**LAB REPORT 5**

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**QUESTIONS** (40%)

1. What does DNS stands for?

Domain Name System

1. What is DNS server?

Main job to translate domain names like [www.uu.se](http://www.uu.se) to IP Address

1. Why DNS server is needed?

A system for naming computers and network services that is organized into a hierarchy of domains.

1. What version of BIND used in the lab?

V9.4

1. What does BIND stands for?

Berkeley Internet Name Domain

1. What is default port of BIND?

Port 53

1. What are the zero files in DNS server?

Zero files is what the DNS uses for the system. Default settings.

1. What are DNS ZONE files?

A zone file is a text file that describes the DNS Zone

1. What are the types of DNS servers?

There are many different types of DNS servers that the system recognizes, some examples are: primary, slave name servers, caching name servers

1. How the load balancing can be achieved using DNS server?

Is the practice of configuring a domain in the DNS such that client requests to the domain are distributed across group of server machines.

1. How to check the syntax of named.conf file?

sudo named-checkconf /etc/named.conf

1. Explain following Resource Records:
   1. SOA: a record stands for “state of authority” and is easily one of the most essential DSN records because it stores important information like when the domain was last updated and much more
   2. NS: Stands for “name server” and indicates which Name server is authoritative for the domain
   3. A: Stands for address, is the most basic type of syntax used in DNS records, indicating the actual IP address of the domain.
   4. PTR: Record stands for “pointer record” and maps an ipv4 address to the cname on the host.
   5. CNAME: Record stands for “canonical name” and serves to make one domain an alias of another domain. CNAME is often used to associate new subdomains with an existing domain's DNS records.
   6. MX:  record stands for “mail exchange” and is basically a list of mail exchange servers that are to be used for the domain.
   7. TXT: record lets the administrator insert any text they'd like into the DNS record, and it is often used for denoting facts about the domain.
   8. RP: Information about the responsible person(s) for the domain. Usually an email address with the @ replaced by a .
   9. WKS: Declared "not to be relied upon"
   10. HINFO: Not in current use by any notable application
2. Explain BIND CHROOT environment?

Is to limit the amount of access any malicious individual could gain by exploiting vulnerabilities in BIND. It is for the same reason that we run BIND as a non-root user.

1. What is domain delegation?

It's normally this last stage of delegation that is broken with most home user setups. They have gone through the process of buying a domain with a registrar/service provider, but have then failed to configure the domain to point the delegation to their own name servers. You actually have to tell the registrar where your nameservers are before they can put glue records in place to get your step of the delegation to work.

1. Illustrate how DNS works.

When you enter a URL into your Web browser, your DNS server uses its resources to resolve the name into the IP address for the appropriate Web server. See more computer networking pictures. If you've ever used the Internet, it's a good bet that you've used the Domain Name System, or DNS, even without realizing it.

1. How to setup secondary DNS and how to replicate the DNS entries to secondary DNS server?

You need to allow zone transfers for the slave DNS server's IP address, possibly configure the master to send notifies to slave servers (if this is not enabled by default) whenever there are zone changes, and have something like this in your slave DNS server's named.conf:

Whenever you make changes to the zones on your master DNS server, update the zone's serial number in the SOA record as well. The serial number is usually of the form yyyymmddnn, where nn is a sequence number, usually starting from 1 for each day. When the master server reloads the zone, it will send the serial number to the slave servers. If the slave servers notice that the serial number has changed, the slaves will initiate a zone transfer from the master.

**LINUX COMMANDS** (10%)

List all the UNIX Commands that you used in this lab and explain each command:

1. How to Assign an IP Address to Specific Interface with ip command?

ip addr add

1. How to Check an IP Address with ip command?

Ip a

1. How to Remove an IP Address with ip command?

ip addr del

1. How to Enable Network Interface with ip command?

ip link

1. How to Disable Network Interface with ip command?

ip link disable

1. How do I Check Route Table with ip command?

Ip checktable

1. How do I Add Static Route with ip command?

Ip route

1. How to Remove Static Route with ip command?

Ip route -r

1. How do I Add Persistence Static Routes with ip command?

nano /etc/sysconfig/network-scripts/route-eth0

A static config file has to be created and make sure to name it route-interface.

1. How do I Add Default Gateway with ip command?

Ip route -gw

**TROUBLESHOOTING** (50%)

From this lab what troubles did you have?

Identify the problem:

Problem 1: The biggest problem I ran into with this lab was the ability to understand how to set-up a DNS server. I have restarted 3 times and when I finally broke it down I was able to get it.

Solution 1: In order for me to resolve the problem I had to indentify the issue. The issue in this case was being able to understand how the .config file worked, and when creating the script; every little detail mattered. Everything from whitespace, to naming convention. Although we ran the checker, obviously there were issue that had to be resolved. Creating the ns machine to communicate with the DHCP server was a different challenge. In the end, breaking down the .bash files and understand what each portion did was the I resolved my issue.