Презентация по лабораторной работе 13

Настройка NFS

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1. Информация

2. Вводная часть

3. Выполнение заданий

4. Выводы

Раздел 1

1. Информация

1.1 Докладчик

- Седохин Даниил Алексеевич

1.1 Докладчик

- Седохин Даниил Алексеевич
- Российский университет дружбы народов им. П. Лумумбы

Раздел 2

2. Вводная часть

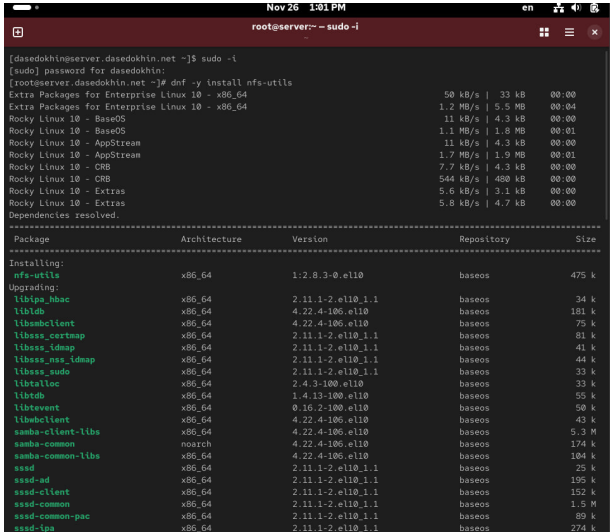
2.1 Цели и задачи

- Приобретение навыков настройки сервера NFS для удалённого доступа к ресурсам.

Раздел 3

3. Выполнение заданий

3.1 слайд 1


Nov 26 1:01 PM
en
root@server:~ — sudo -i
[dasedokhin@server.dasedokhin.net ~]$ sudo -i
[sudo] password for dasedokhin:
[root@server.dasedokhin.net ~]# dnf -y install nfs-utils
Extra Packages for Enterprise Linux 10 - x86_64 50 kB/s | 33 kB 00:00
Extra Packages for Enterprise Linux 10 - x86_64 1.2 MB/s | 5.5 MB 00:04
Rocky Linux 10 - BaseOS 11 kB/s | 4.3 kB 00:00
Rocky Linux 10 - BaseOS 1.1 MB/s | 1.8 MB 00:01
Rocky Linux 10 - AppStream 11 kB/s | 4.3 kB 00:00
Rocky Linux 10 - AppStream 1.7 MB/s | 1.9 MB 00:01
Rocky Linux 10 - CRB 7.7 kB/s | 4.3 kB 00:00
Rocky Linux 10 - CRB 544 kB/s | 480 kB 00:00
Rocky Linux 10 - Extras 5.6 kB/s | 3.1 kB 00:00
Rocky Linux 10 - Extras 5.8 kB/s | 4.7 kB 00:00
Dependencies resolved.
Package Architecture Version Repository Size
Installing:
nfs-utils x86_64 1:2.8.3-0.el10 baseos 475 k
Upgrading:
libipa_hbac x86_64 2.11.1-2.el10_1.1 baseos 34 k
libldb x86_64 4.22.4-10%.el10 baseos 181 k
libsmbclient x86_64 4.22.4-10%.el10 baseos 75 k
libsss_certmap x86_64 2.11.1-2.el10_1.1 baseos 81 k
libsss_idmap x86_64 2.11.1-2.el10_1.1 baseos 41 k
libsss_nss_idmap x86_64 2.11.1-2.el10_1.1 baseos 44 k
libsss_sudo x86_64 2.11.1-2.el10_1.1 baseos 33 k
libtalloc x86_64 2.4.3-10%.el10 baseos 33 k
libtdb x86_64 1.4.13-10%.el10 baseos 55 k
libtevent x86_64 0.16.2-10%.el10 baseos 50 k
libwbclient x86_64 4.22.4-10%.el10 baseos 43 k
samba-client-libs x86_64 4.22.4-10%.el10 baseos 5.3 M
samba-common noarch 4.22.4-10%.el10 baseos 174 k
samba-common-libs x86_64 4.22.4-10%.el10 baseos 104 k
sssd x86_64 2.11.1-2.el10_1.1 baseos 25 k
sssd-ad x86_64 2.11.1-2.el10_1.1 baseos 195 k
sssd-client x86_64 2.11.1-2.el10_1.1 baseos 152 k
sssd-common x86_64 2.11.1-2.el10_1.1 baseos 1.5 M
sssd-common-pac x86_64 2.11.1-2.el10_1.1 baseos 89 k
sssd-ipa x86_64 2.11.1-2.el10_1.1 baseos 274 k

