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Final Project

ITS Ugrad

Logins:

| All Routers and Clients:	Firewall Datacenter:	Firewall Interior:	PRTG:
User: itsclass	User: admin	User: admin	User: prtgadmin
Pass: class115#	Pass: Class115#	Pass: Class115#	Pass: Class115#

Additional Functionality:

- Deploy an authoritative DNS server. (10 pts)
- Implement a mesh topology for core network. (10 pts)
- Configure OSPF for IPv6 route distribution throughout the network. (10 pts)
- Distribute IPv4 routes with OSPF in the internal routed network. (10 pts)
- All statically assigned IPs (IPv4 and IPv6) have appropriate DNS entries in local DNS server. (10 pts)
- PRTG Scan over all of network. (10 pts)
- Configure firewall(s) and network core to participate in OSPF for IPv4 route distribution. (15 pts)

Notes:

- All screenshots of HTTP page, PRTG, Rules, and Aliases will be at the very last page
- All Firewall rules are active and functional
- The ELine numbers in GNS3 and the Network Diagram are slightly different

Network Diagram:
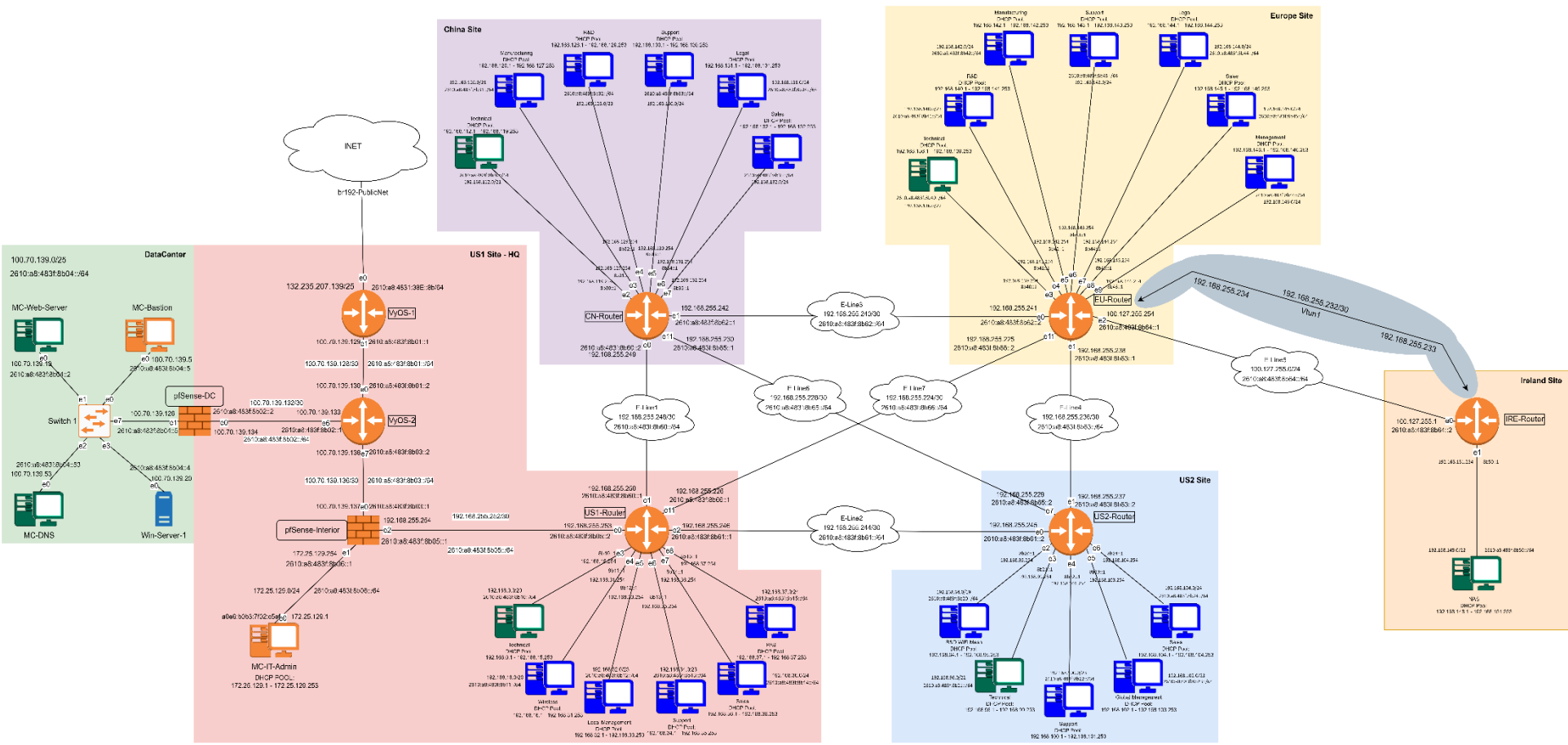
IP Grid (Full List):

Name	IP	IPv6

Network Core

WAN

VyOS-1 eth0	132.235.207.139/25	2610:a8:4831:38E::8b/64

LAN1	**100.70.139.128/30**	**2610:a8:483f:8b01::/64**
VyOS-1 eth1	100.70.139.129	2610:a8:483f:8b01::1
VyOS-2 eth0	100.70.139.130	2610:a8:483f:8b01::2

LAN2	**100.70.139.132/30**	**2610:a8:483f:8b02::/64**
VyOS-2 eth6	100.70.139.133	2610:a8:483f:8b02::1
pfSense Data Center eth0	100.70.139.134	2610:a8:483f:8b02::2

LAN3	**100.70.139.136/30**	**2610:a8:483f:8b03::/64**
pfSense Interior eth0	100.70.139.137	2610:a8:483f:8b03::1
VyOS-2 eth7	100.70.139.138	2610:a8:483f:8b03::2

DMZ	**100.70.139.0/25**	**2610:a8:483f:8b04::/64**
Bastion Host	100.70.139.5	2610:a8:483f:8b04::5
Web Server	100.70.139.10	2610:a8:483f:8b04::2
DNS Server	100.70.139.53	2610:a8:483f:8b04::53
Win-Server	100.70.139.20	2610:a8:483f:8b04::4
pfSense Data Center eth1	100.70.139.126	2610:a8:483f:8b04::1

Enterprise Services Net	172.25.129.0/24	2610:a8:483f:8b06::/64
DHCP Pool Range	172.25.129.1 - .253	NA
IT Admin - Ubuntu GUI	172.25.129.1	a0e6:b0b3:7f02:c5ef
pfSense Interior eth1	172.25.129.254	2610:a8:483f:8b06::1
LAN1	192.168.255.252/30	2610:a8:483f:8b05::/64
pfSense Interior eth2	192.168.255.254	2610:a8:483f:8b05::1
US1 Router eth0	192.168.255.253	2610:a8:483f:8b05::2
LAN2 - ELine1	192.168.255.248/30	2610:a8:483f:8b60::/64
US1 Router eth1	192.168.255.250	2610:a8:483f:8b60::1
CN Router eth0	192.168.255.249	2610:a8:483f:8b60::2
LAN3 - ELine2	192.168.255.244/30	2610:a8:483f:8b61::/64
US1 Router eth2	192.168.255.246	2610:a8:483f:8b61::1
US2 Router eth0	192.168.255.245	2610:a8:483f:8b61::2
LAN4 - ELine3	192.168.255.240/30	2610:a8:483f:8b62::/64
CN Router eth1	192.168.255.242	2610:a8:483f:8b62::1
EU Router eth0	192.168.255.241	2610:a8:483f:8b62::2
LAN5 - ELine4	192.168.255.236/30	2610:a8:483f:8b63::/64
US2 Router eth1	192.168.255.238	2610:a8:483f:8b63::1
EU Router eth1	192.168.255.237	2610:a8:483f:8b63::2
LAN6 - ELine5	100.127.255.0/24	2610:a8:483f:8b64::/64
EU Router eth2	100.127.255.254	2610:a8:483f:8b64::1
IRE Router eth0	100.127.255.1	2610:a8:483f:8b64::2

