

Лаборатория работа 13

Настройка NFS

ПОДГОТОВИЛА: КИМ РЕАЧНА
ГРУППА: НПИБД-02-20

Цель работы:

Приобретение навыков настройки сервера NFS для удалённого доступа к ресурсам.

Задание:

- Настройка сервера NFSv4
- Монтирование NFS на клиенте
- Подключение каталогов к дереву NFS
- Подключение каталогов для работы пользователей
- Внесение изменений в настройки внутреннего окружения виртуальных машин

Настройка сервера NFSv4

```
[kreachna@server.kreachna.net ~]$ sudo -i
[sudo] password for kreachna:
[root@server.kreachna.net ~]# dnf -y install nfs-utils
Extra Packages for Enterprise Linux 9 - x86_64      25 kB/s | 20 kB      00:00
Extra Packages for Enterprise Linux 9 - x86_64      6.2 MB/s | 12 MB     00:01
Rocky Linux 9 - BaseOS                             4.4 kB/s | 3.6 kB    00:00
Rocky Linux 9 - AppStream                          5.4 kB/s | 4.1 kB    00:00
Rocky Linux 9 - Extras
Dependencies resolved.
=====
Package                Architecture      Ver
=====
Installing:
nfs-utils              x86_64           1:2
Installing dependencies:
gssproxy              x86_64           0.8
keyutils              x86_64           1.6
libev                 x86_64           4.3
libnfsidmap           x86_64           1:2
libverto-libev        x86_64           0.3
python3-pyyaml        x86_64           5.4
rpcbind               x86_64           1.2
sssd-nfs-idmap        x86_64           2.7
Transaction Summary
=====
Install 9 Packages
```

```
[kreachna@client.kreachna.net ~]$ sudo -i
[sudo] password for kreachna:
[root@client.kreachna.net ~]# dnf -y install nfs-utils
Extra Packages for Enterprise Linux 9 - x86_64      18 kB/s | 20 kB      00:01
Extra Packages for Enterprise Linux 9 - x86_64      6.2 MB/s | 12 MB     00:01
Rocky Linux 9 - BaseOS                             4.1 kB/s | 3.6 kB    00:00
Rocky Linux 9 - AppStream                          6.0 kB/s | 4.1 kB    00:00
Rocky Linux 9 - Extras                             4.4 kB/s | 2.9 kB    00:00
Dependencies resolved.
=====
Package                Architecture      Version              Repository      Size
=====
Installing:
nfs-utils              x86_64           1:2.5.4-15.el9      baseos         421 k
Installing dependencies:
gssproxy              x86_64           0.8.4-4.el9         baseos         108 k
keyutils              x86_64           1.6.1-4.el9         baseos         62 k
libev                 x86_64           4.33-5.el9          baseos         52 k
libnfsidmap           x86_64           1:2.5.4-15.el9      baseos         61 k
libverto-libev        x86_64           0.3.2-3.el9         baseos         13 k
python3-pyyaml        x86_64           5.4.1-6.el9         baseos        191 k
rpcbind               x86_64           1.2.6-5.el9         baseos         56 k
sssd-nfs-idmap        x86_64           2.7.3-4.el9_1.1     baseos         39 k
Transaction Summary
=====
Install 9 Packages
```