3.2 слайд 2

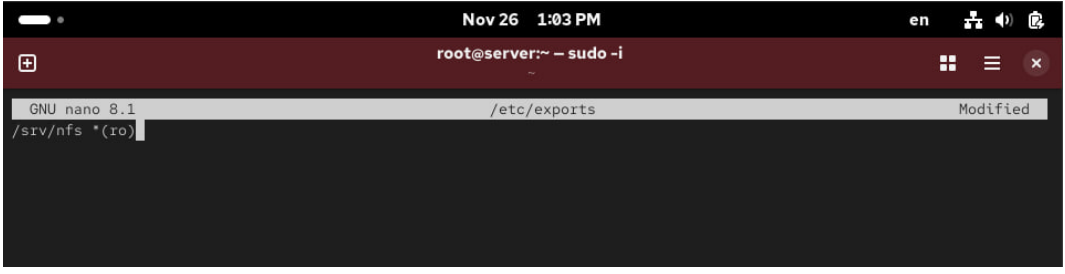


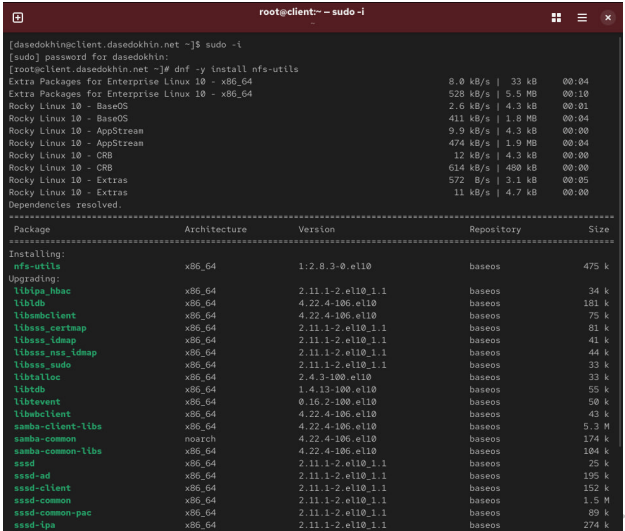
Рисунок 2: Подключаемый через NFS общий каталог с доступом только на чтение

3.3 слайд 3

```
[root@server.dasedokhin.net ~]# semanage fcontext -a -t nfs_t "/srv/nfs(/.*)?"
[root@server.dasedokhin.net ~]# restorecon -vR /srv/nfs
Relabeled /srv/nfs from unconfined_u:object_r:var_t:s0 to unconfined_u:object_r:nfs_t:s0
[root@server.dasedokhin.net ~]# systemctl start nfs-server.service
[root@server.dasedokhin.net ~]# systemctl enable nfs-server.service
Created symlink '/etc/systemd/system/multi-user.target.wants/nfs-server.service' → '/usr/lib/systemd/system/nfs-serve
r.service'.
[root@server.dasedokhin.net ~]# firewall-cmd --add-service=nfs
success
[root@server.dasedokhin.net ~]# firewall-cmd --add-service=nfs --permanent
success
[root@server.dasedokhin.net ~]# firewall-cmd --reload
success
[root@server.dasedokhin.net ~]#
```

Рисунок 3: Задаем контекст безопасности NFS, применение измененных настроек SELinux, запуск сервера NFS, настройка межсетевого экрана

3.4 слайд 4


root@client:~ — sudo -i
[dasedokhin@client.dasedokhin.net ~]$ sudo -i
[sudo] password for dasedokhin:
[root@client.dasedokhin.net ~]# dnf -y install nfs-utils
Extra Packages for Enterprise Linux 10 - x86_64 8.0 kB/s | 33 kB 00:04
Extra Packages for Enterprise Linux 10 - x86_64 528 kB/s | 5.5 MB 00:10
Rocky Linux 10 - BaseOS 2.6 kB/s | 4.3 kB 00:01
Rocky Linux 10 - BaseOS 411 kB/s | 1.8 MB 00:04
Rocky Linux 10 - AppStream 9.9 kB/s | 4.3 kB 00:00
Rocky Linux 10 - AppStream 474 kB/s | 1.9 MB 00:04
Rocky Linux 10 - CRB 12 kB/s | 4.3 kB 00:00
Rocky Linux 10 - CRB 614 kB/s | 480 kB 00:00
Rocky Linux 10 - Extras 572 B/s | 3.1 kB 00:05
Rocky Linux 10 - Extras 11 kB/s | 4.7 kB 00:00
Dependencies resolved.
Package Architecture Version Repository Size
Installing:
nfs-utils x86_64 1:2.8.3-0.el10 baseos 475 k
Upgrading:
libipa_hbac x86_64 2.11.1-2.el10_1.1 baseos 34 k
libldb x86_64 4.22.4-106.el10 baseos 181 k
libsmbclient x86_64 4.22.4-106.el10 baseos 75 k
libsss_certmap x86_64 2.11.1-2.el10_1.1 baseos 81 k
libsss_idmap x86_64 2.11.1-2.el10_1.1 baseos 41 k
libsss_nss_idmap x86_64 2.11.1-2.el10_1.1 baseos 44 k
libsss_sudo x86_64 2.11.1-2.el10_1.1 baseos 33 k
libtalloc x86_64 2.4.3-100.el10 baseos 33 k
libtdb x86_64 1.4.13-100.el10 baseos 55 k
libtevent x86_64 0.16.2-100.el10 baseos 50 k
libwbclient x86_64 4.22.4-106.el10 baseos 43 k
samba-client-libs x86_64 4.22.4-106.el10 baseos 5.3 M
samba-common noarch 4.22.4-106.el10 baseos 174 k
samba-common-libs x86_64 4.22.4-106.el10 baseos 104 k
sssd x86_64 2.11.1-2.el10_1.1 baseos 25 k
sssd-ad x86_64 2.11.1-2.el10_1.1 baseos 195 k
sssd-client x86_64 2.11.1-2.el10_1.1 baseos 152 k
sssd-common x86_64 2.11.1-2.el10_1.1 baseos 1.5 M
sssd-common-pac x86_64 2.11.1-2.el10_1.1 baseos 89 k
sssd-ipa x86_64 2.11.1-2.el10_1.1 baseos 274 k

3.5 слайд 5

```
[root@client.dasedokhin.net ~]# showmount -e server.dasedokhin.net
clnt_create: RPC: Unable to receive
[root@client.dasedokhin.net ~]#
```

Рисунок 5: Попытка просмотра имеющихся подмонтированных удаленных ресурсов

3.6 слайд 6

```
[root@server.dasedokhin.net ~]# systemctl stop firewalld.service
[root@server.dasedokhin.net ~]#
```

Рисунок 6: Остановка сервиса межсетевого экрана

3.7 слайд 7

```
[root@client.dasedokhin.net ~]# showmount -e server.dasedokhin.net
Export list for server.dasedokhin.net:
/srv/nfs *
[root@client.dasedokhin.net ~]#
```