Mesh Connections

LAN7 - ELine6	192.168.255.228/30	2610:a8:483f:8b65::/64

CN Router eth11	192.168.255.230	2610:a8:483f:8b65::1
US2 Router eth7	192.168.255.229	2610:a8:483f:8b65::2
LAN8 - ELine7	**192.168.255.224/30**	**2610:a8:483f:8b66::/64**
US1 Router eth11	192.168.255.226	2610:a8:483f:8b66::1
EU Router eth11	192.168.255.225	2610:a8:483f:8b66::2

US1 Site

Technical	192.168.0.0/20	2610:a8:483f:8b10::/64
DHCP Pool and Slaac Pre	192.168.0.1 - 192.168.15.253	-
Gateway eth3	192.168.15.254	2610:a8:483f:8b10::1
Wireless	192.168.16.0/20	2610:a8:483f:8b11::/64
DHCP Pool and Slaac Pre	192.168.16.1 - 192.168.31.253	-
Gateway eth4	192.168.31.254	2610:a8:483f:8b11::1
Local Management	192.168.32.0/23	2610:a8:483f:8b12::/64
DHCP Pool and Slaac Pre	192.168.32.1 - 192.168.33.253	-
Gateway eth5	192.168.33.254	2610:a8:483f:8b12::1
Support	192.168.34.0/23	2610:a8:483f:8b13::/64
DHCP Pool and Slaac Pre	192.168.34.1 - 192.168.35.253	-
Gateway eth6	192.168.35.254	2610:a8:483f:8b13::1
Sales	192.168.36.0/24	2610:a8:483f:8b14::/64
DHCP Pool and Slaac Pre	192.168.36.1 - 192.168.36.253	-
Gateway eth7	192.168.36.254	2610:a8:483f:8b14::1
Publicly Accessible Servers	192.168.37.0/24	2610:a8:483f:8b15::/64
DHCP Pool and Slaac Pre	192.168.37.1 - 192.168.37.253	-
Gateway eth8	192.168.37.254	2610:a8:483f:8b15::1
Unused IP's	192.168.38.0 - 192.168.63.255	-

US2 Site

R&D WiFi Mesh	192.168.64.0/19	2610:a8:483f:8b20::/64
DHCP Pool and Slaac Pre	192.168.64.1 - 192.168.95.253	-
Gateway eth2	192.168.95.254	2610:a8:483f:8b20::1
Technical	192.168.96.0/22	2610:a8:483f:8b21::/64
DHCP Pool and Slaac Pre	192.168.96.1 - 192.168.99.253	-
Gateway eth3	192.168.99.254	2610:a8:483f:8b21::1
Support	192.168.100.0/23	2610:a8:483f:8b22::/64
DHCP Pool and Slaac Pre	192.168.100.1 - 192.168.101.253	-
Gateway eth4	192.168.101.254	2610:a8:483f:8b22::1
Global Management	192.168.102.0/23	2610:a8:483f:8b23::/64
DHCP Pool and Slaac Pre	192.168.102.1 - 192.168.103.253	-
Gateway eth5	192.168.103.254	2610:a8:483f:8b23::1
Sales	192.168.104.0/24	2610:a8:483f:8b24::/64
DHCP Pool and Slaac Pre	192.168.104.1 - 192.168.104.253	-
Gateway eth6	192.168.104.254	2610:a8:483f:8b24::1
Unused IP's	192.168.105.0 - 192.168.111.255	-

China Site

Technical	192.168.112.0/21	2610:a8:483f:8b30::/64
DHCP Pool and Slaac Pre	192.168.112.1 - 192.168.119.253	-
Gateway eth2	192.168.119.254	2610:a8:483f:8b30::1
Manufacturing	192.168.120.0/21	2610:a8:483f:8b31::/64
DHCP Pool and Slaac Pre	192.168.120.1 - 192.168.127.253	-
Gateway eth3	192.168.127.254	2610:a8:483f:8b31::1
R&D	192.168.128.0/23	2610:a8:483f:8b32::/64

DHCP Pool and Slaac Pre	192.168.128.1 - 192.168.129.253	-
Gateway eth4	192.168.129.254	2610:a8:483f:8b32::1
Support	192.168.130.0/24	2610:a8:483f:8b33::/64
DHCP Pool and Slaac Pre	192.168.130.1 - 192.168.130.253	-
Gateway eth5	192.168.130.254	2610:a8:483f:8b33::1
Legal	192.168.131.0/24	2610:a8:483f:8b34::/64
DHCP Pool and Slaac Pre	192.168.131.1 - 192.168.131.253	-
Gateway eth6	192.168.131.254	2610:a8:483f:8b34::1
Sales	192.168.132.0/24	2610:a8:483f:8b35::/64
DHCP Pool and Slaac Pre	192.168.132.1 - 192.168.132.253	-
Gateway eth7	192.168.132.254	2610:a8:483f:8b35::1
Unused IP's	192.168.133.0 - 192.168.135.255	-

Europe Site

Technical	192.168.136.0/22	2610:a8:483f:8b40::/64
DHCP Pool and Slaac Pre	192.168.136.1 - 192.168.139.253	-
Gateway eth3	192.168.139.254	2610:a8:483f:8b40::1
R&D	192.168.140.0/23	2610:a8:483f:8b41::/64
DHCP Pool and Slaac Pre	192.168.140.1 - 192.168.141.253	-
Gateway eth4	192.168.141.254	2610:a8:483f:8b41::1
Manufacturing	192.168.142.0/24	2610:a8:483f:8b42::/64
DHCP Pool and Slaac Pre	192.168.142.1 - 192.168.142.253	-
Gateway eth5	192.168.142.254	2610:a8:483f:8b42::1
Support	192.168.143.0/24	2610:a8:483f:8b43::/64
DHCP Pool and Slaac Pre	192.168.143.1 - 192.168.143.253	-
Gateway eth6	192.168.143.254	2610:a8:483f:8b43::1
Legal	192.168.144.0/24	2610:a8:483f:8b44::/64
DHCP Pool and Slaac Pre	192.168.144.1 - 192.168.144.253	-

Gateway eth7	192.168.144.254	2610:a8:483f:8b44::1
Sales	**192.168.145.0/24**	**2610:a8:483f:8b45::/64**
DHCP Pool and Slaac Pre	192.168.145.1 - 192.168.145.253	-
Gateway eth8	192.168.145.254	2610:a8:483f:8b45::1
Management	**192.168.146.0/24**	**2610:a8:483f:8b46::/64**
DHCP Pool and Slaac Pre	192.168.146.1 - 192.168.146.253	-
Gateway eth9	192.168.146.254	2610:a8:483f:8b46::1
Unused IP's	192.168.147.0 - 192.168.147.255	-

Ireland Site

NAS	**192.168.148.0/22**	**2610:a8:483f:8b50::/64**
DHCP Pool and Slaac Pre	192.168.148.1 - 192.168.151.253	-
Gateway eth1	192.168.151.254	2610:a8:483f:8b50::1
LAN6 - ELine5	**100.127.255.0/24**	**2610:a8:483f:8b64::/64**
EU Router eth2	100.127.255.254	2610:a8:483f:8b64::1
IRE Router eth0	100.127.255.1	2610:a8:483f:8b64::2
OpenVPN Vtun1	**192.168.255.232/30**	**NA**
EU Router	192.168.255.234	-
IRE Router	192.168.255.233	-
Unused IP's	192.168.152.0 - 192.168.255.223	-

