A PROMISING APPROACH TO DEBUGGING REMOTE PROMISES

2016
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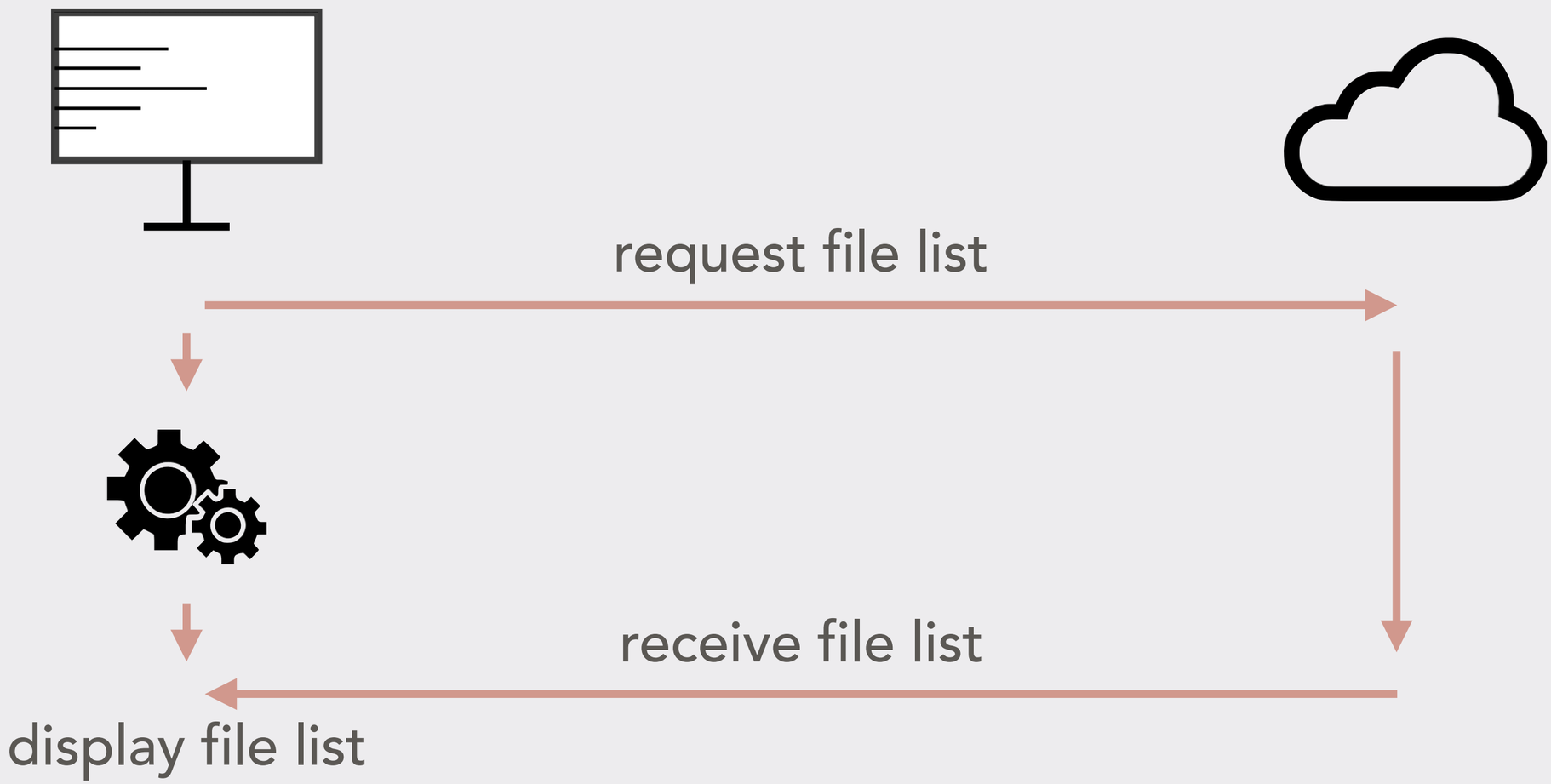
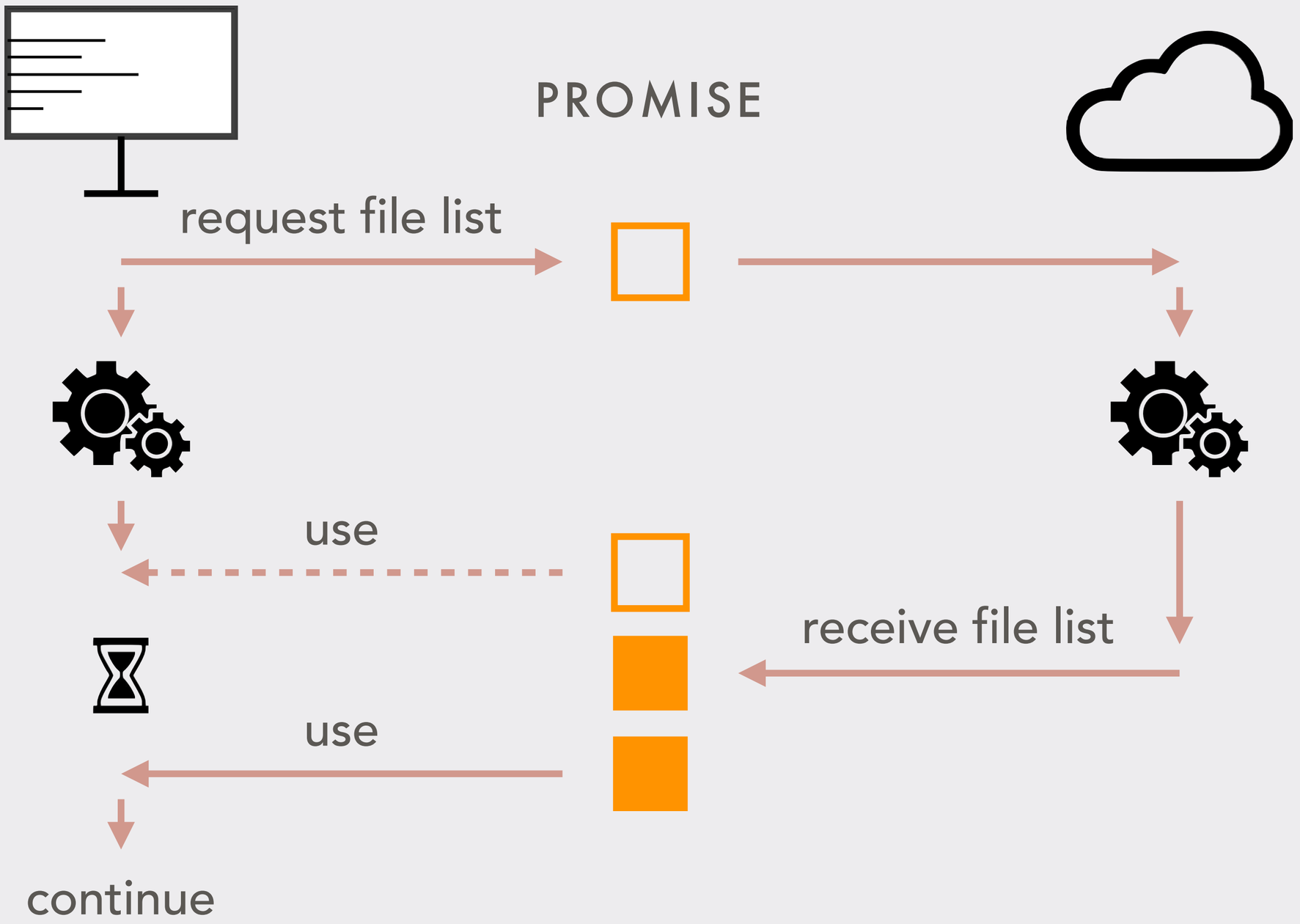
DISCLAIMER