Рисунок 7: Повторная попытка подключиться к удаленно смонтированному ресурсу

3.8 слайд 8

```
[root@server.dasedokhin.net ~]# systemctl start firewalld
[root@server.dasedokhin.net ~]# lsof | grep TCP
lsof: WARNING: can't stat() fuse.gvfsd-fuse file system /run/user/1001/gvfs
      Output information may be incomplete.
lsof: WARNING: can't stat() fuse.portal file system /run/user/1001/doc
      Output information may be incomplete.
systemd      1                        root  318u     IPv6              8116       0t0        TCP *:websm (LISTEN)
systemd      1                        root  429u     IPv4             27545       0t0        TCP *:sunrpc (LISTEN)
systemd      1                        root  433u     IPv6             27559       0t0        TCP *:sunrpc (LISTEN)
cupsd     1240                        root    7u     IPv6             11374       0t0        TCP localhost:ipp (LI
STEN)
cupsd     1240                        root    8u     IPv4             11375       0t0        TCP localhost:ipp (LI
STEN)
sshd      1250                        root    7u     IPv4             11382       0t0        TCP *:down (LISTEN)
sshd      1250                        root    8u     IPv6             11384       0t0        TCP *:down (LISTEN)
sshd      1250                        root    9u     IPv4             11386       0t0        TCP *:ssh (LISTEN)
sshd      1250                        root   10u     IPv6             11388       0t0        TCP *:ssh (LISTEN)
named     1300                       named   27u     IPv4             11446       0t0        TCP localhost:domain
(LISTEN)
named     1300                       named   29u     IPv4             11447       0t0        TCP localhost:domain
(LISTEN)
named     1300                       named   33u     IPv6             11450       0t0        TCP localhost:domain
(LISTEN)
named     1300                       named   34u     IPv6             11451       0t0        TCP localhost:domain
(LISTEN)
named     1300                       named   35u     IPv4             11462       0t0        TCP localhost:rndc (L
ISTEN)
named     1300                       named   36u     IPv4             11463       0t0        TCP localhost:rndc (L
ISTEN)
named     1300                       named   37u     IPv6             11464       0t0        TCP localhost:rndc (L
ISTEN)
```

3.9 слайд 9

```
[root@server.dasedokhin.net ~]# lsof | grep UDP
lsof: WARNING: can't stat() fuse.gvfsd-fuse file system /run/user/1001/gvfs
      Output information may be incomplete.
lsof: WARNING: can't stat() fuse.portal file system /run/user/1001/doc
      Output information may be incomplete.
systemd      1                        root  430u     IPv4              27552       0t0        UDP *:sunrpc
systemd      1                        root  434u     IPv6              27566       0t0        UDP *:sunrpc
avahi-dae  884                       avahi   12u     IPv4               9457       0t0        UDP *:mdns
avahi-dae  884                       avahi   13u     IPv6               9458       0t0        UDP *:mdns
chronyd    937                      chrony    5u     IPv4               8737       0t0        UDP localhost:323
chronyd    937                      chrony    6u     IPv6               8738       0t0        UDP localhost:323
chronyd    937                      chrony    7u     IPv4               8739       0t0        UDP *:ntp
NetworkMa 1215                        root   29u     IPv4              11681       0t0        UDP server.dasedokhin
.net:bootpc->_gateway:bootps
NetworkMa 1215 1226 gmain             root   29u     IPv4              11681       0t0        UDP server.dasedokhin
.net:bootpc->_gateway:bootps
NetworkMa 1215 1227 pool-spaw         root   29u     IPv4              11681       0t0        UDP server.dasedokhin
.net:bootpc->_gateway:bootps
NetworkMa 1215 1228 gdbus             root   29u     IPv4              11681       0t0        UDP server.dasedokhin
.net:bootpc->_gateway:bootps
named     1300                       named   25u     IPv4              11444       0t0        UDP localhost:domain
named     1300                       named   26u     IPv4              11445       0t0        UDP localhost:domain
named     1300                       named   31u     IPv6              11448       0t0        UDP localhost:domain
named     1300                       named   32u     IPv6              11449       0t0        UDP localhost:domain
named     1300                       named   41u     IPv4              11680       0t0        UDP server.dasedokhin
.net:domain
named     1300                       named   42u     IPv4              11682       0t0        UDP server.dasedokhin
.net:domain
named     1300                       named   45u     IPv4              11691       0t0        UDP server.dasedokhin
```