Router Configurations & Other Configs:

Vyos1:

```
set system host-name VyOS-1
set protocols static route 0.0.0.0/0 next-hop 132.235.207.254
set protocols static route6 ::/0 next-hop 2610:a8:4831:38E::1
set interfaces ethernet eth0 address 132.235.207.139/25
set interfaces ethernet eth0 address 2610:a8:4831:38E::8b/64
set interfaces ethernet eth0 description WAN
set interfaces ethernet eth1 address 100.70.139.129/30
set interfaces ethernet eth1 address 2610:a8:483f:8b01::1/64
set interfaces ethernet eth1 description LAN1
set service snmp community public
set service snmp contact 'AD'
set service snmp location 'v1'
set service snmp description 'VyOS-1'
set nat source rule 100 outbound-interface eth0
set nat source rule 100 source address 172.25.128.0/17
set nat source rule 100 translation address masquerade
set nat source rule 101 outbound-interface eth0
set nat source rule 101 source address 192.168.0.0/16
set nat source rule 101 translation address masquerade
set nat source rule 102 outbound-interface eth0
set nat source rule 102 source address 100.70.139.0/24
set nat source rule 102 translation address masquerade
set nat source rule 103 outbound-interface eth0
set nat source rule 103 source address 100.127.255.0/24
set nat source rule 103 translation address masquerade
set protocols ospf area 0 network 100.70.139.0/24
set protocols ospf area 0 network 172.25.128.0/17
set protocols ospf area 0 network 192.168.0.0/16
set protocols ospf log-adjacency-changes
set protocols ospf redistribute connected metric-type 2
set protocols ospf redistribute connected route-map CONNECT
set policy route-map CONNECT rule 10 action permit
set policy route-map CONNECT rule 10 match interface lo
set protocols ospf default-information originate always
set protocols ospf default-information originate metric 10
```

```
set protocols ospf default-information originate metric-type 2
set protocols ospfv3 area 0.0.0.0 interface eth1
set protocols ospfv3 parameters router-id 192.168.1.1
set protocols ospfv3 redistribute connected
set protocols ospfv3 redistribute static
```

Vyos2:

```
set system host-name VyOS-2
set interfaces ethernet eth0 address 100.70.139.130/30
set interfaces ethernet eth0 address 2610:a8:483f:8b01::2/64
set interfaces ethernet eth0 description LAN1
set interfaces ethernet eth6 address 100.70.139.133/30
set interfaces ethernet eth6 address 2610:a8:483f:8b02::1/64
set interfaces ethernet eth6 description LAN2
set interfaces ethernet eth7 address 100.70.139.138/30
set interfaces ethernet eth7 address 2610:a8:483f:8b03::2/64
set interfaces ethernet eth7 description LAN3
set service snmp community public
set service snmp contact 'AD'
set service snmp location 'v2'
set service snmp description 'VyOS-2'
set protocols ospf area 0 network 100.70.139.0/24
set protocols ospf area 0 network 172.25.128.0/17
set protocols ospf area 0 network 192.168.0.0/16
set protocols ospf log-adjacency-changes
set protocols ospf redistribute connected metric-type 2
set protocols ospf redistribute connected route-map CONNECT
set policy route-map CONNECT rule 10 action permit
set policy route-map CONNECT rule 10 match interface lo
set protocols ospfv3 area 0.0.0.0 interface eth0
set protocols ospfv3 area 0.0.0.0 interface eth6
set protocols ospfv3 area 0.0.0.0 interface eth7
set protocols ospfv3 parameters router-id 192.168.2.1
set protocols ospfv3 redistribute connected
```

<u>VyosUS1:</u>

```
set system host-name VyOS-US1
set interfaces ethernet eth0 address 192.168.255.253/30
set interfaces ethernet eth0 address 2610:a8:483f:8b05::2/64
set interfaces ethernet eth0 description LAN1
set interfaces ethernet eth1 address 192.168.255.250/30
set interfaces ethernet eth1 address 2610:a8:483f:8b60::1/64
set interfaces ethernet eth1 description LAN2
set interfaces ethernet eth2 address 192.168.255.246/30
set interfaces ethernet eth2 address 2610:a8:483f:8b61::1/64
set interfaces ethernet eth2 description LAN3
set interfaces ethernet eth3 address 192.168.15.254/20
set interfaces ethernet eth3 address 2610:a8:483f:8b10::1/64
set interfaces ethernet eth3 description Technical
set interfaces ethernet eth4 address 192.168.31.254/20
set interfaces ethernet eth4 address 2610:a8:483f:8b11::1/64
set interfaces ethernet eth4 description Wireless
set interfaces ethernet eth5 address 192.168.33.254/23
set interfaces ethernet eth5 address 2610:a8:483f:8b12::1/64
set interfaces ethernet eth5 description LocalManagement
set interfaces ethernet eth6 address 192.168.35.254/23
set interfaces ethernet eth6 address 2610:a8:483f:8b13::1/64
set interfaces ethernet eth6 description Support
set interfaces ethernet eth7 address 192.168.36.254/24
set interfaces ethernet eth7 address 2610:a8:483f:8b14::1/64
set interfaces ethernet eth7 description Sales
set interfaces ethernet eth8 address 192.168.37.254/24
set interfaces ethernet eth8 address 2610:a8:483f:8b15::1/64
set interfaces ethernet eth8 description PAS
set interfaces ethernet eth11 address 192.168.255.226/30
set interfaces ethernet eth11 address 2610:a8:483f:8b66::1/64
set interfaces ethernet eth11 description LAN8
set protocols ospf area 0 network 192.168.0.0/16
set protocols ospf area 0 network 100.70.139.0/24
set protocols ospf area 0 network 172.25.128.0/17
set protocols ospf area 0 network 100.127.255.0/24
set protocols ospf log-adjacency-changes
set protocols ospf redistribute connected metric-type 2
```

```
set protocols ospf redistribute connected route-map CONNECT
set policy route-map CONNECT rule 10 action permit
set policy route-map CONNECT rule 10 match interface lo
set protocols ospfv3 area 0.0.0.0 interface eth0
set protocols ospfv3 area 0.0.0.0 interface eth1
set protocols ospfv3 area 0.0.0.0 interface eth2
set protocols ospfv3 parameters router-id 192.168.3.1
set protocols ospfv3 redistribute connected
set service snmp community public
set service snmp contact 'AD'
set service snmp location 'v3'
set service snmp description 'VyOS-US1'
```

SLAAC:
```
set service router-advert interface eth3 prefix 2610:a8:483f:8b10::/64
set service router-advert interface eth3 name-server 2001:4860:4860::8888
```

