

??? 13, 2009 ??? sunchiahome

? KVM(Kernel-based Virtual Machine) ???????? QEMU ??? QEMU ??? KVM ????? QEMU ??????????.

• QEMU

????? QEMU ???????? QEMU ??????. <http://www.nongnu.org/qemu/about.html> QEMU ?? Open source ??????????????,????????? 1. ? machine emulator 2. ? virtualizer ?????????!

? **machine emulator (User mode emulation)**

? QEMU ?? machine emulator ???????????????? OSes ??? Programes ??? ARM (?????????????????) ?) ??????????????????,?????????.????????? dynamic translation(JIT : just-in-time compilation http://en.wikipedia.org/wiki/Just-in-time_compilation).?????????????.

? **virtualizer(System mode)**

? QEMU ?? virtulizer ?, QEMU ?????????????????? PC ,??? CPU ??????????,?????????,QEMU ???????? ?????? ,? x86, AMD64, ARM, Alpha, ETRAX CRIS, MIPS, MicroBlaze ? SPARC.????????? QEMU ? virtualizer ?? x86 x86_64 ? Power PC ???????? QEMU ?????? <http://www.nongnu.org/qemu/status.html> ?????????????????????? Linux, Solaris, Microsoft Windows, DOS, ?? BSD.????????????? ?? Host ??????????????(application),?????????,??? Linux kernel ?????????????????? KQEMU.

????? QEMU ?????????????????????? KVM ? QEMU ???????????.

• KVM & QEMU

??????? KVM ? QEMU ?????????????,????????????????? Linux ??????????????(components).??????? KVM ?????? FAQ ?????? . ?????????????????????? KVM ? QEMU ???

http://www.linux-kvm.org/page/FAQ#What_is_the_difference_between_KVM_and...

Q:What is the difference between KVM and QEMU?

A:QEMU uses emulation; KVM uses processor extensions (HVM) for virtualization.

?? KVM ?????????? HVM (hardware-assisted virtualization),??? KVM ?? VMM(Hypervisor) ???,??????? ?????? QEMU.

QEMU ? FAQ

<http://qemu-buch.de/cgi-bin/moin.cgi/FrequentlyAskedQuestions>

Q:Can QEMU use hardware virtualization extensions - Intel's VT or AMD's SVM?

A:At present, no. A separate project named Kernel Virtual Machine currently uses a modified QEMU to provide this ability for Intel's VT and AMD's SVM technologies.

?????????.KVM ?????????? VMM (hypervisor) ??????????.????????????? QEMU,?? QEMU ??? user space ?????????? /dev/kvm ?? kernel ??????

• **KQEMU**

? KQEMU ?????

? Linux KVM ?????? QEMU ?????????? KQEMU(?????? FreeBSD ? Windows ?????).??? QEMU ??? Fabrice Bellard ?? x86 ??????????,????????????????????????????????? QEMU ??? KQEMU ?? QEMU Accelerator.????????? ? x86 ??????????????????????

????????? KVM + KQEMU ?????????? Intel (VT) ?? AMD (AMD-V) ???????.

• **Guest Mode**

????????????? 3 ?,????? Kernel , User mode ?????? Guest Mode.??????????????????.

? **Guest Model**????? Guest OS ? Memory & CPU ? I/O ??.

? **User Model**??? KQEMU ??????,User mode ?? Guest OS ? Storage ? Network I/O ??.

? **Kernel Model**????? Guest Model ??? Storage ? Network I/O ??????.

note: kernel space ? user psace ?????????? virtual memeory(?????????) ?????,??? kernel space ? user psace.???? ? kernel space ????? kernel, kernel extensions, ?? device drivers.????????????????????????????? user space ?????????? ??? (applications) ??? ??