4. NIS (+ NFS)

SISTEMES DISTRIBUITS I CLOUD

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EUG | REMO SUPPI

Dado que tenemos la oportunidad de poder agregar los usuarios antes de la instalación de NIS en server (y evitar modificar la configuración luego), crearemos los usuarios tal cual como se especifica en el enunciado de la práctica:

usu1: pertany als grups g1 i g2. Fitxer f_usu1 rwx r-- ---
usu2: pertany als grups g2 i g3. Fitxer f_usu2 rwx rw- ---
usu3: pertany als grups g3 i g1. Fitxer f_usu3 rwx rwx ---

Los comandos a ejecutar serán:

```
#groupadd g1

#groupadd g2

#groupadd g3

#useradd -g g1 -G g2 -d /home/f_usu1 -m -s /bin/bash usu1

#useradd -g g2 -G g3 -d /home/f_usu2 -m -s /bin/bash usu2

#useradd -g g3 -G g1 -d /home/f_usu3 -m -s /bin/bash usu3
```

Comprovamos que el owner de la carpeta es el usuario correspondiente y no root y luego:

`#chmod 740 /home/f_usu1` (grupo 1 y 2 solo acceso de lectura).

`#chmod 760 /home/f_usu2` (grupo 2 y 3 solo tienen acceso de lectura y escritura).

`#chmod 770 /home/f_usu3` (grupo 3 y 1 tienen todos los permisos en esa carpeta).

```
#passwd usu1

#passwd usu2

#passwd usu3
```

Con esto tendríamos los usuarios configurados. Vamos a hacerlo. Accedemos a Master1:

```
patata@master1:~$ sudo groupadd g1
patata@master1:~$ sudo groupadd g2
patata@master1:~$ sudo groupadd g3
patata@master1:~$
```

```
patata@master1:~$ sudo useradd -g g1 -G g2 -d /home/f_usu1 -m -s /bin/bas
h usu1
patata@master1:~$ sudo useradd -g g2 -G g3 -d /home/f_usu2 -m -s /bin/bas
h usu2
patata@master1:~$ sudo useradd -g g3 -G g1 -d /home/f_usu3 -m -s /bin/bas
h usu3
```

```
g1:x:1001:usu3
g2:x:1002:usu1
g3:x:1003:usu2
```

Bien, por lo visto -G sobreescribe -g en el comando useradd, así que lo que haremos será modificarlo directamente en el fichero /etc/group:

```
g1:x:1001:usu3,usu1
g2:x:1002:usu1,usu2
g3:x:1003:usu2,usu3
:wq
```

```
patata@master1:~$ ls -la /home
total 24
drwxr-xr-x  6 root   root   4096 Mar 15 22:06 .
drwxr-xr-x 21 root   root   4096 Feb 10 19:01 ..
drwxr-xr-x  2 usu1   g1     4096 Mar 15 22:05 f_usu1
drwxr-xr-x  2 usu2   g2     4096 Mar 15 22:06 f_usu2
drwxr-xr-x  2 usu3   g3     4096 Mar 15 22:06 f_usu3
drwxr-xr-x 13 patata patata 4096 Mar 15 22:10 patata
patata@master1:~$
```

En las carpetas, los grupos owner y usuarios owner se han asignado bien (el -g lo ha usado para la carpeta, pero no para el usuario).

```
patata@master1:~$ sudo chmod 740 /home/f_usu1
patata@master1:~$ sudo chmod 760 /home/f_usu2
patata@master1:~$ sudo chmod 770 /home/f_usu3
patata@master1:~$ ls -la /home
total 24
drwxr-xr-x  6 root   root   4096 Mar 15 22:06 .
drwxr-xr-x 21 root   root   4096 Feb 10 19:01 ..
drwxr-----  2 usu1   g1     4096 Mar 15 22:05 f_usu1
drwxrw----  2 usu2   g2     4096 Mar 15 22:06 f_usu2
drwxrwx---  2 usu3   g3     4096 Mar 15 22:06 f_usu3
drwxr-xr-x 13 patata patata 4096 Mar 15 22:10 patata
patata@master1:~$
```

Ahora están los permisos bien asignados.

```
patata@master1:~$ sudo passwd usu1
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
patata@master1:~$ sudo passwd usu2
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
patata@master1:~$ sudo passwd usu3
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
patata@master1:~$
```

Los tres tienen la clave usu1001.