DHCP:
```
set service dhcp-server shared-network-name LAN1-POOL subnet 192.168.0.0/20 range 0 start 192.168.0.1
set service dhcp-server shared-network-name LAN1-POOL subnet 192.168.0.0/20 range 0 stop 192.168.15.253
set service dhcp-server shared-network-name LAN1-POOL subnet 192.168.0.0/20 name-server 100.70.139.53
set service dhcp-server shared-network-name LAN1-POOL subnet 192.168.0.0/20 default-router 192.168.15.254
set service dhcp-server shared-network-name LAN1-POOL subnet 192.168.0.0/20 lease 120

set service dhcp-server shared-network-name LAN2-POOL subnet 192.168.16.0/20 range 0 start 192.168.16.1
set service dhcp-server shared-network-name LAN2-POOL subnet 192.168.16.0/20 range 0 stop 192.168.31.253
set service dhcp-server shared-network-name LAN2-POOL subnet 192.168.16.0/20 name-server 100.70.139.53
set service dhcp-server shared-network-name LAN2-POOL subnet 192.168.16.0/20 default-router 192.168.31.254
set service dhcp-server shared-network-name LAN2-POOL subnet 192.168.16.0/20 lease 120

set service dhcp-server shared-network-name LAN3-POOL subnet 192.168.32.0/23 range 0 start 192.168.32.1
set service dhcp-server shared-network-name LAN3-POOL subnet 192.168.32.0/23 range 0 stop 192.168.33.253
set service dhcp-server shared-network-name LAN3-POOL subnet 192.168.32.0/23 name-server 100.70.139.53
set service dhcp-server shared-network-name LAN3-POOL subnet 192.168.32.0/23 default-router 192.168.33.254
set service dhcp-server shared-network-name LAN3-POOL subnet 192.168.32.0/23 lease 120

set service dhcp-server shared-network-name LAN4-POOL subnet 192.168.34.0/23 range 0 start 192.168.34.1
set service dhcp-server shared-network-name LAN4-POOL subnet 192.168.34.0/23 range 0 stop 192.168.35.253
set service dhcp-server shared-network-name LAN4-POOL subnet 192.168.34.0/23 name-server 100.70.139.53
set service dhcp-server shared-network-name LAN4-POOL subnet 192.168.34.0/23 default-router 192.168.35.254
set service dhcp-server shared-network-name LAN4-POOL subnet 192.168.34.0/23 lease 120
```

```
set service dhcp-server shared-network-name LAN5-POOL subnet 192.168.36.0/24 range 0 start 192.168.36.1
set service dhcp-server shared-network-name LAN5-POOL subnet 192.168.36.0/24 range 0 stop 192.168.36.253
set service dhcp-server shared-network-name LAN5-POOL subnet 192.168.36.0/24 name-server 100.70.139.53
set service dhcp-server shared-network-name LAN5-POOL subnet 192.168.36.0/24 default-router 192.168.36.254
set service dhcp-server shared-network-name LAN5-POOL subnet 192.168.36.0/24 lease 120

set service dhcp-server shared-network-name LAN6-POOL subnet 192.168.37.0/24 range 0 start 192.168.37.1
set service dhcp-server shared-network-name LAN6-POOL subnet 192.168.37.0/24 range 0 stop 192.168.37.253
set service dhcp-server shared-network-name LAN6-POOL subnet 192.168.37.0/24 name-server 100.70.139.53
set service dhcp-server shared-network-name LAN6-POOL subnet 192.168.37.0/24 default-router 192.168.37.254
set service dhcp-server shared-network-name LAN6-POOL subnet 192.168.37.0/24 lease 120
```

VyosCN:

```
set system host-name VyOS-CN
set interfaces ethernet eth0 address 192.168.255.249/30
set interfaces ethernet eth0 address 2610:a8:483f:8b60::2/64
set interfaces ethernet eth0 description LAN2
set interfaces ethernet eth1 address 192.168.255.242/30
set interfaces ethernet eth1 address 2610:a8:483f:8b62::1/64
set interfaces ethernet eth1 description LAN4
set interfaces ethernet eth2 address 192.168.119.254/21
set interfaces ethernet eth2 address 2610:a8:483f:8b30::1/64
set interfaces ethernet eth2 description Technical
set interfaces ethernet eth3 address 192.168.127.254/21
set interfaces ethernet eth3 address 2610:a8:483f:8b31::1/64
set interfaces ethernet eth3 description Manufacturing
set interfaces ethernet eth4 address 192.168.129.254/23
set interfaces ethernet eth4 address 2610:a8:483f:8b32::1/64
set interfaces ethernet eth4 description R&D
set interfaces ethernet eth5 address 192.168.130.254/24
set interfaces ethernet eth5 address 2610:a8:483f:8b33::1/64
set interfaces ethernet eth5 description Support
set interfaces ethernet eth6 address 192.168.131.254/24
set interfaces ethernet eth6 address 2610:a8:483f:8b34::1/64
set interfaces ethernet eth6 description Legal
set interfaces ethernet eth7 address 192.168.132.254/24
set interfaces ethernet eth7 address 2610:a8:483f:8b35::1/64
```

```
set interfaces ethernet eth7 description Sales
set interfaces ethernet eth11 address 192.168.255.230/30
set interfaces ethernet eth11 address 2610:a8:483f:8b65::1/64
set interfaces ethernet eth11 description LAN7
set protocols ospf area 0 network 192.168.0.0/16
set protocols ospf area 0 network 100.70.139.0/24
set protocols ospf area 0 network 172.25.128.0/17
set protocols ospf area 0 network 100.127.255.0/24
set protocols ospf log-adjacency-changes
set protocols ospf redistribute connected metric-type 2
set protocols ospf redistribute connected route-map CONNECT
set policy route-map CONNECT rule 10 action permit
set policy route-map CONNECT rule 10 match interface lo
set protocols ospfv3 area 0.0.0.0 interface eth0
set protocols ospfv3 area 0.0.0.0 interface eth1
set protocols ospfv3 parameters router-id 192.168.4.1
set protocols ospfv3 redistribute connected

set service snmp community public
set service snmp contact 'AD'
set service snmp location 'v4'
set service snmp description 'VyOS-CN'
```

SLAAC:
```
set service router-advert interface eth2 prefix 2610:a8:483f:8b30::/64
set service router-advert interface eth2 name-server 2001:4860:4860::8888
```
DHCP:
```
set service dhcp-server shared-network-name LAN1-POOL subnet 192.168.112.0/21 range 0 start 192.168.112.1
set service dhcp-server shared-network-name LAN1-POOL subnet 192.168.112.0/21 range 0 stop 192.168.119.253
set service dhcp-server shared-network-name LAN1-POOL subnet 192.168.112.0/21 name-server 100.70.139.53
set service dhcp-server shared-network-name LAN1-POOL subnet 192.168.112.0/21 default-router 192.168.119.254
set service dhcp-server shared-network-name LAN1-POOL subnet 192.168.112.0/21 lease 120

set service dhcp-server shared-network-name LAN2-POOL subnet 192.168.120.0/21 range 0 start 192.168.120.1
set service dhcp-server shared-network-name LAN2-POOL subnet 192.168.120.0/21 range 0 stop 192.168.127.253
set service dhcp-server shared-network-name LAN2-POOL subnet 192.168.120.0/21 name-server 100.70.139.53
set service dhcp-server shared-network-name LAN2-POOL subnet 192.168.120.0/21 default-router 192.168.127.254
set service dhcp-server shared-network-name LAN2-POOL subnet 192.168.120.0/21 lease 120
```

```
set service dhcp-server shared-network-name LAN3-POOL subnet 192.168.128.0/23 range 0 start 192.168.128.1
set service dhcp-server shared-network-name LAN3-POOL subnet 192.168.128.0/23 range 0 stop 192.168.129.253
set service dhcp-server shared-network-name LAN3-POOL subnet 192.168.128.0/23 name-server 100.70.139.53
set service dhcp-server shared-network-name LAN3-POOL subnet 192.168.128.0/23 default-router 192.168.129.254
set service dhcp-server shared-network-name LAN3-POOL subnet 192.168.128.0/23 lease 120

set service dhcp-server shared-network-name LAN4-POOL subnet 192.168.130.0/24 range 0 start 192.168.130.1
set service dhcp-server shared-network-name LAN4-POOL subnet 192.168.130.0/24 range 0 stop 192.168.130.253
set service dhcp-server shared-network-name LAN4-POOL subnet 192.168.130.0/24 name-server 100.70.139.53
set service dhcp-server shared-network-name LAN4-POOL subnet 192.168.130.0/24 default-router 192.168.130.254
set service dhcp-server shared-network-name LAN4-POOL subnet 192.168.130.0/24 lease 120

set service dhcp-server shared-network-name LAN5-POOL subnet 192.168.131.0/24 range 0 start 192.168.131.1
set service dhcp-server shared-network-name LAN5-POOL subnet 192.168.131.0/24 range 0 stop 192.168.131.253
set service dhcp-server shared-network-name LAN5-POOL subnet 192.168.131.0/24 name-server 100.70.139.53
set service dhcp-server shared-network-name LAN5-POOL subnet 192.168.131.0/24 default-router 192.168.131.254
set service dhcp-server shared-network-name LAN5-POOL subnet 192.168.131.0/24 lease 120

set service dhcp-server shared-network-name LAN6-POOL subnet 192.168.132.0/24 range 0 start 192.168.132.1
set service dhcp-server shared-network-name LAN6-POOL subnet 192.168.132.0/24 range 0 stop 192.168.132.253
set service dhcp-server shared-network-name LAN6-POOL subnet 192.168.132.0/24 name-server 100.70.139.53
set service dhcp-server shared-network-name LAN6-POOL subnet 192.168.132.0/24 default-router 192.168.132.254
set service dhcp-server shared-network-name LAN6-POOL subnet 192.168.132.0/24 lease 120
```

