



testClient1 и testServer1 в vlan3

Смотрим конфигурации сети testClient1 и пингуем testServer1

```
2. ubuntu1 10. testClient1 11. testServer1 12. testClient2 13. testServer2
[root@testClient1 ~]# ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
2: ens192: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 00:50:56:a9:0b:52 brd ff:ff:ff:ff:ff:ff
    altname enp11s0
    inet 10.100.11.143/24 brd 10.100.11.255 scope global noprefixroute ens192
        valid_lft forever preferred_lft forever
3: ens224: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 00:50:56:a9:73:e5 brd ff:ff:ff:ff:ff:ff
    altname enp19s0
4: ens224.3@ens224: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UP group default qlen 1000
    link/ether 00:50:56:a9:73:e5 brd ff:ff:ff:ff:ff:ff
    inet 10.10.10.254/24 brd 10.10.10.255 scope global noprefixroute ens224.3
        valid_lft forever preferred_lft forever
[root@testClient1 ~]#
[root@testClient1 ~]# ping 10.10.10.1
PING 10.10.10.1 (10.10.10.1) 56(84) bytes of data.
64 bytes from 10.10.10.1: icmp_seq=1 ttl=64 time=0.512 ms
^C
--- 10.10.10.1 ping statistics ---
1 packets transmitted, 1 received, 0% packet loss, time 0ms
rtt min/avg/max/mdev = 0.512/0.512/0.512/0.000 ms
[root@testClient1 ~]#
```

Смотрим конфигурации сети testServer1 и пингуем testClient1

```
2. ubuntu1 10. testClient1 11. testServer1 12. testClient2 13. testServer2
[root@testServer1 ~]# ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
2: ens192: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 00:50:56:a9:aa:1b brd ff:ff:ff:ff:ff:ff
    altname enp11s0
    inet 10.100.11.144/24 brd 10.100.11.255 scope global noprefixroute ens192
        valid_lft forever preferred_lft forever
3: ens224: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 00:50:56:a9:57:ec brd ff:ff:ff:ff:ff:ff
    altname enp19s0
4: ens224.3@ens224: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UP group default qlen 1000
    link/ether 00:50:56:a9:57:ec brd ff:ff:ff:ff:ff:ff
    inet 10.10.10.1/24 brd 10.10.10.255 scope global noprefixroute ens224.3
        valid_lft forever preferred_lft forever
[root@testServer1 ~]#
[root@testServer1 ~]# ping 10.10.10.254
PING 10.10.10.254 (10.10.10.254) 56(84) bytes of data.
64 bytes from 10.10.10.254: icmp_seq=1 ttl=64 time=0.156 ms
^C
--- 10.10.10.254 ping statistics ---
1 packets transmitted, 1 received, 0% packet loss, time 0ms
rtt min/avg/max/mdev = 0.156/0.156/0.156/0.000 ms
[root@testServer1 ~]#
```

testClient2 и testServer2 в vlan2

Смотрим конфигурации сети testClient2 и пингем testServer2

```
root@testClient2:~# ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: ens160: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc mq state UP group default qlen 1000
    link/ether 00:50:56:a9:eb:e2 brd ff:ff:ff:ff:ff:ff
    altname enp3s0
    inet 10.100.11.145/24 brd 10.100.11.255 scope global ens160
        valid_lft forever preferred_lft forever
    inet6 fe80::250:56ff:fea9:ebe2/64 scope link
        valid_lft forever preferred_lft forever
3: ens192: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc mq state UP group default qlen 1000
    link/ether 00:50:56:a9:f4:f8 brd ff:ff:ff:ff:ff:ff
    altname enp11s0
    inet6 fe80::250:56ff:fea9:f4f8/64 scope link
        valid_lft forever preferred_lft forever
4: ens192.2@ens192: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UP group default qlen 1000
    link/ether 00:50:56:a9:f4:f8 brd ff:ff:ff:ff:ff:ff
    inet 10.10.10.254/24 brd 10.10.10.255 scope global ens192.2
        valid_lft forever preferred_lft forever
    inet6 fe80::250:56ff:fea9:f4f8/64 scope link
        valid_lft forever preferred_lft forever
root@testClient2:~#
root@testClient2:~# ping 10.10.10.254
PING 10.10.10.254 (10.10.10.254) 56(84) bytes of data.
64 bytes from 10.10.10.254: icmp_seq=1 ttl=64 time=0.029 ms
64 bytes from 10.10.10.254: icmp_seq=2 ttl=64 time=0.022 ms
64 bytes from 10.10.10.254: icmp_seq=3 ttl=64 time=0.022 ms
^C
--- 10.10.10.254 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2034ms
rtt min/avg/max/mdev = 0.022/0.024/0.029/0.003 ms
root@testClient2:~#
```