Монтирование NFS на клиенте

```
[root@client.kreachna.net ~]# mount
proc on /proc type proc (rw,nosuid,nodev,noexec,relatime)
sysfs on /sys type sysfs (rw,nosuid,nodev,noexec,relatime,seclabel)
devtmpfs on /dev type devtmpfs (rw,nosuid,seclabel,size=4096k,nr_inodes=1048576,mode=755,inode64)
securityfs on /sys/kernel/security type securityfs (rw,nosuid,nodev,noexec,relatime)
tmpfs on /dev/shm type tmpfs (rw,nosuid,nodev,seclabel,inode64)
devpts on /dev/pts type devpts (rw,nosuid,noexec,relatime,seclabel,gid=5,mode=620,ptmxmode=000)
tmpfs on /run type tmpfs (rw,nosuid,nodev,seclabel,size=195916k,nr_inodes=819200,mode=755,inode64)
cgroup2 on /sys/fs/cgroup type cgroup2 (rw,nosuid,nodev,noexec,relatime,seclabel,nsdelegate,memory_recursive
prot)
pstore on /sys/fs/pstore type pstore (rw,nosuid,nodev,noexec,relatime,seclabel)
none on /sys/fs/bpf type bpf (rw,nosuid,nodev,noexec,relatime,mode=700)
/dev/sda1 on / type xfs (rw,relatime,seclabel,attr2,inode64,logbufs=8,logbsize=32k,noquota)
selinuxfs on /sys/fs/selinux type selinuxfs (rw,nosuid,noexec,relatime)
systemd-1 on /proc/sys/fs/binfmt_misc type autofs (rw,relatime,fd=31,pgrp=1,timeout=0,minproto=5,maxproto=5,
direct,pipe_ino=17293)
mqueue on /dev/mqueue type mqueue (rw,nosuid,nodev,noexec,relatime,seclabel)
hugetlbfs on /dev/hugepages type hugetlbfs (rw,relatime,seclabel,pagesize=2M)
debugfs on /sys/kernel/debug type debugfs (rw,nosuid,nodev,noexec,relatime,seclabel)
tracefs on /sys/kernel/tracing type tracefs (rw,nosuid,nodev,noexec,relatime,seclabel)
fusectl on /sys/fs/fuse/connections type fusectl (rw,nosuid,nodev,noexec,relatime,seclabel)
configfs on /sys/kernel/config type configfs (rw,nosuid,nodev,noexec,relatime,seclabel)
vagrant on /vagrant type vboxsf (rw,nodev,relatime,fuse,device=vagrant)
vagrant on /vagrant type vboxsf (rw,nodev,relatime,fuse,device=vagrant)
tmpfs on /run/user/1001 type tmpfs (rw,nosuid,nodev,relatime,seclabel,size=8192k,nr_inodes=2048,mode=700,uid=1001,gid=1001,inode64)
gvfsd-fuse on /run/user/1001/gvfs type fuse.gvfsd-fuse (rw,nosuid,nodev,relatime,fuse,device=gvfsd-fuse)
sunrpc on /var/lib/nfs/rpc_pipefs type rpc_pipefs (rw,nosuid,nodev,relatime)
server.kreachna.net:/srv/nfs on /mnt/nfs type nfs (rw,relatime,fuse,device=server.kreachna.net:/srv/nfs,hard,proto=tcp,timeo=600,retrans=2,sec=sys)
```

```
[kreachna@client.kreachna.net ~]$ systemctl status remote-fs.target
```

```
● remote-fs.target - Remote File Systems
```

```
Loaded: loaded (/usr/lib/systemd/system/remote-fs.target; enabled; vendor preset: enabled)
```

```
Active: active since Thu 2022-12-22 13:37:04 MSK; 1min 16s ago
```

```
Until: Thu 2022-12-22 13:37:04 MSK; 1min 16s ago
```

```
Docs: man:systemd.special(7)
```

```
Dec 22 13:37:04 client.kreachna.net systemd[1]: Reached target Remote File Systems
```

```
lines 1-7/7 (END)
```


Подключение каталогов к дереву NFS

Left	File	Command	Options	Right
<-	/mnt/nfs/www			<- ~
.n	Name		Size	Modify time
/..		UP - -DIR	Dec 22 12:44	/..
				/.cache
				/.config

kreachna@client:/mnt/nfs/www				mc [root@client.kreachna.net]:/mnt/nfs			
Left	File	Command	Options	Right			
<-	/mnt/nfs/www			<- ~			
.n	Name		Size	Modify time			
/..		UP - -DIR	Dec 22 12:44	/..			
/cgi-bin		6	Nov 16 10:11	/.cache			
/html		57	Nov 16 10:11	/.config			
				/.local			