3.10 слайд 10

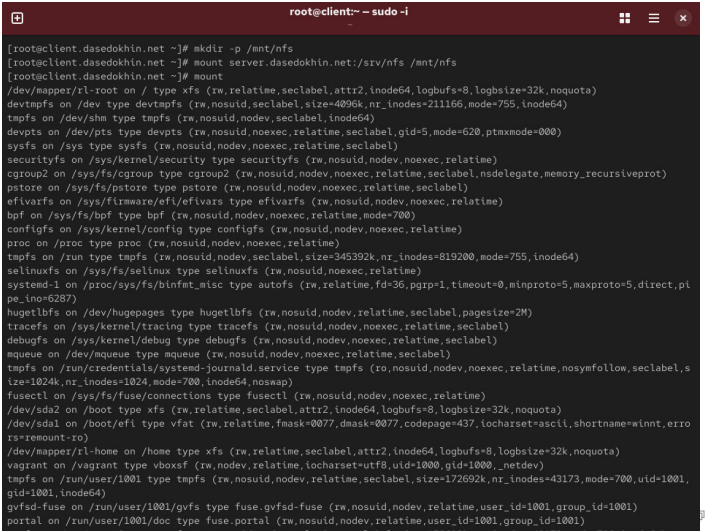
```
[root@server.dasedokhin.net ~]# firewall-cmd --get-services
0-AD RH-Satellite-6 RH-Satellite-6-capsule afp alvr amanda-client amanda-k5-client amqp amqps anno-1602 anno-1800 apc
upsd aseqnet audit ausweisapp2 bacula bacula-client bareos-director bareos-filedaemon bareos-storage bb bgp bitcoin b
itcoin-rpc bitcoin-testnet bitcoin-testnet-rpc bittorrent-lsd ceph ceph-exporter ceph-mon cfengine checkmk-agent civi
lization-iv civilization-v cockpit collectd condor-collector cratedb ctdb dds dds-multicast dds-unicast dhcp dhcpv6 d
hcpv6-client distcc dns dns-over-quic dns-over-tls docker-registry docker-swarm dropbox-lansync elasticsearch etcd-cl
ient etcd-server factorio finger foreman foreman-proxy freeipa-4 freeipa-ldap freeipa-ldaps freeipa-replication freei
pa-trust ftp galera ganglia-client ganglia-master git gpsd grafana gre high-availability http http3 https ident imap
imaps iperf2 iperf3 ipfs ipp ipp-client ipsec irc ircs iscsi-target isns jenkins kadmin kdeconnect kerberos kibana kl
ogin kpasswd kprop kshell kube-api kube-apiserver kube-control-plane kube-control-plane-secure kube-controller-manage
r kube-controller-manager-secure kube-nodeport-services kube-scheduler kube-scheduler-secure kube-worker kubelet kube
let-readonly kubelet-worker ldap ldaps libvirt libvirt-tls lightning-network llmnr llmnr-client llmnr-tcp llmnr-udp m
anagesieve matrix mdns memcache minecraft minidlna mndp mongodb mosh mountd mpd mqtt mqtt-tls ms-wbt mssql murmur mys
ql nbd nebula need-for-speed-most-wanted netbios-ns netdata-dashboard nfs nfs3 nmea-0183 nrpe ntp nut opentelemetry o
penvpn ovirt-imageio ovirt-storageconsole ovirt-vmconsole plex pmcd pmproxy pmwebapi pmwebapis pop3 pop3s postgresql
privoxy prometheus prometheus-node-exporter proxy-dhcp ps2link ps3netsrv ptp pulseaudio puppetmaster quassel radius r
adsec rdp redis redis-sentinel rootd rpc-bind rquotad rsh rsyncd rtsp salt-master samba samba-client samba-dc sane se
ttlers-history-collection sip sips slimevr slp smtp smtp-submission smtps snmp snmptls snmptls-trap snmptrap spideroa
k-lansync spotify-sync squid ssdp ssh ssh-custom statsrv steam-lan-transfer steam-streaming stellaris stronghold-crus
ader stun stuns submission supertuxkart svdrp svn syncthing syncthing-gui syncthing-relay synergy syscomlan syslog sy
slog-tls telnet tentacle terraria tftp tile38 tinc tor-socks transmission-client turn turns upnp-client vdsm vnc-serv
er vrrp warpinator wbem-http wbem-https wireguard ws-discovery ws-discovery-client ws-discovery-host ws-discovery-tcp
 ws-discovery-udp wsdd wsdd-http wsman wsmans xdmcp xmpp-bosh xmpp-client xmpp-local xmpp-server zabbix-agent zabbix-
java-gateway zabbix-server zabbix-trapper zabbix-web-service zero-k zerotier
[root@server.dasedokhin.net ~]# firewall-cmd --add-service=mountd --add-service=rpc-bind
success
[root@server.dasedokhin.net ~]# firewall-cmd --add-service=mountd --add-service=rpc-bind --permanent
success
[root@server.dasedokhin.net ~]# firewall-cmd --reload
```

3.11 слайд 11

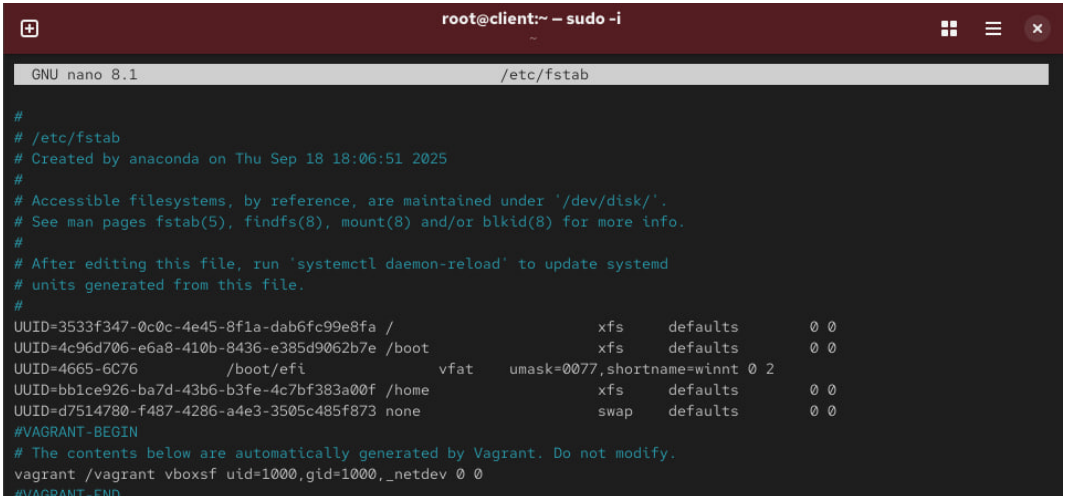
```
[root@client.dasedokhin.net ~]# showmount -e server.dasedokhin.net
Export list for server.dasedokhin.net:
/srv/nfs *
[root@client.dasedokhin.net ~]#
```