Смотрим конфигурации сети testServer2 и пингем testClient2

```
root@testServer2:~# ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: ens160: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc mq state UP group default qlen 1000
    link/ether 00:50:56:a9:fb:a9 brd ff:ff:ff:ff:ff:ff
    altname enp3s0
    inet 10.100.11.146/24 brd 10.100.11.255 scope global ens160
        valid_lft forever preferred_lft forever
    inet6 fe80::250:56ff:fea9:fb9/64 scope link
        valid_lft forever preferred_lft forever
3: ens192: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc mq state UP group default qlen 1000
    link/ether 00:50:56:a9:82:aa brd ff:ff:ff:ff:ff:ff
    altname enp11s0
    inet6 fe80::250:56ff:fea9:82aa/64 scope link
        valid_lft forever preferred_lft forever
4: ens192.2@ens192: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UP group default qlen 1000
    link/ether 00:50:56:a9:82:aa brd ff:ff:ff:ff:ff:ff
    inet 10.10.10.1/24 brd 10.10.10.255 scope global ens192.2
        valid_lft forever preferred_lft forever
    inet6 fe80::250:56ff:fea9:82aa/64 scope link
        valid_lft forever preferred_lft forever
root@testServer2:~#
root@testServer2:~# ping 10.10.10.254
PING 10.10.10.254 (10.10.10.254) 56(84) bytes of data.
64 bytes from 10.10.10.254: icmp_seq=1 ttl=64 time=0.203 ms
64 bytes from 10.10.10.254: icmp_seq=2 ttl=64 time=0.125 ms
^C
--- 10.10.10.254 ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1005ms
rtt min/avg/max/mdev = 0.125/0.164/0.203/0.039 ms
root@testServer2:~#
```

C testClient1, testClient2 также доступен шлюз inetRouter

```
2. ubuntu1 10. testClient1 12. testClient2
[root@testClient1 ~]# ping 10.100.11.254
PING 10.100.11.254 (10.100.11.254) 56(84) bytes of data.
64 bytes from 10.100.11.254: icmp_seq=1 ttl=64 time=0.305 ms
64 bytes from 10.100.11.254: icmp_seq=2 ttl=64 time=0.399 ms
^C
--- 10.100.11.254 ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1016ms
rtt min/avg/max/mdev = 0.305/0.352/0.399/0.047 ms
[root@testClient1 ~]#
```

```
2. ubuntu1 10. testClient1 12. testClient2
root@testClient2:~# ping 10.100.11.254
PING 10.100.11.254 (10.100.11.254) 56(84) bytes of data.
64 bytes from 10.100.11.254: icmp_seq=1 ttl=64 time=0.281 ms
64 bytes from 10.100.11.254: icmp_seq=2 ttl=64 time=0.395 ms
^C
--- 10.100.11.254 ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1006ms
rtt min/avg/max/mdev = 0.281/0.338/0.395/0.057 ms
root@testClient2:~#
```