Configuremos Mig para que monte f_usu1, f_usu2 y f_usu3 antes de ponernos con el NIS, así dejamos todo bien configurado. Modificaremos /etc/fstab para que funcione el montado desde inicio. Así tendremos las carpetas ya configuradas antes de la "creación" de los usuarios.

```
# that works even if disks are added and removed. See fstab(5).
#
# <file system> <mount point>   <type>  <options>       <dump>  <pass>
# / was on /dev/sda1 during installation
UUID=82690546-a349-4553-a645-1cb59294d840 /               ext4    errors=remount
-ro 0       1
# swap was on /dev/sda5 during installation
UUID=99e052f8-d32a-4219-a9b3-ab0eabd8fc6b none            swap    sw
  0       0
/dev/sr0        /media/cdrom0   udf,iso9660 user,noauto     0       0

172.16.1.1:/home/f_usu1 /home/f_usu1    nfs     defaults        0       1

172.16.1.1:/home/f_usu2 /home/f_usu2    nfs     defaults        0       1

172.16.1.1:/home/f_usu3 /home/f_usu3    nfs     defaults        0       1

~
~
~
"/etc/fstab" 19L, 830C written
root@MigDb8:~# mkdir /home/f_usu1
root@MigDb8:~# mkdir /home/f_usu2
root@MigDb8:~# mkdir /home/f_usu3
root@MigDb8:~# _
```

Vamos a probar si ha funcionado. Reiniciamos:

```
[    0.963294] Failed to access perfctr msr (MSR c0010004 is 0)
Loading, please wait...
fsck from util-linux 2.25.2
/dev/sda1: clean, 143479/752192 files, 1025092/3004416 blocks
[   15.102278] piix4_smbus 0000:00:07.0: SMBus base address uninitialized - upgr
ade BIOS or use force_addr=0xaddr
[  OK  ] Started LSB: Raise network interfaces..
[  OK  ] Reached target Network.
[  OK  ] Reached target Network is Online.
         Starting LSB: RPC portmapper replacement...
         Mounting /home/f_usu3...
         Mounting /home/f_usu2...
         Mounting /home/f_usu1...
[  OK  ] Started LSB: RPC portmapper replacement.
[  OK  ] Reached target RPC Port Mapper.
         Starting LSB: NFS support files common to client and server...
[  OK  ] Started LSB: NFS support files common to client and server.
[    **] (2 of 3) A start job is running for /home/f_usu2 (45s / 2min 3s)_
```

Notamos que las comprobaciones de disco demoran considerablemente el booteo del ordenador con las unidades externas.

Generamos un fichero en f_usu llamado hola (en mig, en local esta vacío).

```
patata@master1:~$ sudo vim /home/f_usu1/hola
patata@master1:~$
```

Pero…

```
root@MigDb8:/home/patata# mount -t nfs 172.16.1.1:/home/f_usu1 /home/f_usu1
mount.nfs: access denied by server while mounting 172.16.1.1:/home/f_usu1
root@MigDb8:/home/patata# _
```

Tendremos que probar cuando tengamos un usuario valido.

Para patata si funciona:

```
root@MigDb8:/home/patata# mount -t nfs 172.16.1.1:/home/patata /home/patata
root@MigDb8:/home/patata# exit
exit
patata@MigDb8:~$ ls
Desktop  dhcpd.conf_1ip  dhcpd.conf_rangos  Downloads  images
patata@MigDb8:~$ cd ..
patata@MigDb8:/home$ cd patata
patata@MigDb8:~$ ls
Desktop  Downloads  hola  images
patata@MigDb8:~$ _
```

Vamos a por el NIS.