Рисунок 11: Проверка подключения удаленного ресурса

3.12 слайд 12


root@client:~ -- sudo -i
[root@client.dasedokhin.net ~]# mkdir -p /mnt/nfs
[root@client.dasedokhin.net ~]# mount server.dasedokhin.net:/srv/nfs /mnt/nfs
[root@client.dasedokhin.net ~]# mount
/dev/mapper/rl-root on / type xfs (rw,relatime,seclabel,attr2,inode64,logbufs=8,logbsize=32k,noquota)
devtmpfs on /dev type devtmpfs (rw,nosuid,seclabel,size=4096k,nr_inodes=211166,mode=755,inode64)
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)
sysfs on /sys type sysfs (rw,nosuid,nodev,noexec,relatime,seclabel)
securityfs on /sys/kernel/security type securityfs (rw,nosuid,nodev,noexec,relatime)
cgroup2 on /sys/fs/cgroup type cgroup2 (rw,nosuid,nodev,noexec,relatime,seclabel,nsdelegate,memory_recursiveprot)
pstore on /sys/fs/pstore type pstore (rw,nosuid,nodev,noexec,relatime,seclabel)
efivarfs on /sys/firmware/efi/efivars type efivarfs (rw,nosuid,nodev,noexec,relatime)
bpf on /sys/fs/bpf type bpf (rw,nosuid,nodev,noexec,relatime,mode=700)
configfs on /sys/kernel/config type configfs (rw,nosuid,nodev,noexec,relatime)
proc on /proc type proc (rw,nosuid,nodev,noexec,relatime)
tmpfs on /run type tmpfs (rw,nosuid,nodev,seclabel,size=345392k,nr_inodes=819200,mode=755,inode64)
selinuxfs on /sys/fs/selinux type selinuxfs (rw,nosuid,noexec,relatime)
systemd-1 on /proc/sys/fs/binfmt_misc type autofs (rw,relatime,fd=36,pgrp=1,timeout=0,minproto=5,maxproto=5,direct,pipe_ino=6287)
hugetlbfs on /dev/hugepages type hugetlbfs (rw,nosuid,nodev,relatime,seclabel,pagesize=2M)
tracefs on /sys/kernel/tracing type tracefs (rw,nosuid,nodev,noexec,relatime,seclabel)
debugfs on /sys/kernel/debug type debugfs (rw,nosuid,nodev,noexec,relatime,seclabel)
mqueue on /dev/mqueue type mqueue (rw,nosuid,nodev,noexec,relatime,seclabel)
tmpfs on /run/credentials/systemd-journald.service type tmpfs (ro,nosuid,nodev,noexec,relatime,nosymfollow,seclabel,size=1024k,nr_inodes=1024,mode=700,inode64,noswap)
fusectl on /sys/fs/fuse/connections type fusectl (rw,nosuid,nodev,noexec,relatime)
/dev/sda2 on /boot type xfs (rw,relatime,seclabel,attr2,inode64,logbufs=8,logbsize=32k,noquota)
/dev/sda1 on /boot/efi type vfat (rw,relatime,fmask=0077,dmask=0077,codepage=437,iocharset=ascii,shortname=winnt,errors=remount-ro)
/dev/mapper/rl-home on /home type xfs (rw,relatime,seclabel,attr2,inode64,logbufs=8,logbsize=32k,noquota)
vagrant on /vagrant type vboxsf (rw,nodev,relatime,iocharset=utf8,uid=1000,gid=1000,_netdev)
tmpfs on /run/user/1001 type tmpfs (rw,nosuid,nodev,relatime,seclabel,size=172692k,nr_inodes=43173,mode=700,uid=1001,gid=1001,inode64)
gvfsd-fuse on /run/user/1001/gvfs type fuse.gvfsd-fuse (rw,nosuid,nodev,relatime,user_id=1001,group_id=1001)
portal on /run/user/1001/doc type fuse.portal (rw,nosuid,nodev,relatime,user_id=1001,group_id=1001)

3.13 слайд 13


root@client:~ — sudo -i
GNU nano 8.1 /etc/fstab
#
/etc/fstab
Created by anaconda on Thu Sep 18 18:06:51 2025
#
Accessible filesystems, by reference, are maintained under '/dev/disk/'.
See man pages fstab(5), findfs(8), mount(8) and/or blkid(8) for more info.
#
After editing this file, run 'systemctl daemon-reload' to update systemd
units generated from this file.
#
UUID=3533f347-0c0c-4e45-8f1a-dab6fc99e8fa / xfs defaults 0 0
UUID=4c96d706-e6a8-410b-8436-e385d9062b7e /boot xfs defaults 0 0
UUID=4665-6C76 /boot/efi vfat umask=0077,shortname=winnt 0 2
UUID=bb1ce926-ba7d-43b6-b3fe-4c7bf383a00f /home xfs defaults 0 0
UUID=d7514780-f487-4286-a4e3-3505c485f873 none swap defaults 0 0
#VAGRANT-BEGIN
The contents below are automatically generated by Vagrant. Do not modify.
vagrant /vagrant vboxsf uid=1000,gid=1000,_netdev 0 0
#VAGRANT-END

3.14 слайд 14

```
[root@client.dasedokhin.net ~]# systemctl status remote-fs.target
● remote-fs.target - Remote File Systems
     Loaded: loaded (/usr/lib/systemd/system/remote-fs.target; enabled; preset: enabled)
     Active: active since Wed 2025-11-26 12:56:56 UTC; 16min ago
 Invocation: b6ffb7409c7c44cb8bca32be60681c07
       Docs: man:systemd.special(7)

Nov 26 12:56:56 client.dasedokhin.net systemd[1]: Reached target remote-fs.target - Remote File Systems.
[root@client.dasedokhin.net ~]#
```

Рисунок 14: Проверка наличия автоматического монтирования удаленных ресурсов при запуске ОС

3.15 слайд 15

```
[root@client.dasedokhin.net ~]# mount | grep nfs
sunrpc on /var/lib/nfs/rpc_pipefs type rpc_pipefs (rw,relatime)
server.dasedokhin.net:/srv/nfs on /mnt/nfs type nfs4 (rw,relatime,vers=4.2,rsize=262144,wsize=262144,namlen=255,hard,
proto=tcp,timeo=600,retrans=2,sec=sys,clientaddr=192.168.1.30,local_lock=none,addr=192.168.1.1,_netdev)
[root@client.dasedokhin.net ~]#
```

