4096, PROT_READ) = 0
mprotect(0x7f3a358b7000, 4096, PROT_READ) = 0
mprotect(0x7f3a35e8b000, 4096, PROT_READ) = 0
mprotect(0x600000, 4096, PROT_READ)    = 0
mprotect(0x7f3a360af000, 4096, PROT_READ) = 0
munmap(0x7f3a36097000, 90022)          = 0
set_tid_address(0x7f3a36092a10)        = 13155
set_robust_list(0x7f3a36092a20, 24)    = 0
futex(0x7fffbde4d4f0, FUTEX_WAIT_BITSET_PRIVATE|FUTEX_CLOCK_REALTIME, 1, NULL,
7f3a36092740) = -1 EAGAIN (Resource temporarily unavailable)
rt_sigaction(SIGRTMIN, {0x7f3a3549d9f0, [], SA_RESTORER|SA_SIGINFO, 0x7f3a354a7340},
NULL, 8) = 0
rt_sigaction(SIGRT_1, {0x7f3a3549da80, [], SA_RESTORER|SA_RESTART|SA_SIGINFO,
0x7f3a354a7340}, NULL, 8) = 0
rt_sigprocmask(SIG_UNBLOCK, [RTMIN RT_1], NULL, 8) = 0
getrlimit(RLIMIT_STACK, {rlim_cur=8192*1024, rlim_max=RLIM64_INFINITY}) = 0
brk(0)                        = 0xf6b000
brk(0xf8c000)                 = 0xf8c000
readlink("/proc/self/exe", "/usr/lib/jvm/java-7-openjdk-amd6"..., 4096) = 46
access("/usr/lib/jvm/java-7-openjdk-amd64/jre/lib/amd64/libjava.so", F_OK) = 0
open("/usr/lib/jvm/java-7-openjdk-amd64/jre/lib/amd64/jvm.cfg", O_RDONLY) = 3
fstat(3, {st_mode=S_IFREG|0644, st_size=1751, ...}) = 0
mmap(NULL, 4096, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) =
0x7f3a360ac000
read(3, "# Copyright (c) 2003, Oracle and"..., 4096) = 1751
read(3, "", 4096)             = 0
close(3)                      = 0
munmap(0x7f3a360ac000, 4096)          = 0
stat("/usr/lib/jvm/java-7-openjdk-amd64/jre/lib/amd64/server/libjvm.so", {st_mode=S_IFREG|0644,
st_size=14725682, ...}) = 0
futex(0x7f3a358b80d0, FUTEX_WAKE_PRIVATE, 2147483647) = 0
open("/usr/lib/jvm/java-7-openjdk-amd64/jre/lib/amd64/server/libjvm.so", O_RDONLY|
O_CLOEXEC) = 3
read(3, "\177ELF\2\1\1\0\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0 \226\36\0\0\0\0\0"..., 832) = 832
fstat(3, {st_mode=S_IFREG|0644, st_size=14725682, ...}) = 0
mmap(NULL, 14676824, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) =
0x7f3a3447e000
mprotect(0x7f3a34f94000, 2093056, PROT_NONE) = 0
mmap(0x7f3a35193000, 774144, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|
MAP_DENYWRITE, 3, 0xb15000) = 0x7f3a35193000
mmap(0x7f3a35250000, 185176, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|
MAP_ANONYMOUS, -1, 0) = 0x7f3a35250000
close(3)                      = 0
open("/usr/lib/jvm/java-7-openjdk-amd64/jre/bin/../lib/amd64/jli/libstdc++.so.6", O_RDONLY|
O_CLOEXEC) = -1 ENOENT (No such file or directory)
open("bootstrap/jre/lib/amd64/jli/tls/x86_64/libstdc++.so.6", O_RDONLY|O_CLOEXEC) = -1
ENOENT (No such file or directory)
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open("bootstrap/jre/lib/amd64/jli/tls/libstdc++.so.6", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)
open("bootstrap/jre/lib/amd64/jli/x86_64/libstdc++.so.6", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)
open("bootstrap/jre/lib/amd64/jli/libstdc++.so.6", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)
open("/usr/lib/jvm/java-7-openjdk-amd64/jre/bin/../lib/amd64/libstdc++.so.6", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)
open("bootstrap/lib/amd64/tls/x86_64/libstdc++.so.6", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)
open("bootstrap/lib/amd64/tls/libstdc++.so.6", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)
open("bootstrap/lib/amd64/x86_64/libstdc++.so.6", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)
open("bootstrap/lib/amd64/libstdc++.so.6", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)
open("bootstrap/jre/lib/amd64/tls/x86_64/libstdc++.so.6", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)