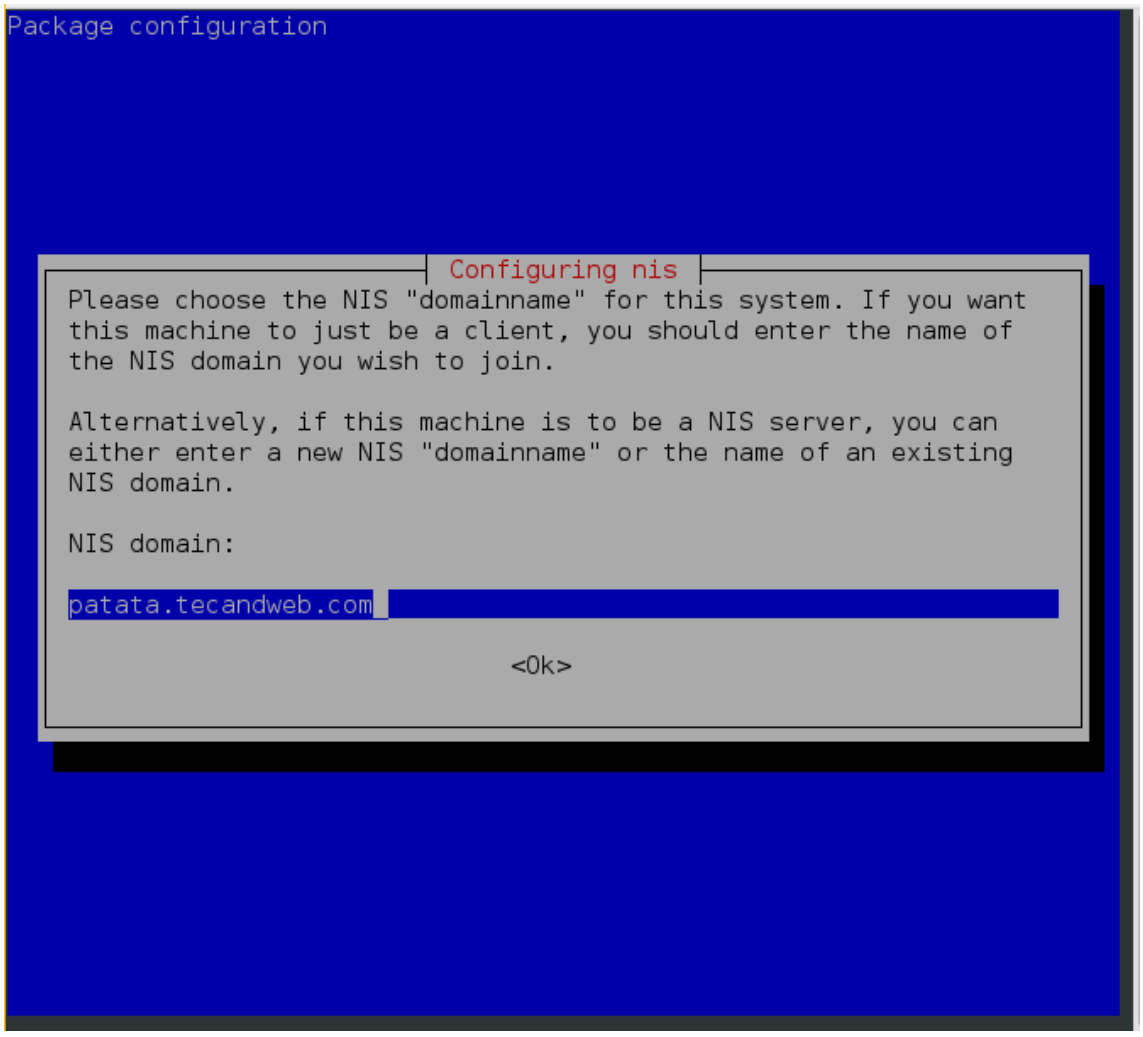
En Master ejecutamos:

