

??? 13, 2009 ??? sunchiahome

?? wiki ?? KVM ???.

http://en.wikipedia.org/wiki/Kernel-based_Virtual_Machine

Kernel-based Virtual Machine (KVM) ? Linux ??????????,?? KVM ?? native virtualization ??? native virtualization (????? hardware-assisted virtualization) ?? CPU ??????????Intel ?? VT(Virtualization Technology) ?? AMD ? V Pacifica.? Linux ??? CPU ??????? module ??? KVM (INTEL: kvm-intel.ko AMD: kvm-amd.ko).? RHEL5 update4 ?????? /proc/cpuinfo ? flag ??????? CPU ?? ,? script ????? /etc/sysconfig/modules/kvm.modules

?? paravirtualization ???,????????? Linux ? Windows ? Paravirtual network ??????,?? balloon (????????? VMM - virtual memory manager) ??? Linux Guest ? CPU ?????.

?? KVM ????? i386 / x86_64 ? CPU ???,?? s390,[3] PowerPC,[4] and IA64 ??????.Linux ?????? Linux 2.6.20 (February 2007) ????? KVM ?????.? Linux ??? FreeBSD ??? KVM ? Kernel module ?????.

???? Guest OS ?????????????????,?????????????????.?? Linux, BSD, Solaris, Windows, Haiku, ReactOS ? AROS Research Operating System? Mac OS X ??????? KVM ???,?? KVM ?????? Guest OS ??? http://www.linux-kvm.org/page/Guest_Support_Status

???? KVM ?????????????,???? QEMU ????????????? GNU ???.

KVM kernel module: GPL v2

KVM user module: LGPL v2

QEMU virtual CPU core library (libqemu.a) ? QEMU PC system emulator: LGPL

Linux user mode QEMU emulator: GPL

BIOS files (bios.bin, vgabios.bin and vgabios-cirrus.bin): LGPL v2 or later

KVM ??????? Qumranet ??? Avi Kivity ?????,????????? Red Hat ??????? RHEL ?????? KVM ??.

?????????? KVM ?? Linux ??????,?????????? VMM(Virtual machine monitor) ?????? Guest ???,??????????,? Linux ? Kernel ?????? Root mode ?????? KVM ?????.

KVM ?????? <http://www.linuxinsight.com/finally-user-friendly-virtualization-for-linux.html>

????????????????? Paravirtualization ?????? Guest OS ??????????,?? Paravirtualization ??????? Windows ???,?? ????? Full Virtualization ?????????????????,????? Guest OS ?????,?????? CPU ?????? Intel (VT) and AMD (AMD-V) ,?? CPU ?????? Paravirtualization ?????????????.

??? KVM ??????,????????? CPU ?????? Full Virtualization ? Guest OS.??????? KVM ????? Linux ???
 VMM(Virtual Machine Monitor) ,????? Linux ????? KVM ??? Linux ????? VMM ,????????????????????????????? KVM ?
 ? Guest OS ?? Linux ?????????? Process(?).

??? Linux ?????????? Kernel mode(supervisor mode) ? user mode ??????:

Linux ???(?????????????)???? Kernel mode(supervisor mode) ??????????(Applications) ????? user mode.???????
 (Applications)????????????? system call ? kernel ?????.? Kernel ?????????????????????????????? CPU - Ring ???
<http://benjr.tw/?q=node/216>

??? Intel (VT) and AMD (AMD-V) ???,Linux ???(?? VMM)??? KVM ???,?????????????????,?? KVM ?????? Xen ?
 Full virtualization ??,????? Kernel ? User ?????????? Guest mode ??(??????? Guest OS ?????Kernel ? User ??),???
 Virtual Machine ? Linux ?????????? Process(?).

KVM ??????????(components)???:

- 1.Kernel Device Driver(managing the virtualization hardware) - ???????? Virtual Machine ???
- 2.User space process - qemu ??? PC ?????,?? KVM ?????????? kqemu