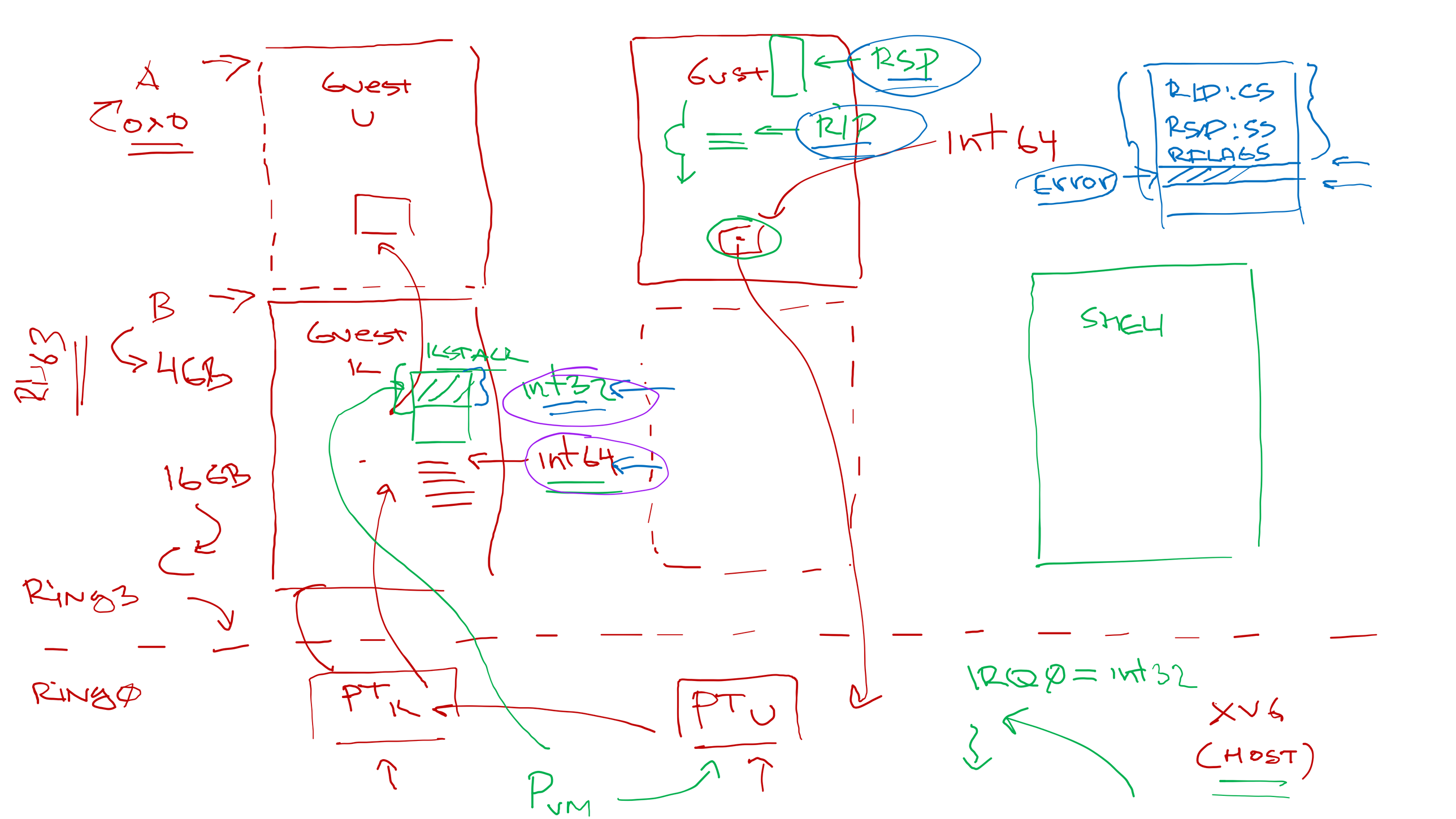
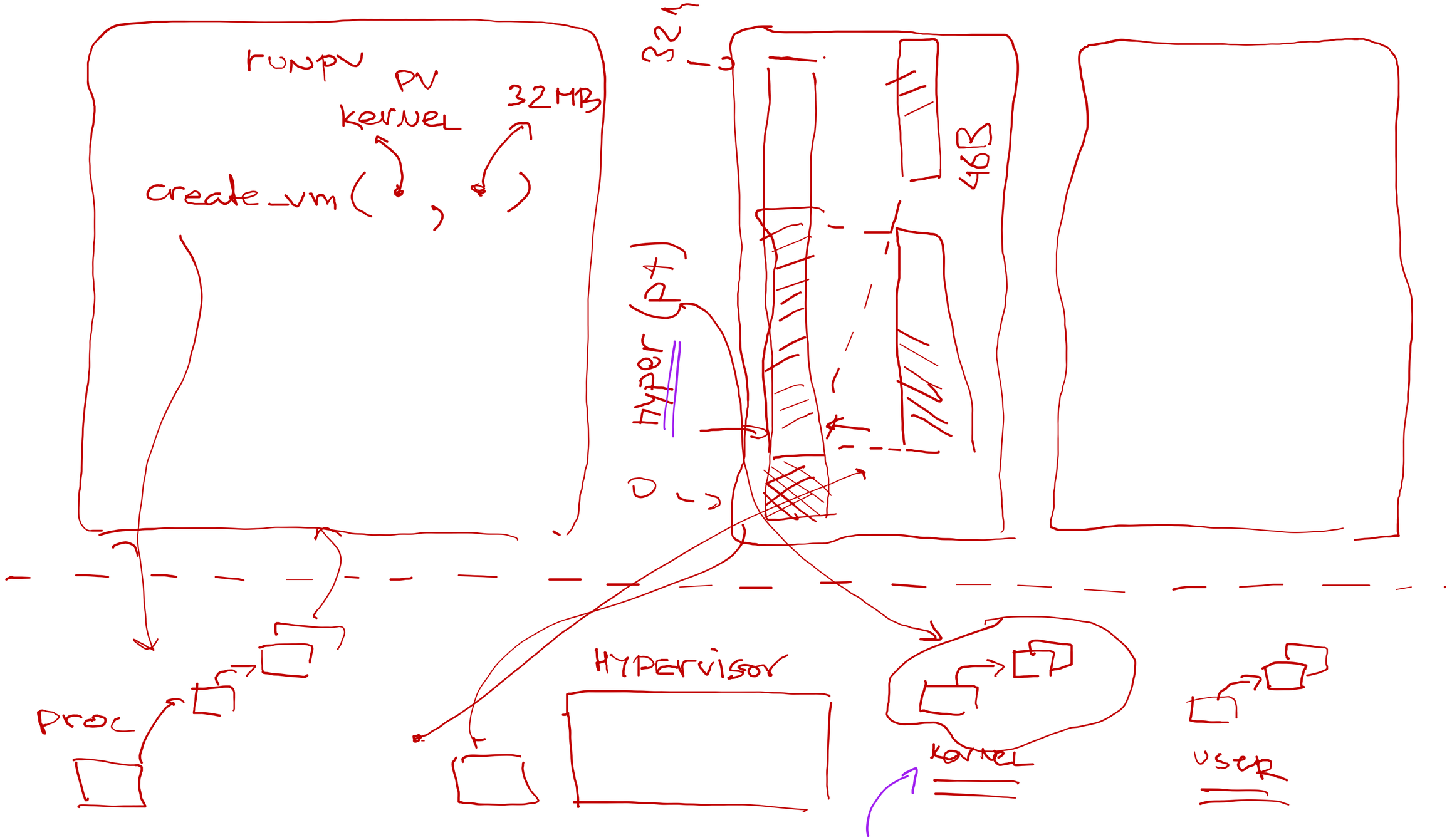
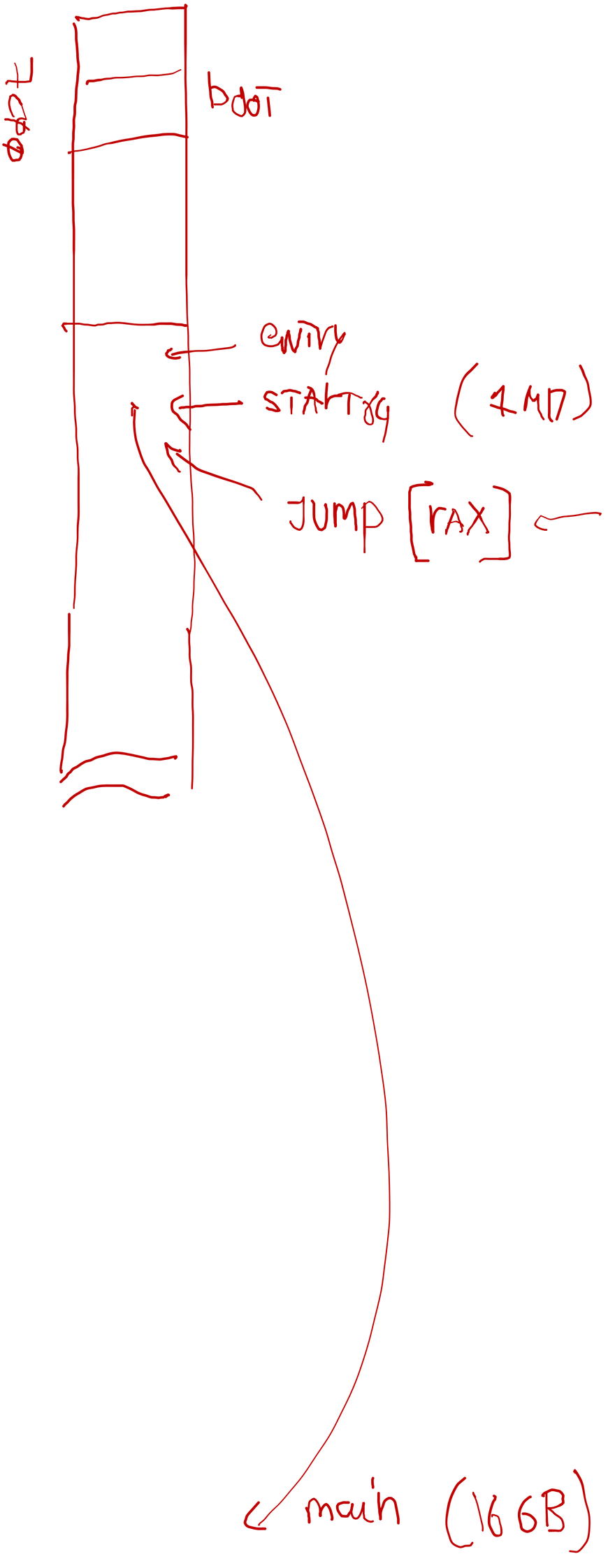
