Linux Servers

Classroom Assignment 6 – Hostnames and DNS

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Document your commands or take screenshots. Answer questions in english or finnish.

1. Hostnames

Configure all your VMs with the correct hostnames given in the topology picture. Add them to the hosts files also so you can use hostnames when pinging. Test with ping.

On the router:

```
 GNU nano 2.3.1                                  File: /etc/hostname

router.localdomain
```

```
 GNU nano 2.3.1                File: /etc/hosts                          Modified

127.0.0.1   localhost localhost.localdomain localhost4 localhost4.localdomain4
::1         localhost localhost.localdomain localhost6 localhost6.localdomain6
192.168.1.107   router.local
192.168.3.2     admin.local
192.168.2.3     client.local
```

```
[root@router ~]# ping admin.local
PING admin.local (192.168.3.2) 56(84) bytes of data.
```

2. DNS servers

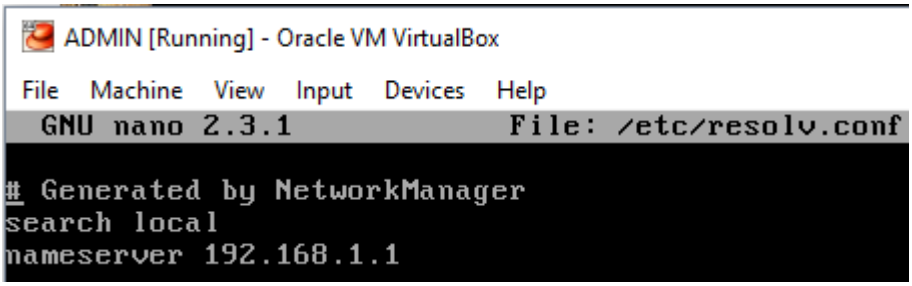
Find out what DNS servers the Router.local VM gets automatically from the LabraNet DHCP server. Configure the other VMs to use these DNS-servers also. You should now have a fully working Internet access on all of the VMs. Test with ping, traceroute, nslookup and other tools.

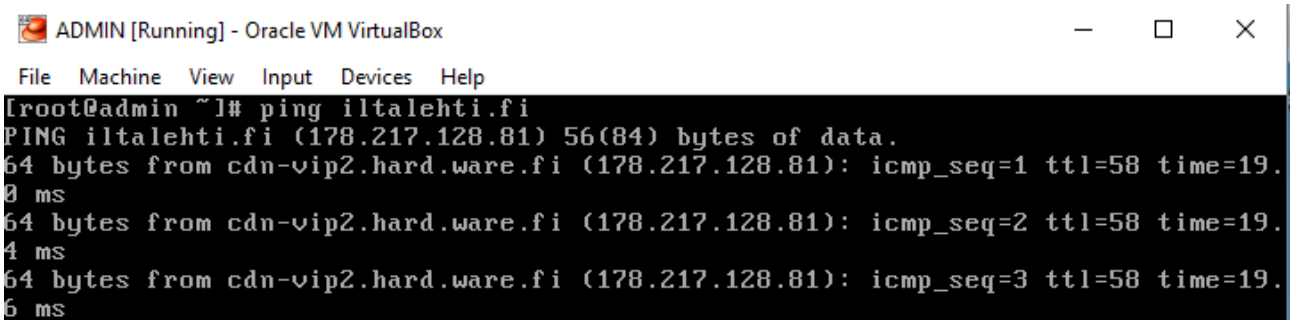
Here is my dns server:

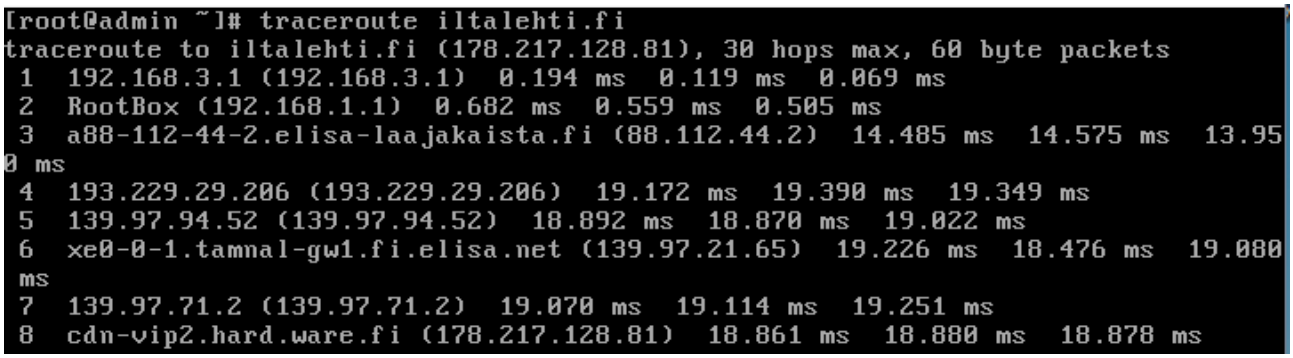
```
DNS Servers . . . . . . . . . . . : 192.168.1.1
NetBIOS over Tcpip. . . . . . . . : Enabled
```

