Intro to Linux Administration

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So what in the motherfuck is this linux stuff anyway?

GNU/Linux is an operating system created to provide and extend the functionality of the grand-daddy of operating systems, UNIX.

It is one of many UNIX-like operating systems out in the wild, and very widely used in industry, knowledge of GNU/Linux and GNU/Linux Systems administration is desired in many computing jobs.

It is made up of the Linux kernel and GNU userland, hence GNU/Linux.

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Eh, and Administration?

System administrator - A person employed or enslaved to maintain and operate a computer system and/or network.

A real life Sys Admin

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Combined...

In this talk we will cover the basics of

- Shells and useful commands
- The FHS
- Error resolving
- Task Automation

Your shell.

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What is a shell?

A shell provides a user interface to the operating system

- vadimck@azazel:~$
- bash, zsh, tcsh, ksh, csh

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Your shell is your best & most powerful friend.

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What type of things can I do from my shell?

- What can't you do from your shell.
- Useful commands:

  man - man is your second most best friend
  cd
  ls
  mv
  cat
  rm
  echo
  touch
  cp
  awk
  w

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What type of things can I do from my shell?

- More useful commands:
  - grep
  - find
  - lsof
- So, we have this list of commands. How do I figure out what they do?

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FHS

Filesystem Hierarchy Standard

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FHS? Isn't that a lads mag?

- The FHS is the filesystem hierarchy standard
- It defines how a file system should be laid out and what goes where in UNIX-like operating systems
- Can't be sticking things where they don't belong, like

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So what does it look like?

It all starts at the root "/". Everything is laid out relative to this.

- /bin - Essential system binaries
- /boot - Boot files, your bootloader, kernel, initrd etc.
- /dev - Devices directory
- /etc - This is where you configuration files live
- /home - Users home directories
- /lib - Essential libraries for binaries in /bin and /sbin
- /opt - Optional package data
- /proc - A special pseudo file system showing you current kernel configuration and process information
- /root - Home directory of the root user
- /sbin - Essential superuser binaries
- /tmp - Temporary files, not preserved between reboots
- /usr - Secondary hierarchy. Most non-essential binaries live here
- /var - Variable files

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Error: Resolving

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HALP!! Everything is breaking...

- Logs to the rescue!
  - Logs are stored in /var/log/ - in many cases each service has its own subdirectory
- Okay, I'm looking at the right log file, but what am I looking for?
  - Error messages
  - Keywords such as "error, warning, critical"
  - Read from the last line upwards (logs are in chronological order)
  - Check timestamps (many services prefix the line with the time of the error)
- Google is your friend, and a friend that'll let you take credit for his hard work.

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No, really. Shit has seriously hit the fan... wtf do I do?!

- Check for hardware errors
  - Blinking lights on the server
  - High temperatures - can cause servers to reset
  - Management card health check - DRAC, ILOM, ALOM
  - Boot messages - Syslog, dmesg
  - Disk errors - fsck, RAID controller reports
- Ask someone!
  - IRC - #rbadmin, freenode, quakenet
  - Communities / Mailing lists - admin-discuss, ILUG, LinuxQuestions.org
  - Lecturers
  - Associates - Past members in the industry / past admins

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Task Automation

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Cronic Wit

- You're hilarious, but what is Cron?
  - Cron is a time based job scheduler.
  - It can be used to automated tasks which need to run at regular intervals. (Eg. Backup Job).
- How does it work?
  - A cron daemon (background process that is always running) reads crontabs from specific locations. These crontabs contain information on what tasks or scripts to run and how often.
- Are there different types of crontabs?
  - crontabs can be stored in a number of different locations and are usually used for different purposes.
    - User Crontab - /var/spool/cron/crontabs
    - System Crontab - /etc/cron.*

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Crontab Syntax

- User crontab edited by typing:
  - crontab -e
- Each line looks like this:
  - 1 0 * * * backup_script.sh
- This means
  - at the first minute,
  - of the zeroth hour (midnight),
  - of every day,
  - of every month,
  - every day of the week,
  - run backup_script.sh

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la fin ;)

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