Подключение каталогов для работы пользователей

```
root@server:~ x mc [root@server.kr... x root@server:~ x
exports [ - - - - ] 41 L: [ 1+ 2 3/ 3 ] *(88 / 88b) <EOF>
/srv/nfs *(ro)
/srv/nfs/www 192.168.0.0/16(rw)
/srv/nfs/home/kreachna 192.168.0.0/16(rw)
```

kreachna@client:/mnt/nfs/www				
Left	File	Command	Options	Right
<	/mnt/nfs/home			. [^] >
.n	Name		Size	Modify time
/..			UP - - DIR	Dec 22 13:45
/kreachna			33	Dec 22 13:45

```
[kreachna@client.kreachna.net www]$ cd /mnt/nfs/home/kreachna
[kreachna@client.kreachna.net kreachna]$ touch kreachna@client.txt
[kreachna@client.kreachna.net kreachna]$ sudo -i
[sudo] password for kreachna:
[root@client.kreachna.net ~]# cd /mnt/nfs/home/kreachna
-bash: cd: /mnt/nfs/home/kreachna: Permission denied
```

Внесение изменений в настройки внутреннего окружения виртуальной машины

```
Vagrantfile x nfs.sh x nfs.sh x
1  #!/bin/bash
2
3  echo "Provisioning script $0"
4
5  echo "Install needed packages"
6  dnf -y install nfs-utils
7
8  echo "Copy configuration files"
9  cp -R /vagrant/provision/server/nfs/etc/* /etc
10
11 restorecon -vR /etc
12
13 echo "Configure firewall"
14 firewall-cmd --add-service nfs --permanent
15 firewall-cmd --add-service mountd --add-service rpc-bind --permanent
16 firewall-cmd --reload
17
18 echo "Tuning SELinux"
19 mkdir -p /srv/nfs
20 semanage fcontext -a -t nfs_t "/srv/nfs(/.*)?"
21 restorecon -vR /srv/nfs
22
23 echo "Mounting dirs"
24 mkdir -p /srv/nfs/www
25 mount -o bind /var/www /srv/nfs/www
26 echo "/var/www /srv/nfs/www none bind 0 0" >> /etc/fstab
27 mkdir -p /srv/nfs/home/kreachna
28 mkdir -p -m 700 /home/kreachna/common
29 chown user:user /home/kreachna/common
30 mount -o bind /home/kreachna/common /srv/nfs/home/kreachna
31 echo "/home/kreachna/common /srv/nfs/home/kreachna none bind 0 0" >> /etc/fstab
32
33 echo "Start nfs service"
34 systemctl enable nfs-server
35 systemctl start nfs-server
36
37 systemctl restart firewalld
```

```
Vagrantfile x nfs.sh x nfs.sh x
1  #!/bin/bash
2
3  echo "Provisioning script $0"
4
5  echo "Install needed packages"
6  dnf -y install nfs-utils
7
8  echo "Mounting dirs"
9  mkdir -p /mnt/nfs
10 mount server.kreachna.net:/srv/nfs /mnt/nfs
11 echo "server.kreachna.net:/srv/nfs /mnt/nfs nfs _netdev 0 0" >> /etc/fstab
12 restorecon -vR /etc
```

```
Vagrantfile x nfs.sh x nfs.sh x
79
80 server.vm.provision "server nfs",
81     type: "shell",
82     preserve_order: true,
83     path: "provision/server/nfs.sh"
84
```

```
Vagrantfile x nfs.sh x nfs.sh x
136 client.vm.provision "client nfs",
137     type: "shell",
138     preserve_order: true,
139     path: "provision/client/nfs.sh"
140
141
142
```

Вывод

Приобрела навыков настройки сервера NFS для удалённого доступа к ресурсам.

Спасибо за внимание!