Serveur de Boot

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1 Introduction

Installation de l'environnement de boot des cartes processeur sur un portable UBUNTU, puis sur les 2 pizza boxes qui seront envoyées en Namibie.

2 Portable Ubuntu

Cette installation permet de simuler l'environnement en vu d'effectuer des développement un châssis en Allemagne.

2.1 Environnement

- Serveur SSH et autres outils :

```
# apt-get install ssh tftp
# apt-get install apt-file
# apt-file update
```

- Nouvelle partition EXT3
  - Dégommage

    ```
    # umount /dev/sda2
    # mke2fs -j /dev/sda2
    ```

  - Fichier */etc/fstab* :

    ```
    /dev/sda2 /media/sda2 ext3 defaults 0 2
    ```

  - Utilisation

    ```
    # mount /dev/sda2
    # mkdir /media/sda2/hess
    ```

- Route vers **n1n9**
  - Congfiguration : fichier */etc/network/interfaces*

```
auto eth0
iface eth0 inet static
address 134.158.153.212
netmask 255.255.248.0
gateway 134.158.152.1
up route add -net 192.168.1.0 netmask 255.255.255.0 gw 134.158.152.55
down route del -net 192.168.1.0 netmask 255.255.255.0 gw 134.158.152.55
```

– Test

```
# /etc/init.d/networking restart
# route -n
```

– Copie de la partition racine

```
# cd /media/sda2/hess
# ssh root@192.168.1.9 "cd /opt/CES/shl-3.2.3/eldk && tar -zcf - ppc_74xx_c15"  | tar -zxf -
# ln -s ppc_74xx_c15 target15
```

– Copie des répertoires personnels

```
# mkdir /media/sda2/hess/home
# cd !$
# ssh guevara@192.168.1.9 "cd /mnt/homes/lpnp90/ && tar -zcf - guevara"  | tar -zxf -
# rsync -e ssh -av guevara@192.168.1.9:/home/guevara/ /media/sda2/hess/home/guevara (maj)
```

2.2 Serveur tftp

- Installation

```
# apt-get install tftpd
# ln -s /media/sda2/hess/tftp /tftpboot
# mkdir -p /media/sda2/hess/tftp
# cd !$
# ln -s /media/sda2/hess/target15/zImage.rio zImage15
```

- Configuration : fichier */etc/inetd.conf*

```
tftp dgram udp wait nobody /usr/sbin/tcpd /usr/sbin/in.tftpd /tftpboot
```

- Test

```
# tail -f /var/log/daemon.log
                                                remote$ tftp 134.158.153.212
                                                tftp> get /tftpboot/zImage15
                                                Received 1379043 bytes in 0.8 seconds
tftpd: trying to get file: /tftpboot/zImage15
tftpd: read: Connection refused
                                                tftp> ^D
                                                remote$ md5sum zImage15
```

2.3 Serveur nfs

- Installation

```
# apt-get install nfs-kernel-server
# cd /media/sda2/hess
# ssh root@192.168.1.9 "cd /opt/CES/shl-3.2.3/eldk && tar -zcf - ppc_74xx_c15"  | tar -zxf -
# ln -s ppc_74xx_c15 target15
# ln -s /media/sda2/hess /opt/CES
# sed -i -e "s!/home/!/opt/ces/home/!" /media/sda2/hess/target15/etc/fstab.local
```

- Configuration : fichier */etc/exports*

```
/media/sda2/hess/target15 *(rw,no_root_squash,no_all_squash)
/media/sda2/hess/home     *(rw,sync,no_root_squash,no_all_squash)
```

- Test

```
# /etc/init.d/nfs-kernel-server restart
# exportfs
# tail -f /var/log/daemon.log
                                remote# mkdir dir
                                remote# mount -t nfs 134.158.153.212:/opt/CES/target15 dir
mountd[5370]: authenticated mount request...
                                remote# umount dir
mountd[5370]: authenticated unmount request...
                                remote# mount -t nfs 134.158.153.212:/opt/CES/home/guevara dir
```

2.4 Changer d'ip

Le portable simule les 2 serveurs N1N9 et N1N3.

