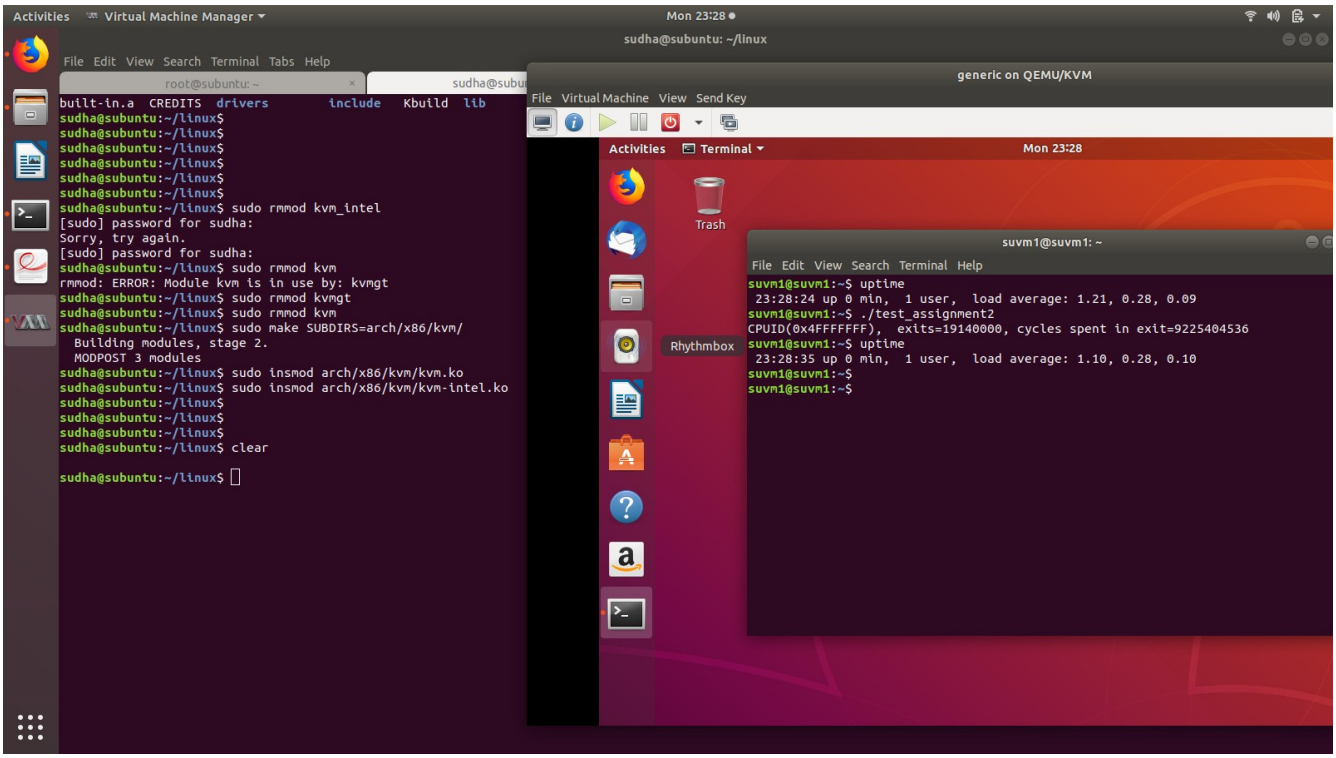
Sudha Amarnath
CMPE283 Assignment 3

CASE 1: WITH EPT

Commands issued on Host VM (sudo insmod arch/x86/kvm/kvm-intel.ko)

```
sudha@subuntu:~/linux$
sudha@subuntu:~/linux$
sudha@subuntu:~/linux$ sudo rmmod kvm_intel
[sudo] password for sudha:
Sorry, try again.
[sudo] password for sudha:
sudha@subuntu:~/linux$ sudo rmmod kvm
rmmod: ERROR: Module kvm is in use by: kvmgt
sudha@subuntu:~/linux$ sudo rmmod kvmgt
sudha@subuntu:~/linux$ sudo rmmod kvm
sudha@subuntu:~/linux$ sudo make SUBDIRS=arch/x86/kvm/
  Building modules, stage 2.
  MODPOST 3 modules
sudha@subuntu:~/linux$ sudo insmod arch/x86/kvm/kvm.ko
sudha@subuntu:~/linux$ sudo insmod arch/x86/kvm/kvm-intel.ko
sudha@subuntu:~/linux$
```



Case 1: Guest VM Output:

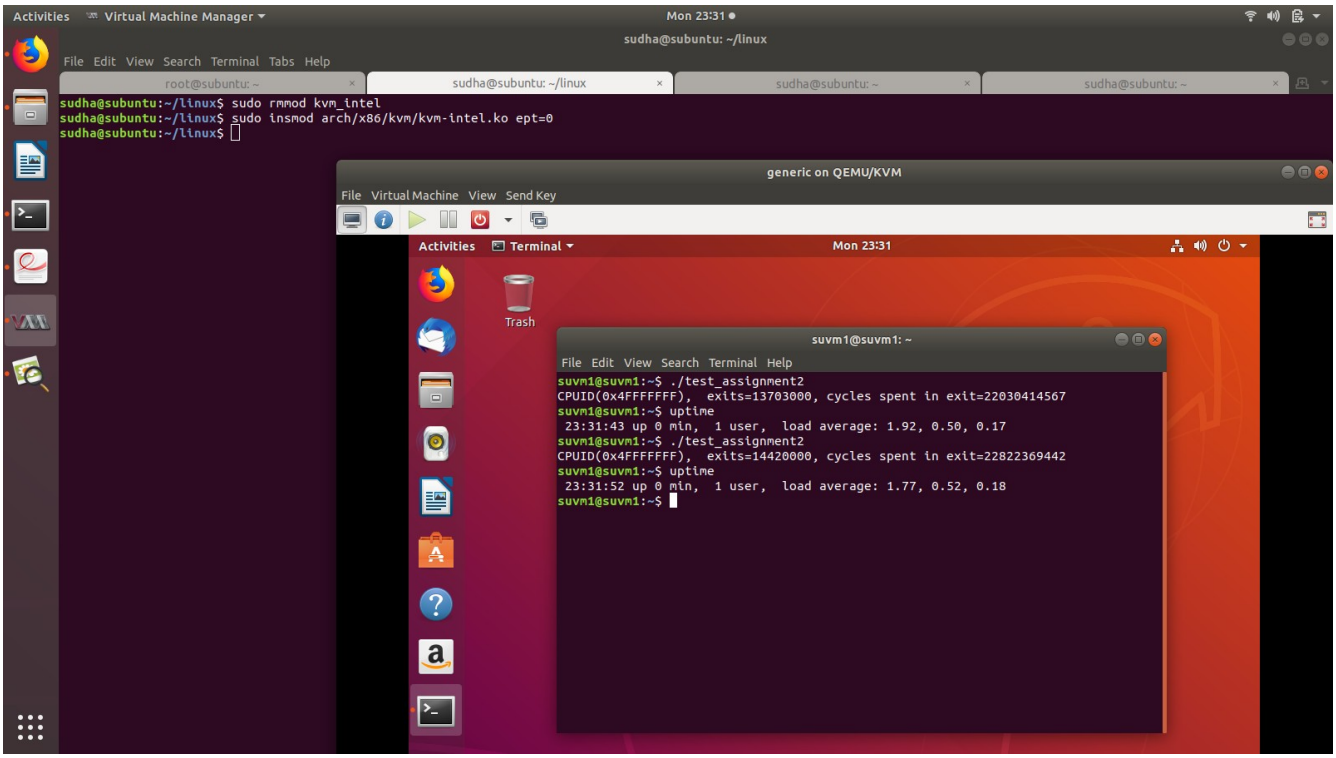
suvm1@suvm1:~$ uptime
 23:28:24 up 0 min, 1 user, load average: 1.21, 0.28, 0.09
suvm1@suvm1:~$ ./test_assignment2
CPUID(0x4FFFFFFF), exits=19140000, cycles spent in exit=9225404536
suvm1@suvm1:~$ uptime
 23:28:35 up 0 min, 1 user, load average: 1.10, 0.28, 0.10
suvm1@suvm1:~$

CASE 2: WITHOUT EPT

Case 2: Commands issued on the host VM (sudo insmod arch/x86/kvm/kvm-intel.ko ept=0)

sudha@subuntu:~/linux$
sudha@subuntu:~/linux$ sudo rmmod kvm_intel
sudha@subuntu:~/linux$ sudo insmod arch/x86/kvm/kvm-intel.ko ept=0
sudha@subuntu:~/linux$

Screen shot of Host VM and Guest VM



Case 2: Guest VM Output (sudo insmod arch/x86/kvm/kvm-intel.ko ept=0):

suvm1@suvm1:~$ ./test_assignment2
CPUID(0x4FFFFFFF), exits=13703000, cycles spent in exit=22030414567
suvm1@suvm1:~$ uptime

```
 23:31:43 up 0 min,  1 user,  load average: 1.92, 0.50, 0.17
suvm1@suvm1:~$ ./test_assignment2
CPUID(0x4FFFFFFF),  exits=14420000, cycles spent in exit=22822369442
suvm1@suvm1:~$ uptime
 23:31:52 up 0 min,  1 user,  load average: 1.77, 0.52, 0.18
suvm1@suvm1:~$
```

What did you learn from the count of exits? Was the count what you expected? If not, why not? What changed between the two runs (ept vs no-ept)

Here are the conclusions from the two tests.

From the tests :
1a. The number of exits with EPT = 19140000
1b. The number of cycles spent in exit with EPT= 9225404536
2a. The number of exits without EPT = exits=13703000
2b. The number of cycles spent in exit without EPT= 22822369442

The exits spent with EPT are more compared to the exits spent in ept=0.

So The VM will have considerably less cpu exits with ept=0 compared to ept=1