VyosUS2:

```
set system host-name VyOS-US2
set interfaces ethernet eth0 address 192.168.255.244/30
set interfaces ethernet eth0 address 2610:a8:483f:8b61::2/64
set interfaces ethernet eth0 description LAN3
set interfaces ethernet eth1 address 192.168.255.238/30
set interfaces ethernet eth1 address 2610:a8:483f:8b63::1/64
set interfaces ethernet eth1 description LAN5
set interfaces ethernet eth2 address 192.168.95.254/19
set interfaces ethernet eth2 address 2610:a8:483f:8b20::1/64
set interfaces ethernet eth2 description R&DWiFiMesh
set interfaces ethernet eth3 address 192.168.99.254/22
set interfaces ethernet eth3 address 2610:a8:483f:8b21::1/64
set interfaces ethernet eth3 description Technical
```

```
set interfaces ethernet eth4 address 192.168.101.254/23
set interfaces ethernet eth4 address 2610:a8:483f:8b22::1/64
set interfaces ethernet eth4 description Support
set interfaces ethernet eth5 address 192.168.103.254/23
set interfaces ethernet eth5 address 2610:a8:483f:8b23::1/64
set interfaces ethernet eth5 description GlobalMgmt
set interfaces ethernet eth6 address 192.168.104.254/24
set interfaces ethernet eth6 address 2610:a8:483f:8b24::1/64
set interfaces ethernet eth6 description Sales
set interfaces ethernet eth7 address 192.168.255.229/30
set interfaces ethernet eth7 address 2610:a8:483f:8b65::2/64
set interfaces ethernet eth7 description LAN7
set protocols ospf area 0 network 192.168.0.0/16
set protocols ospf area 0 network 100.70.139.0/24
set protocols ospf area 0 network 172.25.128.0/17
set protocols ospf area 0 network 100.127.255.0/24
set protocols ospf log-adjacency-changes
set protocols ospf redistribute connected metric-type 2
set protocols ospf redistribute connected route-map CONNECT
set policy route-map CONNECT rule 10 action permit
set policy route-map CONNECT rule 10 match interface lo
set protocols ospfv3 area 0.0.0.0 interface eth0
set protocols ospfv3 area 0.0.0.0 interface eth1
set protocols ospfv3 parameters router-id 192.168.5.1
set protocols ospfv3 redistribute connected
set service snmp community public
set service snmp contact 'AD'
set service snmp location 'v5'
set service snmp description 'VyOS-US2'
```
SLAAC:
```
set service router-advert interface eth3 prefix 2610:a8:483f:8b21::/64
set service router-advert interface eth3 name-server 2001:4860:4860::8888
```
DHCP:
```
set service dhcp-server shared-network-name LAN1-POOL subnet 192.168.64.0/19 range 0 start 192.168.64.1
set service dhcp-server shared-network-name LAN1-POOL subnet 192.168.64.0/19 range 0 stop 192.168.95.253
set service dhcp-server shared-network-name LAN1-POOL subnet 192.168.64.0/19 name-server 100.70.139.53
set service dhcp-server shared-network-name LAN1-POOL subnet 192.168.64.0/19 default-router 192.168.95.254
set service dhcp-server shared-network-name LAN1-POOL subnet 192.168.64.0/19 lease 120
```

```
set service dhcp-server shared-network-name LAN2-POOL subnet 192.168.96.0/22 range 0 start 192.168.96.1
set service dhcp-server shared-network-name LAN2-POOL subnet 192.168.96.0/22 range 0 stop 192.168.99.253
set service dhcp-server shared-network-name LAN2-POOL subnet 192.168.96.0/22 name-server 100.70.139.53
set service dhcp-server shared-network-name LAN2-POOL subnet 192.168.96.0/22 default-router 192.168.99.254
set service dhcp-server shared-network-name LAN2-POOL subnet 192.168.96.0/22 lease 120

set service dhcp-server shared-network-name LAN3-POOL subnet 192.168.100.0/23 range 0 start 192.168.100.1
set service dhcp-server shared-network-name LAN3-POOL subnet 192.168.100.0/23 range 0 stop 192.168.101.253
set service dhcp-server shared-network-name LAN3-POOL subnet 192.168.100.0/23 name-server 100.70.139.53
set service dhcp-server shared-network-name LAN3-POOL subnet 192.168.100.0/23 default-router 192.168.101.254
set service dhcp-server shared-network-name LAN3-POOL subnet 192.168.100.0/23 lease 120

set service dhcp-server shared-network-name LAN4-POOL subnet 192.168.102.0/23 range 0 start 192.168.102.1
set service dhcp-server shared-network-name LAN4-POOL subnet 192.168.102.0/23 range 0 stop 192.168.103.253
set service dhcp-server shared-network-name LAN4-POOL subnet 192.168.102.0/23 name-server 100.70.139.53
set service dhcp-server shared-network-name LAN4-POOL subnet 192.168.102.0/23 default-router 192.168.103.254
set service dhcp-server shared-network-name LAN4-POOL subnet 192.168.102.0/23 lease 120

set service dhcp-server shared-network-name LAN5-POOL subnet 192.168.104.0/24 range 0 start 192.168.104.1
set service dhcp-server shared-network-name LAN5-POOL subnet 192.168.104.0/24 range 0 stop 192.168.104.253
set service dhcp-server shared-network-name LAN5-POOL subnet 192.168.104.0/24 name-server 100.70.139.53
set service dhcp-server shared-network-name LAN5-POOL subnet 192.168.104.0/24 default-router 192.168.104.254
set service dhcp-server shared-network-name LAN5-POOL subnet 192.168.104.0/24 lease 120
```