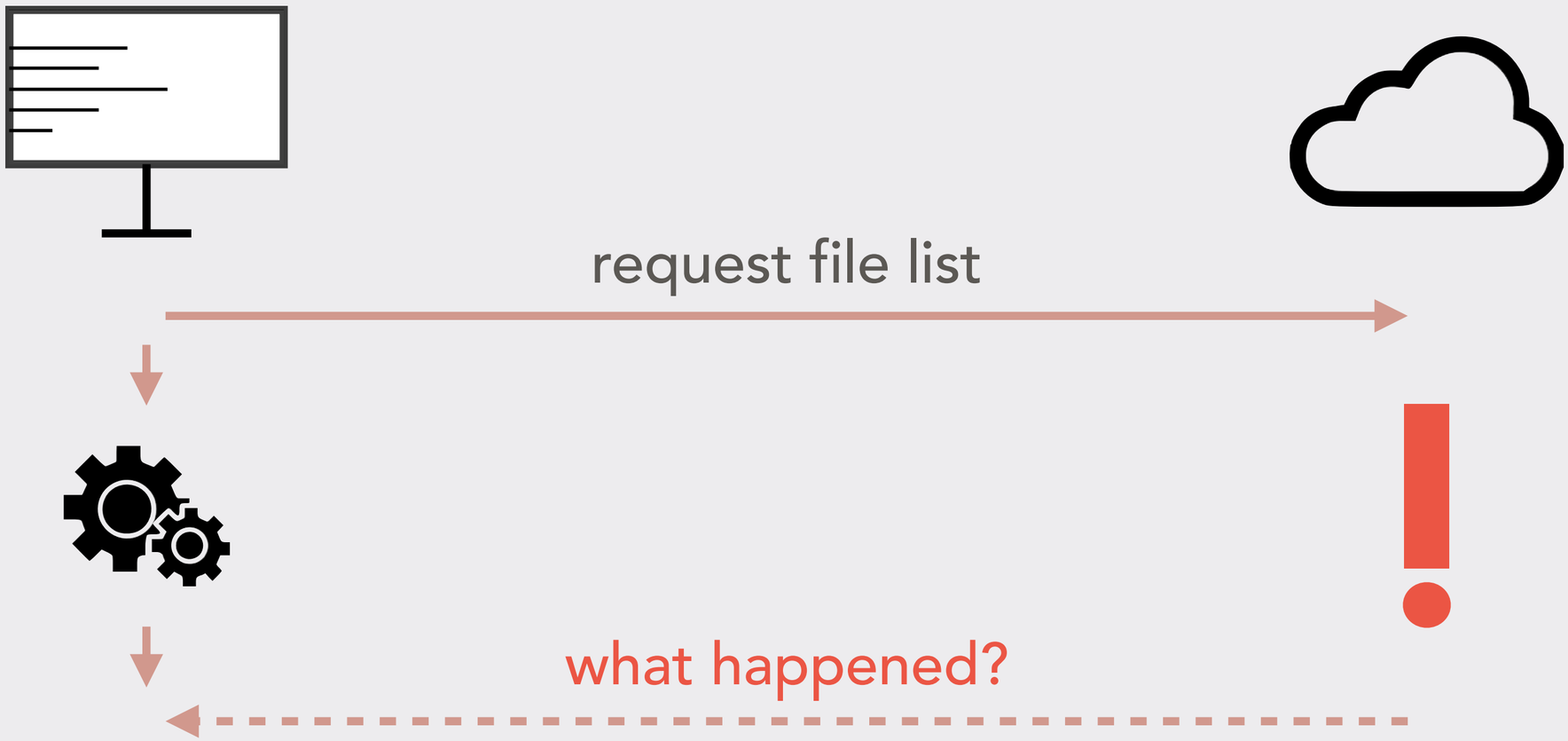
MOTIVATION

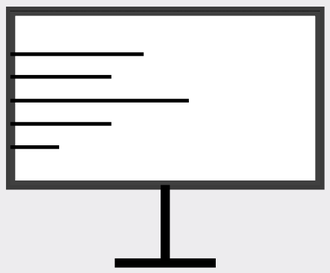

request file list
receive file list
display file list


request file list
receive file list
display file list


PROMISE
request file list
use
use
receive file list
continue

```
fileListPromise := [ self getFileList ] promise.
...
fileListPromise value.
```


request file list
what happened?



what happened?

