

Administració de sistemes GNU/ Linux

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Introducció

Els sistemes GNU/Linux han aconseguit un grau de maduresa significativa, que els fan perfectament vàlids per a integrar-los en qualsevol ambient de treball, tant a l'escriptori del PC personal, en un element de mobilitat (com tauletes o mòbils), com al servidor d'una gran organització.

L'objectiu principal que ens proposem en aquest curs és la introducció al món de l'administració dels sistemes GNU/Linux.

Aprendrem com podem proporcionar des de GNU/Linux els serveis necessaris a diferents ambients d'usuaris i màquines. El camp d'estudi de l'administració de sistemes és de dimensions molt àmplies i variat pel que fa als coneixements que són necessaris. Hi ha moltes tasques diferents per fer, amplis problemes per tractar, i hem de disposar de grans coneixements de maquinari i programari; així mateix, tampoc hi sobra una mica de psicologia per a tractar amb els usuaris finals dels sistemes.

No es pretén abordar, en aquest material, una distribució GNU/Linux particular, però se n'han escollit un parell de particularment significatives, pel seu ampli ús i la seva història, per a tractar els exemples de tasques: Debian i Fedora.

Pel que fa al camp de l'administració, s'intentarà gestionar des del nivell més baix possible, normalment des de la línia d'ordres i els fitxers de configuració dels serveis involucrats. Es comentaran, si escau, algunes eines de més alt nivell, però cal anar amb compte amb aquestes últimes, ja que solen ser fortament dependents de la distribució utilitzada i fins i tot de la versió; a més, aquestes eines solen variar funcionalitats entre versions. L'administració de baix nivell sol ser molt més dura, però coneixem amb què estem operant i on podem obtenir els resultats; a més, ens aporta molts més coneixements extra, i un control precís sobre les diferents tecnologies utilitzades.

Les distribucions escollides han estat les últimes disponibles de Debian (o compatibles, com les variants d'Ubuntu) i Fedora (o compatibles, com diferents versions comercials de Red Hat, o de comunitat com CentOS); aquestes (Debian i Fedora) són les més utilitzades en el moment de confeccionar aquests materials. La distribució Debian és un paradigma dins del moviment *open source*, perquè no pertany a cap empresa i està confeccionada bàsicament per les aportacions dels voluntaris distribuïts per tot el món. Debian, a més, integra gairebé exclusivament programari lliure (se'n poden afegir d'altres a part). A

més, un gran nombre de distribucions amb èxit important (com les variants d'Ubuntu, que de fet han superat Debian com a ús en escriptori) tenen Debian com a distribució base.

Nota

Principals distribucions i empreses comentades en el text:

<http://www.debian.org/>

<http://www.ubuntu.com/>

<http://www.canonical.com/>

<http://fedoraproject.org/>

<http://www.redhat.com/>

<http://www.centos.org/>

<http://www.novell.com/linux/>

<http://www.opensuse.org/>

Red Hat és una de les empreses més solvents en el panorama comercial GNU/Linux, i per això és potser la que atorga més suport a escala empresarial (mitjançant serveis de suport de pagament), mitjançant les seves distribucions comercials de Red Hat Enterprise Linux (també hi ha variants lliures alternatives com CentOS). D'altra banda, la seva entrada com a patrocinador ha permès ampliar els resultats del projecte Fedora (i la consegüent distribució GNU/Linux), com a conjunt de tests per a les seves distribucions posteriors, i un desenvolupament d'una àmplia comunitat que ha crescut al voltant seu. Aquest cas forma una interessant experiència combinada de comunitat i empresa en el desenvolupament de la distribució (com després van adoptar altres distribuïdors com és el cas de la versió comercial SUSE Linux i el seu projecte de comunitat OpenSUSE). Per contra, en Debian el suport depèn dels voluntaris i del coneixement compartit dels usuaris, i se centra en la seva comunitat, encara que en els últims temps també ha rebut el suport (no sense certs problemes en el procés) de Canonical, desenvolupador d'Ubuntu.

Com que l'administració de sistemes és un camp tan ampli, aquest manual només ens pretén introduir en aquest apassionant (i com no, també de vegades frustrant) món. Veurem algunes de les tasques típiques, i com podem tractar les problemàtiques que ens apareixen. Però l'administració és un camp que s'aprèn dia a dia, amb el treball diari. I des d'aquí advertim que aquest manual és un treball obert, que amb els seus encerts i els errors més que probables es pot veure complementat amb els comentaris dels seus (sofridors) usuaris. De manera que són benvinguts, per part dels autors, qualsevol tipus de comentaris i suggeriments de millora d'aquests materials.

Comentem, finalment, que el contingut reflecteix l'estat de les distribucions i de les eines d'administració respecte del moment de la realització de la seva edició, o de les corresponents revisions o reedicions.

Continguts

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Introducció al sistema operatiu GNU/Linux

Josep Jorba Esteve

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2. UNIX. Una mica d'història
3. Sistemes GNU/Linux
4. El perfil de l'administrador de sistemes
5. Tasques de l'administrador
6. Distribucions de GNU/Linux
7. Què veurem...

Mòdul didàctic 2

Nivell d'usuari

Remo Suppi Boldrito

1. Introducció al sistema GNU/Linux
2. Conceptes i ordres bàsiques
3. Instal·lació i arrencada de GNU/Linux (conceptes bàsics)
4. Configuracions bàsiques
5. L'entorn gràfic

Mòdul didàctic 3

Programació d'ordres combinades (*shell scripts*)

Remo Suppi Boldrito

1. Introducció: l'interpret d'ordres
2. Elements bàsics d'un *shell script*

Mòdul didàctic 4

Migració i coexistència amb sistemes no Linux

Josep Jorba Esteve

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2. Serveis en GNU/Linux
3. Tipologies d'ús
4. Migrar o coexistir
5. Taller de migració: anàlisi de casos d'estudi

Mòdul didàctic 5

Administració local

Josep Jorba Esteve

1. Eines bàsiques per a l'administrador
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3. Nivells d'arrencada i serveis
4. Observar l'estat del sistema
5. Sistema de fitxers

6. Usuaris i grups
7. Servidors d'impressió
8. Discos i gestió de *filesystems*
9. Programari: actualització
10. Feines no interactives
11. Taller: pràctiques combinades dels apartats

Mòdul didàctic 6

Administració de xarxa

Remo Suppi Boldrito

1. Introducció a TCP/IP (paquet TCP/IP)
2. Conceptes en TCP/IP
3. Com s'assigna una adreça d'Internet?
4. Com s'ha de configurar la xarxa?
5. Configuració del DHCP
6. Múltiples IP sobre una interfície
7. IP Network Address Translation (NAT)
8. Udev - *Linux dynamic device management*
9. *Bridging*
10. Xarxa privada virtual (VPN)
11. Configuracions avançades i eines

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