`#apt-get install nis netbase`

```
This may mean that the package is missing, has been obsoleted, or
is only available from another source
However the following packages replace it:
  vrfy rstatd rstat-client rdist rdate pidentd tftpd tftp telnetd
  telnet rwhod rwho rsh-server rsh-client talkd talk ftp ftpd fingerd
  finger bootpc

E: Package 'netstd' has no installation candidate
patata@master1:~$ sudo apt-get install nis netbase
Reading package lists... Done
Building dependency tree
Reading state information... Done
netbase is already the newest version.
The following extra packages will be installed:
  libslp1 make
Suggested packages:
  slpd openslp-doc make-doc nscd
The following NEW packages will be installed:
  libslp1 make nis
0 upgraded, 3 newly installed, 0 to remove and 51 not upgraded.
Need to get 566 kB of archives.
After this operation, 1,745 kB of additional disk space will be used.
Do you want to continue? [Y/n] Y
Get:1 http://ftp.es.debian.org/debian/ jessie/main libslp1 i386 1.2.1-10+
deb8u1 [49.9 kB]
Get:2 http://ftp.es.debian.org/debian/ jessie/main make i386 4.0-8.1 [351
 kB]
Get:3 http://ftp.es.debian.org/debian/ jessie/main nis i386 3.17-33 [165
kB]
Fetched 566 kB in 0s (1,075 kB/s)
Preconfiguring packages ...
Selecting previously unselected package libslp1:i386.
(Reading database ... 85%
```

La instalación pregunta por el domainName. Como que usar el de la red no representa una brecha de seguridad, utilizaremos este.



Nos hemos dejado nscd. También lo instalamos:

```
patata@master1:~$ sudo apt-get install nscd
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following NEW packages will be installed:
  nscd
0 upgraded, 1 newly installed, 0 to remove and 51 not upgraded.
Need to get 241 kB of archives.
After this operation, 350 kB of additional disk space will be used.
Get:1 http://security.debian.org/ jessie/updates/main nscd i386 2.19-18+d
eb8u3 [241 kB]
Fetched 241 kB in 0s (469 kB/s)
```

Le decimos al Nis que somos el master:

```
#
# /etc/defaults/nis     Configuration settings for the NIS daemons.
#

# Are we a NIS server and if so what kind (values: false, slave, master)?
NISSERVER=master

# Are we a NIS client?
NISCLIENT=false

# Location of the master NIS password file (for yppasswdd).
# If you change this make sure it matches with /var/yp/Makefile.
YPPWDDIR=/etc
```

Restringimos ahora las redes que pueden acceder al NIS server:

```
patata@master1:~$ sudo vim /etc/ypserv.securenets
```

```
# Always allow access for localhost
255.0.0.0       127.0.0.0

# This line gives access to everybody. PLEASE ADJUST!
255.255.255.0           172.16.1.0
~
~
```

Como que solo queremos que Mig pueda acceder, con esto bastará (podríamos darle acceso a end, y las futuras subredes posibles 172.16.3.0 , 4.0 …, pero mejor ser cautelosos).

Ahora configuramos el servidor:

```
patata@master1:~$ sudo /usr/lib/yp/ypinit -m

At this point, we have to construct a list of the hosts which will run NI
S
servers.  master1.patata.tecandweb.com is in the list of NIS server hosts
.  Please continue to add
the names for the other hosts, one per line.  When you are done with the
list, type a <control D>.
        next host to add:  master1.patata.tecandweb.com
        next host to add:
The current list of NIS servers looks like this:

master1.patata.tecandweb.com

Is this correct?  [y/n: y]  y
We need a few minutes to build the databases...
Building /var/yp/patata.tecandweb.com/ypservers...
Running /var/yp/Makefile...
make[1]: Entering directory '/var/yp/patata.tecandweb.com'
Updating passwd.byname...
```

Y ahora iniciamos el servicio NIS:

```
patata@master1:~$ sudo service nis start
patata@master1:~$ sudo ps faux | grep ypserv
patata    3359  0.0  0.1   4320  1996 pts/0    S+   23:43   0:00      \_
grep ypserv
root      3239  0.0  0.1   2184  1512 ?        S    23:36   0:00 /usr/sbi
n/ypserv
patata@master1:~$
```