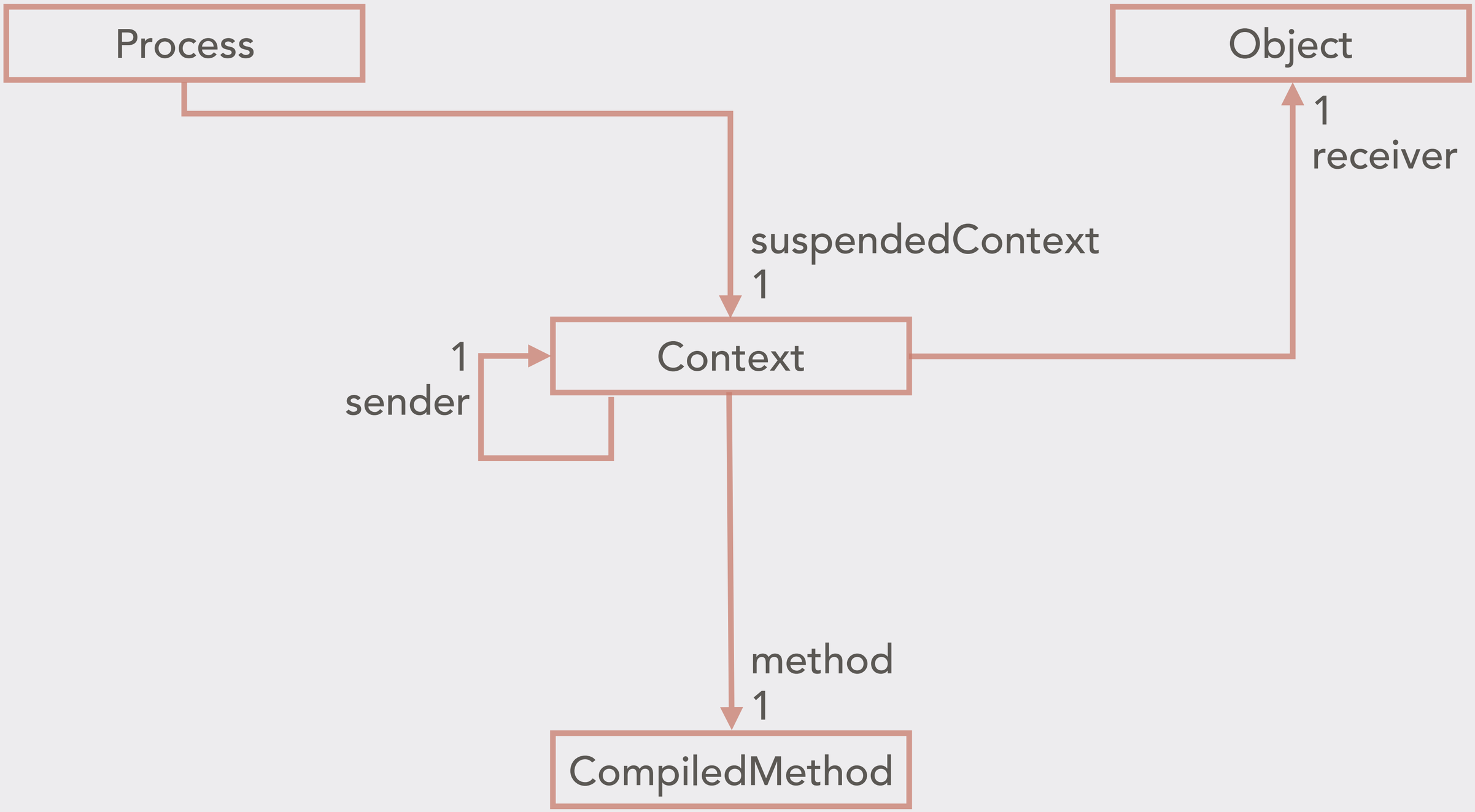
~~NULL~~

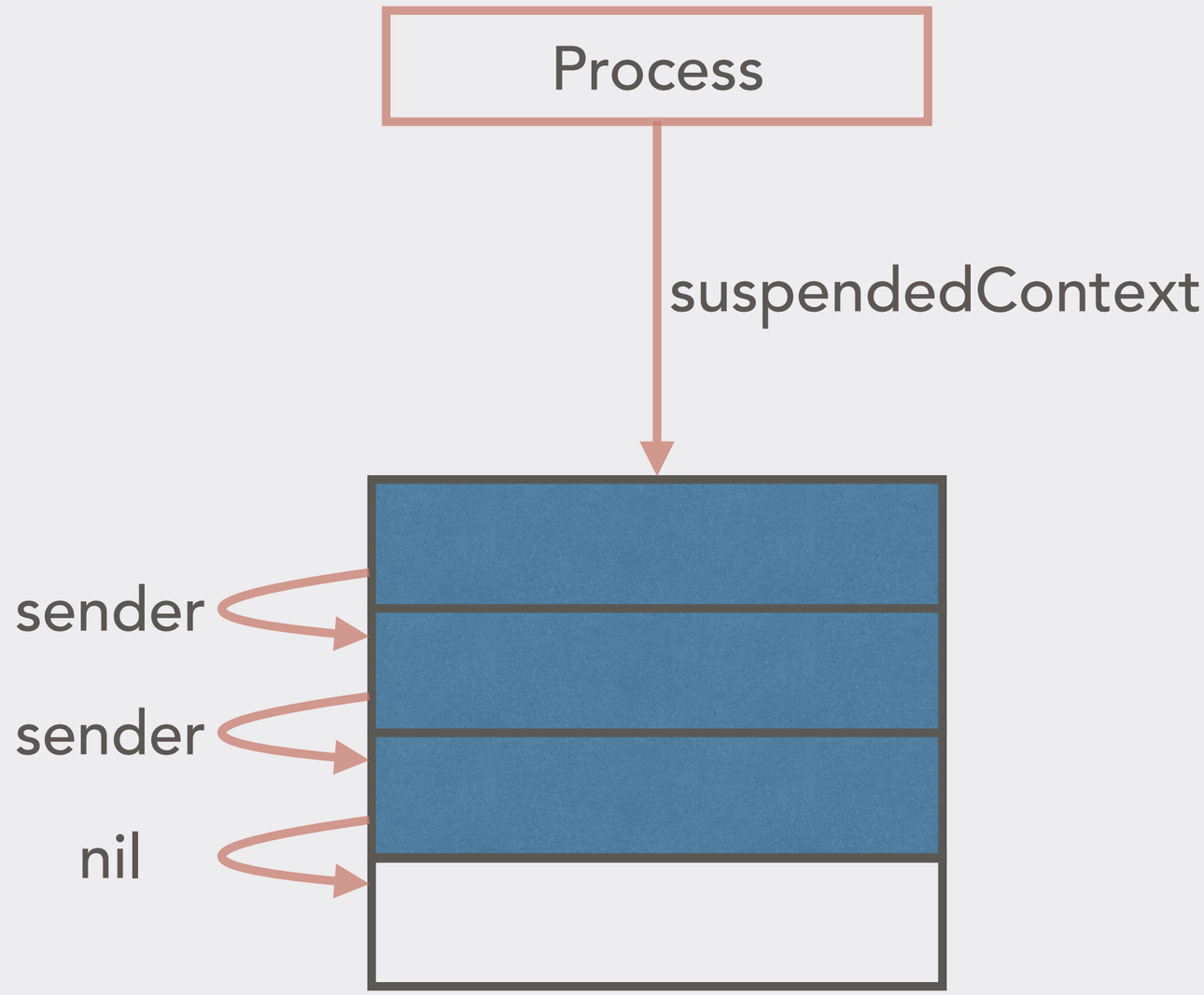
~~description~~

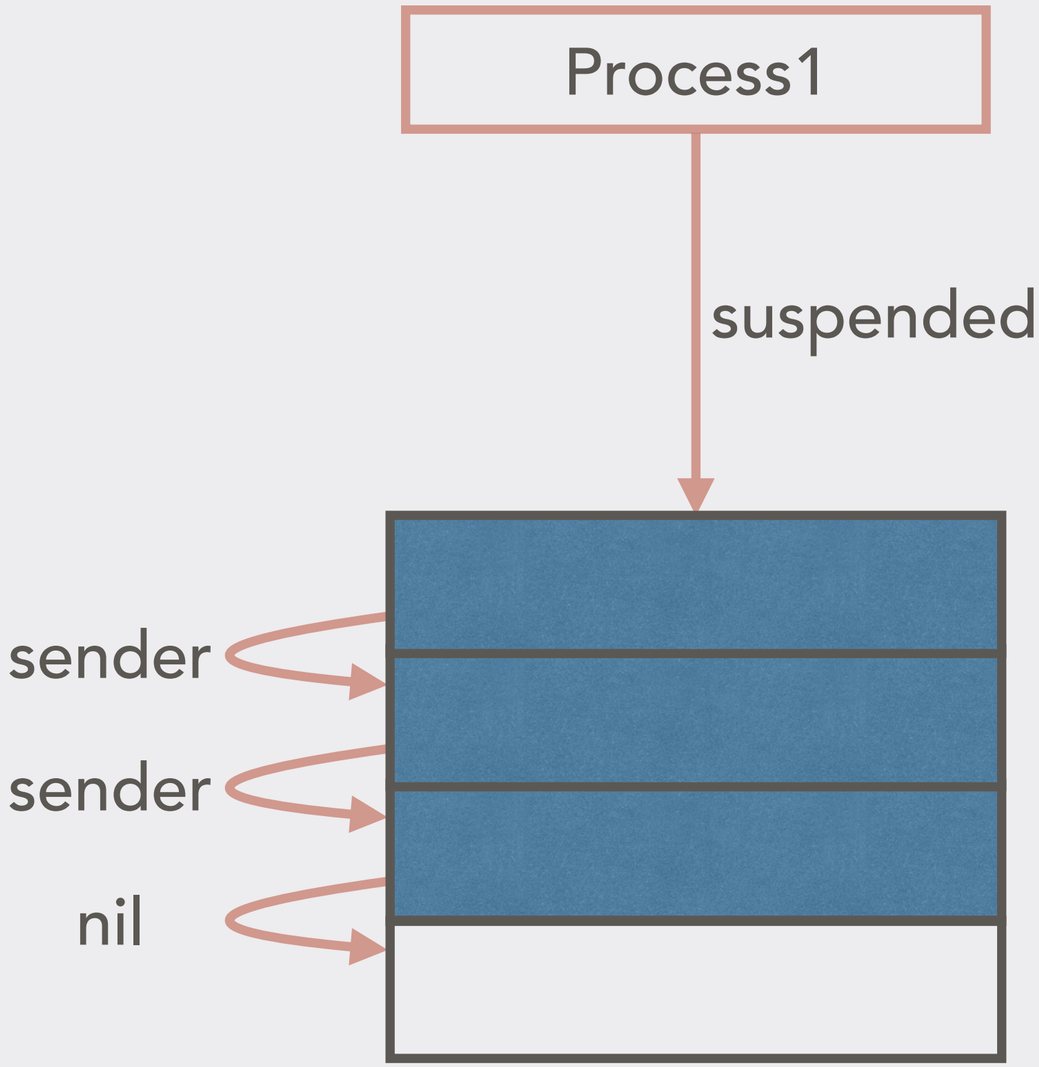
~~stack trace~~

