Лабораторная работа № 3. Настройка DHCP-сервера

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Цель работы

- Приобретение практических навыков по установке и конфигурированию DHCP-сервера.

Конфигурирование DHCP-сервера

```
[root@server.dastarikov.net ~]# cd /etc/dhcp
cp /usr/share/doc/dhcp*/dhcpd.conf.example /etc/dhcp
mv /etc/dhcp/dhcpd.conf.example /etc/dhcp/dhcpd.conf
mv: overwrite '/etc/dhcp/dhcpd.conf'? y
[root@server.dastarikov.net dhcp]#
```

Рис.: Подготовка файла конфигурации.

Конфигурирование DHCP-сервера

```
[Unit]
Descriptio=DHCPv4 Server Daemon
Documentation=man:dhcpd(8) man:dhcpd.conf(5)
Wants=network-online.target
After=network-online.target
After=time-sync.target

[Service]
Type=notify
EnvironmentFile=-/etc/sysconfig/dhcpd
ExecStart=/usr/sbin/dhcpd -f -cf /etc/dhcp/dhcpd.conf -user dhcpd -group dhcpd
 --no-pid eth1
StandardError=null

[Install]
WantedBy=multi-user.target
```

Рис.: Настройка dhcpd.

Конфигурирование DHCP-сервера

```
[root@server.dastarikov.net dhcp]# systemctl --system daemon-reload
systemctl enable dhcpd
Created symlink /etc/systemd/system/multi-user.target.wants/dhcpd.service → /e
tc/systemd/system/dhcpd.service.
[root@server.dastarikov.net dhcp]#
```

Рис.: Перезагрузка демона dhcpd.

Конфигурирование DHCP-сервера

```
$TTL 1D
@       IN SOA  @ server.dastarikov.net (
                                        2024101901      ; serial
                                        1D      ; refresh
                                        1H      ; retry
                                        1W      ; expire
                                        3H )    ; minimum
        NS      @
        A       192.168.1.1
$ORIGIN dastarikov.net.
server  A       192.168.1.1
ns      A       192.168.1.1
dhcp    A       192.168.1.1
```

Рис.: Изменение файла прямой DNS-зоны.

Конфигурирование DHCP-сервера

```
$TTL 1D
@       IN SOA  @ server.dastarikov.net. (
                                        2024101901      ; serial
                                        1D      ; refresh
                                        1H      ; retry
                                        1W      ; expire
                                        3H )    ; minimum
        NS      @
        A       192.168.1.1
        PTR     server.dastarikov.net
$ORIGIN 1.168.192.in-addr.arpa.
1       PTR     server.dastarikov.net.
1       PTR     ns.dastarikov.net.
1       PTR     dhcp.dastarikov.net.
```

Рис.: Изменение файла обратной DNS-зоны.

Конфигурирование DHCP-сервера

```
[root@server.dastarikov.net dhcp]# systemctl restart named
[root@server.dastarikov.net dhcp]# ping dhcp.dastarikov.net
PING dhcp.dastarikov.net (192.168.1.1) 56(84) bytes of data.
64 bytes from ns.dastarikov.net (192.168.1.1): icmp_seq=1 ttl=64 time=0.045 ms
64 bytes from dhcp.dastarikov.net (192.168.1.1): icmp_seq=2 ttl=64 time=0.084
ms
64 bytes from server.dastarikov.net (192.168.1.1): icmp_seq=3 ttl=64 time=0.12
6 ms
64 bytes from server.dastarikov.net (192.168.1.1): icmp_seq=4 ttl=64 time=0.12
9 ms
^C
--- dhcp.dastarikov.net ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3101ms
rtt min/avg/max/mdev = 0.045/0.096/0.129/0.034 ms
```

Рис.: Обращение к DHCP-серверу.