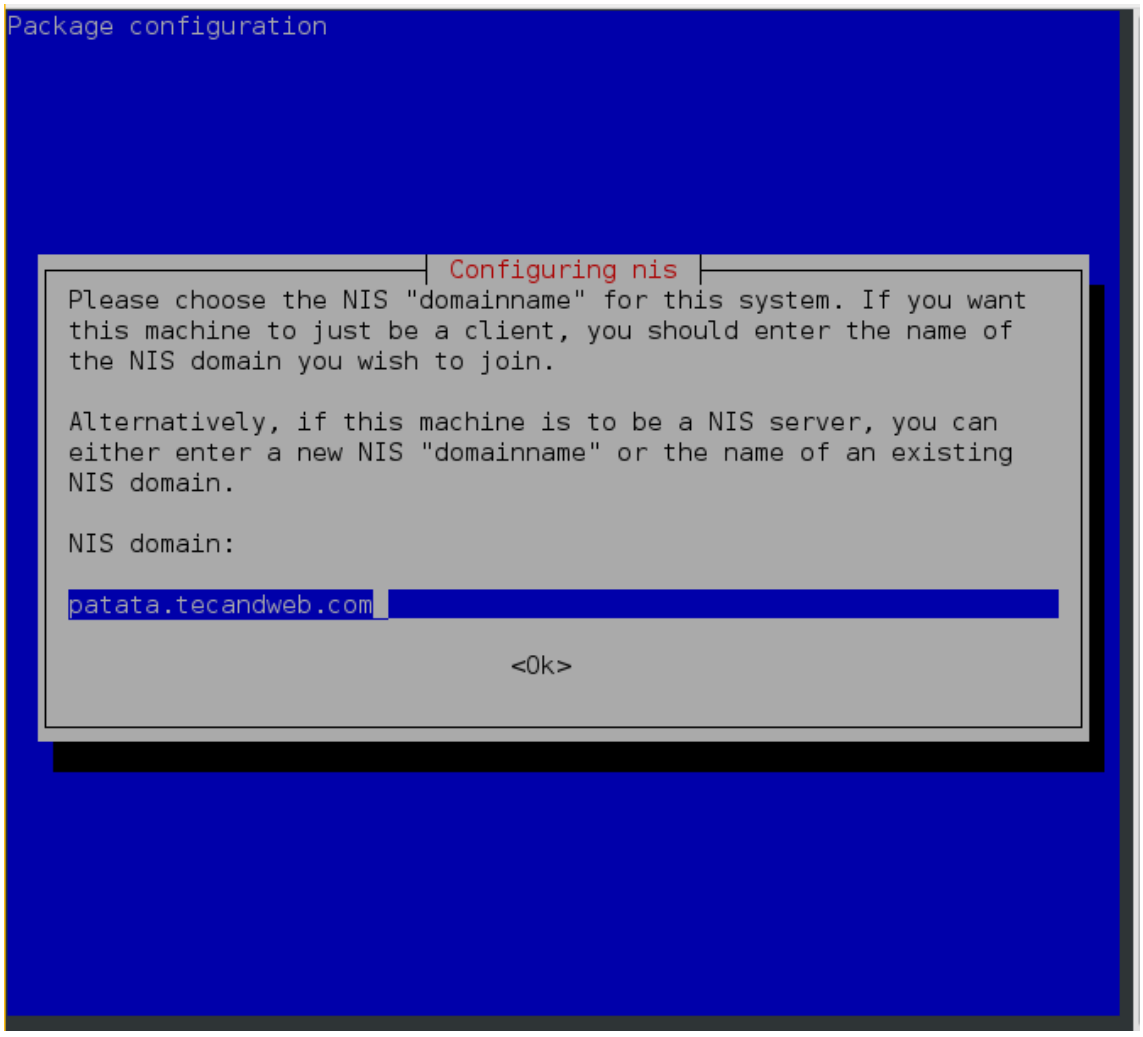
Probemos si se inicia el servicio con el sistema. Reiniciamos:

```
patata@master1:~$ sudo ps faux | grep ypserv
[sudo] password for patata:
root       707  0.0  0.1   2184  1516 ?        S    23:45   0:00 /usr/sbin/ypser
v
patata    1059  0.2  0.1   4320  2052 tty1     S+   23:46   0:00      \_ grep yp
serv
```

Se inicia con el sistema.