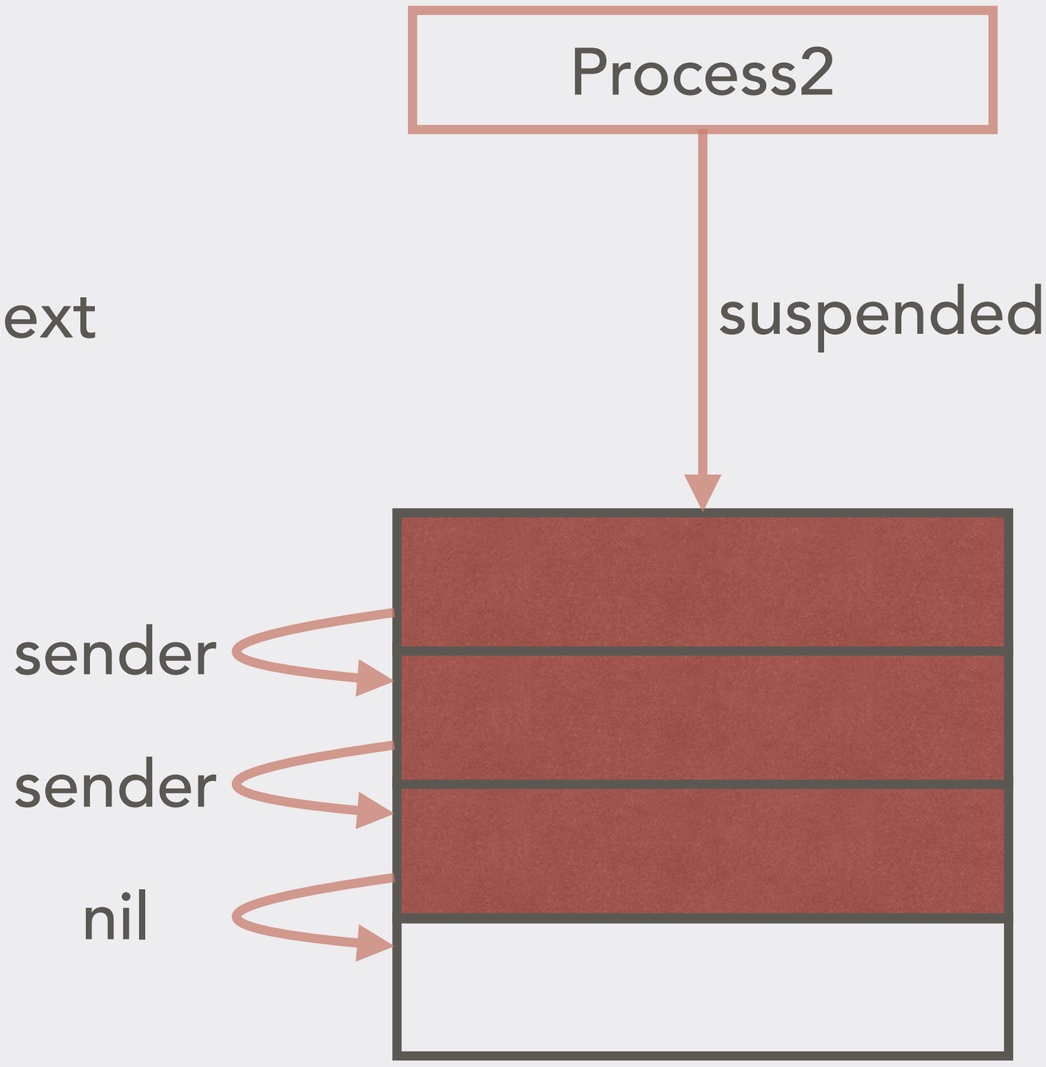
exception object

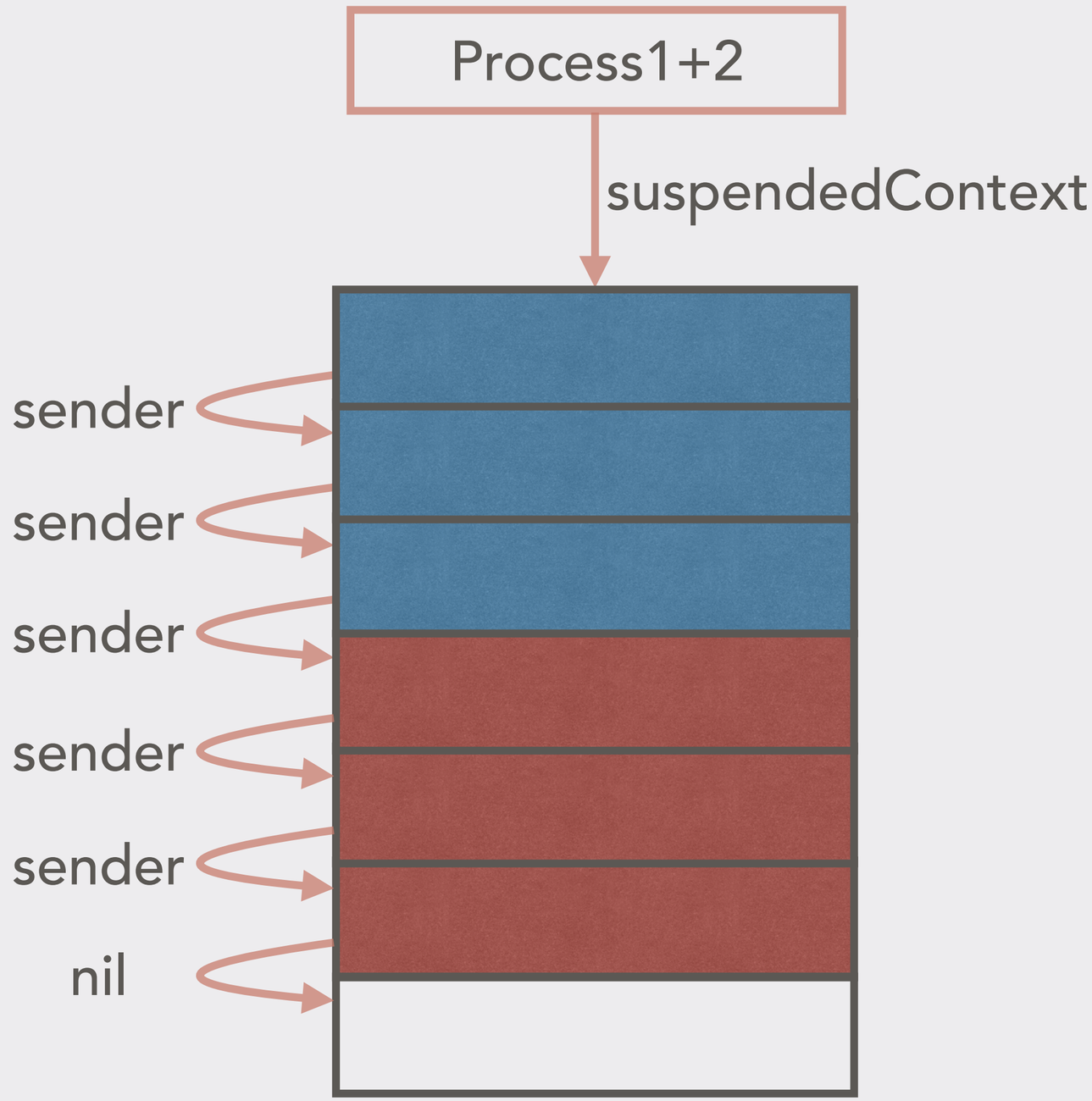
IDEA


Process
Object
1
receiver
suspendedContext
1
1
sender
Context
method
1
CompiledMethod


