Lab Sheet 5

Installing a DNS server

The goal of this worksheet is to allow you to understand how to install and configure a DNS server in the Lab. Now is the time to check your basic knowledge of the Domain Name System.

Check the references at the bottom of this sheet, it may be useful to understand the concepts involved.

Lab work is team work. At the end of this sheet there are some suggestions on where to find more information on the subjects discussed here. All the answers to the exercices must be noted in your lab-book, or in a document created with that purpose. Remember that a well document experimental activity is always a precious help in the future; on the contrary, a non-documented experimental activity is nothing more than a mere visit to the Lab.

Also: after the class, please be leave the workbenches in proper condition! Remember, your workplace may be seen as a mirror of your work.

If you need help, please ask your teacher.

Enjoy your work!

1. What is the structure of the Domain Name System? What are the fields of a DNS record?

2. There are several programs that may be used to place queries to DNS servers. Use the expression "DNS query" on your favorite web search engine, and review the main concepts of the DNS system while using one or two of these tools.

3. DNS attacks are extremely dangerous. The TXDNS tool (http://www.txdns.net/, for Windows only), probes DNS records. What does this tool does? Are there similar tools for Linux?

4. Install BIND (`http://www.isc.org/products/BIND`) using `yum`. You need to install bind (`yum install bind*`), `caching-server` and `bind-utils` to install the BIND dns (service `named`). You also need to install the configuration files to allow `named` to act as a cache server. Check if `dig`, `nslookup`, and `host` are available in `bind-utils` (see `http://tldp.org/HOWTO/DNS-HOWTO.html` `http://www.zytrax.com`).

5. Test the DNS service installed in 10.0.2.1. Check the existing configurations at the local resolver (`host.conf`, `hosts` and `resolv.conf` files).

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6. Find the servers that have information on **www.di.ubi.pt**.

7. Find the servers for **di.ubi.pt** and check the last update on that info.

8. Find the servers for the domains for mail exchange on **ubi.pt**. and **di.ubi.pt**. When are these servers called upon?

9. Find the servers for the **pt** Top Level Domain. Are they on the same domain? Why?

10. Place queries on DNS servers, using the existing clients / programs. Use Wireshark to capture the corresponding network traffic. What are your conclusions?

11. Start BIND using **/etc/rc.d/init.d/named start** .

12. Check the chache mode configuration, installing also the DNS graphical interface **system-config-bind** (use **yum**).

13. Find the number of existing zones, and see what are the zones your DNS server is responsible.

14. Create the domain **labredesXXX.di.ubi.pt** adding it in **named.conf** being XXX the value for the last byte of your IPv4 address.

15. You will also need to create two additional zones: the **labredesXXX.di.ubi.pt** and the **2.0.10.in-addr-arpa** in two specific files (e.g. **labredesXXX** and **10.0.2**).

16. Create a secondary server for another domain on your workbench.

17. Change or add records (RR Resource Records) to your DNS server. Add **A**, **NS**, **PTR**, **CNAME**, **MX**, **TXT** records.

18. Use the existing clients to query the active DNS servers in the lab.

19. Create an **ACL** to allow the machines to question your DNS server.

20. Make a transference (AXFR) from the zone **2.0.10.in-addr-arpa**. Using a DNS client.

21. Check the resolution mode of the server using **dig @ip_server +trace remote_name**. How many servers are consulted to obtain the address for **csirt.di.ubi.pt**.

Finished already? Try some additional goodies…

22. There are some free DNS servers in the Internet. Try to find one of these servers and experiment on them.

23. What is a Dynamic DNS server? What is it used for?

24. What are the advantages of using a local DNS server?

25. What is the dashworld system?

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Visite the following Internet sites:

- http://www.dnsquery.org/
- http://www.webmaster-toolkit.com/dns-query.shtml
- http://www.dnsqueries.com/en/
- http://www.baixatudo.com.br/dns-query-tool-ferramenta-de-query-dns
- http://support.microsoft.com/kb/814591
- http://www.ubuntugeek.com/dns-server-setup-using-bind-in-ubuntu.html
- http://en.kioskea.net/forum/affich-24678-setting-up-my-own-dns-server
- http://www.computing.net/answers/networking/how-to-make-local-dns-server/35625.html
- http://dashworlds.com/src/page.php?P=home