

PV(Paravirtualized) ? FV(Fully Virtualized) ????????????????

- **PV(Paravirtualized) ???**

????? virt-manager / virt-install ??? /etc/xen ?????? Virtual Macine ??? ?????????????? virtual Machine ?????????????? ?????????????? virtual Machine ??? RHEL4,??? /etc/xen ?????????? rhel4.????????? ?????????????? virt-manager ??????. ?? Virtual Machine : RHEL4 ,????????? /etc/xen/RHEL4

```
[root@benjr ~]# vi /etc/xen/rhel4
name = "rhel4"
uuid = "cf67710d-b756-086b-8cde-be61d2faca1b"
maxmem = 512
memory = 512
vcpus = 1
bootloader = "/usr/bin/pygrub"
on_poweroff = "destroy"
on_reboot = "restart"
on_crash = "restart"
vfb = [ "type=vnc,vncunused=1,keymap=en-us" ]
disk = [ "phy:/dev/sda5,xvda,w", "phy:/dev/sda6,xvdb,w" ]
vif = [ "mac=00:16:3e:27:95:c0,bridge=xenbr0" ]
```

- ? **name**  
??? virtual Machine ???,????????? virtual Machine ??????????. ??????????.
- ? **uuid**  
?????????(Universally Unique Identifier,UUID),????????????? uuid ?????? virtual Machine.
- ? **maxmem**  
????????????????? virtual Machine ??????????,??? virtual Machine ??????.
- ? **memory**  
?? virtual Machine ??????????????.
- ? **vcpus**  
? virtual Machine ?????? CPU ??.
- ? **bootloader**  
??? VMware ??????,?? Xen ????? virtual machine ,VMware ?????????? BIOS ?????? bootloader , Xen ????? Paravirtualized ???, ?? virtual Machine ?????? GRUB ?? Bootloader , ?? Xen - Paravirtualized ??? PyGrub ????? Virtual Machine ? Boot loader(??? GRUB),  
PyGrub ?????? DomU ?? bootloader ?????????? kernel ?????????? kernel ??????????????. ??????????  
??? PyGrub(Bootloader) ????? Kernel ??????
- ??? PyGrub ??????????????. disk = [ "phy:/dev/sda5,xvda,w", "phy:/dev/sda6,xvdb,w" ] ??  
/boot ? partition ??????????. ?????????????? bootloader ??????????????.

Error: Boot loader didn't return any data

pygrub ?????? PXEBoot ???.

? **on\_poweroff/reboot/crash**

???? poweroff/reboot/crash VM ????????,??? poweroff ?? destory ????? poweroff ??? VM ?  
????????????????,? reboot/crash ??? VM ?????.

? **vfb**

Xen ??? virtual Machine ??? VNC ?????,???? vfb(virtual framebuffer device) ?????????????  
Keyboard/Mouse.

? **disk**

??? virtual Machine ?????????????????,????? partition ??? image ??? ????????????? image .  
????????:

"phy:/dev/sda5,xvda,w"

phy:/dev/sda5 - Dom0 ?????????,???? image ???.

xvda - DomU ?????????,??? cdrom ??????(hda:cdrom ).

w - writable(?????????)

??? (CD / DVD) ?????????:

"phy:/dev/hda,hda:cdrom,r".

r - readable(??CDROM/DVD ??)

? **vif**

virtual Machine ??????.vif = [ "mac=00:16:3e:27:95:c0 ,bridge=xenbr0" ] ?????????????????  
??????.? RHEL5 Xen ?????????? bridge,????? QEMU ?????? virbr0,????? Xen ????? xenbr0,??  
? Virtual machine ?????????????????.

1.Virtual network - virbr0

vif =[ bridge=virbr0 ]

??

2.Shared physical device - xenbr0

vif =[ bridge=xenbr0 ]

• **FV(Fully Virtualized) ???**

FV(Fully Virtualized) ?????? virtual machine ????????? PV(Paravirtualized) ?,??????????????.

```
[root@benjr ~]# vi /etc/xen/FV_RHEL4
name = "FV_RHEL4"
uuid = "55fb6839-faad-3578-cc2d-93f753fe8a97"
maxmem = 512
memory = 512
vcpus = 1
builder = "hvm"
kernel = "/usr/lib/xen/boot/hvmloder"
boot = "c"
```

```

pae = 1
acpi = 1
apic = 1
localtime = 0
on_poweroff = "destroy"
on_reboot = "restart"
on_crash = "restart"
device_model = "/usr/lib64/xen/bin/qemu-dm"
sdl = 0
vnc = 1
vncunused = 1
keymap = "en-us"
disk = [ "phy:/dev/sda3,hda,w", ",hdc:cdrom,r" ]
vif = [ "mac=00:16:3e:6e:61:7f,bridge=xenbr0" ]
serial = "pty"

```

? **builder**

?? virtual machine ??????????.??? HVM (hardware virtual machine) ????? XEN full virtualization(Hardware-assisted virtualization) ??????,??? CPU ??? Intel ?? VT(Virtualization Technology) ?? AMD ? V Pacifica.

? **kernel**

???? XEN full virtualization(Hardware-assisted virtualization) ?????? hvmloder(/usr/lib/xen/boot/hvmloder) ? virtual machine ???.

? **boot**

?????,???????? windows ,virtual machine ? Linux ??? (Default='c';Value='a|b|c|d')

? **pae**

Physical Address Extension (PAE) ? 32bit ? virtual machine ??? 4GB ????? (default=1; Value='PAE')

? **acpi**

Advanced Configuration and Power Interface (ACPI) ????? (default=1; Value='ACPI')

? **apic**

Advanced Programmable Interrupt Controller (APIC) ??? IRQ ??? (default=1; Value='APIC')

? **localtime**

??? RTC(real-time clock) ????? (Default=0; Value='no|yes')

? **device\_model**

????? QEMU ?????,QEMU ????????????? CPU ??????. /usr/lib64/xen/bin/qemu-dm ?????

? **sdl**

Simple DirectMedia Layer(SDL) ?????????????,?????,???? ?? , ??? , ??????. (Default=None)

? **vnc**

Virtual Network Computing(vnc) ????????? (Default=None) ????? 127.0.0.1 port N+5900 ??? N ??? virtual machine ? domain id ???.

**? vncunused**

????? vnc ?????????? vncunused=1 ?,????????????? 5900 ?????? port ?? VNC ??. (Default=1)

**? keymap**

????????????????,????????? US keymap.

**? serial**

?????? serial console ?????? pty(Pseudo Tty) ?? vc(Virtual console)

???????????? Xen ??????. <http://www.xen.org/files/Support/XenConfigurationDetails.pdf>

- **????(Auto booting) Virtual Machine**

???? RHEL5 ?? Dom0 ???,virtual machine ??????,???????????????? virtual machine ?????? virtual machine ????

??? /etc/xen/auto ?????????:

?????? Guest OS ? rhel4 / rhel5

???????????? rhel4 / rhel5 ??????.

```
[root@benjr ~]# cd /etc/xen
[root@benjr ~]# chkconfig xend on
[root@benjr xen]# ln rhel4 auto/
[root@benjr xen]# ln rhel5 auto/
```

- **virtual machine image files (? Selinux ???,????????????????,??? virtual machine images ??????????)**

/var/lib/xen/images

- **Log file( RHEL5 ????????????????? Xen + Qemu ? log ??????)**

/var/log/xen/xend.log

/var/log/xen/qemu-dm.log

- **proc ????????**

/proc/xen/capabilities

/proc/xen/balloon ?????

/proc/xen/xenbus/