Process
suspendedContext
sender
sender
nil

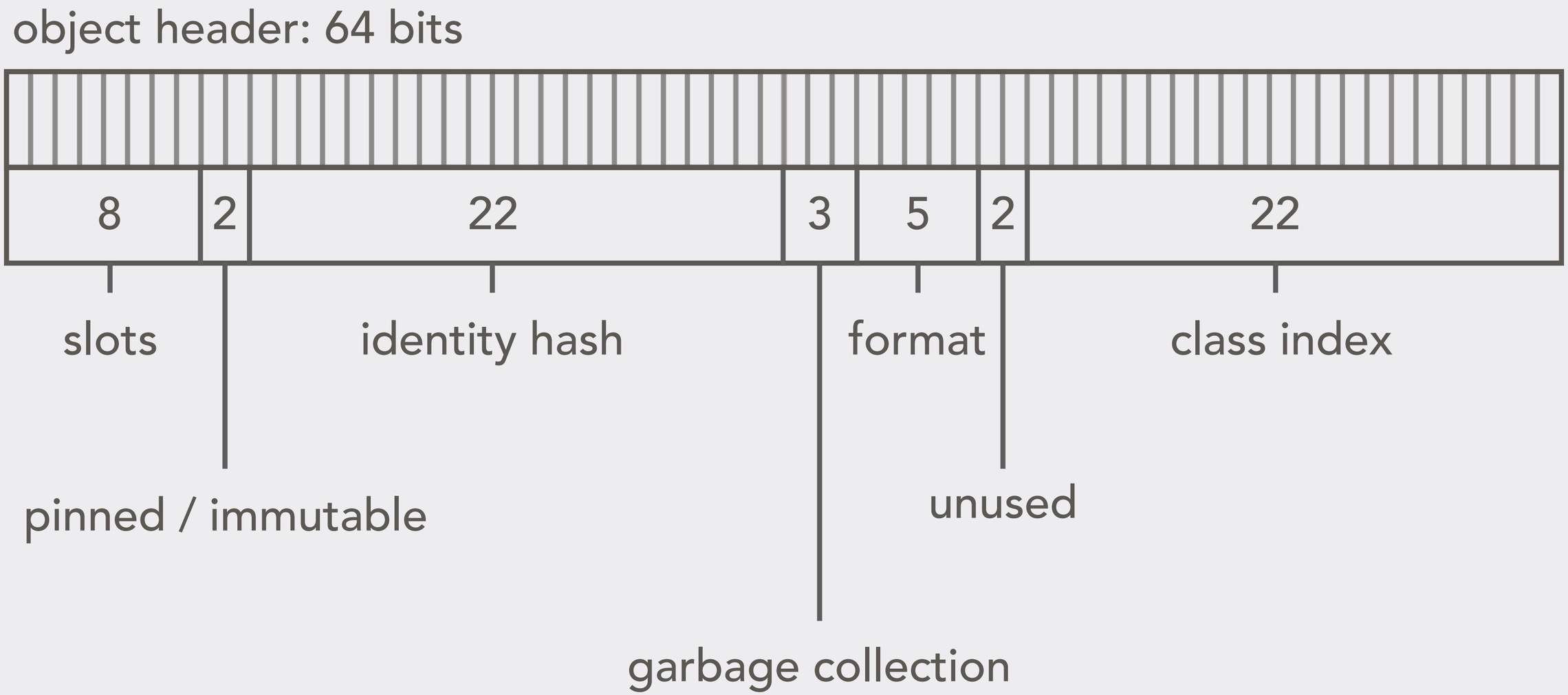

Process1
suspendedContext
sender
sender
nil

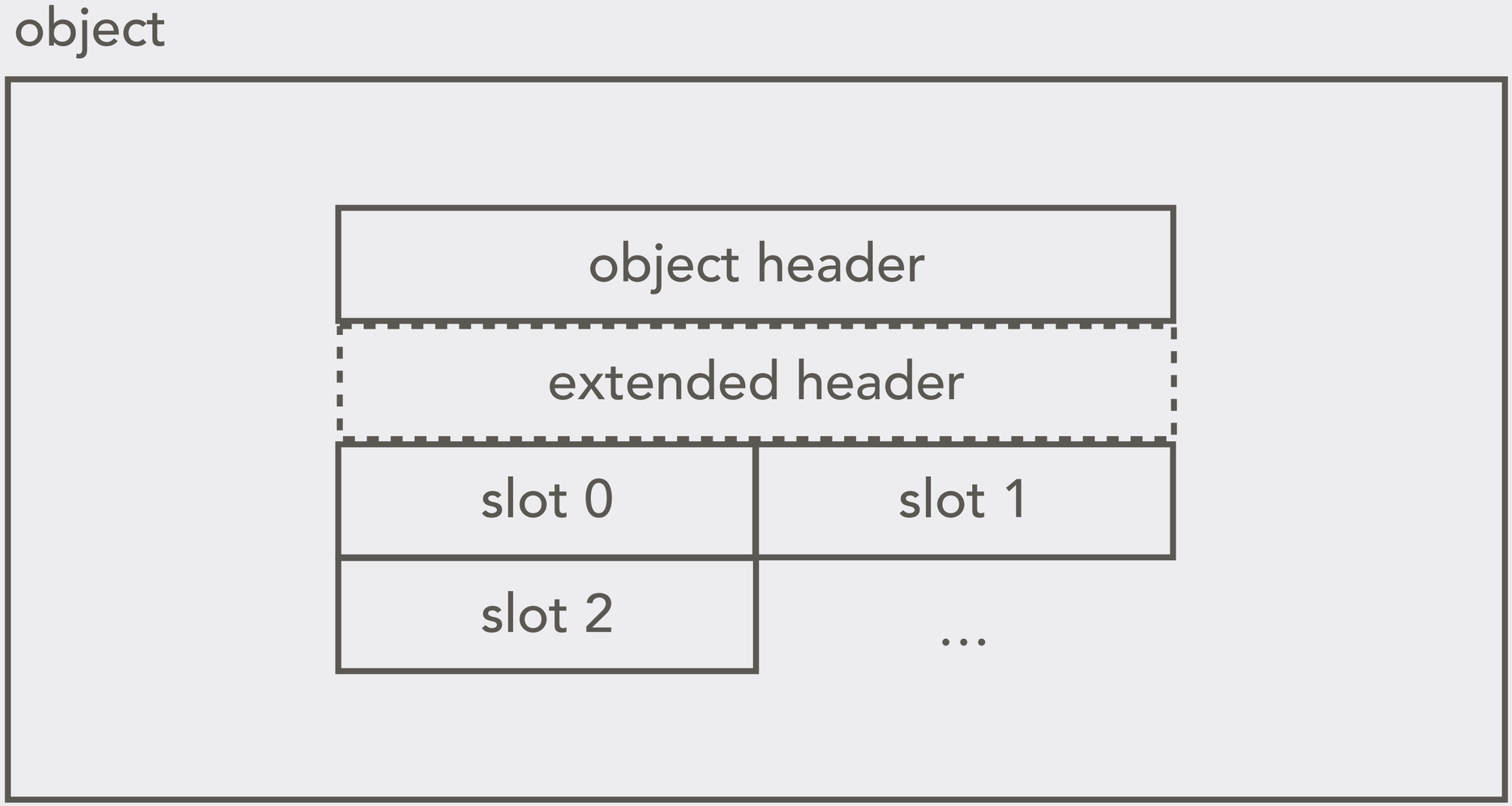

Process2
suspendedContext
sender
sender
nil

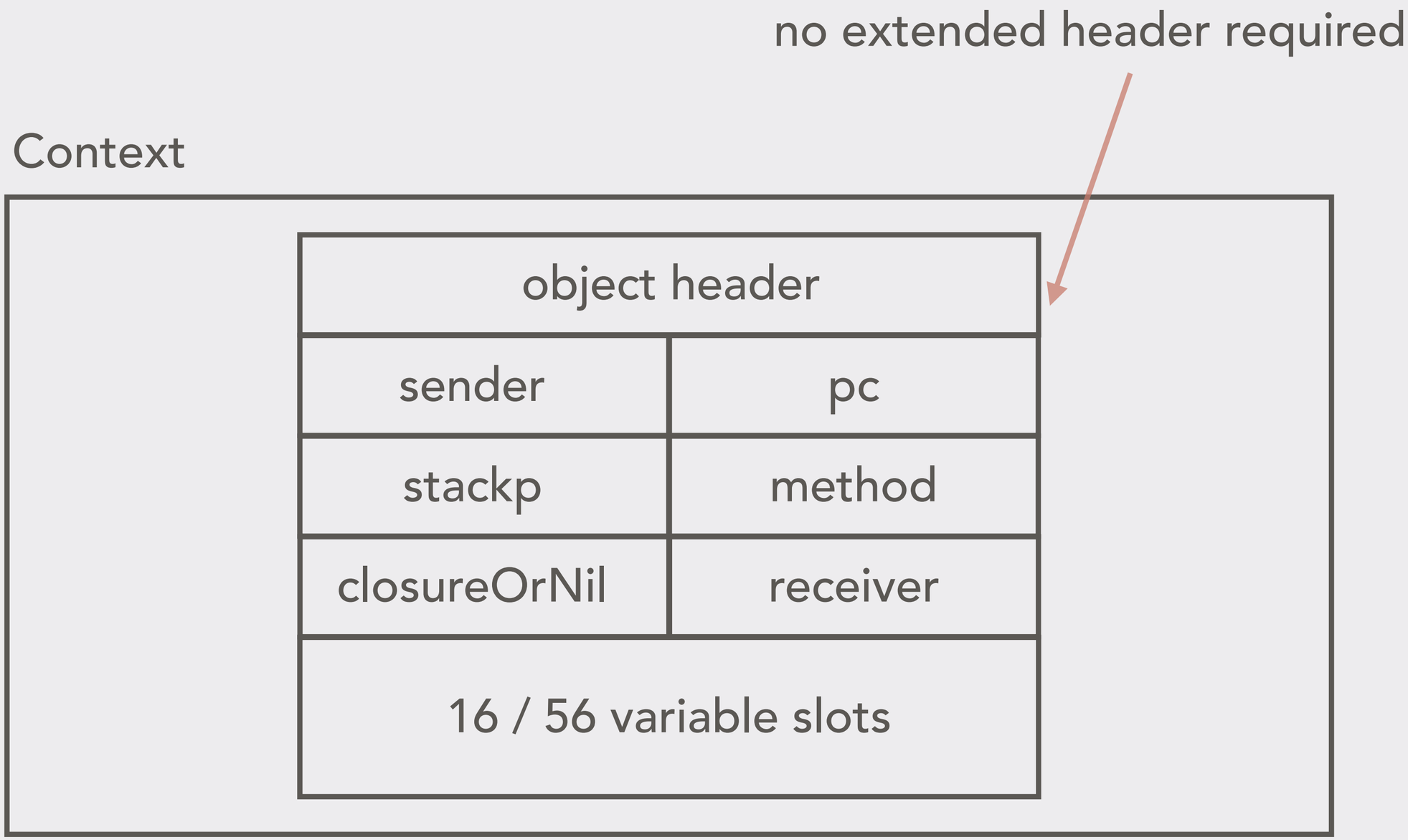

Process1+2
suspendedContext
