Parallels Workstation, and other

Virtualization Technologies

From nirvana to congruence and back again

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For those who do not know me...

- I started attending PLUG in mid 2006
- Part webbie, part sysadmin, part network admin

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“Vurtua-who?”

Some things we will touch upon:

- Semantics, suites and services
- Purposes for virtualization
- Strengths and weaknesses
- Proprietary no- and low-cost vs. Free solutions
- End-user perspective
- Virtual Hosting solutions

Let's get to it!

Part One:

General ideas and conceptions

Now, now, what's all this ruckus?

- Good reason for a ruckus
- Big money backing this kind of technology
- Taking one physical machine and delegating its resources to many instances of segregated operating systems.
- System, not application virtual machines (If you thought I was going to talk about JVM then you're silly!)

You might have heard of these...

- VMware Player/Server/Workstation, Parallels,
- KVM/QEMU
- Xen, Vserver, UML

For progammers...

- “Throwaway” machines
  - Safer surfing for the desktop user
  - Rapid testing for the developer
- Never dual-boot again
  - Put that “other OS” in a VM and liberate a machine!

For you sysadmin types...

- Server consolidation
  - Eight 2U servers, dual PIII processors, 2GB of RAM
    - Inefficient usage of the already limited CPU clock speed
    - Changing memory is unheard of (20+ mins of downtime?)
  - One 4U server with dual quads and 16GB RAM
    - Slice it up eight ways, have the same amount of RAM and share CPU time – very efficient
    - Changing memory capacity is much easier (reboot)
- Gateways, firewalls and routers

Virtualization downsides

- Very few people understand virtualization.
  - Some say they do, but most do not.
- One failed machine *could* take out a lot.
  - If DNS, Web and Mail are served separately and one machine goes down then you still have the other two.
  - If everything is served from virtual machines on the same physical machine, and the machine explodes... there are still things to live for, right?

CPU Virtualization Extensions

- Only available on certain cutting/bleeding-edge processors (AMD and Intel)
- Needs to be enabled in the BIOS
- Gives a bit of a performance boost
  - KVM vs. QEMU
  - Parallels/VMware is faster when using it
- Allows guest OS's to run unmodified on certain suites

Any questions so far?

Part Two: Specifics and Intricacies

Parallels Workstation 2.0 for Linux

- “Thanks for the key, but this is just not for me...”
- Installation was super swift, painless and simple
- It was not very stable on my machine
- No snapshotting on Workstation
  - Only on Parallels Desktop, available for OS X.
- Version 2.2 came out since (it might be better!)

VMware Player/Server/Workstation

- Typically “just works” (after you get it to install)
  - “any-any” patch is troublesome, unsupported
  - new kernels won't work w/VMware without any-any
- Kernel upgrades require re-compiling modules
  - PITA, but typical when using proprietary solutions
- VMware Workstation has more features

KVM and QEMU

- Desktop or Server Virtualization
- KVM module vs kqemu vs no module
- Easy to install...
- In nearly every Linux distro's repositories

Xen

- Debian installation is simple
- Configuration is a lot different
- Not your typical virtualization suite
- Migration – yes, there are still things to live for!
- Requires OS Modification unless using hardware virtualization

UML

- A modification of the Linux kernel
- Runs in userspace
- Very slow
- Very good for “server stuff”

Vserver

- Think: “an extremely sophisticated chroot”
- Everything above the kernel is virtualized
- Shares the same kernel with the host OS
- Native CPU executions (great performance)
- Virtual machine must be Linux
- Distro-independent (to an extent)
- Similar to Solaris zones, FreeBSD jails

Part three: virtual hosting!

No slides for this, just wanted to mention it...

Rules for questions:

- Gotta ask something about the presentation.
- first six intelligent questions will get a prize
- prizes are safe for work
- no fighting please
- please?
- Go ahead and ask away!

Thanks!

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