Lecture 12 – Paravirtualizing xv6 (aka HW3)

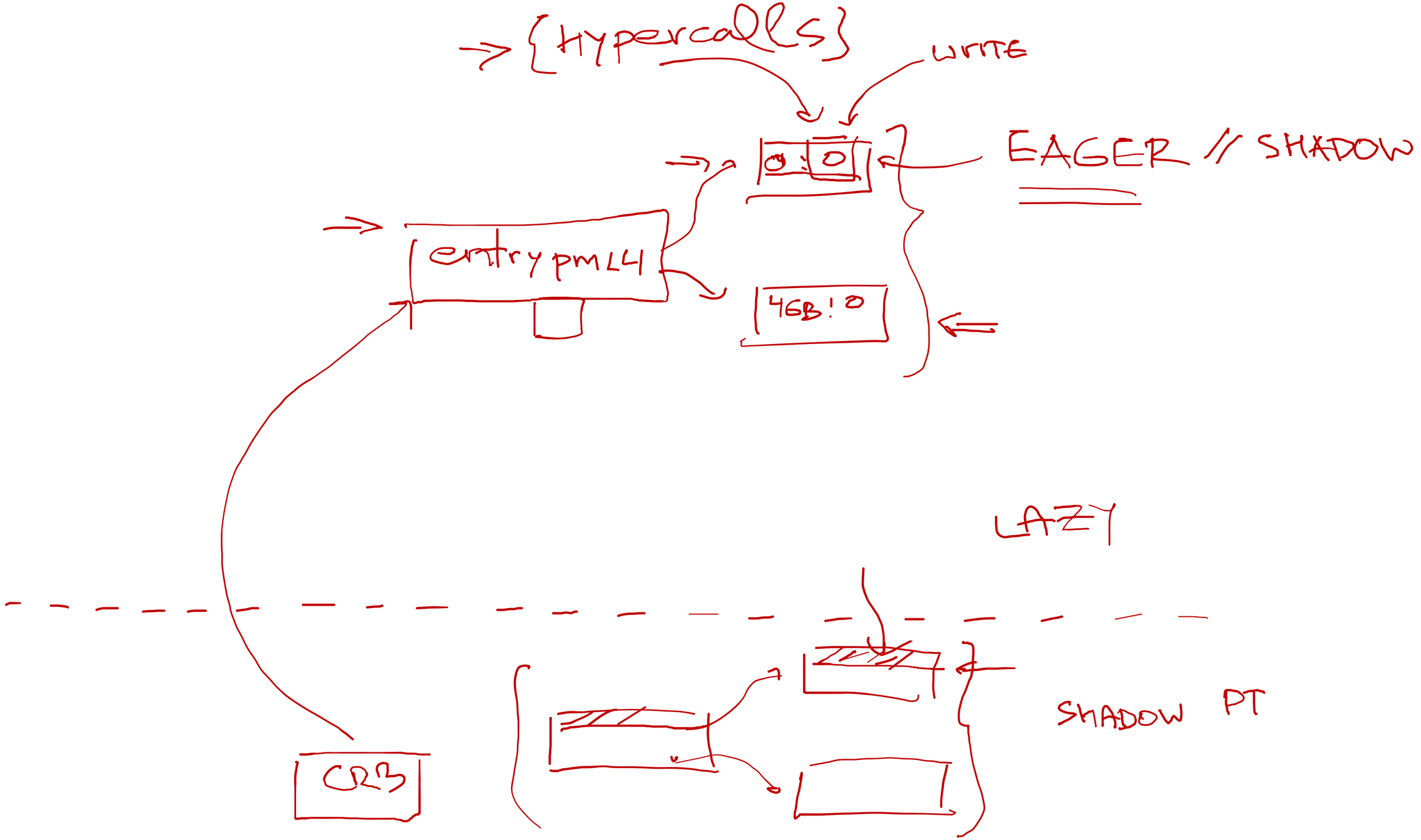


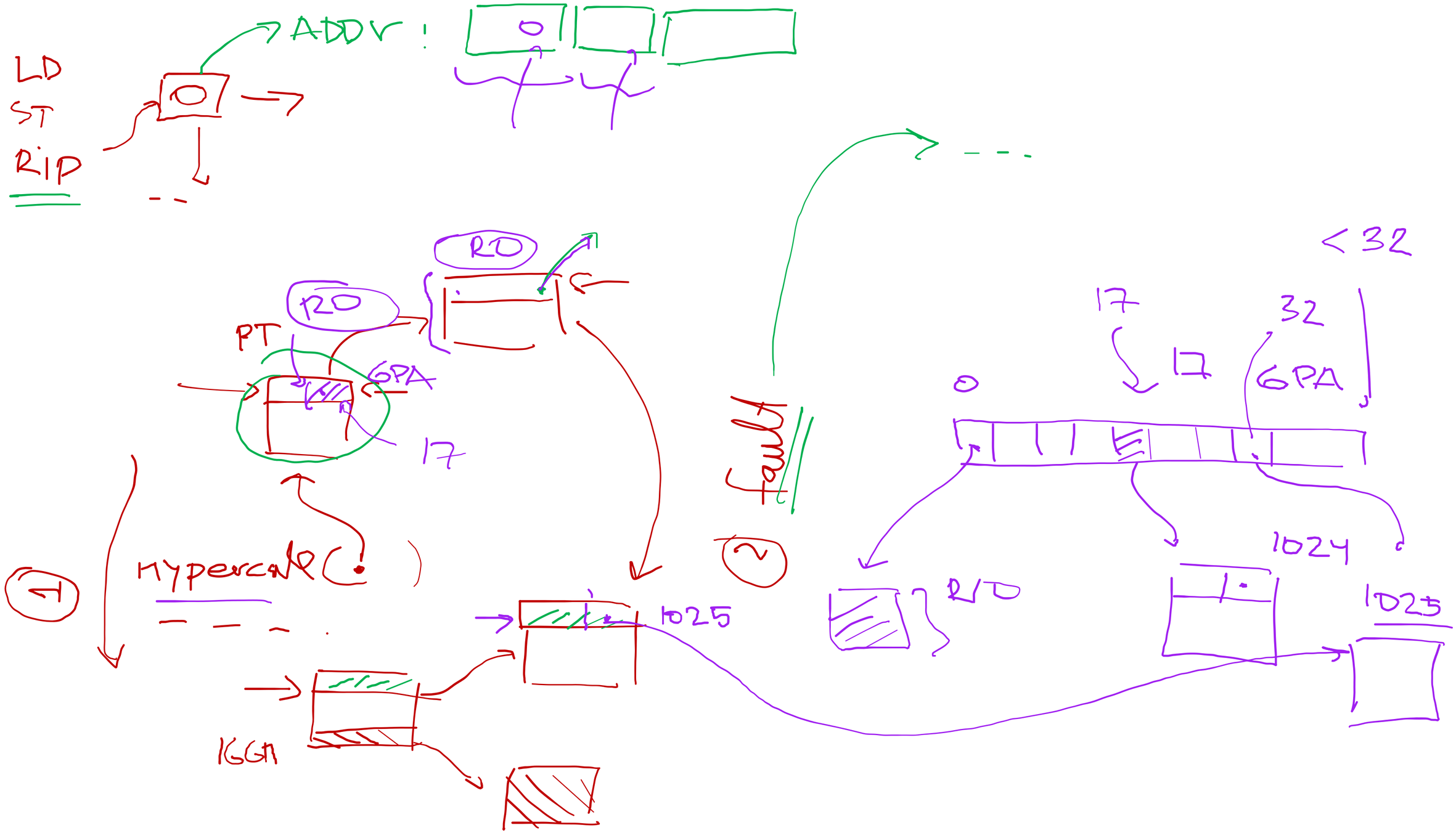
A
Guest U
B
Guest K