sender
sender
sender
sender
sender
nil

DEMO

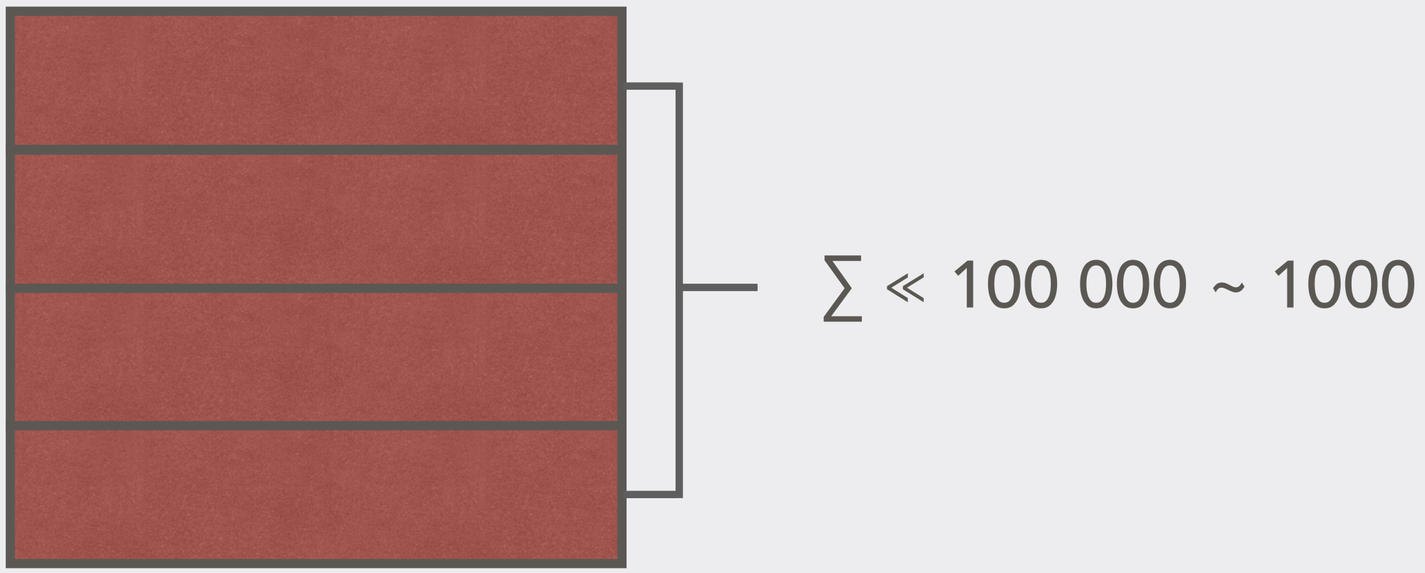
MEMORY


object header: 64 bits
8
2
22
3
5
2
22
slots
identity hash
format
class index
pinned / immutable
garbage collection
unused


object
object header
extended header
slot 0
slot 1
slot 2
...