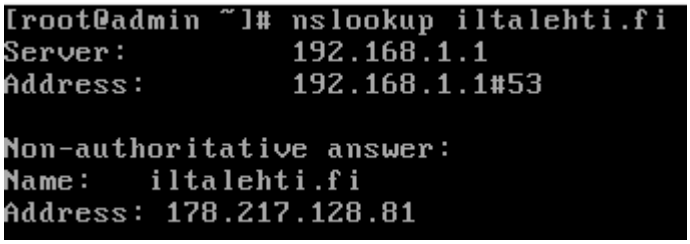
```
 GNU nano 2.3.1                                  File: /etc/resolv.conf

# Generated by NetworkManager
search elisa-laajakaista.fi elisa-laajakaista.fi. localdomain
nameserver 192.168.1.1
```









3. Name lookup

With the dig -tool, find out the next information:

- How many different IP addresses are behind www.iltasanomat.fi?

```
;; ANSWER SECTION:
www.iltasanomat.fi.     24      IN      A       54.240.184.190
www.iltasanomat.fi.     24      IN      A       54.240.184.178
www.iltasanomat.fi.     24      IN      A       54.240.184.61
www.iltasanomat.fi.     24      IN      A       54.240.184.66
www.iltasanomat.fi.     24      IN      A       54.240.184.172
www.iltasanomat.fi.     24      IN      A       54.240.184.144
www.iltasanomat.fi.     24      IN      A       54.240.184.36
www.iltasanomat.fi.     24      IN      A       54.240.184.156
```

- What are the nameservers for the sonera.fi domain?

```
[root@client ~]# dig NS sonera.fi
```

```
;; ANSWER SECTION:
sonera.fi.              1080    IN      NS      ns2-usa.global.sonera.net.
sonera.fi.              1080    IN      NS      ns2-fin.global.sonera.fi.
sonera.fi.              1080    IN      NS      ns1-fin.global.sonera.fi.
sonera.fi.              1080    IN      NS      ns1-swe.global.sonera.se.
```

- Does jamk.fi have an IPv6 address? How about google.com?

```
[root@admin ~]# dig google.com ANY +short
ns4.google.com.
ns1.google.com.
ns3.google.com.
ns2.google.com.
```

JAMK doesn't have

```
[root@admin ~]# dig jamk.fi ANY +short
jazz.jypoly.fi. hostmaster.jamk.fi. 201101773 43200 900 1209600 3600
tango.jypoly.fi.
humppa.jypoly.fi.
jazz.jypoly.fi.
```

- What server is responsible for E-mail to @jamk.fi –addresses? How about @student.jamk.fi?

```
[root@admin ~]# dig jamk.fi MX
;; ANSWER SECTION:
jamk.fi.                60      IN      MX      10 jamk-fi.mail.protection.outlo
ok.com.
```

```
[root@admin ~]# dig student.jamk.fi MX
;; ANSWER SECTION:
student.jamk.fi.        3600    IN      MX      0 student-jamk-fi.mail.protectio
n.outlook.com.
```

- Do a reverse lookup for IP address 195.148.26.130. What is this server?

```
[root@admin ~]# dig -x 195.148.26.130
;; ANSWER SECTION:
130.26.148.195.in-addr.arpa. 86400 IN   PTR     student.labranet.jamk.fi.
130.26.148.195.in-addr.arpa. 86400 IN   PTR     homes.labranet.jamk.fi.
```

- Do a full trace of the name student.labranet.jamk.fi. How many different nameservers are responsible for the whole query?

```
[root@admin ~]# dig +trace student.labranet.jamk.fi

; <<>> DiG 9.9.4-RedHat-9.9.4-18.el7_1.5 <<>> +trace student.labranet.jamk.fi
;; global options: +cmd
.                       85676   IN      NS      b.root-servers.net.
.                       85676   IN      NS      d.root-servers.net.
.                       85676   IN      NS      j.root-servers.net.
.                       85676   IN      NS      e.root-servers.net.
.                       85676   IN      NS      h.root-servers.net.
.                       85676   IN      NS      l.root-servers.net.
.                       85676   IN      NS      m.root-servers.net.
.                       85676   IN      NS      c.root-servers.net.
.                       85676   IN      NS      a.root-servers.net.
.                       85676   IN      NS      i.root-servers.net.
.                       85676   IN      NS      f.root-servers.net.
.                       85676   IN      NS      k.root-servers.net.
.                       85676   IN      NS      g.root-servers.net.
;; Received 241 bytes from 192.168.1.1#53(192.168.1.1) in 311 ms
```

```
fi.                     172800  IN      NS      a.fi.
fi.                     172800  IN      NS      b.fi.
fi.                     172800  IN      NS      c.fi.
fi.                     172800  IN      NS      d.fi.
fi.                     172800  IN      NS      e.fi.
fi.                     172800  IN      NS      f.fi.
fi.                     172800  IN      NS      g.fi.
fi.                     172800  IN      NS      h.fi.
```

```
student.labranet.jamk.fi. 60    IN      A       195.148.26.130
jamk.fi.                86400   IN      NS      tango.jypoly.fi.
jamk.fi.                86400   IN      NS      humppa.jypoly.fi.
jamk.fi.                86400   IN      NS      jazz.jypoly.fi.
;; Received 268 bytes from 195.148.128.19#53(jazz.jypoly.fi) in 42 ms
```