Linnaeus University

Seminar 3

1DV720 – Server Administration

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1 Introduction

During this seminar, we will address the following topics:

- DNS
- DHCP
- Web Server

2 Deadline

The seminar is on the 24th of February 2016 and it is compulsory. If you cannot participate, it must be notified in advance and a written report of the seminar must be submitted no later than 3 days after the seminar. The written report should contain detailed answers to all questions in the seminar.

3 Seminar Questions

3.1 DNS

1. What is DNS and its main function?
2. What is Forward Lookup Zone?
3. What is Reverse Lookup Zone?
4. Please describe 10 different TLDs and its uses.
5. Without DNS, the Internet would not work:
   a. How does DNS structure on the Internet work?
   b. Must the company's DNS servers to be connected to the Internet's DNS servers?
   c. What is the difference between an internal DNS server from a public?
6. How does a DNS delegation work and when is it used?
7. How do you go about creating redundancy in a zone / domain?
8. Describe the following records:
   a. CNAME
   b. PTR
   c. MX
   d. SRV
   e. NS
   f. SOA
   g. A
9. What is a Zone transfer?
10. How does ROOT hints work?
11. Describe the advantages and disadvantages of DNS caching.
12. What is DNS forward and how it works?
13. How can you find out which server is an authoritative server for certain domain?

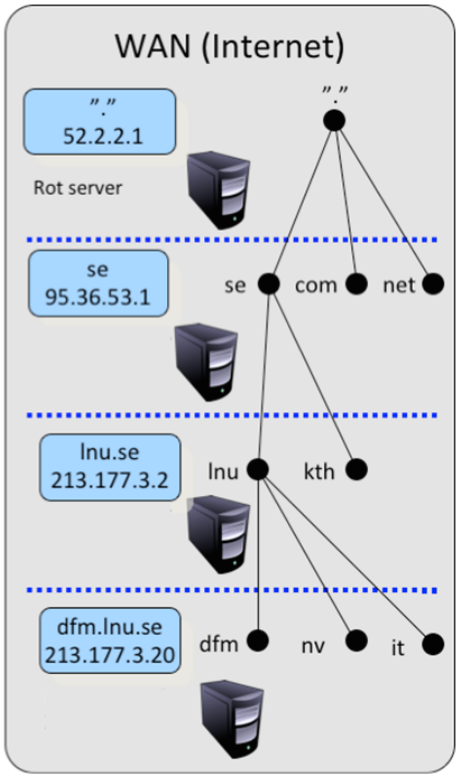

Figure 1: Namne servers on the Internet

14. Let's say you have a client that is connecting to a network that has its own DNS server that is configured with DNS forward to the company's ISP's DNS server. Start from Figure 1

    a. Describe in detail what happens when the client makes a recursive DNS request for IP of www.dfm.lnu.se

    b. Describe in detail what happens when the client makes a none recursive DNS request for IP of www.dfm.lnu.se

15. What is DDNS and why is it used?

3.2 DHCP

16. What is DHCP and how this simplifies administration?

17. What ports are used by DHCP service?
18. By using what protocol do DHCP client and server communicate?
19. Describe the following DHCP terms:
    a. Scope
    b. Exclusion range
    c. Address pool
    d. Lease
    e. Reservation
20. Describe the different steps of a DHCP request?

3.3 Web server

21. Locate where apache2 by default stores the website content and how you can change it.
22. Name and describe three different non-core apache modules that you find useful.
23. Explain how logging is working, where the log files are stored and how it/what can be configured.
24. What does virtual hosts means in apache and how can the server decide which to use?
25. In your apache configuration directory (/etc/apache2/) there are a few configuration files and folder. What does these do/-contain?
26. Explain what the following programs do (included in the apache installation) and how it locates the files it is using.
    a. a2enmod, a2dismod
    b. a2ensite, a2dissite
    c. a2enconf, a2disconf
27. What does the different sections <If>, <Directory>, <Locations>, <Files>mean in apache? Try to find some useful examples on each.

28. For this part we decided to use apache but there exists other webservers such as ngnix. Describe some benefits and drawbacks with apache. Can you find any other programs? What alternatives does it exist for Windows?