open("bootstrap/jre/lib/amd64/tls/libstdc++.so.6", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)
open("bootstrap/jre/lib/amd64/x86_64/libstdc++.so.6", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)
open("bootstrap/jre/lib/amd64/libstdc++.so.6", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)
open("/etc/ld.so.cache", O_RDONLY|O_CLOEXEC) = 3
fstat(3, {st_mode=S_IFREG|0644, st_size=90022, ...}) = 0
mmap(NULL, 90022, PROT_READ, MAP_PRIVATE, 3, 0) = 0x7f3a36097000
close(3)   = 0
access("/etc/ld.so.nohwcap", F_OK)   = -1 ENOENT (No such file or directory)
open("/usr/lib/x86_64-linux-gnu/libstdc++.so.6", O_RDONLY|O_CLOEXEC) = 3
read(3, "\177ELF\2\1\1\0\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\300\265\5\0\0\0\0\0"..., 832) = 832
fstat(3, {st_mode=S_IFREG|0644, st_size=979056, ...}) = 0
mmap(NULL, 3159072, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) = 0x7f3a3417a000
mprotect(0x7f3a34260000, 2093056, PROT_NONE) = 0
mmap(0x7f3a3445f000, 40960, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0xe5000) = 0x7f3a3445f000
mmap(0x7f3a34469000, 82976, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_ANONYMOUS, -1, 0) = 0x7f3a34469000
close(3)   = 0
open("/usr/lib/jvm/java-7-openjdk-amd64/jre/bin/../lib/amd64/jli/libm.so.6", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)
open("bootstrap/jre/lib/amd64/jli/tls/x86_64/libm.so.6", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)
open("bootstrap/jre/lib/amd64/jli/tls/libm.so.6", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)
open("bootstrap/jre/lib/amd64/jli/x86_64/libm.so.6", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)
open("bootstrap/jre/lib/amd64/jli/libm.so.6", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)
open("/usr/lib/jvm/java-7-openjdk-amd64/jre/bin/../lib/amd64/libm.so.6", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)
open("bootstrap/lib/amd64/tls/x86_64/libm.so.6", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)
open("bootstrap/lib/amd64/tls/libm.so.6", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)
open("bootstrap/lib/amd64/x86_64/libm.so.6", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such

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file or directory)
open("bootstrap/lib/amd64/libm.so.6", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or
directory)
open("bootstrap/jre/lib/amd64/tls/x86_64/libm.so.6", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No
such file or directory)
open("bootstrap/jre/lib/amd64/tls/libm.so.6", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file
or directory)
open("bootstrap/jre/lib/amd64/x86_64/libm.so.6", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No
such file or directory)
open("bootstrap/jre/lib/amd64/libm.so.6", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or
directory)
access("/etc/ld.so.nohwcap", F_OK)      = -1 ENOENT (No such file or directory)
open("/lib/x86_64-linux-gnu/libm.so.6", O_RDONLY|O_CLOEXEC) = 3
read(3, "\177ELF\2\1\1\0\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\20V\0\0\0\0\0\0"..., 832) = 832
fstat(3, {st_mode=S_IFREG|0644, st_size=1071552, ...}) = 0
mmap(NULL, 3166568, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) =
0x7f3a33e74000
mprotect(0x7f3a33f79000, 2093056, PROT_NONE) = 0
mmap(0x7f3a34178000, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|
MAP_DENYWRITE, 3, 0x104000) = 0x7f3a34178000
close(3)                       = 0
open("/usr/lib/jvm/java-7-openjdk-amd64/jre/bin/../lib/amd64/jli/libgcc_s.so.1", O_RDONLY|
O_CLOEXEC) = -1 ENOENT (No such file or directory)
open("bootstrap/jre/lib/amd64/jli/tls/x86_64/libgcc_s.so.1", O_RDONLY|O_CLOEXEC) = -1
