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HOWTO Configure L2TP VPN server on Linode Gentoo VPS

September 25, 2011 by Chan Cham Chung

Linode announced a new facility in **Tokyo, Japan** at September 20, 2011. It's a big good news for us inside the **wall**. The download speed, and latency, is pretty **awesome!!**

I migrated my linode(actually it belongs to my boss) from USA to Tokyo with no doubt. And rebuild it from **Ubuntu** to **Gentoo**. As a desktop, **Ubuntu** plays so good so far. But as a server, **Ubuntu sucks !!**

OK, everything is ready, all we need is a **L2TP VPN** server.

Here is my L2TP VPN configuration.

First of all, choose a faster mirror server, this is my selection: **gentoo.channelx.biz**, chosen from **mirrorselect** (**emerge mirrorselect**). And add it to **/etc/make.conf**, replace the original one.

U can run this command if u don't have an original **GENTOO_MIRRORS** config in **/etc/make.conf**.

```
echo 'GENTOO_MIRRORS="http://gentoo.channelx.biz/"' >> /etc/make.conf
```

The software we need: **openswan** , **xl2tpd** , **ppp**. We can install them all with the 'emerge' command, but I found there's something wrong with the **openswan** (v2.4.15-r2), we must upgrade **openswan** to version **2.6.31**, even though this version is masked.

Solve the masked problem:

```
echo 'EMERGE_DEFAULT_OPTS="--autounmask=n"' >> /etc/make.conf
```

```
echo '=net-misc/openswan-2.6.31' >> /etc/portage/package.accept_keywords
```

OK, install it:

```
emerge =net-misc/openswan-2.6.31
```

Let's do some copy and paste.

Configure the **ipsec**.

copy the content of **/etc/ipsec.d/examples/sysctl.conf** to **/etc/sysctl.conf** ,and make sure the **rp_filter** options are commented.

```
# Enables source route verification
#net.ipv4.conf.default.rp_filter = 1
# Enable reverse path
#net.ipv4.conf.all.rp_filter = 1
```

u can run this command:

```
cat /etc/ipsec.d/examples/sysctl.conf >> /etc/sysctl.conf
```

and active the sysctl.conf:

```
sysctl -p
```

Edit the **/etc/ipsec.conf** :

```
echo 'include /etc/ipsec.d/examples/l2tp-psk.conf' >> /etc/ipsec.conf
```

when ignore the commented line:

```
#cat /etc/ipsec.conf | egrep -v "^[[:space:]]*#" | grep -v "^$"

conn L2TP-PSK-NAT
    rightsubnet=vhost:%priv
    also=L2TP-PSK-noNAT
conn L2TP-PSK-noNAT
    authby=secret
    pfs=no
    auto=add
    keyingtries=3
    rekey=no
    ikelifetime=8h
    keylife=1h
    type=transport
    left=YourPublicIP
    leftprotoport=17/1701
    right=%any
    rightprotoport=17/0
conn passthrough-for-non-l2tp
    type=passthrough
    left=YourPublicIP
    leftnexthop=YourGatewayIP
    right=0.0.0.0
    rightsubnet=0.0.0.0/0
    auto=route
```

and remember to replace the **"YourPublicIP"** , **"YourGatewayIP"** to the correct value.

edit **/etc/ipsec.secrets** :

```
YourIPAddress    %any: PSK "sharedsecret"
```

do the same replacement.

Configure the **iptables**.

```
iptables -t nat -A POSTROUTING -j MASQUERADE

/etc/init.d/iptables save

rc-updat add iptables default
```

Configure **xl2tpd** :

```
# cat /etc/xl2tpd/xl2tpd.conf

[global]
ipsec saref = yes

[lns default]
ip range = 172.16.80.128-172.16.80.254
local ip = 172.16.80.1
```

```
require chap = yes
refuse pap = yes
require authentication = yes
name = xl2tpd
ppp debug = yes
pppoptfile = /etc/ppp/options.xl2tpd
length bit = yes
```

Configure **PPP** :

```
# cat /etc/ppp/options.xl2tpd
```

```
ipcp-accept-local
ipcp-accept-remote
ms-dns 8.8.8.8
ms-dns 8.8.4.4
noccp
auth
crtsets
idle 1800
mtu 1410
mru 1410
nodefaultroute
debug
lock
proxyarp
connect-delay 5000
```

```
# cat /etc/ppp/chap-secrets
```

```
Username          xl2tpd          Password          *
```

do some replacement here.

start the services:

```
/etc/init.d/ipsec start
/etc/init.d/xl2tpd start
```

Have fun .

PS: **ipsec verify** failed ?

```
Pluto listening for IKE on udp 500 [FAILED]
Cannot execute command "lsof -i UDP:500": No such file or directory
Pluto listening for NAT-T on udp 4500 [FAILED]
Cannot execute command "lsof -i UDP:4500": No such file or directory
```

it's all right, because the command '**lsof**' is missing, just '**emerge lsof**'

Reference:

<http://riobard.com/blog/2010-04-30-l2tp-over-ipsec-ubuntu/> (<http://riobard.com/blog/2010-04-30-l2tp-over-ipsec-ubuntu/>)
<http://apple4.us/2010/05/setting-up-l2tp-vpn-on-debian-ubuntu.html> (<http://apple4.us/2010/05/setting-up-l2tp-vpn-on-debian-ubuntu.html>)
<http://forums.gentoo.org/viewtopic-t-324500-highlight-openswan.html> (<http://forums.gentoo.org/viewtopic-t-324500-highlight-openswan.html>) (the ppp configuration part, it's different between gentoo and ubuntu)

update: 2011-09-26

If u can connect successfully at the first time, but failed at the second. Here's the solution.

Add the following lines to your L2TP-PSK-noNAT connection and restart ipsec (/etc/init.d/ipsec restart)

```
dpddelay=40
dpdtimeout=130
dpdaction=clear
```

Reference:

<http://lists.openswan.org/pipermail/users/2011-January/019945.html> (<http://lists.openswan.org/pipermail/users/2011-January/019945.html>)

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