



Virtualisation update

for Hants LUG

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Presentation released under GPL v2

Agenda



- status last year
- VMware
- KQemu
- hardware support
- Xen HVM
- KVM
- Virtualbox

Status last year



- VMware (commercial)
- Xen (hypervisor)
- Qemu
 - slow by itself (4-10x penalty)
 - Kqemu speedup (commercial)
 - qvm86 speedup (free, but unreliable)

Vmware



- launched free “player” to play pre-created images Dec 2005
 - allows vendors to ship pre-build “appliances”
- launched free “server” Feb 2006
 - based on VMware GSX
 - not open source
 - requires kernel modules
 - but easy to use that aside
 - also available for Windows host operating systems

kqemu is free!

- on 5th Feb 2007, Fabrice Bellard announced that kqemu was being released under the GPL
- so you can now get acceleration for qemu for free
- basically any code which can run natively (rather than being emulated) now is
- so instead of a 4-10x slowdown, most apps should run more less at native speed

Hardware support



- new x86 processors now have virtualisation extensions
- most new Intel processors (starting 2005)
 - VT-x (Vanderpool)
- most new AMD processors
 - AMD-v (Pacifica)
 - “stepping F models onwards”
- some PC manufacturers turn it off in BIOS
 - and don't let you turn it on!

Xen HVM

- traditional Xen uses modified guest OS images
 - aka “paravirtualisation”
 - this is now known as “SVM” (software VM)
- Xen can use x86 virtualisation extensions
 - this is known as “HVM”
 - guest no longer needs to be modified
 - some restrictions compared with SVM (since the guest isn't trying to play nicely)
- still not integrated into the official kernels!
 - (TODO: I think it might have gone into -mm)

KVM

- KVM (Kernel Virtual Machine)
 - not Keyboard Video Mouse!
- very small “driver” for Linux which exports hardware virtualisation support
- using a patched qemu to frontend
 - code runs at native speed (all code – no emulation at all (cf kqemu))
- accepted into kernel very quickly
- many speedups occurring
 - even with H/W virtualisation the “host” OS still needs to get involved from time to time

KVM with paravirtualisation

- context switch times (in μs , lower is better)
 - Native 1.11
 - Qemu 61.18
 - KVM upstream 53.01 19th Oct?
 - KVM trunk 6.36 5th Jan
 - KVM trunk+paravirt. 1.60 5th Jan

Virtualbox



- new kid on the block (Jan 2007)
- qemu with their own version of kqemu
- nice, user friendly front end
- probably recommended one to choose ATM