Рисунок 15: Проверка автоматического подключения удаленного ресурса

3.16 слайд 16

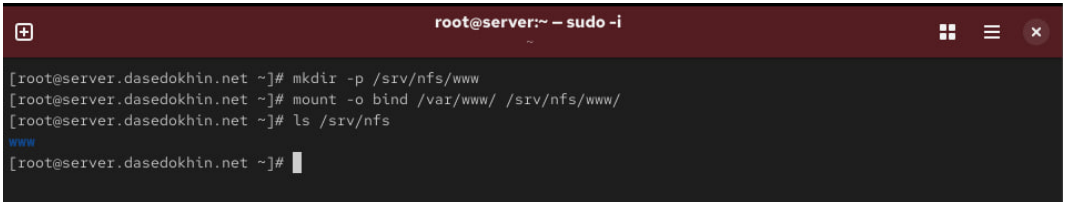


Рисунок 16: Создание общего каталога, подмонтирование каталога web-сервера и просмотр каталога /srv/nfs

3.17 слайд 17

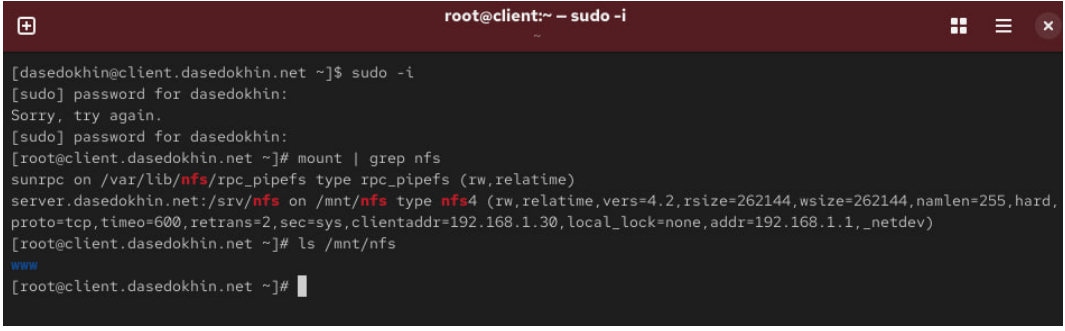


Рисунок 17: Просмотр каталога /mnt/nfs

3.18 слайд 18

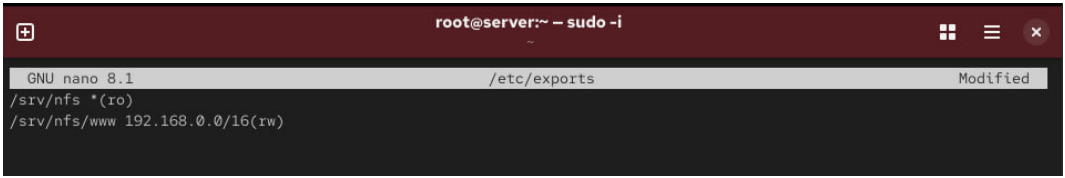


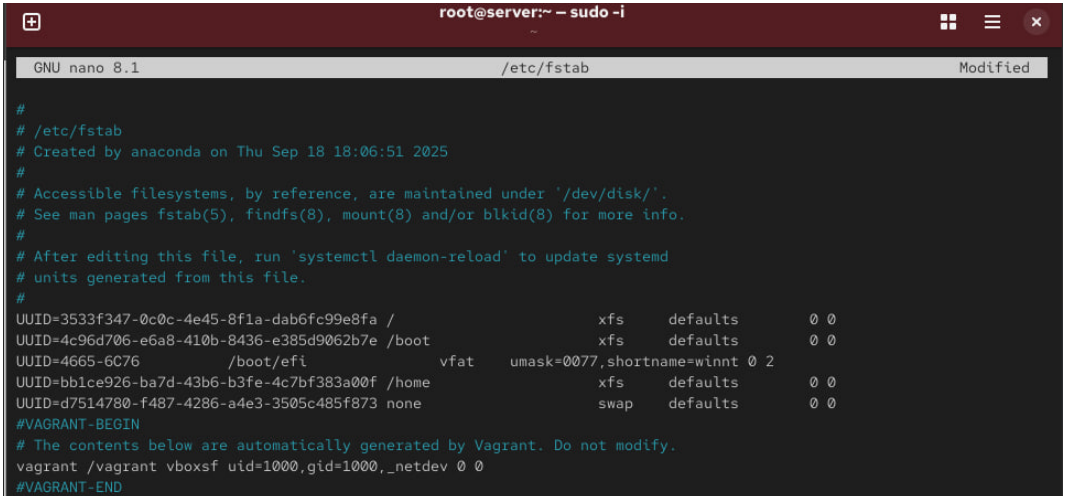
Рисунок 18: Редактирование файла /etc/exports

3.19 слайд 19

```
[root@server.dasedokhin.net ~]# exportfs -r
[root@server.dasedokhin.net ~]#
```

Рисунок 19: Экспорт всех каталогов указанных в файле /etc/exportfs

3.20 слайд 20


root@server:~ — sudo -i
GNU nano 8.1 /etc/fstab Modified
#
/etc/fstab
Created by anaconda on Thu Sep 18 18:06:51 2025
#
Accessible filesystems, by reference, are maintained under '/dev/disk/'.
See man pages fstab(5), findfs(8), mount(8) and/or blkid(8) for more info.
#
After editing this file, run 'systemctl daemon-reload' to update systemd
units generated from this file.
#
UUID=3533f347-0c0c-4e45-8f1a-dab6fc99e8fa / xfs defaults 0 0
UUID=4c96d706-e6a8-410b-8436-e385d9062b7e /boot xfs defaults 0 0
UUID=4665-6C76 /boot/efi vfat umask=0077,shortname=winnt 0 2
UUID=bb1ce926-ba7d-43b6-b3fe-4c7bf383a00f /home xfs defaults 0 0
UUID=d7514780-f487-4286-a4e3-3505c485f873 none swap defaults 0 0
#VAGRANT-BEGIN
The contents below are automatically generated by Vagrant. Do not modify.
vagrant /vagrant vboxsf uid=1000,gid=1000,_netdev 0 0
#VAGRANT-END

