

GNU/Linux, software libre para la comunidad universitaria

Administración de GNU/Linux

Pablo Cabezas Mateos

Universidad de Salamanca, 7 de noviembre de 2009



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- Conclusiones



Características de Linux

- Sistema Operativo Basado en UNIX
 - Multitud de herramientas por consola que se complementan.
 - SO muy valorado y estudiado.
- Multitarea
 - Se están realizando muchos trabajos a vez por debajo. Dificultad para saber lo que pasa.



Características de Linux (2)

- **Multiusuario**
 - Distintos usuarios con distintos permisos comparten la máquina.
- **Sistemas de Red**
 - Disponemos por defecto de distintos servicios de red para administrar.
- **Sistema de Código Abierto**
 - Disponemos su código para el estudio y modificación.



Componentes: Procesos

- Las distintas tareas que esta realizándose en la máquina se denomina procesos.
- Como administradores debemos gestionar los trabajos que realiza nuestro sistema.
- Podemos verlos y analizarlos (*ps*, *top*), darlos prioridades (*nice*), pararlos (*kill*).
- Podemos saber de quien es el trabajo, su estado actual, sus prioridad, cuanto lleva, sus recursos.



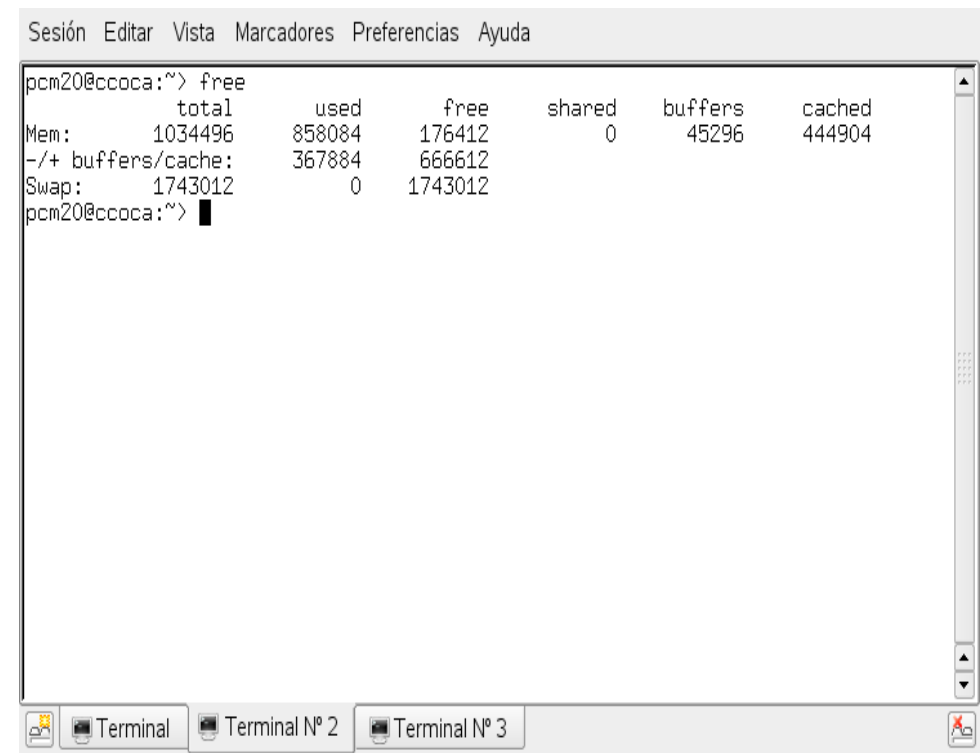
Componentes: CPU y Memoria

- Recursos principales por los que “luchan” los procesos.
- Linux soporta múltiples procesadores.
- Dispone de memoria virtual
- El administrador debe conocer la utilización que se esta haciendo de estos recursos.
 - La CPU podemos ver su utilización con *top*, *uptime*.
 - La memoria con *free*, *top*, *vmstat*.



Componentes: CPU y Memoria (2)

- Memoria Física
 - Total
 - Usada
 - Libre
 - Compartida/Buffers/Cache
- Memoria Virtual



```
Sesión Editar Vista Marcadores Preferencias Ayuda
pcm20@ccoca:~> free
              total        used        free      shared    buffers     cached
Mem:          1034496      858084      176412          0         45296      444904
-/+ buffers/cache:      367884      666612
Swap:         1743012           0      1743012
pcm20@ccoca:~> █
```

The image shows a terminal window with a menu bar at the top containing 'Sesión', 'Editar', 'Vista', 'Marcadores', 'Preferencias', and 'Ayuda'. The terminal content shows the execution of the 'free' command, which displays memory usage statistics. The output is as follows:

	total	used	free	shared	buffers	cached
Mem:	1034496	858084	176412	0	45296	444904
-/+ buffers/cache:		367884	666612			
Swap:	1743012	0	1743012			

The terminal prompt 'pcm20@ccoca:~>' is shown at the beginning and end of the output. The window title bar at the bottom shows 'Terminal', 'Terminal Nº 2', and 'Terminal Nº 3'.