96 / 256 bytes per instance



estimated upper bounds

large contexts: 256 kB

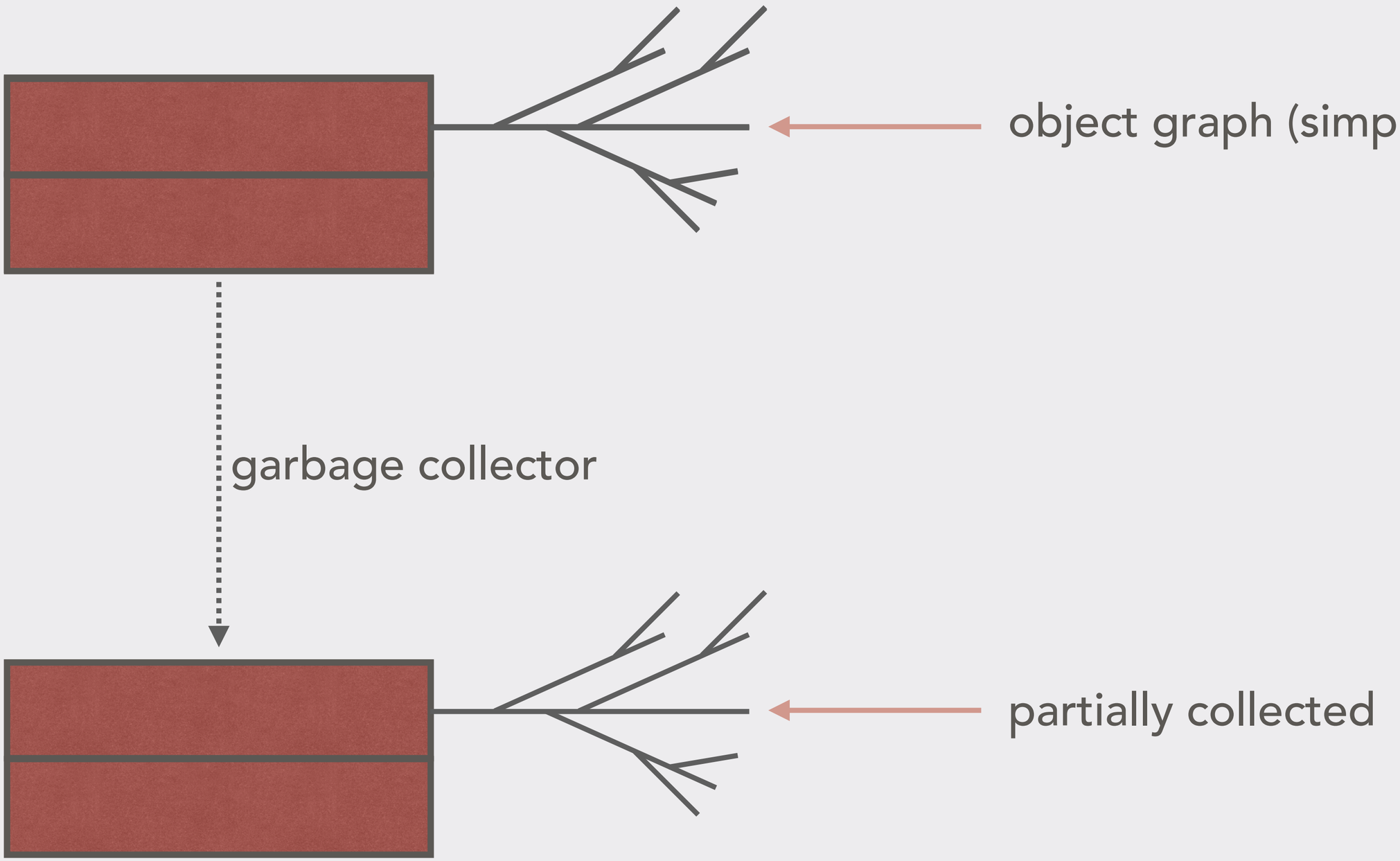
small contexts: 96 kB

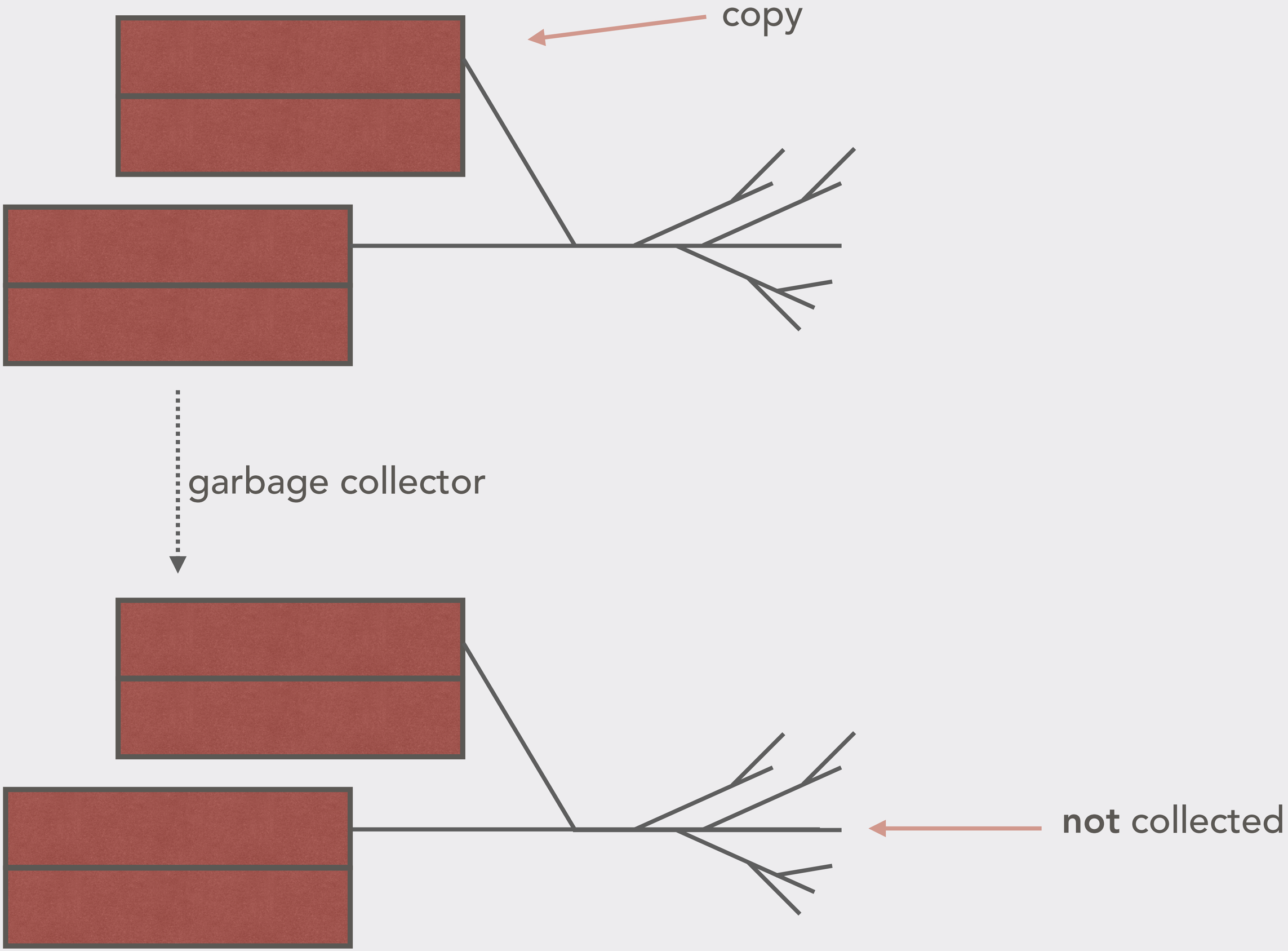
* 2 (reification)

large contexts: 512 kB

small contexts: 192 kB

memory consumption of contexts:


object graph (simplified)
garbage collector
partially collected


copy
garbage collector
not collected

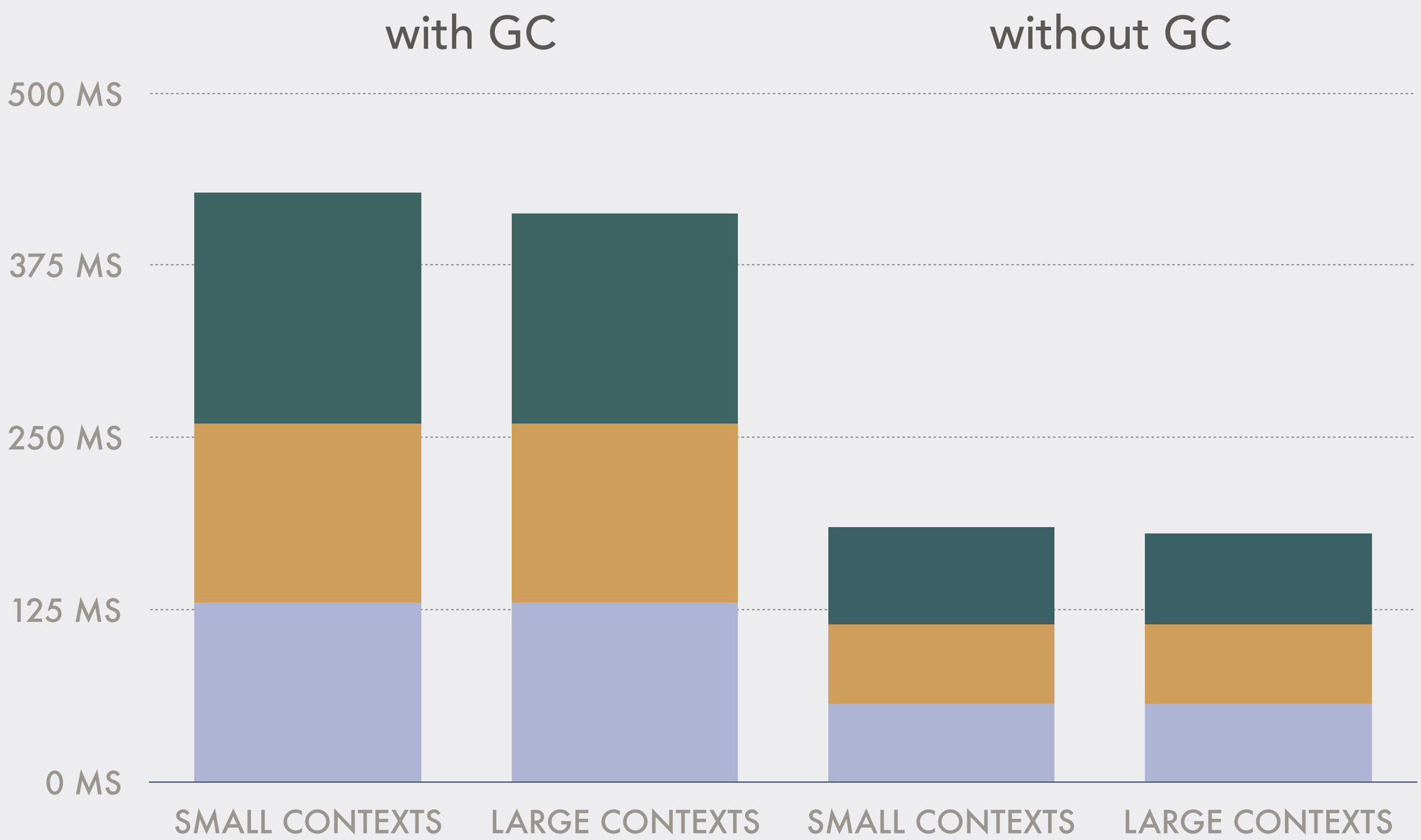
memory consumption of object graph: ?