KSTACK
int32
int64
16GB
C
Ring3
Ring0
PT K
PT U
PVM
Guest
RSP
RIP
int64
RIP:CS
RSP:SS
RFLAGS
Error
SHELL
IRQ0 = int32
XVG
(HOST)

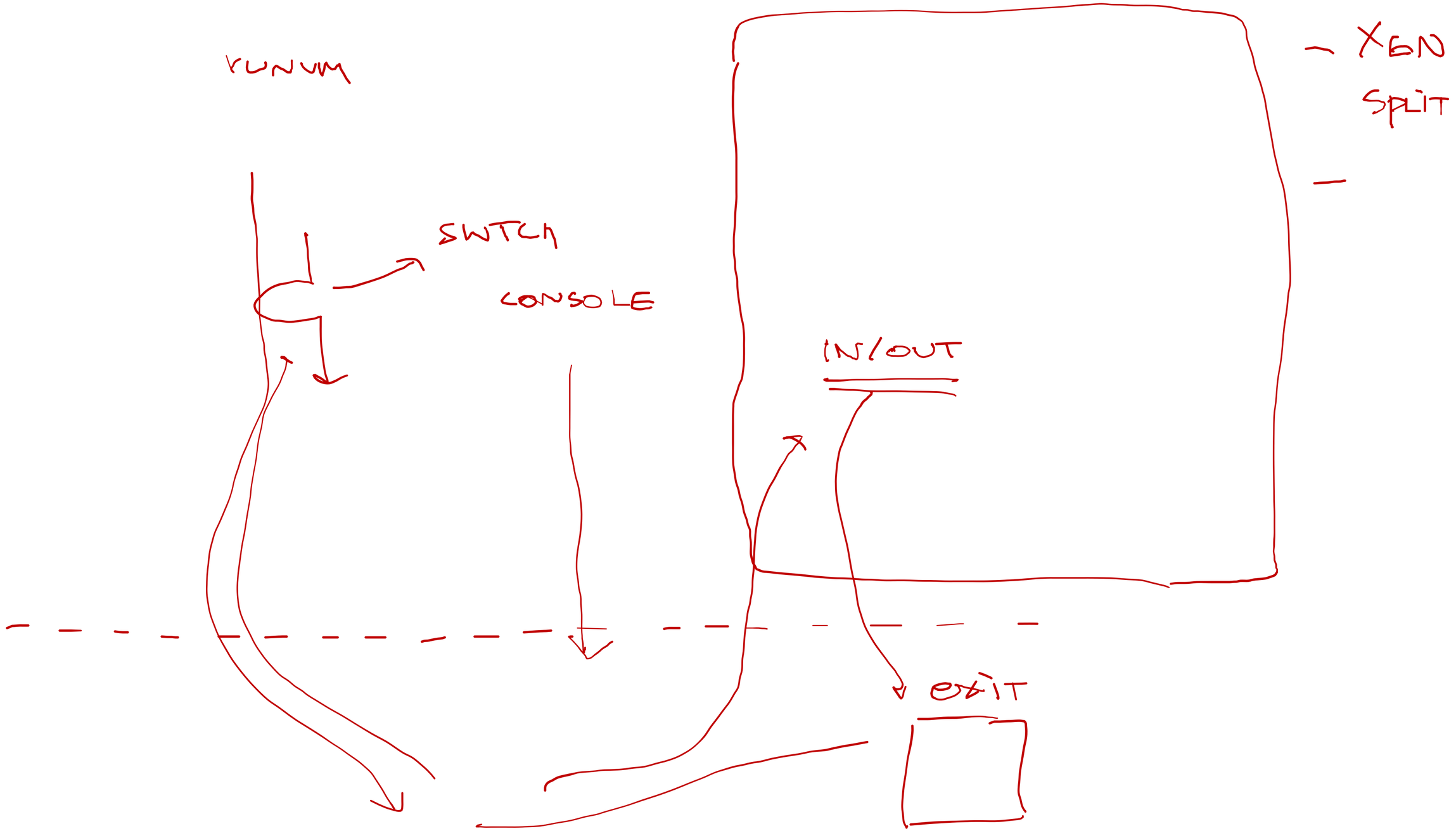

runpv
pv
kernel
32MB
create_vm (,)
32
4GB
hyper (pt)
0
proc
hypervisor
kernel
user

