

Hands-on course , 5
day(s)
Ref : LUX

Participants

System engineers or network managers in charge of Linux deployment in a professional environment.

Pre-requisites

The learners should have a good knowledge of basic Unix concepts and commands and being able to use a Unix/Linux system.

Next sessions

Linux Administration, Hands-on Installing, integrating and system administration

OBJECTIVES

Linux is a reliable and " recognized " operating system used by major companies. This training will bring you essential knowledge to install and manager your Linux system on a day-by-day basis. System installation and windowing environment Basic administration Disk and device administration Kernel and tuning performances of your Linux system Using Linux on a network Presentation of network services with GBU/Linux

1) System installation and window system

2) System Administration

3) Managing Disks and Devices

4) Kernel and performance tuning

5) Using Linux on a network

6) Presentation of network services with GNU/Linux

1) System installation and window system

System Installation

- Media used: CD-ROM, NFS, FTP, HTTP.
- Installation methods.
- Managing packages (rpm and apt).
- Troubleshooting installation conflicts.
- Online package update (apt-get, rpm-get, yum...).

Software distribution

- Managing updates and bug corrections.
- Compiling and installing source or binary packages.
- Using Advanced Package Tool.

X-Window

- Choosing a window manager: KDE, GNOME, XFCE.
- Configuring X11-related devices (mouse, graphical card, screen, XF86Config, xorg.conf...).
- Settings of a X11 session.
- Remote display (DISPLAY).
- Network security settings (xhost).

2) System Administration

Graphical or console mode?

- Advantages and disadvantages of tools like webmin.
- Using powerful scripts: understanding, automating, speed, disponibility.

Managing users

- User and group management commands.
- Files involved in the user account management, templates /etc/skel/*.

Backups

- Advantages and disadvantages of tools like tar, cpio and dd.
- Compression (gzip, bzip, pax, compress).
- Network backup commands: rsync, partimage and ... ssh.
- Additional tools : (amanda, arkeia...).
- Incremental backups.

Boot and shutdown

- Booting the system: boot, lilo/grub, kernel and arguments.
- Rebooting after a crash (rescue).
- Activating processes: the init process and the /etc/inittab file.
- Runlevels differences across Linux distributions.
- Startup scripts, customization.
- Managing services in the boot system.
- Connection features.
- Clean shutdown of the system.

3) Managing Disks and Devices

Linux disks

- IDE and SCSI disks.
- USB mass removable device (disks, sticks).
- Primary and extended partitions on a disk drive.
- Adding a disk: the fdisk command.
- RAID and LVM: security and scalability.
- Managing primary and secondary swap.

File Systems

- File system types: ext2/3, reiserfs, xfs, msdos/vfat.
- Considering choosing your file system.
- Mounting file systems (kernel mechanisms, options, /etc/fstab file)
- Creating a file system, checking integrity.
- Managing disk space and quotas.

Managing devices

- Managing devices and modules.
- Linux special files, mknod and the MAKEDEV tool.
- Managing modules, the insmod, modprobe, lsmod and rmmod commands.

4) Kernel and performance tuning

The Kernel

- Why building or modifying a new kernel?
- Stable/experimental revisions, patches.
- Building a new kernel.
- New features of the 2.6 kernel.

Managing performance

- Monitoring resources.
- Monitoring the system with accurate tools (top, free, vmstat).
- Network and routing performance metrics (overview of the MRTG tool).

Traces

- System audit and their use.
- Gathering data, centralization and logs rotation.
- Using logwatch.

5) Using Linux on a network

The network

- Configuring network interfaces (network, ifcfg-eth0...).
- Network client configuration: DNS, BOOTP, DHCP.
- Client configuration: gateways, DNS.

Network security

- The xinetd super-server, advantages and principles.
- Netfilter: network packet filtering.
- iptables principles and syntax (ipchains).

6) Presentation of network services with GNU/Linux

The Apache HTTP Server

- Introduction to the Apache server: web server and virtual servers.
- Architecture, modules, features, tuning.

The Samba file server

- Introduction to Samba server: sharing re.
- Linux special files, mknod and the MAKEDEV tool.
- Managing modules, the insmod, modprobe, lsmod and rmm.

Network security

- Remote connection (telnet, rlogin).
- Transferring files (ftp, rcp).
- Remote program execution (rsh).
- Remote program execution in a secure environment (ssh).
- Understanding security issues.
- Describing network terms (TCP/IP, NFS, NIS, DNS...).