

Лаборатория работа 2

Настройка DNS-сервера

ПОДГОТОВИЛА: КИМ РЕАЧНА
ГРУППА: НПИБД-02-20

Цель работы:

Приобретение практических навыков по установке и конфигурированию DNS-сервера, усвоение принципов работы системы доменных имён.

Задание:

- Установка DNS-сервера
- Конфигурирование кэширующего DNS-сервера
- Конфигурирование первичного DNS-сервера
- Анализ работы DNS-сервера
- Внесение изменений в настройки внутреннего окружения виртуальной машины

Установка DNS-сервера

```
PS D:\work\kreachna\vagrant> vagrant up server
Bringing machine 'server' up with 'virtualbox' provider...
==> server: You assigned a static IP ending in ".1" to this machine.
==> server: This is very often used by the router and can cause the
==> server: network to not work properly. If the network doesn't work
==> server: properly, try changing this IP.
==> server: Preparing master VM for linked clones...
server: This is a one time operation. Once the master VM is prepared,
server: it will be used as a base for linked clones, making the creation
server: of new VMs take milliseconds on a modern system.
==> server: Importing base box 'rocky9'...
```

```
kreachna@server.kreachna.net ~]$ sudo -i
```

```
I trust you have received the usual lecture from the local System
Administrator. It usually boils down to these three things:
```

- #1) Respect the privacy of others.
- #2) Think before you type.
- #3) With great power comes great responsibility.

```
o] password for kreachna:
```

```
[root@server.kreachna.net ~]# dig www.yandex.ru
```

```
; <<>> DiG 9.16.23-RH <<>> www.yandex.ru
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 40368
;; flags: qr rd ra; QUERY: 1, ANSWER: 4, AUTHORITY: 0, ADDITIONAL: 0

;; QUESTION SECTION:
;www.yandex.ru.                IN      A

;; ANSWER SECTION:
www.yandex.ru.                 3600    IN      A      77.88.55.70
```

Конфигурирование кэширующего DNS-сервера

```
[root@server.kreachna.net ~]# systemctl start named
[root@server.kreachna.net ~]# systemctl enable named
Created symlink /etc/systemd/system/multi-user.target.wants/named.service → /usr/lib/systemd/system/named.service.
[root@server.kreachna.net ~]# dig @127.0.0.1 www.yandex.ru

; <<>> DiG 9.16.23-RH <<>> @127.0.0.1 www.yandex.ru
; (1 server found)
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 57426
;; flags: qr rd ra; QUERY: 1, ANSWER: 4, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:;, udp: 1232
; COOKIE: 1c17420e2f33be3301000000636fba79197e16aee45ffa9a (good)
;; QUESTION SECTION:
;www.yandex.ru.                IN      A

;; ANSWER SECTION:
www.yandex.ru.                300     IN      A       5.255.255.50
www.yandex.ru.                300     IN      A       77.88.55.66
www.yandex.ru.                300     IN      A       77.88.55.70
www.yandex.ru.                300     IN      A       5.255.255.55

;; Query time: 273 msec
;; SERVER: 127.0.0.1#53(127.0.0.1)
;; WHEN: Sat Nov 12 15:23:37 UTC 2022
;; MSG SIZE rcvd: 134
```

```
[root@server.kreachna.net ~]# nmcli connection edit System\ eth0
```

```
===| nmcli interactive connection editor |===
```

```
Editing existing '802-3-ethernet' connection: 'System eth0'
```

```
Type 'help' or '?' for available commands.
```

```
Type 'print' to show all the connection properties.
```

```
Type 'describe [<setting>.<prop>]' for detailed property description.
```

```
You may edit the following settings: connection, 802-3-ethernet (ethernet), 802, match, ipv4, ipv6, hostname, tc, proxy
```

```
nmcli> remove ipv4.dns
```

```
nmcli> set ipv4.ignore-auto-dns yes
```

```
nmcli> set ipv4.dns 127.0.0.1
```

```
nmcli> save
```

```
Connection 'System eth0' (5fb06bd0-0bb0-7ffb-45f1-d6edd65f3e03) successfully up
```

```
nmcli> quit
```

```
[root@server.kreachna.net ~]# systemctl restart NetworkManager
```