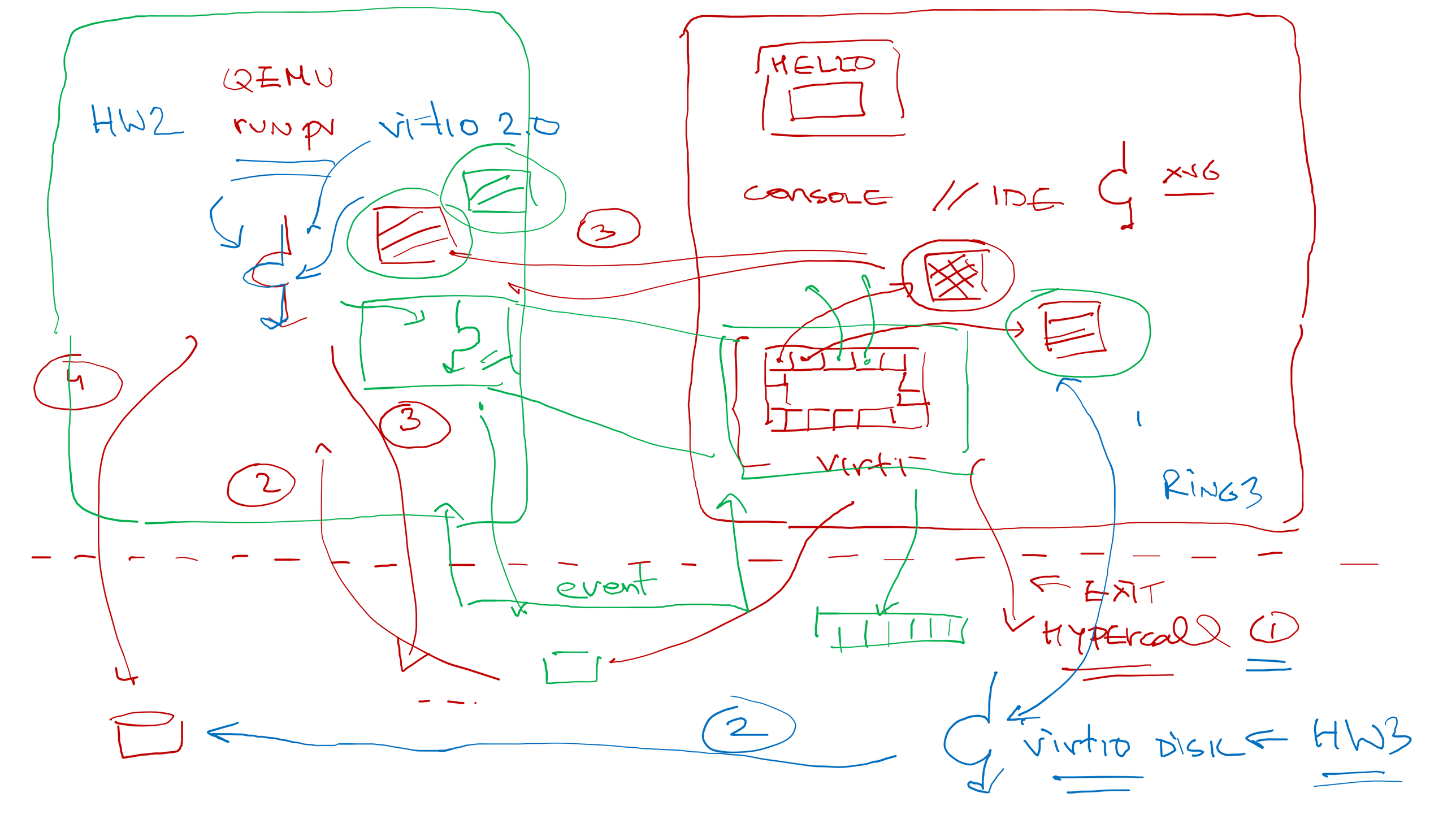


bdot
entry
startsq (1MB)
jump [rax]
main (16GB)


{hypercalls}
WRITE
EAGER // SHADOW
entry pml4
4GB : 0
LAZY
CR3
SHADOW PT


LD
ST
RIP
ADDr :
RO
RO
PT
GPA
17
hypercall( )
1025
IGGT
fault
< 32
17
17
32
GPA
0
1024
RO
1025


RUNVM
SWTCH
CONSOLE
IN/OUT
EXIT
XEN
SPLIT



HW2
QEMU
run pv
virtio 2.0
HELLO
CONSOLE // IDE
XVG
virtio
RING3
event
EXIT
HYPERCALL
1
2
3
4
virtio DISK
HW3