проверяем работу bond-интерфейса, для этого, на хосте inetRouter(192.168.255.1) запустим ping до centralRouter (192.168.255.2):

```
2. ubuntu1 15. centralRouter
[root@inetRouter ~]# ping 192.168.255.2
PING 192.168.255.2 (192.168.255.2) 56(84) bytes of data.
64 bytes from 192.168.255.2: icmp_seq=1 ttl=64 time=0.771 ms
64 bytes from 192.168.255.2: icmp_seq=2 ttl=64 time=0.139 ms
64 bytes from 192.168.255.2: icmp_seq=3 ttl=64 time=0.104 ms
64 bytes from 192.168.255.2: icmp_seq=4 ttl=64 time=0.141 ms
64 bytes from 192.168.255.2: icmp_seq=5 ttl=64 time=0.143 ms
64 bytes from 192.168.255.2: icmp_seq=6 ttl=64 time=0.093 ms
64 bytes from 192.168.255.2: icmp_seq=7 ttl=64 time=0.113 ms
64 bytes from 192.168.255.2: icmp_seq=8 ttl=64 time=0.138 ms
64 bytes from 192.168.255.2: icmp_seq=9 ttl=64 time=0.115 ms
64 bytes from 192.168.255.2: icmp_seq=10 ttl=64 time=0.136 ms
64 bytes from 192.168.255.2: icmp_seq=11 ttl=64 time=0.119 ms
64 bytes from 192.168.255.2: icmp_seq=12 ttl=64 time=0.115 ms
64 bytes from 192.168.255.2: icmp_seq=13 ttl=64 time=0.138 ms
64 bytes from 192.168.255.2: icmp_seq=14 ttl=64 time=0.109 ms
64 bytes from 192.168.255.2: icmp_seq=15 ttl=64 time=0.157 ms
64 bytes from 192.168.255.2: icmp_seq=16 ttl=64 time=0.107 ms
64 bytes from 192.168.255.2: icmp_seq=17 ttl=64 time=0.130 ms
64 bytes from 192.168.255.2: icmp_seq=18 ttl=64 time=0.095 ms
64 bytes from 192.168.255.2: icmp_seq=19 ttl=64 time=0.103 ms
64 bytes from 192.168.255.2: icmp_seq=20 ttl=64 time=0.124 ms
64 bytes from 192.168.255.2: icmp_seq=21 ttl=64 time=0.112 ms
64 bytes from 192.168.255.2: icmp_seq=22 ttl=64 time=0.135 ms
64 bytes from 192.168.255.2: icmp_seq=23 ttl=64 time=0.117 ms
64 bytes from 192.168.255.2: icmp_seq=24 ttl=64 time=0.101 ms
64 bytes from 192.168.255.2: icmp_seq=25 ttl=64 time=0.149 ms
64 bytes from 192.168.255.2: icmp_seq=26 ttl=64 time=0.113 ms
64 bytes from 192.168.255.2: icmp_seq=27 ttl=64 time=0.182 ms
64 bytes from 192.168.255.2: icmp_seq=28 ttl=64 time=0.132 ms
64 bytes from 192.168.255.2: icmp_seq=29 ttl=64 time=0.102 ms
64 bytes from 192.168.255.2: icmp_seq=30 ttl=64 time=0.110 ms
64 bytes from 192.168.255.2: icmp_seq=31 ttl=64 time=0.203 ms
64 bytes from 192.168.255.2: icmp_seq=32 ttl=64 time=0.092 ms
64 bytes from 192.168.255.2: icmp_seq=33 ttl=64 time=0.120 ms
64 bytes from 192.168.255.2: icmp_seq=34 ttl=64 time=0.118 ms
64 bytes from 192.168.255.2: icmp_seq=35 ttl=64 time=0.120 ms
64 bytes from 192.168.255.2: icmp_seq=36 ttl=64 time=0.152 ms
64 bytes from 192.168.255.2: icmp_seq=37 ttl=64 time=0.130 ms
64 bytes from 192.168.255.2: icmp_seq=38 ttl=64 time=0.104 ms
64 bytes from 192.168.255.2: icmp_seq=39 ttl=64 time=0.106 ms
64 bytes from 192.168.255.2: icmp_seq=40 ttl=64 time=0.115 ms
64 bytes from 192.168.255.2: icmp_seq=41 ttl=64 time=0.132 ms
64 bytes from 192.168.255.2: icmp_seq=42 ttl=64 time=0.111 ms
^C
--- 192.168.255.2 ping statistics ---
42 packets transmitted, 42 received, 0% packet loss, time 41997ms
rtt min/avg/max/mdev = 0.092/0.139/0.771/0.101 ms
[root@inetRouter ~]#
```