PERFORMANCE

```
fileListPromise := [ self getFileList ] promise.
```

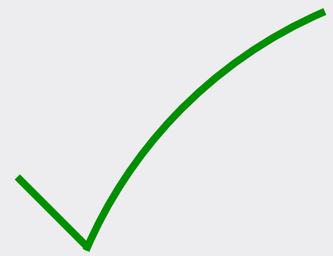

```
...

fileListPromise value.
```



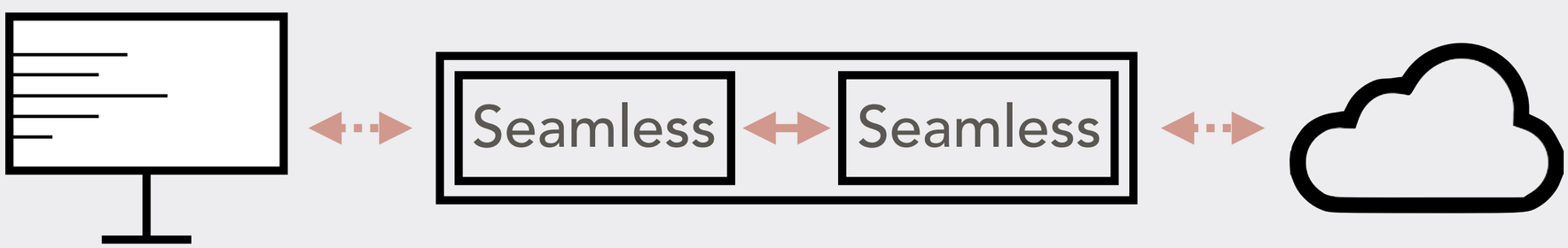
copying stack of 100 000 frames

performance:

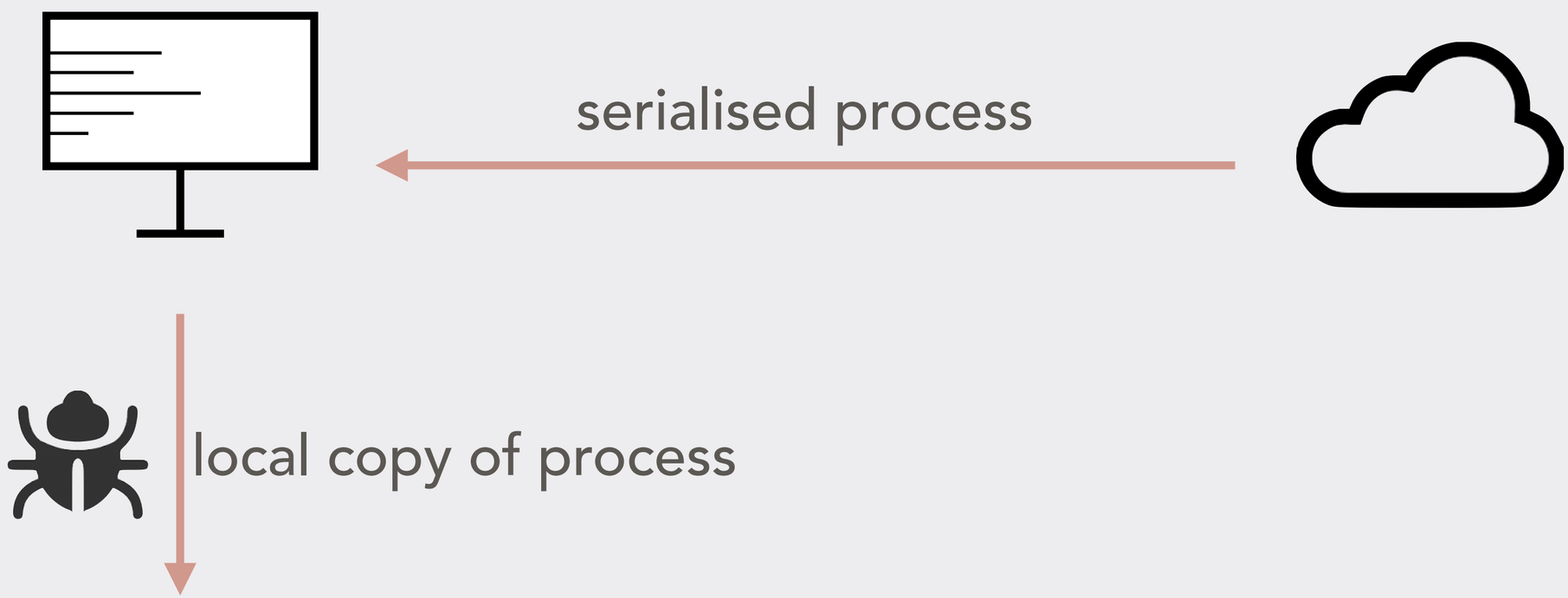


REMOTE COMMUNICATION


protocol?


Seamless
Seamless

DEBUGGING



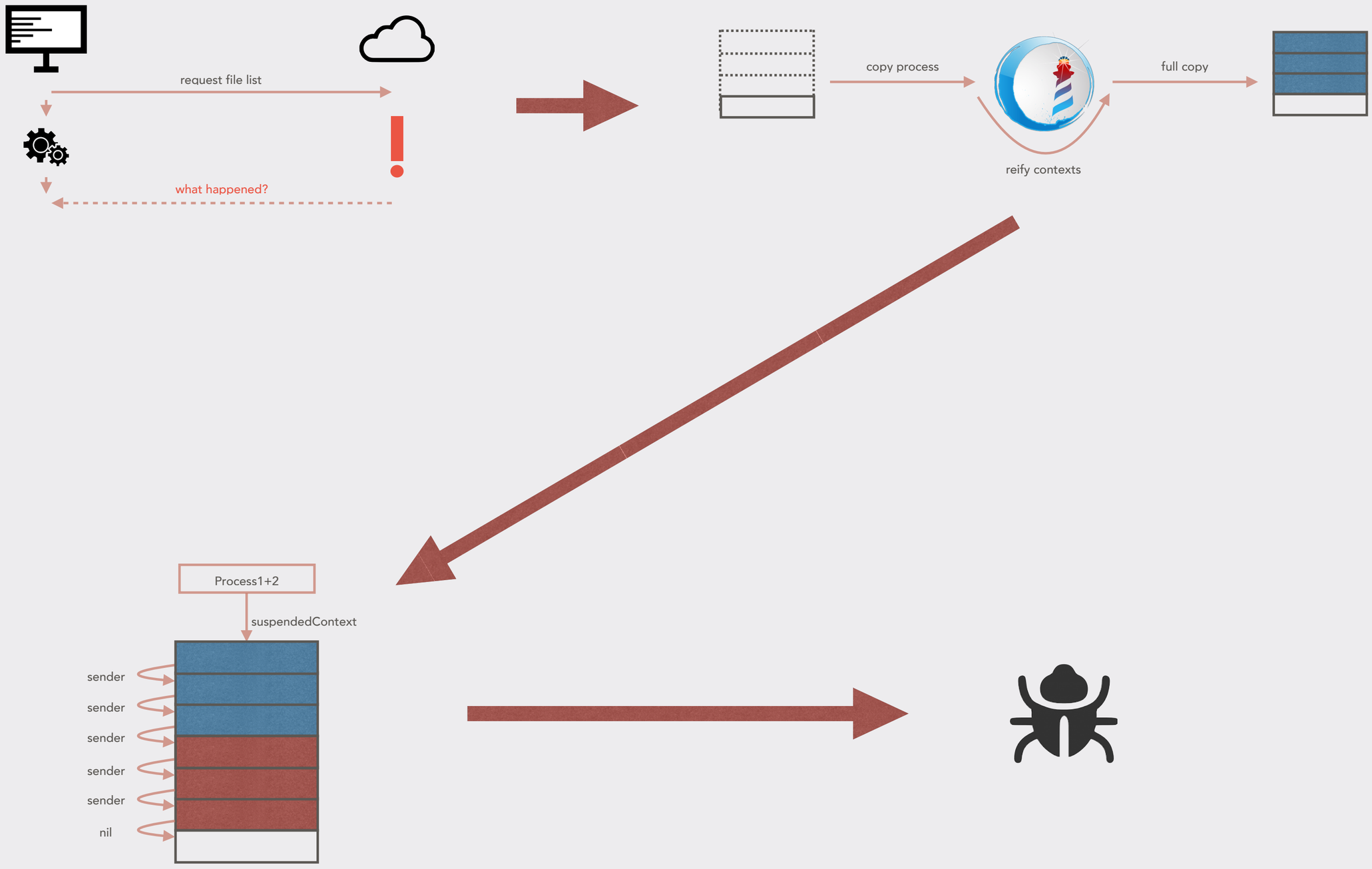
asynchronous network requests

promises

THREADS

asynchronous messages (actors)

events


request file list
what happened?
copy process
full copy
reify contexts
Process1+2
suspendedContext
sender
sender
sender
sender
sender
nil