ENOENT (No such file or directory)
open("bootstrap/jre/lib/amd64/jli/tls/libgcc_s.so.1", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No
such file or directory)
open("bootstrap/jre/lib/amd64/jli/x86_64/libgcc_s.so.1", O_RDONLY|O_CLOEXEC) = -1 ENOENT
(No such file or directory)
open("bootstrap/jre/lib/amd64/jli/libgcc_s.so.1", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such
file or directory)
open("/usr/lib/jvm/java-7-openjdk-amd64/jre/bin/../lib/amd64/libgcc_s.so.1", O_RDONLY|
O_CLOEXEC) = -1 ENOENT (No such file or directory)
open("bootstrap/lib/amd64/tls/x86_64/libgcc_s.so.1", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No
such file or directory)
open("bootstrap/lib/amd64/tls/libgcc_s.so.1", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such
file or directory)
open("bootstrap/lib/amd64/x86_64/libgcc_s.so.1", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No
such file or directory)
open("bootstrap/lib/amd64/libgcc_s.so.1", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or
directory)
open("bootstrap/jre/lib/amd64/tls/x86_64/libgcc_s.so.1", O_RDONLY|O_CLOEXEC) = -1 ENOENT
(No such file or directory)
open("bootstrap/jre/lib/amd64/tls/libgcc_s.so.1", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such
file or directory)
open("bootstrap/jre/lib/amd64/x86_64/libgcc_s.so.1", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No
such file or directory)
open("bootstrap/jre/lib/amd64/libgcc_s.so.1", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such
file or directory)
access("/etc/ld.so.nohwcap", F_OK)      = -1 ENOENT (No such file or directory)
open("/lib/x86_64-linux-gnu/libgcc_s.so.1", O_RDONLY|O_CLOEXEC) = 3
read(3, "\177ELF\2\1\1\0\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\260*\0\0\0\0\0\0"..., 832) = 832
fstat(3, {st_mode=S_IFREG|0644, st_size=90080, ...}) = 0
mmap(NULL, 2185952, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) =
0x7f3a33c5e000
mprotect(0x7f3a33c74000, 2093056, PROT_NONE) = 0
mmap(0x7f3a33e73000, 4096, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|
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MAP_DENYWRITE, 3, 0x15000) = 0x7f3a33e73000
close(3)   = 0
mprotect(0x7f3a34178000, 4096, PROT_READ) = 0
mprotect(0x7f3a3445f000, 32768, PROT_READ) = 0
mprotect(0x7f3a35193000, 630784, PROT_READ) = 0
munmap(0x7f3a36097000, 90022)   = 0
mmap(NULL, 1052672, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS|
MAP_STACK, -1, 0) = 0x7f3a35f91000
mprotect(0x7f3a35f91000, 4096, PROT_NONE) = 0
clone(child_stack=0x7f3a36090fb0, flags=CLONE_VM|CLONE_FS|CLONE_FILES|
CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSVSEM|CLONE_SETTLS|
CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID, parent_tidptr=0x7f3a360919d0,
tls=0x7f3a36091700, child_tidptr=0x7f3a360919d0) = 13156
futex(0x7f3a360919d0, FUTEX_WAIT, 13156, NULL) = 0
exit_group(0)   = ?
+++ exited with 0 +++

% time	seconds	usecs/call	calls	errors	syscall
71.44	0.005398	1799	3	1	futex
14.31	0.001081	7	147	135	open
3.75	0.000283	9	31		mmap
2.53	0.000191	10	20		mprotect
1.18	0.000089	7	12	10	stat
1.10	0.000083	8	10	9	access
0.98	0.000074	7	11		read
0.93	0.000070	6	12		fstat
0.90	0.000068	6	12		close
0.70	0.000053	27	2		readlink
0.66	0.000050	17	3		munmap
0.37	0.000028	28	1		execve
0.34	0.000026	9	3		brk
0.20	0.000015	15	1		clone
0.19	0.000014	7	2		rt_sigaction
0.09	0.000007	7	1		rt_sigprocmask
0.09	0.000007	7	1		getrlimit
0.09	0.000007	7	1		arch_prctl
0.08	0.000006	6	1		set_tid_address
0.08	0.000006	6	1		set_robust_list
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100.00	0.007556		275	155	total