Componentes: S. Ficheros

- Organización de directorios estándar FHS.
- Amplio soporte de sistema de ficheros. Capa virtual VFS.
 - Sistemas de ficheros propios de Unix
 - Transaccionales
 - Sistemas propietarios
 - Sistema de ficheros en red
 - Volúmenes Lógicos y SAN



Componentes: S. Ficheros (2)

- Cualquier sistema de fichero lo montaremos sobre el árbol de directorios, con el comando mount. Para quitarlo con umount.
- Para tener información de los sistemas tenemos los comandos df y du.
- Podemos establecer cuotas (quotaon) del sistema a los usuarios, con edquota, verlas con quotacheck.
- Dispone de premisos para ficheros unix y acl.



Componentes: Núcleo

- Componente principal de sistema, encargado de relacionar todas las partes de sistema, desde el hardware hasta las características que queremos para nuestro sistema.
- Es un núcleo monolítico con soporte para módulos creado por Linux Torvalds.
- Linux permite al administrador compilar el núcleo a partir del código fuente para obtener el máximo rendimiento y configurabilidad de su sistema.



Componentes: Gestión de Usuarios

- Nos podemos cambiar de un usuario a otro con el comando *su*.
- Los usuarios se agrupan en grupos. Para ver nuestros grupos con *id*.
- Los procesos y ficheros pertenecen a los usuarios.



Componentes: Gestión de Usuarios

(2)

- Un usuario que todo lo puede, root. Nosotros los administradores.
- El administrador puede crear usuarios (*useradd*), borrarlos (*userdel*), cambiar la clave (*passwd*).
- La lista de usuarios se encuentra en */etc/passwd*.



Componentes: Auditoría y Logs

- Todo lo que va ocurriendo en el sistema va a quedar apuntado.
- Como administradores podemos revisar que ha estado pasando en nuestro sistema.
- Los principales servicios y el núcleo dejan sus incidencias en */var/logs*.
- El registro de usuarios se puede ver con *last* y *lastlog*. Los actuales con *w*, *who* y *users*.



Componentes: Distribuciones

- Una distribución es el conjunto de aplicaciones con las que se nos presenta un sistema Linux para su instalación, actualización y correcciones del software.
- El administrador decide la distribución en instalación y puede instalar el software que desea en su máquina.
- Las distribuciones dan la posibilidad de instalar aplicaciones de administración mucho más complejas (*linuxconf*, *webmin*).



Servicios

- Los servicios son procesos que están disponibles en el sistema para la realización de tareas esenciales típicas de los sistemas.
- El administrador decide cuales son los servicios que va a disponer el sistema.
- Existen servicios para la gestión local de la máquina, ya sea del sistema operativo (*cron*, *syslog*, ...) o hardware (*apmd*, *udev*, ...)



Servicios (2)

- Pero donde ha triunfado Linux es en los Servicios de Red.
 - Servicios para conexión remota (ssh, X)
 - Servicios de Internet (email, web, ftp, news)
 - Ficheros compartidos e impresión (samba, nfs, cups)
 - SGBD (MySQL, PostgreSQL)
 - ...



Shell Script

- Para la interacción de las herramientas del sistema existe un lenguaje que el administrador debe dominar:
 - Las herramientas del sistema y aplicaciones están preparadas para su utilización en shell script.
 - La configuración del sistema y muchos servicios se realiza con shell script.
 - Principal forma de automatizar procesos.



Tareas del Administrador

- Gestión de Usuarios y Ficheros
 - Alta, baja y cambios en usuarios y grupos
 - Permisos en ficheros
 - Cuotas en ficheros
- Instalación y mantenimiento de hardware y software
- Automatización de Tareas



Tareas del Administrador (2)

- Gestión de recursos
 - CPU y Memoria
 - Dispositivos de almacenamiento, discos duros, particiones, LVM...
 - Impresoras
 - Otros recursos



Tareas del Administrador (3)

- Optimización y personalización del sistema
 - Compilación del núcleo
 - Parámetros del núcleo
- Auditoria del sistema
- Seguridad y permisos



Tareas del Administrador (4)

- Backup y Restauración
- Administración de Red
 - Dispositivos de red
 - Enrutado
 - Servicios de Red
 - Seguridad de red



Conclusiones

- La administración de Linux puede parecer compleja, extensa y profesional, pero al ser un sistema de código abierto, licencia GNU GPL y ampliamente soportado en Internet, podemos utilizarlo y administrarlo dentro de nuestros límites.



Ruegos y preguntas

Gracias por la atención



Fin



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