VyosEU:

```
set system host-name VyOS-EU
set interfaces ethernet eth0 address 192.168.255.241/30
set interfaces ethernet eth0 address 2610:a8:483f:8b62::2/64
set interfaces ethernet eth0 description LAN4
set interfaces ethernet eth1 address 192.168.255.237/30
set interfaces ethernet eth1 address 2610:a8:483f:8b63::2/64
set interfaces ethernet eth1 description LAN5
set interfaces ethernet eth2 address 192.168.255.234/30
set interfaces ethernet eth2 address 2610:a8:483f:8b64::1/64
set interfaces ethernet eth2 description LAN6
set interfaces ethernet eth3 address 192.168.139.254/22
set interfaces ethernet eth3 address 2610:a8:483f:8b40::1/64
set interfaces ethernet eth3 description Technical
```

```
set interfaces ethernet eth4 address 192.168.141.254/23
set interfaces ethernet eth4 address 2610:a8:483f:8b41::1/64
set interfaces ethernet eth4 description R&D
set interfaces ethernet eth5 address 192.168.142.254/24
set interfaces ethernet eth5 address 2610:a8:483f:8b42::1/64
set interfaces ethernet eth5 description Manufacturing
set interfaces ethernet eth6 address 192.168.143.254/24
set interfaces ethernet eth6 address 2610:a8:483f:8b43::1/64
set interfaces ethernet eth6 description Support
set interfaces ethernet eth7 address 192.168.144.254/24
set interfaces ethernet eth7 address 2610:a8:483f:8b44::1/64
set interfaces ethernet eth7 description Legal
set interfaces ethernet eth8 address 192.168.145.254/24
set interfaces ethernet eth8 address 2610:a8:483f:8b45::1/64
set interfaces ethernet eth8 description Sales
set interfaces ethernet eth9 address 192.168.146.254/24
set interfaces ethernet eth9 address 2610:a8:483f:8b46::1/64
set interfaces ethernet eth9 description Management
set interfaces ethernet eth11 address 192.168.255.225/30
set interfaces ethernet eth11 address 2610:a8:483f:8b66::2/64
set interfaces ethernet eth11 description LAN8
set protocols ospf area 0 network 192.168.0.0/16
set protocols ospf area 0 network 100.70.139.0/24
set protocols ospf area 0 network 172.25.128.0/17
set protocols ospf area 0 network 100.127.255.0/24
set protocols ospf log-adjacency-changes
set protocols ospf redistribute connected metric-type 2
set protocols ospf redistribute connected route-map CONNECT
set policy route-map CONNECT rule 10 action permit
set policy route-map CONNECT rule 10 match interface lo
set protocols ospfv3 area 0.0.0.0 interface eth0
set protocols ospfv3 area 0.0.0.0 interface eth1
set protocols ospfv3 area 0.0.0.0 interface eth2
set protocols ospfv3 parameters router-id 192.168.6.1
set protocols ospfv3 redistribute connected
set service snmp community public
set service snmp contact 'AD'
set service snmp location 'v6'
set service snmp description 'VyOS-EU'
```

SLAAC:

```
set service router-advert interface eth3 prefix 2610:a8:483f:8b40::/64
set service router-advert interface eth3 name-server 2001:4860:4860::8888
```

DHCP:

```
set service dhcp-server shared-network-name LAN1-POOL subnet 192.168.136.0/22 range 0 start 192.168.136.1
set service dhcp-server shared-network-name LAN1-POOL subnet 192.168.136.0/22 range 0 stop 192.168.139.253
set service dhcp-server shared-network-name LAN1-POOL subnet 192.168.136.0/22 name-server 100.70.139.53
set service dhcp-server shared-network-name LAN1-POOL subnet 192.168.136.0/22 default-router 192.168.139.254
set service dhcp-server shared-network-name LAN1-POOL subnet 192.168.136.0/22 lease 120

set service dhcp-server shared-network-name LAN2-POOL subnet 192.168.140.0/23 range 0 start 192.168.140.1
set service dhcp-server shared-network-name LAN2-POOL subnet 192.168.140.0/23 range 0 stop 192.168.141.253
set service dhcp-server shared-network-name LAN2-POOL subnet 192.168.140.0/23 name-server 100.70.139.53
set service dhcp-server shared-network-name LAN2-POOL subnet 192.168.140.0/23 default-router 192.168.141.254
set service dhcp-server shared-network-name LAN2-POOL subnet 192.168.140.0/23 lease 120

set service dhcp-server shared-network-name LAN3-POOL subnet 192.168.142.0/24 range 0 start 192.168.142.1
set service dhcp-server shared-network-name LAN3-POOL subnet 192.168.142.0/24 range 0 stop 192.168.142.253
set service dhcp-server shared-network-name LAN3-POOL subnet 192.168.142.0/24 name-server 100.70.139.53
set service dhcp-server shared-network-name LAN3-POOL subnet 192.168.142.0/24 default-router 192.168.142.254
set service dhcp-server shared-network-name LAN3-POOL subnet 192.168.142.0/24 lease 120

set service dhcp-server shared-network-name LAN4-POOL subnet 192.168.143.0/24 range 0 start 192.168.143.1
set service dhcp-server shared-network-name LAN4-POOL subnet 192.168.143.0/24 range 0 stop 192.168.143.253
set service dhcp-server shared-network-name LAN4-POOL subnet 192.168.143.0/24 name-server 100.70.139.53
set service dhcp-server shared-network-name LAN4-POOL subnet 192.168.143.0/24 default-router 192.168.143.254
set service dhcp-server shared-network-name LAN4-POOL subnet 192.168.143.0/24 lease 120

set service dhcp-server shared-network-name LAN5-POOL subnet 192.168.144.0/24 range 0 start 192.168.144.1
set service dhcp-server shared-network-name LAN5-POOL subnet 192.168.144.0/24 range 0 stop 192.168.144.253
set service dhcp-server shared-network-name LAN5-POOL subnet 192.168.144.0/24 name-server 100.70.139.53
set service dhcp-server shared-network-name LAN5-POOL subnet 192.168.144.0/24 default-router 192.168.144.254
set service dhcp-server shared-network-name LAN5-POOL subnet 192.168.144.0/24 lease 120

set service dhcp-server shared-network-name LAN6-POOL subnet 192.168.145.0/24 range 0 start 192.168.145.1
set service dhcp-server shared-network-name LAN6-POOL subnet 192.168.145.0/24 range 0 stop 192.168.145.253
set service dhcp-server shared-network-name LAN6-POOL subnet 192.168.145.0/24 name-server 100.70.139.53
set service dhcp-server shared-network-name LAN6-POOL subnet 192.168.145.0/24 default-router 192.168.145.254
set service dhcp-server shared-network-name LAN6-POOL subnet 192.168.145.0/24 lease 120
```

```
set service dhcp-server shared-network-name LAN7-POOL subnet 192.168.146.0/24 range 0 start 192.168.146.1
set service dhcp-server shared-network-name LAN7-POOL subnet 192.168.146.0/24 range 0 stop 192.168.146.253
set service dhcp-server shared-network-name LAN7-POOL subnet 192.168.146.0/24 name-server 100.70.139.53
set service dhcp-server shared-network-name LAN7-POOL subnet 192.168.146.0/24 default-router 192.168.146.254
set service dhcp-server shared-network-name LAN7-POOL subnet 192.168.146.0/24 lease 120
```

VyosIRE:

```
set system host-name VyOS-IRE
set interfaces ethernet eth0 address 100.127.255.254/24
set interfaces ethernet eth0 address 2610:a8:483f:8b64::2/64
set interfaces ethernet eth0 description LAN6
set interfaces ethernet eth1 address 192.168.151.254/24
set interfaces ethernet eth1 address 2610:a8:483f:8b50::1/64
set interfaces ethernet eth1 description NASClient
set protocols ospf area 0 network 192.168.0.0/16
set protocols ospf area 0 network 100.70.139.0/24
set protocols ospf area 0 network 172.25.128.0/17
set protocols ospf area 0 network 100.127.255.0/24
set protocols ospf log-adjacency-changes
set protocols ospf redistribute connected metric-type 2
set protocols ospf redistribute connected route-map CONNECT
set policy route-map CONNECT rule 10 action permit
set policy route-map CONNECT rule 10 match interface lo
set protocols ospfv3 area 0.0.0.0 interface eth0
set protocols ospfv3 parameters router-id 192.168.7.1
set protocols ospfv3 redistribute connected
set service snmp community public
set service snmp contact 'AD'
set service snmp location 'v7'
set service snmp description 'VyOS-IRE'
```
SLAAC:
```
set service router-advert interface eth1 prefix 2610:a8:483f:8b50::/64
set service router-advert interface eth1 name-server 2001:4860:4860::8888
```
DHCP:
```
set service dhcp-server shared-network-name LAN1-POOL subnet 192.168.148.0/22 range 0 start 192.168.148.1
set service dhcp-server shared-network-name LAN1-POOL subnet 192.168.148.0/22 range 0 stop 192.168.151.253
set service dhcp-server shared-network-name LAN1-POOL subnet 192.168.148.0/22 name-server 100.70.139.53
```

```
set service dhcp-server shared-network-name LAN1-POOL subnet 192.168.148.0/22 default-router 192.168.151.254
set service dhcp-server shared-network-name LAN1-POOL subnet 192.168.148.0/22 lease 120
```

