

Green IT in Maths

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Assessment of our needs for Green IT

- Cross platform solution mainly for Linux and Windows managed desktops (~ 450)

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- Automated solution with little or no maintenance
- Integration with our asset management

Choosing a policy and a solution

Our Green IT policy

- Monday - Friday, between 8am and 6pm: The machines will remain on, and in particular, if the machine is off it will come on automatically
- Monday - Friday, between 6pm and 8am: If the machine is not in use then the machine will turn itself off unless a TSM backup is scheduled in which case it will stay on until the backup is finished
- Saturday and Sunday: If the machine is not in use then the machine will turn itself off

Possible solutions

- OUCS power management monitoring and WOL facilities

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- Non-free product (eg PowerMan)

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- Some configuration management system

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- Activate WOL via `ethtool -s eth0 wol g` (we run it in `/etc/network/if-up.d/` and `/etc/network/if-down.d/`)

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- Activate WOL via `ethtool -s eth0 wol g` (we run it in `/etc/network/if-up.d/` and `/etc/network/if-down.d/`)
- Crontab on the desktops:

Crontab entries

- `*/10 18-23,0-7 * * 1-5 <command>`
- `*/10 0-23 * * 6-7 <command>`

Linux - 5 Check Scripts

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- `logged-shutdown`

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- Uses slightly modified Powerdown scripts from Liverpool, which in turn use PsLogon0n and PsShutdown from Sysinternals
- Pushed a Scheduled Task to all Windows Desktops via Active Directory (can be tricky)

Wake Ups

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- Allow authenticated users to wake any machine out of hours via a shell script or our website

Monitoring

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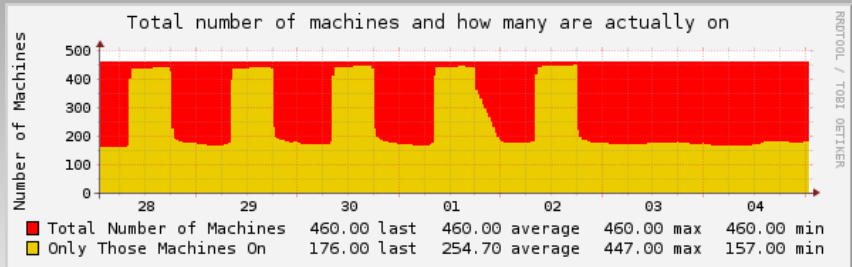
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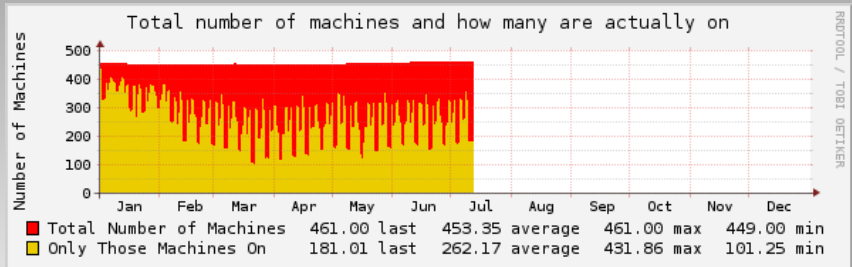
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- Use pnp4nagios to convert this data to plots

Results



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- We are currently saving **23%** of electricity as compared to the same months last year

Further Information

<http://www.maths.ox.ac.uk/notices/it/green-it>