Конфигурирование первичного DNS-сервера

```
[root@server.kreachna.net ~]# cp /etc/named.rfc1912.zones /etc/named/  
[root@server.kreachna.net ~]# cd /etc/named  
[root@server.kreachna.net named]# mv /etc/named/named.rfc1912.zones /etc/named/kreachna.net
```

```
kreachna.net      [-M--]  0 L:[ 5+23 28/ 29] *(699 / 700b) 0010 0x00A  
// ISC BIND named zone configuration for zones recommended by  
// RFC 1912 section 4.1 : localhost TLDs and address zones  
// and https://tools.ietf.org/html/rfc6303  
// (c)2007 R W Franks  
//.  
// See /usr/share/doc/bind*/sample/ for example named configuration files.  
//  
// Note: empty-zones-enable yes; option is default.  
// If private ranges should be forwarded, add.  
// disable-empty-zone "."; into options  
//.  
  
zone "kreachna.net" IN {  
    <----->type master;  
    <----->file "master/fz/kreachna.net";  
    <----->allow-update { none; };  
};  
  
zone "1.168.192.in-addr.arpa" IN {  
    <----->type master;  
    <----->file "master/rz/192.168.1";  
    <----->allow-update { none; };  
};
```

Анализ работы DNS-сервера

```
root@server:/vagrant x mc [root@server.kreac... x ro
[root@server.kreachna.net ~]# dig ns.kreachna.net

; <<>> DiG 9.16.23-RH <<>> ns.kreachna.net
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 14272
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, AD

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
; COOKIE: cf4a9e23314096e601000000636fe7c5b5f33523d3554ffb (
;; QUESTION SECTION:
ns.kreachna.net.                IN      A

;; ANSWER SECTION:
ns.kreachna.net.                86400   IN      A      192.168.1.1

;; Query time: 0 msec
;; SERVER: 127.0.0.1#53(127.0.0.1)
;; WHEN: Sat Nov 12 18:36:53 UTC 2022
;; MSG SIZE rcvd: 88
```

```
[root@server.kreachna.net ~]# host -l kreachna.net
kreachna.net name server kreachna.net.
kreachna.net has address 192.168.1.1
ns.kreachna.net has address 192.168.1.1
server.kreachna.net has address 192.168.1.1
[root@server.kreachna.net ~]# host -a kreachna.net
Trying "kreachna.net"
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 5895
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 3, AUTHORITY: 0, ADDITIONA

;; QUESTION SECTION:
kreachna.net.                IN      ANY

;; ANSWER SECTION:
kreachna.net.                86400   IN      SOA     kreachna.net. serve
t. 2020110500 86400 3600 604800 10800
kreachna.net.                86400   IN      NS      kreachna.net.
kreachna.net.                86400   IN      A      192.168.1.1

;; ADDITIONAL SECTION:
kreachna.net.                86400   IN      A      192.168.1.1

Received 119 bytes from 127.0.0.1#53 in 1 ms
```


Внесение изменений в настройки внутреннего окружения виртуальной машины

```
[root@server.kreachna.net ~]# cd /vagrant
[root@server.kreachna.net vagrant]# mkdir -p /vagrant/provision/server/dns/etc/named
[root@server.kreachna.net vagrant]# mkdir -p /vagrant/provision/server/dns/var/named/master/
[root@server.kreachna.net vagrant]# cp -R /etc/named.conf /vagrant/provision/server/dns/etc/
[root@server.kreachna.net vagrant]# cp -R /etc/named/* /vagrant/provision/server/dns/etc/named/
[root@server.kreachna.net vagrant]# cp -R /var/named/master/* /vagrant/provision/server/dns/var/named/master/
```

```
[root@server.kreachna.net vagrant]# cd provision
[root@server.kreachna.net provision]# cd server
[root@server.kreachna.net server]# touch dns.sh
[root@server.kreachna.net server]# chmod +x dns.sh
```

Вывод

Я установила и сконфигурировала DNS-сервер, и разобрался с основными принципами системы доменных имён.

Спасибо за внимание!