Vamos ahora a configurar el cliente:

```
patata@MigDb8:~$ sudo apt-get install nis nscd
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following extra packages will be installed:
  libslp1 make
Suggested packages:
  slpd openslp-doc make-doc
The following NEW packages will be installed:
  libslp1 make nis nscd
0 upgraded, 4 newly installed, 0 to remove and 38 not upgraded.
Need to get 807 kB of archives.
After this operation, 2,095 kB of additional disk space will be used.
Do you want to continue? [Y/n] _
```



Le decimos al Mig quien es el Master:

```
patata@MigDb8:~$ sudo vim /etc/yp.conf _
```

Le decimos al passwd y al group que cojan la información del servidor NIS:

```
usbmux:x:114:46:usbmux daemon,,,:/var/lib/usbmux:/bin/false
Debian-gdm:x:115:122:Gnome Display Manager:/var/lib/gdm3:/bin/false
patata:x:1000:1000:patata,,,:/home/patata:/bin/bash
vboxadd:x:999:1::/var/run/vboxadd:/bin/false
statd:x:116:65534::/var/lib/nfs:/bin/false
+::::::
"/etc/passwd" 38L, 2090C written
```

```
pulse-access:x:119:
rtkit:x:120:
saned:x:121:
Debian-gdm:x:122:
patata:x:1000:
vboxsf:x:999:
+::::
"/etc/group" 64L, 930C written
patata@MigDb8:~$ _
```

Y, por último, le decimos al ordenador de donde ha de coger los ficheros asociados a las credenciales (si de local o del servidor NIS):

```
#
# Example configuration of GNU Name Service Switch functionality.
# If you have the `glibc-doc-reference' and `info' packages installed, try:
# `info libc "Name Service Switch"' for information about this file.

passwd:         compat nis
group:          compat nis
shadow:         compat nis
gshadow:        files dns nis

hosts:          files myhostname mdns4_minimal [NOTFOUND=return] dns
networks:       files

protocols:      db files
services:       db files
ethers:         db files
rpc:            db files

netgroup:       nis
~
~
~
~
"/etc/nsswitch.conf" 20L, 560C written
patata@MigDb8:~$ _
```

Todos se cogen del NIS menos el gshadow, que lo buscará primero en local, y luego en el servidor.

Ahora reiniciamos.

Luego del reinicio, el NIS ya funciona. Solo nos quedaría volver a configurar el fstab:

```
# Use 'blkid' to print the universally unique identifier for a
# device; this may be used with UUID= as a more robust way to name devices
# that works even if disks are added and removed. See fstab(5).
#
# <file system> <mount point>   <type>  <options>       <dump>  <pass>
# / was on /dev/sda1 during installation
UUID=82690546-a349-4553-a645-1cb59294d840 /               ext4    errors=remount
-ro 0       1
# swap was on /dev/sda5 during installation
UUID=99e052f8-d32a-4219-a9b3-ab0eabd8fc6b none            swap    sw
  0       0
/dev/sr0        /media/cdrom0   udf,iso9660 user,noauto     0       0

172.16.1.1:/home/f_usu1 /home/f_usu1    nfs     defaults        0       1

172.16.1.1:/home/f_usu2 /home/f_usu2    nfs     defaults        0       1

172.16.1.1:/home/f_usu3 /home/f_usu3    nfs     defaults        0       1

~
~
~
"/etc/fstab" 19L, 830C written
```

Demostraremos el funcionamiento de todo esto.

Solo en f_usu1 en master existía un fichero llamado hola. Si todo funciona, deberíamos poder logearnos en mig como usu1 y ver en su home el fichero hola.

```
patata@master1:~$ sudo vim /home/f_usu1/hola
patata@master1:~$
```

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/////Como que el fstab de los nfs no funcionan, lo haremos mediante el rc.local.

```
#!/bin/sh -e
#
# rc.local
#
# This script is executed at the end of each multiuser runlevel.
# Make sure that the script will "exit 0" on success or any other
# value on error.
#
# In order to enable or disable this script just change the execution
# bits.
#
# By default this script does nothing.

ifdown eth0
ifup eth0

mount -t nfs 172.16.1.1:/home/f_usu1 /home/f_usu1
mount -t nfs 172.16.1.1:/home/f_usu2 /home/f_usu2
mount -t nfs 172.16.1.1:/home/f_usu3 /home/f_usu3_

exit 0
~
~
~
```

```
MigDb8 login: usu1
Password:
Last login: Wed Mar 16 01:57:04 GMT 2016 on tty1
Linux MigDb8 3.16.0-4-586 #1 Debian 3.16.7-ckt20-1+deb8u4 (2016-02-29) i686

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
_
```