3.21 слайд 21

```
[root@server.dasedokhin.net ~]# exportfs -r
[root@server.dasedokhin.net ~]#
```

Рисунок 21: Повторный экспорт каталогов, указанных в файле /etc/exportfs

3.22 слайд 22

```
[root@client.dasedokhin.net ~]# ls -la /mnt/nfs/www/
total 0
drwxr-xr-x. 4   48   48 33 Sep 25 16:37 .
drwxr-xr-x. 3 root root 17 Nov 26 13:17 ..
drwxr-xr-x. 2   48   48  6 Jul 15 00:00 cgi-bin
drwxr-xr-x. 4   48   48 79 Nov 11 17:36 html
[root@client.dasedokhin.net ~]#
```

Рисунок 22: Проверка каталога /mnt/nfs

3.23 слайд 23

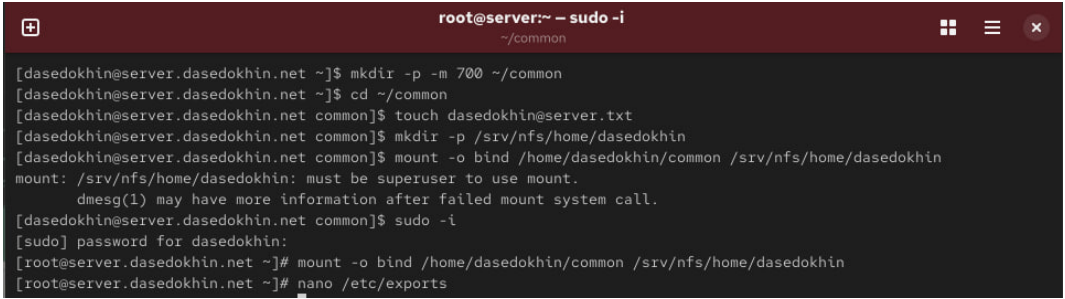


Рисунок 23: Создание каталогов, создание файла и монтирование каталога common

3.24 слайд 24

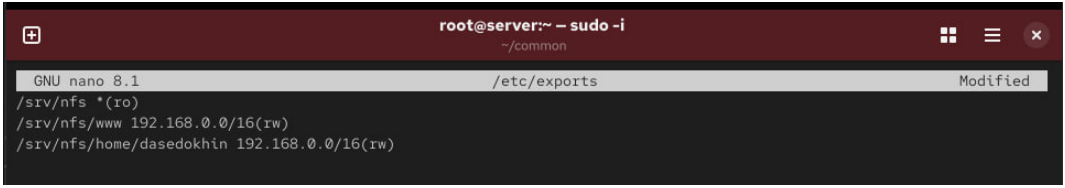
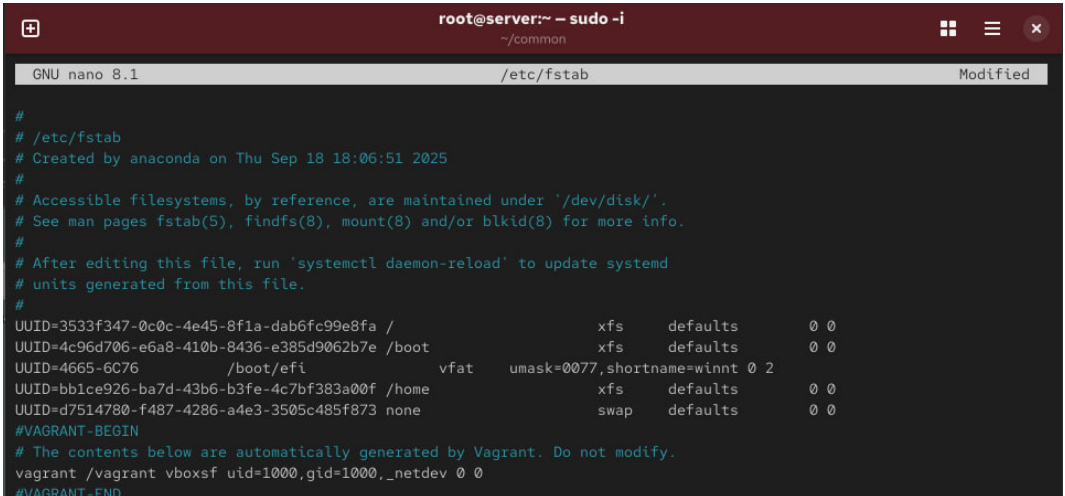


Рисунок 24: Редактирование файла /etc/exports

3.25 слайд 25


root@server:~ – sudo -i
~/common
GNU nano 8.1
/etc/fstab
Modified
#
/etc/fstab
Created by anaconda on Thu Sep 18 18:06:51 2025
#
Accessible filesystems, by reference, are maintained under '/dev/disk/'.
See man pages fstab(5), findfs(8), mount(8) and/or blkid(8) for more info.
#
After editing this file, run 'systemctl daemon-reload' to update systemd
units generated from this file.
#
UUID=3533f347-0c0c-4e45-8f1a-dab6fc99e8fa / xfs defaults 0 0
UUID=4c96d706-e6a8-410b-8436-e385d9062b7e /boot xfs defaults 0 0
UUID=4665-6C76 /boot/efi vfat umask=0077,shortname=winnt 0 2
UUID=bb1ce926-ba7d-43b6-b3fe-4c7bf383a00f /home xfs defaults 0 0
UUID=d7514780-f487-4286-a4e3-3505c485f873 none swap defaults 0 0
#VAGRANT-BEGIN
The contents below are automatically generated by Vagrant. Do not modify.
vagrant /vagrant vboxsf uid=1000,gid=1000,_netdev 0 0
#VAGRANT-END

