



Practicing IPv6.

Roque Gagliano - LACNIC

roque@lacnic.net

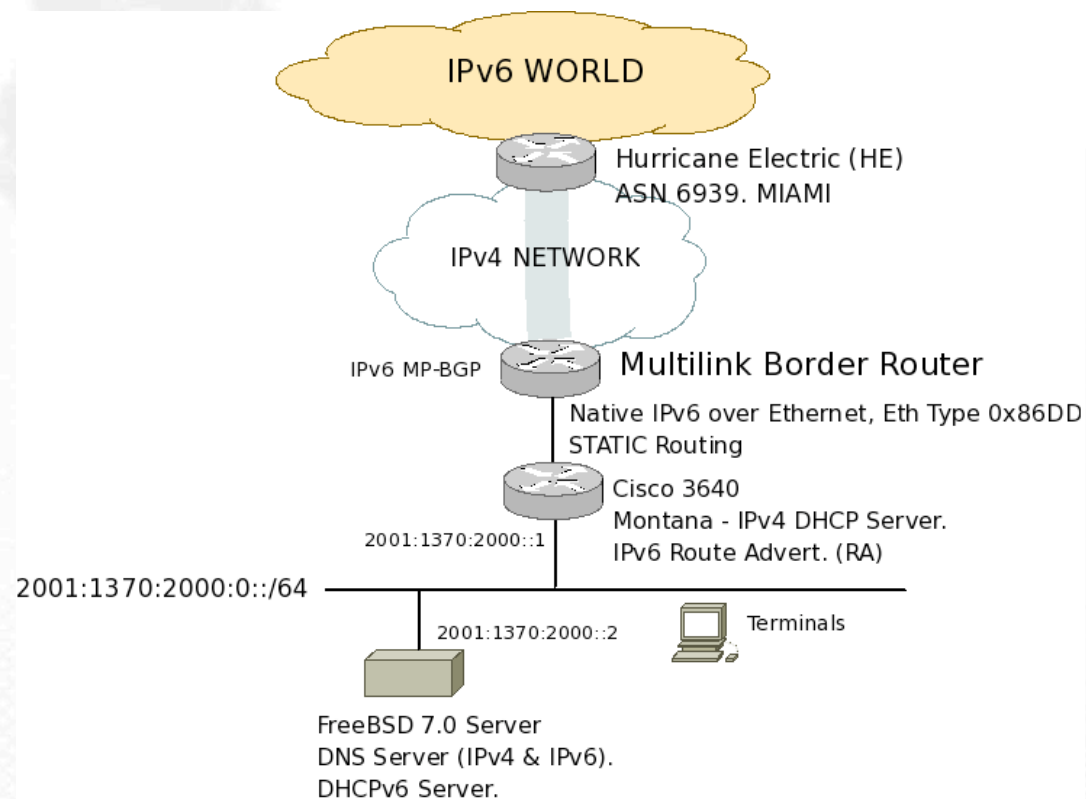


Agenda

- ◆ **Practicing with Windows XP.**
- ◆ **Practicing with Linux.**
- ◆ **Configuring DNS (linux): bind9.**
- ◆ **Configuring Web (linux): Apache 2.**



Network diagram.





Windows XP Configuration.

- ◆ To install IPv6, type in command windows (SP2 min):
 - ◆ **ipv6 install**
- ◆ Usual evaluation commands:
 - ◆ **ipconfig /all**
 - ◆ **tracert**
 - ◆ **Ping**
- ◆ Advance Commands:
 - ◆ **netsh**



Windows Exercise.

- ◆ Install IPv6 in your desktop.
- ◆ Check IPv6 addressing and routing configuration.
- ◆ Ping your default gateway.
- ◆ Install static address.
- ◆ Check your neighbors.
- ◆ Test the following sites (web-browsing and traceroute):
 - ◆ **<http://portalipv6.lacnic.net>**
 - ◆ **<http://www.kame.net>**
 - ◆ **<http://ipv6.google.com>**



Linux Configuration.

- ◆ IPv6 already installed.
- ◆ You can use ifconfig, mtr and netstat.
- ◆ Or:
 - ◆ **ip -6 addr show**
 - ◆ **ip -6 route show**
 - ◆ **ip -6 neigh show**



Linux Configuration:

- ◆ **Manually adding an address:**
 - ◆ **ip -6 addr add 2001:1370:2000::00yy/64 dev eth0**
 - ◆ **ip -6 route add ::0/0 via 2001:1370:2000::1**
- ◆ **Manually removing an address:**
 - ◆ **ip -6 addr del 2001:1370:2000:1::yyyy/64 dev eth0**
 - ◆ **ip -6 route del ::0/0 via 2001:1370:2000::1**



Linux Configuration:

- ◆ **Permanent Configuration:**

`/etc/networks/interfaces`

```
iface eth0 inet6 static
address 2001:1370:2000::yy/64
netmask 64
gateway 2001:1370:2000::1
```




Linux Exercise:

- ◆ **Check your equipment auto configuration.**
- ◆ **Check your neighbors' addresses. How is this table populated?**
- ◆ **Configure a Manual address and route using your PC number.**
- ◆ **Check same sites as in Windows.**



DNS Explanation....





BIND 9 IPv6 Configuration:

- ◆ **named.conf:**
 - ◆ **Configure IPv6 transport support (listen-on-v6).**
 - ◆ **Configure IPv6 ACL and other options.**
 - ◆ **Configure IPv6 reverse zones.**
- ◆ **Zone files:**
 - ◆ **Configure AAAA records.**
 - ◆ **Configure IPv6 PTR records.**



BIND9 Configuration Commands:

```
acl Our_nets {  
    172.16.0.0/16;  
    10.0.0.0/8;  
    2800:4a::/32;  
};  
options {  
    allow-recursion {Our_nets;};  
    transfer-source-v6 ( ipv6_address | * ) [ port ( integer | * ) ];  
    listen-on-v6 [ port integer ] { address_match_element; ... };  
    query-source-v6 ( ( ipv6_address | * ) | [ address ( ipv6_address | * )  
    ] ) [ port ( integer | * ) ];  
    notify-source-v6 ( ipv6_address | * ) [ port ( integer | * ) ];  
};
```



DNS Exercise.

- ◆ **Configure the lab's DNS Server in /etc/resolv.conf.**
- ◆ **Configure named.conf to listen in IPv6 interface (listen ::).**
- ◆ **Configure reverse zone for:**
- ◆ **Configure AAAA record for:**
- ◆ **Check records in localhost:**
 - ◆ **dig @::1 xxxxx**



Apache 2 Config.

- ◆ Has to listen in IPv6 address:
 - ◆ Available by default.
 - ◆ Can specify address by write:
- ◆ Very useful to have a php scripts displaying origin IP address:

Listen 2001:1370:2000::2

```
<html><body><h1>Your IP Address is: <p>
```

```
<?php print $_SERVER['REMOTE_ADDR'] ?> </p>  
</h1></body></html>
```



Thank you!