На centralRouter смотрим интерфейс ens256

tcpdump -I ens256, трафик идет через ens256,

проверяем интерфейс ens224

tcpdump -I ens224, трафика нет

отключаем интерфейс ens256

ip link set down ens256

tcpdump -I ens224, трафик теперь идет через интерфейс ens224


```
2. ubuntu1 15. centralRouter 16. inetRouter
[root@centralRouter ~]# tcpdump -i ens256
dropped privs to tcpdump
tcpdump: verbose output suppressed, use -v or -vv for full protocol decode
listening on ens256, link-type EN10MB (Ethernet), capture size 262144 bytes
15:58:11.086345 IP 192.168.255.1 > centralRouter: ICMP echo request, id 4, seq 1, length 64
15:58:11.086372 IP centralRouter > 192.168.255.1: ICMP echo reply, id 4, seq 1, length 64
15:58:12.123217 IP 192.168.255.1 > centralRouter: ICMP echo request, id 4, seq 2, length 64
15:58:12.123236 IP centralRouter > 192.168.255.1: ICMP echo reply, id 4, seq 2, length 64
15:58:13.147212 IP 192.168.255.1 > centralRouter: ICMP echo request, id 4, seq 3, length 64
15:58:13.147230 IP centralRouter > 192.168.255.1: ICMP echo reply, id 4, seq 3, length 64
15:58:14.171246 IP 192.168.255.1 > centralRouter: ICMP echo request, id 4, seq 4, length 64
15:58:14.171263 IP centralRouter > 192.168.255.1: ICMP echo reply, id 4, seq 4, length 64
15:58:15.195213 IP 192.168.255.1 > centralRouter: ICMP echo request, id 4, seq 5, length 64
15:58:15.195231 IP centralRouter > 192.168.255.1: ICMP echo reply, id 4, seq 5, length 64
15:58:16.219288 IP 192.168.255.1 > centralRouter: ICMP echo request, id 4, seq 6, length 64
15:58:16.219306 IP centralRouter > 192.168.255.1: ICMP echo reply, id 4, seq 6, length 64
^C
12 packets captured
12 packets received by filter
0 packets dropped by kernel
[root@centralRouter ~]# tcpdump -i ens224
dropped privs to tcpdump
tcpdump: verbose output suppressed, use -v or -vv for full protocol decode
listening on ens224, link-type EN10MB (Ethernet), capture size 262144 bytes
^C
0 packets captured
0 packets received by filter
0 packets dropped by kernel
[root@centralRouter ~]#
[root@centralRouter ~]# ip link set down ens256
[root@centralRouter ~]#
[root@centralRouter ~]# tcpdump -i ens224
dropped privs to tcpdump
tcpdump: verbose output suppressed, use -v or -vv for full protocol decode
listening on ens224, link-type EN10MB (Ethernet), capture size 262144 bytes
15:58:46.939268 IP 192.168.255.1 > centralRouter: ICMP echo request, id 4, seq 36, length 64
15:58:46.939286 IP centralRouter > 192.168.255.1: ICMP echo reply, id 4, seq 36, length 64
15:58:47.323251 ARP, Request who-has centralRouter tell 192.168.255.1, length 46
15:58:47.323264 ARP, Reply centralRouter is-at 00:50:56:a9:d3:29 (oui Unknown), length 28
15:58:47.963276 IP 192.168.255.1 > centralRouter: ICMP echo request, id 4, seq 37, length 64
15:58:47.963294 IP centralRouter > 192.168.255.1: ICMP echo reply, id 4, seq 37, length 64
15:58:48.987222 IP 192.168.255.1 > centralRouter: ICMP echo request, id 4, seq 38, length 64
15:58:48.987240 IP centralRouter > 192.168.255.1: ICMP echo reply, id 4, seq 38, length 64
^C
8 packets captured
8 packets received by filter
0 packets dropped by kernel
[root@centralRouter ~]#
```

ping не прерывался.