Конфигурирование DHCP-сервера

```
[root@server.dastarikov.net dhcp]# firewall-cmd --list-services
firewall-cmd --get-services
firewall-cmd --add-service=dhcp
firewall-cmd --add-service=dhcp --permanent
cockpit dhcpv6-client dns ssh
RH-Satellite-6 RH-Satellite-6-capsule afp amanda-client amanda-k5-client amqp amqps apcupsd audit ausweisapp2 ba
cula bacula-client bareos-director bareos-filedaemon bareos-storage bb bgp bitcoin bitcoin-rpc bitcoin-testnet b
itcoin-testnet-rpc bittorrent-lsd ceph ceph-exporter ceph-mon cfengine checkmk-agent cockpit collectd condor-col
lector cratedb ctdb dds dds-multicast dds-unicast dhcp dhcpv6 dhcpv6-client distcc dns dns-over-tls docker-regis
try docker-swarm dropbox-lansync elasticsearch etcd-client etcd-server finger foreman foreman-proxy freeipa-4 fr
eeipa-ldap freeipa-ldaps freeipa-replication freeipa-trust ftp galera ganglia-client ganglia-master git gpsd gra
fana gre high-availability http http3 https ident imap imaps ipfs ipp ipp-client ipsec irc ircs iscsi-target isn
s jenkins kadmin kdeconnect kerberos kibana klogin kpasswd kprop kshell kube-api kube-apiserver kube-control-pla
ne kube-control-plane-secure kube-controller-manager kube-controller-manager-secure kube-nodeport-services kube-
scheduler kube-scheduler-secure kube-worker kubelet kubelet-readonly kubelet-worker ldap ldaps libvirt libvirt-t
ls lightning-network llmnr llmnr-client llmnr-tcp llmnr-udp managesieve matrix mdns memcache minidlna mongodb mo
sh mountd mqtt mqtt-tls ms-wbt mssql murmur mysql nbd nebula netbios-ns netdata-dashboard nfs nfs3 nmea-0183 nrp
e ntp nut openvpn ovirt-imageio ovirt-storageconsole ovirt-vmconsole plex pmcd pmproxy pmwebapi pmwebapis pop3 p
op3s postgresql privoxy prometheus prometheus-node-exporter proxy-dhcp ps2link ps3netsrv ptp pulseaudio puppetma
ster quassel radius rdp redis redis-sentinel rpc-bind rquotad rsh rsyncd rtsp salt-master samba samba-client sam
ba-dc sane sip sips slp smtp smtp-submission smtps snmp snmptls snmptls-trap snmptrap spideroak-lansync spotify-
sync squid ssdp ssh steam-streaming svdrp svn syncthing syncthing-gui syncthing-relay synergy syslog syslog-tls
telnet tentacle tftp tile38 tinc tor-socks transmission-client upnp-client vdsm vnc-server warpinator wbem-http
wbem-https wireguard ws-discovery ws-discovery-client ws-discovery-tcp ws-discovery-udp wsman wsmans xdmcp xmpp-
bosh xmpp-client xmpp-local xmpp-server zabbix-agent zabbix-server zerotier
success
success
```

Рис.: Настройка межсетевого экрана для работы с DHCP.

Конфигурирование DHCP-сервера

```
[root@server.dastarikov.net dhcp]# restorecon -vR /etc
restorecon -vR /var/named
restorecon -vR /var/lib/dhcpd/
Relabeled /etc/systemd/system/dhcpd.service from unconfined_u:object_r:systemd_unit_file_t:s0 to u
nconfined_u:object_r:dhcpd_unit_file_t:s0
Relabeled /etc/sysconfig/network-scripts/ifcfg-eth1 from unconfined_u:object_r:user_tmp_t:s0 to un
confined_u:object_r:net_conf_t:s0
[root@server.dastarikov.net dhcp]#
```

Рис.: Восстановление контекста безопасности SELinux.

Анализ работы DHCP-сервера

```
→  vagrant make client-provision
Bringing machine 'client' up with 'virtualbox' provider...
==> client: Clearing any previously set forwarded ports...
==> client: Fixed port collision for 22 => 2222. Now on port 2200.
==> client: Clearing any previously set network interfaces...
==> client: Preparing network interfaces based on configuration...
    client: Adapter 1: nat
    client: Adapter 2: intnet
==> client: Forwarding ports...
    client: 22 (guest) => 2200 (host) (adapter 1)
==> client: Running 'pre-boot' VM customizations...
==> client: Booting VM...
==> client: Waiting for machine to boot. This may take a few minutes...
    client: SSH address: 127.0.0.1:2200
    client: SSH username: vagrant
    client: SSH auth method: password
```

Рис.: Фиксирование внесенных изменений и запуск виртуальной машины client.

Анализ работы DHCP-сервера

```
[dastarikov@client.dastarikov.net ~]$ ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 10.0.2.15  netmask 255.255.255.0  broadcast 10.0.2.255
        inet6 fe80::a00:27ff:fe4c:cc9c  prefixlen 64  scopeid 0x20<link>
        ether 08:00:27:4c:cc:9c  txqueuelen 1000  (Ethernet)
        RX packets 1592  bytes 178414 (174.2 KiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 1474  bytes 226540 (221.2 KiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

eth1: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 192.168.1.30  netmask 255.255.255.0  broadcast 192.168.1.255
        inet6 fe80::a00:27ff:fe16:c3e7  prefixlen 64  scopeid 0x20<link>
        ether 08:00:27:16:c3:e7  txqueuelen 1000  (Ethernet)
        RX packets 17  bytes 2944 (2.8 KiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 166  bytes 21528 (21.0 KiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING>  mtu 65536
        inet 127.0.0.1  netmask 255.0.0.0
        inet6 ::1  prefixlen 128  scopeid 0x10<host>
        loop  txqueuelen 1000  (Local Loopback)
        RX packets 19  bytes 2146 (2.0 KiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 19  bytes 2146 (2.0 KiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
```

Настройка обновления DNS-зоны

```
zone "dastarikov.net" IN {
        type master;
        file "master/fz/dastarikov.net";
        allow-update { 127.0.0.1; };
};

zone "1.168.192.in-addr.arpa" IN {
        type master;
        file "master/rz/192.168.1";
        allow-update { 127.0.0.1; };
};
```

Рис.: Обновление файла DNS-зоны на виртуальной машине server.

Настройка обновления DNS-зоны

```
[root@server.dastarikov.net fz]# ls
dastarikov.net  dastarikov.net.jnl
```

Рис.: Проверка создания файла.

Выводы

- В результате выполения лабораторной работы приобрели практические навыки по установке и конфигурированию DHCP-сервера.