

Mass roll out of Linux with Windows as a VM Guest

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The old setup

- Over 260 machines in labs and offices
- Used Fedora Linux and Windows 7 – dual boot
- All Linux authentication and account information came from LDAP

Why change anything?

- Dual booting is just a pain
- Both Linux and Windows got behind on updates
- Fedora release schedule and life cycle awkward
- Fedora seemed to be too bleeding edge

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This could be better...

What to do? Virtualise!

Methods considered:

- Run a barebones Linux as hypervisor, with another Linux and Windows as guest VMs
- Use Windows as the host OS with Linux as the guest VM – yeah right
- Use Linux as the host OS with Windows as the guest VM – using Linux Mint LTS and VirtualBox

Some preliminary stuff

- A flat file database contains machine info: hostname, MAC, VM hostname, VM MAC, Organisational Unit in AD
- VM hostnames are based on host OS hostname
- VM MAC address comes from a precreated pool of 10,000 addresses
- Machine entries created with a Python program

The Linux side of it

- Linux Mint installs from a USB memory stick. Some changes to the ISO made with modified UCK
- When installing, a machine looks up the active NIC's MAC address in the database to get intended hostname
- Post install script configures mail, SSH, auto mounter, adds machine to AD with SSSD, NVIDIA driver, PolicyKit and a truck load of other stuff

Creating the Windows guest

- Create a VM with network bridging, install Windows and VirtualBox guest tools
- Add it to a domain, install all updates
- Install SCCM client
- Disjoin domain and reboot
- Copy unattend.xml, various PowerShell and Command scripts in place
- Run Sysprep utility
- Export as an OVA

Importing the VM on machines

- A special user is made
- The sysprepped Windows 7 is copied down and imported into VirtualBox
- Various settings in VirtualBox get set, extension pack is imported, VM MAC address set
- Cron entries for night time are made
- udev rule for USB access from Linux and Windows is made

In the wee small hours...

- Cron starts the Windows VM using VirtualBox's headless mode
- First use in Windows initialises OS, then PowerShell scripts fetches the hostname, rename the guest and adds it to AD
- SCCM and Group Policy does the rest
- Graceful shutdown at 5am

The Result?

- Students often don't bother with Windows and just use what's in front of them
- Exceptions are MS Office and XBox camera SDK
- Feedback from staff and students has been very positive

Questions?