3.26 слайд 26

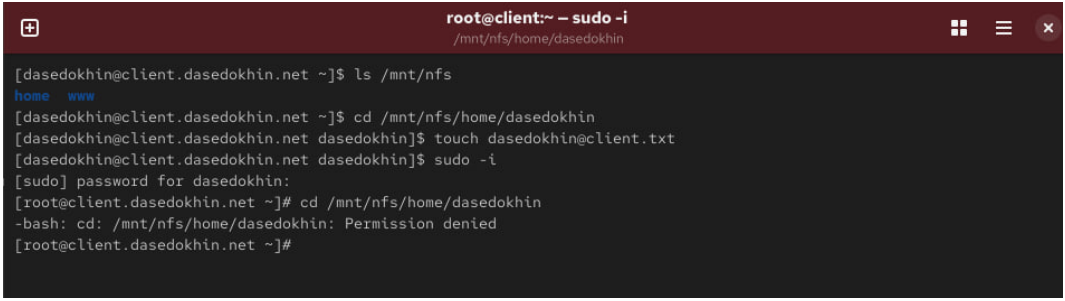


Рисунок 26: Экспорт каталогов, проверка /mnt/nfs и попытка создать файл и отредактировать его

3.27 слайд 27

```
[root@server.dasedokhin.net ~]# exportfs -r
[root@server.dasedokhin.net ~]# ls /home/dasedokhin/common
dasedokhin@client.txt  dasedokhin@server.txt
[root@server.dasedokhin.net ~]#
```

Рисунок 27: Просмотр каталога /home/dasedokhin/common на сервере

3.28 слайд 28

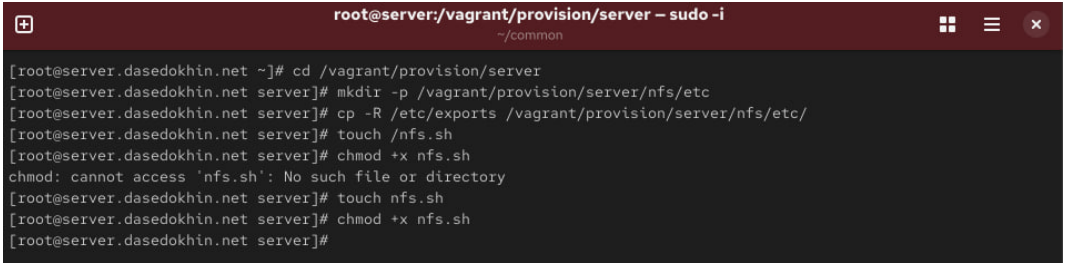


Рисунок 28: Создание необходимых каталогов для конфигурационных файлов, создание конфиг файлов

3.29 слайд 29

root@server:/vagrant/provision/server – sudo -i
~/common

GNU nano 8.1 nfs.sh Modified

```
#!/bin/bash
echo "Provisioning script $0"
echo "Install needed packages"
dnf -y install nfs-utils
echo "Copy configuration files"
cp -R /vagrant/provision/server/nfs/etc/* /etc
restorecon -vR /etc
echo "Configure firewall"
firewall-cmd --add-service nfs --permanent
firewall-cmd --add-service mountd --add-service rpc-bind --permanent
firewall-cmd --reload
echo "Tuning SELinux"
mkdir -p /srv/nfs
semanage fcontext -a -t nfs_t "/srv/nfs(/.*)?"
restorecon -vR /srv/nfs
echo "Mounting dirs"
mkdir -p /srv/nfs/www
mount -o bind /var/www /srv/nfs/www
echo "/var/www /srv/nfs/www none bind 0 0" >> /etc/fstab
mkdir -p /srv/nfs/home/user
mkdir -p -m 700 /home/user/common
chown user:user /home/user/common
mount -o bind /home/user/common /srv/nfs/home/user
echo "/home/user/common /srv/nfs/home/user none bind 0 0" >> /etc/fstab
echo "Start nfs service"
systemctl enable nfs-server
```

3.30 слайд 30

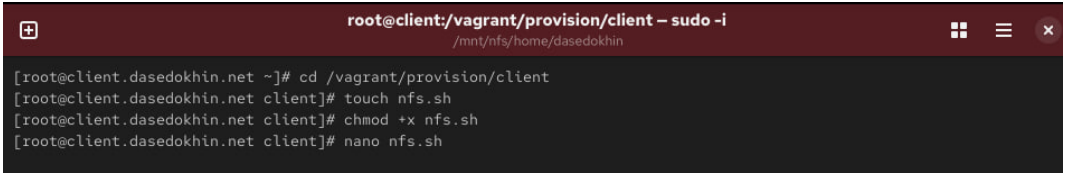


Рисунок 30: Создание каталога для внесения изменений и создание исполняемого файла nfs.sh на клиенте

3.31 слайд 31

root@client:/vagrant/provision/client – sudo -i

GNU nano 8.1 nfs.sh Modified

```
#!/bin/bash

echo "Provisioning script $0"

echo "Install needed packages"
dnf -y install nfs-utils

echo "Mountitng dirs"
mkdir -p /mnt/nfs
mount server.dasedokhin.net:/src/nfs /mnt/nfs
echo "server.dasedokhin.net:/srv/nfs /mnt/nfs nfs _netdev 0 0" >> /etc/fstab
restorecon -vR /etc
```

Рисунок 31: Скрипт файла nfs.sh на клиенте

3.32 слайд 32

```
server.vm.provision "server nfs",
        type: "shell",
        preserve_order: true,
        path: "provision/server/nfs.sh"
```

Рисунок 32: Скрипт в Vagrantfile в разделе конфигураций сервера

3.33 слайд 33

```
client.vm.provision "client nfs",
        type: "shell",
        preserve_order: true,
        path: "provision/client/nfs.sh"
```

Рисунок 33: Скрипт в Vagrantfile в разделе конфигураций клиента

Раздел 4

4. Выводы

4.1 слайд 1

Я получил навыки по управлению системным временем и настройке синхронизации времени