- Configuration : fichier */etc/network/interfaces*

```
auto eth0
iface eth0 inet static
address 192.168.1.9
netmask 255.255.255.0

auto eth0:2
iface eth0:2 inet static
address 192.168.1.3
netmask 255.255.255.0
```

- Test

```
# /etc/init.d/networking restart
# ifconfig
```

3 Pizza Boxes

Il s'agit de copier puis migrer l'environnement de développement présent sur N1N9 sur les 2 pizza box N1N40 et N1N41.

3.1 Environnement

- */home* des utilisateurs

```
# cd /home
# ln -s /mnt/homes/lpnp90/guevara .
# ln -s /mnt/homes/lpnp90/huppert/ .
# ln -s /mnt/homes/lpnp90/panazol/ .
# ln -s /mnt/homes/lpnp90/roche/ .
# ln -s /mnt/homes/lpnp90/tavernet/ .
# ln -s /mnt/homes/lpnp90/vincentp/ .
```

- */* des cartes processeur

```
# cd /data
# mkdir CES
# cd CES
# rsync -e ssh -a root@n1n9:/opt/CES/shl-3.2.3/ /data/CES/shl-3.2.3/
# for i in 2 3 4 5 6 7 ; do ln -s shl-3.2.3/target1$i .; done

# cd /home
# rm bigcamera
# rsync -e ssh -a root@n1n41:/home/bigcamera/ /home/bigcamera/

... ou encore ...
[root@n1n9 ~]# rsync -e ssh -av /opt/CES/shl-3.2.3/eldk/ppc_74xx_c19/ \
                    root@n1n40:/data/CES/shl-3.2.3/eldk/ppc_74xx_c19/
# cd /data/CES/shl-3.2.3
# ln -s eldk/ppc_74xx_c19 target19
# cd ..
# ln -s shl-3.2.3/target19 target19
```

3.2 Serveur tftp

Attention, le réseau hess est protégé par un firerwall sur n1n3. A priori le trafic tftp passe depuis n1n9 vers l'extérieur seulement (pas depuis n1n40 et n1n41).

- Installation

```
# rpm -qa | grep tftp
# yum search tftp
# yum install tftp.i686 tftp-server.i686
  Installing     : 2:xinetd-2.3.14-28.fc12.i686
  Installing     : tftp-0.49-5.fc12.i686
  Installing     : tftp-server-0.49-5.fc12.i686

# rpm -qa | grep tftp
# ln -s /data/tftp /tftpboot
# mkdir /data/tftp
# cd !$
# for i in 12 13 14 15 16 17; do ln -s /data/CES/target$i/zImage.rio zImage$i; done
# yum install tftp.x86_64
```

- Configuration : fichier */etc/xinetd.d/tftp*

  Attention aux parametres `server_args` et `disable` :

```
service tftp
{
        socket_type             = dgram
        protocol                = udp
        wait                    = yes
        user                    = root
        server                  = /usr/sbin/in.tftpd
#       server_args             = -s /var/lib/tftpboot
        server_args             = /tftpboot -v
        disable                 = no
        per_source              = 11
        cps                     = 100 2
        flags                   = IPv4
}
```

- Firewall : il faut ouvrir le port 69.

```
# system-config-firewall
Firewall: [*] Enabled
Customize
[*] TFTP
Close
OK
Yes
```

- Test

```
# /etc/init.d/xinetd stop
# killall in.tftpd
# touch toto.txt
# /usr/sbin/in.tftpd -L
                                                camera15$ tftp n1n40
                                                tftp> get /tftpboot/toto.txt
                                                Received 10 bytes in 0.1 seconds
# tail -f /var/log/messages
in.tftpd[]: tftpd: read(ack): Connection refused
# /etc/init.d/xinetd start

                                                camera15$ tftp n1n40
                                                tftp> get /tftpboot/zImage15

in.tftpd[]: RRQ from 192.168.1.166 filename /tftpboot/zImage15

                                                tftp> ^D
                                                remote$ md5sum zImage15
```

