

Wake-On-LAN - a case study

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The Department

- ❖ The Department of Statistics is a medium sized department with a very diverse user base. Many of our students, researchers and academic staff need access to fast processors, often for analysing very large datasets such as genetic data. We also support teaching for undergraduate and postgraduate courses.
- ❖ We are geographically split across four separate buildings along South Parks Rd
- ❖ We have around 200 desktop computers running Windows XP, Fedora 12 and Mac OS X. The Mac desktops were not included in this phase of the WOL project as they are not on our main subnet.
- ❖ In addition to normal office tasks the desktops are often used for running lengthy, computationally intensive jobs.

Why were the desktops on?

- ❖ The yum update daemon that installed the Linux desktop updates was set to download and install within a 24 hour period.
- ❖ Leaving the machines on overnight was imperative to ensure that the updates were not missed and increased the chances that the updates would install when the machine was not in use.
- ❖ Windows updates were pushed from WSUS (Windows Server Update Services) and left to deploy when possible i.e. machine on but not logged in.
- ❖ To allow remote access for Linux users.
- ❖ To run TSM/HFS backups once a week.

Implementation steps

- ❖ First, we built our WOL server.
- ❖ We configured our firewall to allow the central server to send 'magic packets'.
- ❖ We changed/checked the BIOS of every desktop to allow WOL.
- ❖ We changed/checked the network card settings in the Windows and Linux desktops.
- ❖ We added these steps to our procedures for new builds.

Changes to Windows updating

When updates are available we edit the schedules of the WOL groups that contain Windows machines to wake in the early hours of the morning.

We set a deadline for the updates in WSUS. If the user does not log out within this period then the WUAgent will force the installation.

The next day we reset the wake-up times.

Set a group wakeup schedule

Unit : Statistics Group Name : Windows8am Gro

You can set a time and day(s) that all the machines in this group will wake up on one day.

Please note that wakeup times set here are independent of the system's current time. To turn off scheduled wakeups for this group, set the time to 00:00.

Wakeup time : 01:00

Wakeup days : Monday
 Tuesday
 Wednesday
 Thursday
 Friday
 Saturday
 Sunday

Submit

Cancel

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Linux changes

- ❖ In addition to the existing 'yum update' checks...
- ❖ We installed and configured yum-updateonboot on all our Linux desktops.
- ❖ This updates the machine whenever it is turned on meaning that security patches are automatically applied before the system is used.
- ❖ All Linux desktops are set to wake up at least once a week to make sure that none fall too far behind.

Technical problems

- ❖ /var partitions in Linux can become full if there are a lot of large updates to install.
- ❖ Slow start-up for Linux users. Power-cycling the machine during the patching process can cause further problems.
- ❖ Inconvenience for Windows users who are interrupted or find their computers have restarted while a job was running.
- ❖ Time-consuming to administer.

Human problems

- ❖ Low level of recognition of Wake-On-LAN technology.
- ❖ Few users have taken up the option of registering their barcode details with us to turn on their machines.
- ❖ Machines are often unplugged or disconnected from the network (especially if turned off) causing WOL and thus the HFS backups to fail.
- ❖ Users rarely turn their machines off. Old habits are hard to break.

The way forward...

- ❖ Better recognition and understanding of the technology. Maybe wider adoption and more media coverage will make WOL better known.
- ❖ More user education. Cooperation from the users is essential for success.
- ❖ We may begin automatically shutting down machines when no user is logged in.
- ❖ We may extend WOL to our compute servers so that they can be turned on only when needed.