OPENVPN:

1-eurouter copied key

```
set interfaces openvpn vtun1 local-address 192.168.255.234 subnet-mask 255.255.255.252
set interfaces openvpn vtun1 local-host 192.168.255.241
set interfaces openvpn vtun1 local-port 1195
set interfaces openvpn vtun1 mode site-to-site
set interfaces openvpn vtun1 remote-address 192.168.255.233
set interfaces openvpn vtun1 shared-secret-key-file /config/auth/openvpn-1.key
set interfaces openvpn vtun1 protocol udp
set interfaces openvpn vtun1 persistent-tunnel
```

2-irerouter pasted key

```
set interfaces openvpn vtun1 local-address 192.168.255.233 subnet-mask 255.255.255.252
set interfaces openvpn vtun1 local-host 100.127.255.1
set interfaces openvpn vtun1 local-port 1195
set interfaces openvpn vtun1 mode site-to-site
set interfaces openvpn vtun1 remote-address 192.168.255.234
set interfaces openvpn vtun1 shared-secret-key-file /config/auth/openvpn-1.key
set interfaces openvpn vtun1 protocol udp
set interfaces openvpn vtun1 persistent-tunnel
```

MC-DNS:

```
sudo nmcli general hostname MC-DNS
sudo nmcli con mod "Wired connection 1" ipv4.addresses 100.70.139.53/25
sudo nmcli con mod "Wired connection 1" ipv4.gateway 100.70.139.126
sudo nmcli con mod "Wired connection 1" ipv4.dns 132.235.9.75
sudo nmcli con mod "Wired connection 1" ipv4.method manual
sudo nmcli connection down "Wired connection 1"
sudo nmcli connection up "Wired connection 1"
sudo nmcli con mod "Wired connection 1" ipv6.addresses 2610:a8:483f:8b04::53/64
sudo nmcli con mod "Wired connection 1" ipv6.gateway 2610:a8:483f:8b04::1
sudo nmcli con mod "Wired connection 1" ipv6.dns 2610:a8:4831:300::10
sudo nmcli con mod "Wired connection 1" ipv6.method manual
sudo nmcli connection down "Wired connection 1"
sudo nmcli connection up "Wired connection 1"
```

MC-Web-Server:

```
sudo nmcli general hostname MC-Web-Server
sudo nmcli con mod "Wired connection 1" ipv4.addresses 100.70.139.10/25
```

```
sudo nmcli con mod "Wired connection 1" ipv4.gateway 100.70.139.126
sudo nmcli con mod "Wired connection 1" ipv4.dns 100.70.139.53
sudo nmcli con mod "Wired connection 1" ipv4.method manual
sudo nmcli connection down "Wired connection 1"
sudo nmcli connection up "Wired connection 1"
sudo nmcli con mod "Wired connection 1" ipv6.addresses 2610:a8:483f:8b04::2/64
sudo nmcli con mod "Wired connection 1" ipv6.gateway 2610:a8:483f:8b04::1
sudo nmcli con mod "Wired connection 1" ipv6.dns 2610:a8:483f:8b04::53
sudo nmcli con mod "Wired connection 1" ipv6.method manual
sudo nmcli connection down "Wired connection 1"
sudo nmcli connection up "Wired connection 1"
```

Required Functionality:

Each MC site is connected to two other MC sites via a point-to-point link provided by a 3rd-party company.
- Check, all links are by elines

Create a point-to-point OpenVPN encrypted connection from Europe to a secure data storage facility in Ireland.
- Check, eu and ire cannot reach over ISP but can reach over vtun interfaces

All client networks are served by DHCPv4 and SLAAC.
- Check, all clients on the interior running on DHCPv4 and SLAAC

Place and configure NAT
- Check, NAT rules for all subnets

All devices on the network use the company DNS server for caching DNS services.
- Check, all devices use DNS server

There should be MC hosted HTTP server with a simple customer static HTTP page. (http://100.70.139.10 or 100.70.139.10)
- Check, header should say hi customer

Additional Functionality:

Deploy an authoritative DNS server. (10 pts)
- Check

Implement a mesh topology for core network. (10 pts)
- Check

Configure OSPF for IPv6 route distribution throughout the network. (10 pts)
- Check

Distribute IPv4 routes with OSPF in the internal routed network. (10 pts)
- Check

All statically assigned IPs (IPv4 and IPv6) have appropriate DNS entries in local DNS server. (10 pts)
- Check

PRTG Scan over all of network. (10 pts)
- Check

Configure firewall(s) and network core to participate in OSPF for IPv4 route distribution. (15 pts)
- Check

Additional Screenshots for presentation and proofs:

GNS3:
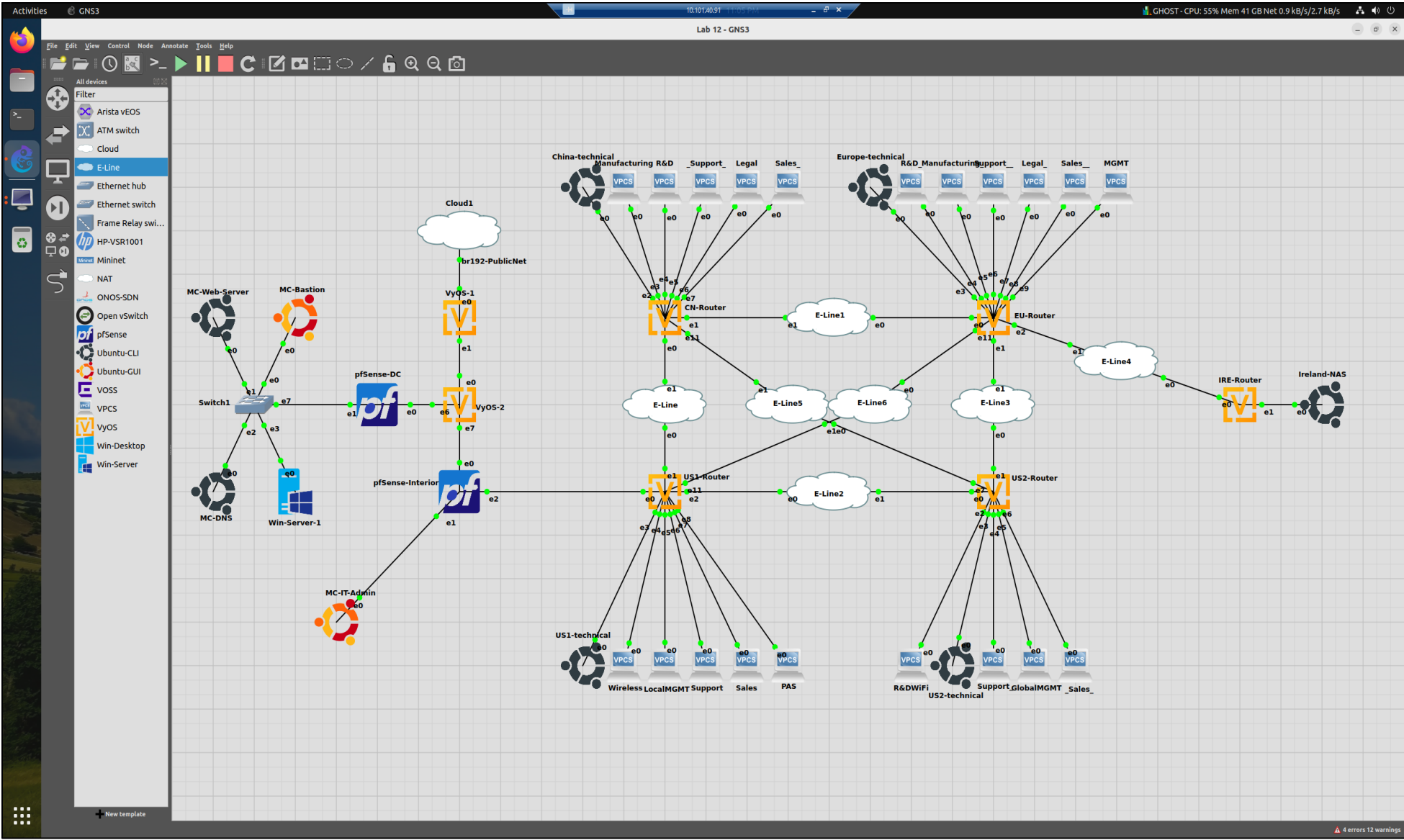
Firewall Aliases (URL contains list of IP's for facebook):