3.3 Serveur nfs

- Installation

```
# cd /opt/
# ln -s /data/CES CES
```

- Configuration : fichier */etc/exports*

```
/data/CES/target10 192.168.1.0/255.255.255.0(rw,no_root_squash,no_all_squash)
/data/CES/target11 192.168.1.0/255.255.255.0(rw,no_root_squash,no_all_squash)
/data/CES/target12 192.168.1.0/255.255.255.0(rw,no_root_squash,no_all_squash)
/data/CES/target13 192.168.1.0/255.255.255.0(rw,no_root_squash,no_all_squash)
/data/CES/target14 192.168.1.0/255.255.255.0(rw,no_root_squash,no_all_squash)
/data/CES/target15 192.168.1.0/255.255.255.0(rw,no_root_squash,no_all_squash)
/data/CES/target16 192.168.1.0/255.255.255.0(rw,no_root_squash,no_all_squash)
/data/CES/target17 192.168.1.0/255.255.255.0(rw,no_root_squash,no_all_squash)
/data/CES/target19 192.168.1.0/255.255.255.0(rw,no_root_squash,no_all_squash)
```

- Firerwall : attention, NFSD utilise des ports dynamiques.
  Decommenter les ports par default dans le fichier */etc/sysconfig/nfs* :

```
LOCKD_TCPPORT=32803
LOCKD_UDPPORT=32769
MOUNTD_PORT=892
STATD_PORT=662
```

  Ajouter ces ports aux regles du firewall dans le fichier */etc/sysconfig/iptables* :

```
# NFS
-A INPUT -m state --state NEW -m tcp -p tcp --dport 111 -j ACCEPT
-A INPUT -m state --state NEW -m udp -p udp --dport 111 -j ACCEPT
-A INPUT -m state --state NEW -m tcp -p tcp --dport 662 -j ACCEPT
-A INPUT -m state --state NEW -m udp -p udp --dport 662 -j ACCEPT
-A INPUT -m state --state NEW -m tcp -p tcp --dport 892 -j ACCEPT
-A INPUT -m state --state NEW -m udp -p udp --dport 892 -j ACCEPT
-A INPUT -m state --state NEW -m tcp -p tcp --dport 2049 -j ACCEPT
-A INPUT -m state --state NEW -m udp -p udp --dport 2049 -j ACCEPT
-A INPUT -m state --state NEW -m tcp -p tcp --dport 32803 -j ACCEPT
-A INPUT -m state --state NEW -m udp -p udp --dport 32803 -j ACCEPT
-A INPUT -m state --state NEW -m tcp -p tcp --dport 32769 -j ACCEPT
-A INPUT -m state --state NEW -m udp -p udp --dport 32769 -j ACCEPT
```

(Re)lancer les service :

```
# /sbin/chkconfig nfs on
# /etc/init.d/iptables restart
# /etc/init.d/nfs restart
# /etc/init.d/nfslock restart
```

- Test

```
# /etc/init.d/nfs restart
# exportfs
# tail -f /var/log/messages
                                camera16# mkdir dir
                                camera16# mount -t nfs 192.168.1.40:/opt/CES/target15 dir
mountd[5370]: authenticated mount request...
                                camera16# umount dir
mountd[5370]: authenticated unmount request...

# /sbin/chkconfig | grep nfs
# serviceconf
```

3.4 Test et FAQ

- Boot depuis camera15 dans le châssis PCI isolé ok.
- Cross-Compilation ok.
- ne marche pas avec `MTU=9000` mais avec `MTU=1500` sur **n1n41**.
- re-export NFS

```
> > Is it possible to mount a fs via nfs, and then reexport it via nfs?
>
> No.
>
> The protocol doesn't really support it, and the (Linux-kernel)
> implementation definately doesn't support it.
definitelly the kernel implementation cannot manage the loops a re-export
would imply.
>
> I think the user-space nfs server can do it. It has other problems,
> but it might work for you.
yes, you have to run both rpc.mountd and rpc.nfsd with the -r option.I
used this one year ago, and it was really stable with 10 nfs clients
```

(physicaly the partition was on an AIX server, mounted on a linux server and then re-exported on many linux clients), but the physical FS status could not be really coherent in front of what the nfs re-export server thinks it should be.

- Comment **n1n4**[**12**] montent-ils les homes ?
  Il y a des pages jaunes sur **n1n3**. Cf le fichier */etc/ntp.conf* :

  ```
  server 192.168.1.3 dynamic
  ```