



Caribbean Workshop - Guadeloupe

05 - 08 March '07

DNS

Bernard.Tuy@renater.fr

Simon.Muyal@renater.fr

Stig.Venaas@uninett.no

Bertus Habraken <bhabrake@cisco.com>

Laboratory Exercise: DNS

Objectives

In this laboratory exercise you will complete the following tasks:

- *Create a forward zone*
- *Insert IPv6-related records*
- *Do some A and AAAA queries to the server*

Visual Objective

The following figure shows the topology of the current laboratory. This laboratory is similar with the ones on the first day. Now we have a PC performing as a DNS server.

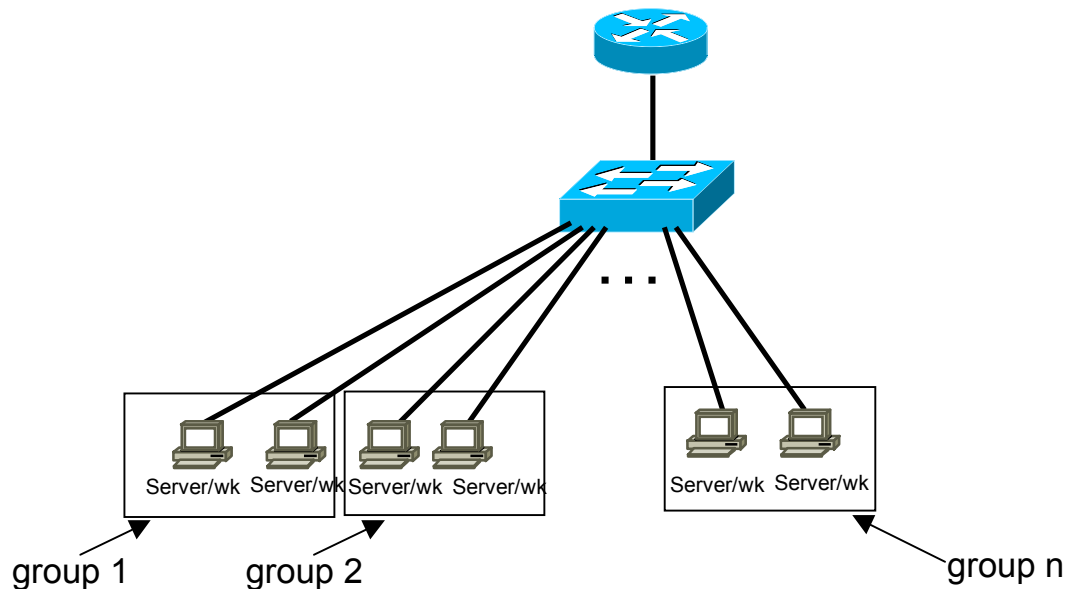


Figure 1: Scenario topology

Setup

Your IPv4 address is assigned by DHCPv4.

Scenario

*A laptop with Linux Ubuntu is running BIND 9. The DNS server IPv4 address is 192.168.2.116. The access to the DNS server is allowed via ssh (port 22) at the addresses **2001:DB8:CAFE:1111::53** or 192.168.2.116 using the login/password: 6diss/6diss.*

*In the **/etc/bind/** directory there are already files with IPv4 DNS (A, PTR) records. Trainees should create the relevant IPv6 DNS (AAAA) records. (Students should have basic knowledge of BIND/DNS)*

*The DNS server is configured via the **/etc/bind/named.conf** file. The “forward” files that contain the DNS entries are defined in the **/etc/named.conf** via the following syntax:*

Forward zone: Example

```
zone "group3.guadeloupe.6diss.org" in {
    type master;
    file "/etc/bind/guadeloupe/group3";
};
```

*In order to add IPv6 DNS entries for PC X in group Y, the zone file **groupY.guadeloupe.6diss.org** has to be created. (The file **/etc/bind/named.conf** already contains the appropriate entries.)*

Task 1: Create an IPv6 forward zone file and insert IPv6 records

Complete the following exercise's steps:

- **Step 1:** In **/etc/bind/guadeloupe/** directory of DNS Server create and populate the file correspondent to your zone (**groupY.guadeloupe.6diss.org**). For your host's name use **pcx**. For example: **pc1.group4.guadeloupe.6diss.org** (Tip: See configuration examples at the end of the document and group7 file in DNS server)
- **Step 2:** Validate the zone file using the command **named-checkzone**
- **Step 3:** Restart DNS server (Tip: In order to restart the DNS server, root privileges are required. DNS will be restarted on-demand by the trainer). Use the command **rndc** specifying your zone.

- **Step 4:** Validate DNS queries using your lab PC.

Summary

After completing these exercises, you should be able to:

- *Create a forward zone*
- *Insert IPv6 related records*

Appendix A

Examples BIND files

Forward-zone file for workshop.org

```
workshop.org. IN SOA server.workshop.org. root.server.workshop.org. (
    1          ; Serial
    10800     ; Refresh after 3 hours
    3600      ; Retry after 1 hour
    604800    ; Expire after 1 week
    86400     ; Minimum TTL of 1 day
)

;
; Name servers
;
workshop.org. IN NS  server.workshop.org.

;
; Host addresses
;
localhost.workshop.org.    IN A    127.0.0.1
server.workshop.org.      IN A    192.168.38.5
pc28.workshop.org.        IN A    192.168.28.10
pc18.workshop.org.        IN A    192.168.28.10
;
; Multi-homed hosts
;
router1.workshop.org.     IN A    10.0.12.1
router1.workshop.org.     IN A    10.0.13.1

;
; Aliases
;
www                        IN CNAME server

;
; IPv6 host addresses
;
localhost.workshop.org.    IN AAAA  ::1
server.workshop.org.      IN AAAA  2001:DB8:CAFE:38::5
pc28.workshop.org.        IN AAAA  2001:DB8:CAFE:28::10
pc18.workshop.org.        IN AAAA  2001:DB8:CAFE:18::10
```

Reverse-zone file for workshop.org

```
1.1.1.1.E.F.A.C.8.B.D.0.1.0.0.2.ip6.arpa. IN SOA server.workshop.org.
root.server.workshop.org. (
    1          ; Serial
    10800     ; Refresh after 3 hours
    3600      ; Retry after 1 hour
    604800    ; Expire after 1 week
    86400     ; Minimum TTL of 1 day
)

;
; Name servers
;
1.1.1.1.E.F.A.C.8.B.D.0.1.0.0.2.ip6.arpa. IN NS  server.workshop.org.

;
; Addresses point to canonical name
;
0.1.0.0.0.0.0.0.0.0.0.0.0.0.0.0.1.1.1.1.E.F.A.C.8.B.D.0.1.0.0.2.ip6.arpa.    IN PTR
pc28.workshop.org.                                                                IN PTR
5.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.1.1.1.1.E.F.A.C.8.B.D.0.1.0.0.2.ip6.arpa.    IN PTR
server.workshop.org.
```