Pero el NFS no funciona. Esto se debe a que nos hemos olvidado de editar en Master /etc/exports:

```
# /etc/exports: the access control list for filesystems which may be exported
#               to NFS clients.  See exports(5).
#
# Example for NFSv2 and NFSv3:
# /srv/homes       hostname1(rw,sync,no_subtree_check) hostname2(ro,sync,no_subt
ree_check)
#
# Example for NFSv4:
# /srv/nfs4        gss/krb5i(rw,sync,fsid=0,crossmnt,no_subtree_check)
# /srv/nfs4/homes  gss/krb5i(rw,sync,no_subtree_check)
#

/home/patata    172.16.1.1/255.255.255.0(rw,root_squash)
/home/f_usu1    172.16.1.1/255.255.255.0(rw,root_squash)
/home/f_usu2    172.16.1.1/255.255.255.0(rw,root_squash)
/home/f_usu3    172.16.1.1/255.255.255.0(rw,root_squash)
~
~
~
~
```

Y reiniciamos el servicio nfs:

```
patata@master1:~$ sudo /etc/init.d/nfs-kernel-server restart
[ ok ] Restarting nfs-kernel-server (via systemctl): nfs-kernel-server.service.
patata@master1:~$ _
```

Vamos a probar ahora de montar f_usu1 en mig. Si funciona, habilitamos el fstab para que ya se monte todo al iniciar el sistema:

```
patata@MigDb8:~$ sudo mount -t nfs 172.16.1.1:/home/f_usu1 /home/f_usu1
[sudo] password for patata:
patata@MigDb8:~$ _
```

Ya no da error. Veamos los permisos de /home/f_usu1 y su contenido. Vamos a mirarlo como usu1 a más a más:

```
usu1@MigDb8:~$ ls
hola
usu1@MigDb8:~$ ls -la /home
total 24
drwxr-xr-x  6 root   root   4096 Mar 15 22:33 .
drwxr-xr-x 21 root   root   4096 Feb 10 19:01 ..
drwxr-----  2 usu1   g1     4096 Mar 15 22:39 f_usu1
drwxr-xr-x  2 root   root   4096 Mar 15 22:33 f_usu2
drwxr-xr-x  2 root   root   4096 Mar 15 22:33 f_usu3
drwxr-xr-x 13 patata patata 4096 Mar  2 22:21 patata
usu1@MigDb8:~$ _
```

Ahora va todo como queremos. Antes el ls de /home/f_usu1 salía vacío.

Vamos entonces a por el fstab y a ver si al reiniciar se aplican los permisos igual que en el ordenador Master. Con esto concluimos la actividad:

```
# /etc/fstab: static file system information.
#
# Use 'blkid' to print the universally unique identifier for a
# device; this may be used with UUID= as a more robust way to name devices
# that works even if disks are added and removed. See fstab(5).
#
# <file system> <mount point>   <type>  <options>       <dump>  <pass>
# / was on /dev/sda1 during installation
UUID=82690546-a349-4553-a645-1cb59294d840 /               ext4    errors=remount
-ro 0       1
# swap was on /dev/sda5 during installation
UUID=99e052f8-d32a-4219-a9b3-ab0eabd8fc6b none            swap    sw
  0       0
/dev/sr0        /media/cdrom0   udf,iso9660 user,noauto     0       0

172.16.1.1:/home/f_usu1 /home/f_usu1    nfs     defaults        0       1

172.16.1.1:/home/f_usu2 /home/f_usu2    nfs     defaults        0       1

172.16.1.1:/home/f_usu3 /home/f_usu3    nfs     defaults        0       1

~
~
~
```

```
usu1@MigDb8:~$ ls -la /home
total 24
drwxr-xr-x  6 root   root   4096 Mar 15 22:33 .
drwxr-xr-x 21 root   root   4096 Feb 10 19:01 ..
drwxr-----  2 usu1   g1     4096 Mar 16 08:53 f_usu1
drwxrw----  2 usu2   g2     4096 Mar 15 22:06 f_usu2
drwxrwx---  2 usu3   g3     4096 Mar 15 22:06 f_usu3
drwxr-xr-x 13 patata patata 4096 Mar  2 22:21 patata
usu1@MigDb8:~$
```