

Virtualization with ~~Sun~~ Oracle VirtualBox

- Our standard choice for desktop virtualization
- Excellent feature set for:
 - running multiple virtual OSes concurrently
 - cross-platform support (Ubuntu, Windows, Mac OSX)
 - cross-vendor support (VMWare, Windows)
 - exploiting underlying hardware (sound, USB, video)
 - virtual networking

Where to get it

- Ubuntu:
 - do *not* use the "built-in" Sun packages
 - add the "partner" repository:
 - `http://archive.canonical.com/ubuntu <distro> partner`
 - eg:
`http://archive.canonical.com/ubuntu jaunty partner`
 - Package-name: `virtualbox-3.2`
 - Version: `3.2.10-66532~Ubuntu~jaunty`

Where to get it

- Windows:
 - <http://www.virtualbox.org/>
 - VirtualBox 3.2.10 for Windows hosts (x86/amd64)
 - <http://download.virtualbox.org/virtualbox/3.2.10>
 - run the installer

Demo

- VirtualBox GUI, VboxManage command
- Single-screen Windows XP 32-bit, Ubuntu 10.04-1 64-bit
- Dual-screen Win7 64-bit
- VM sizes:
 - WinXP: 2GB, 64MB video, 1CPU
 - Ubuntu: 2GB, 64MB video, 1CPU
 - Win7, 3GB, 128MB video, 2CPU

Demo

- Important features:
 - "guest additions" for keyboard & mouse capture, video enhancements
 - "seamless mode" video
 - full-screen vs windowed, minimized full-screen
 - shared folders with host OS
 - ISO image libraries
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Networking

- Supports up to four virtual NICs
- Four modes for virtual NICs:
 - NAT with port forwarding
 - bridged to host NIC
 - internal: connects to virtual switch, not visible to host
 - host-only: virtual switch plus host pseudo-interface (eg host gateway to VMs)
- built-in DHCP server for private virtual nets

Networking

- Remote desktop (vRDP) for Windows and Ubuntu on port 3389
- Not "real" RDP – some sort of bridge?
- Raises question about NAT vs bridged networking & IP space consumption

VM export/import & disk cloning

- GUI supports VM export and import
 - Windows sysprep
- Cannot simply copy files to clone a disk – disk images contain a unique UUID
 - use: `VboxManage clonehd`
- Use GUI "storage manager" to manipulate disk images (or a hideously complex set of commands: `openmedium`, `closemedium`, `storageattach`, `storagectl`, `showhdinfo`, `createhd`, `modifyhd`, `addscsidisk`, `convertfr...`)

Future work

- Determine the absolutely skinniest host platforms
- Build standard installations and create export images, create library
- Test under Mac OSX
- Develop techniques for disk migration
 - between dissimilar VMs
 - between geographically separate VM clones
- Backup strategies