- Datacenter:

- Interior:

File Edit View History Bookmarks Tools Help

pfSense.home.arpa - Fire ×   +

← → C   ○ 🔒 172.25.129.254/firewall_aliases.php?tab=ip   80% ☆   🔍 Search

pfsense   System ▾ Interfaces ▾ Firewall ▾ Services ▾ VPN ▾ Status ▾ Diagnostics ▾ Help ▾

Firewall / Aliases / IP

IP Ports URLs All

Firewall Aliases IP

Name	Values	Description	Actions
Bastion	100.70.139.5, 2610:a8:483f:8b04::5		✏️📄🗑️
CorpClientNet	192.168.0.0/16, 2610:a8:483f:8b05::/64, 100.127.255.0/24, 2610:a8:483f:8b60::/64, 2610:a8:483f:8b61::/64, 2610:a8:483f:8b62::/64, 2610:a8:483f:8b63::/64, 2610:a8:483f:8b64::/64, 2610:a8:483f:8b65::/64, 2610:a8:483f:8b66::/64...		✏️📄🗑️
DMZ	100.70.139.0/25, 2610:a8:483f:8b04::/64		✏️📄🗑️
DNSServer	100.70.139.53, 2610:a8:483f:8b04::53		✏️📄🗑️
IPv4v6_Private_IP_Space	192.168.0.0/16, 172.25.129.0/24, 2610:a8:483f:8b05::/64, 2610:a8:483f:8b06::/64, 100.127.255.0/24, 2610:a8:483f:8b60::/64, 2610:a8:483f:8b61::/64, 2610:a8:483f:8b62::/64, 2610:a8:483f:8b63::/64, 2610:a8:483f:8b64::/64...		✏️📄🗑️
IPv4v6_Public_IP_Space	100.70.139.0/24, 2610:a8:483f:8b01::/64, 2610:a8:483f:8b02::/64, 2610:a8:483f:8b03::/64, 2610:a8:483f:8b04::/64		✏️📄🗑️
ITAdminNet	172.25.129.0/24, 2610:a8:483f:8b06::/64		✏️📄🗑️
PRTGServer	100.70.139.20, 2610:a8:483f:8b04::4		✏️📄🗑️

➕ Add   ⬆ Import

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pfSense.home.arpa - Fire ×   +

← → C   ○ 🔒 172.25.129.254/firewall_aliases.php?tab=url   80% ☆   🔍 Search

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Firewall / Aliases / URLs

IP Ports URLs All

Firewall Aliases URLs

Name	Values	Description	Actions
BlockedWebsites	https://pastebin.com/raw/4a2ahVr4 69.63.176.0/20, 66.220.144.0/20, 66.220.144.0/21, 69.63.184.0/21, 69.63.176.0/21, 74.119.76.0/22, 69.171.255.0/24, 173.252.64.0/18, 69.171.224.0/19, 69.171.224.0/20...		✏️📄🗑️

Firewall Rules:

- ## Datacenter:

WAN Rules:

	States	Protocol	Source	Port	Destination	Port	Gateway	Queue	Schedule	Description
✓	0/8 KiB	IPv4+6 TCP/UDP	*	*	WebServer	80 - 443	*	none		Allow Curl To Web Server From Outisde World
✓	9/532 KiB	IPv4+6 UDP	*	*	DNSServer	53 (DNS)	*	none		Allow DNS
✓	0/336 B	IPv4+6 ICMP any	*	*	DMZ	*	*	none		Outisde World to ping DMZ
✓	0/10 KiB	IPv4+6 TCP	*	*	Bastion	22 (SSH)	*	none		Outisde World to SSH to Bastion
✓	0/0 B	IPv4+6 *	*	*	*	*	*	none		Allow All
✗	0/72 KiB	IPv4+6 *	*	*	*	*	*	none		Deny All

LAN Rules:

	States	Protocol	Source	Port	Destination	Port	Gateway	Queue	Schedule	Description
✓	14/76.67 MiB	*	*	*	LAN Address	80	*	*		Anti-Lockout Rule
✗	0/360 B	IPv4+6 TCP	*	*	BlockedWebsites	*	*	none		Block Facebook
✓	54/131.13 MiB	IPv4+6 TCP/UDP	*	*	*	80 - 443	*	none		All Outbound Web Connections Permitted
✓	88/13.38 MiB	IPv4+6 *	PRTGServer	*	*	*	*	none		PRTG Allow Every Scan
✓	0/0 B	IPv4+6 ICMP any	PRTGServer	*	IPv4v6_Public_IP_Space	*	*	none		PRTG to ping Public space
✓	0/1.68 MiB	IPv4+6 TCP/UDP	DNSServer	*	*	53 (DNS)	*	none		Allow DNS
✓	0/672 B	IPv4+6 ICMP any	DMZ	*	IPv4v6_Private_IP_Space	*	*	none		DMZ ping to private address space
✓	0/2 KiB	IPv4+6 ICMP any	DMZ	*	*	*	*	none		ALL DMZ PING
✓	0/51 KiB	IPv4+6 TCP	Bastion	*	IPv4v6_Private_IP_Space	22 (SSH)	*	none		SSH
✓	0/0 B	IPv4+6 TCP	Bastion	*	IPv4v6_Public_IP_Space	22 (SSH)	*	none		SSH
✓	0/0 B	IPv4 *	LAN net	*	*	*	*	none		Default allow LAN to any rule
✓	0/0 B	IPv6 *	LAN net	*	*	*	*	none		Default allow LAN IPv6 to any rule
✓	0/0 B	IPv4+6 *	*	*	*	*	*	none		Allow All
✗	0/6 KiB	IPv4+6 *	*	*	*	*	*	none		Deny All

- Interior:

Firewall / Rules / WAN

URL: 172.25.129.254/firewall_rules.php — 80%

Tabs: Floating | **WAN** | LAN | OPT1

Rules (Drag to Change Order)

	States	Protocol	Source	Port	Destination	Port	Gateway	Queue	Schedule	Description	Actions
☐ ✓	527/18.78 MiB	IPv4+6 *	PRTGServer	*	*	*	*		none	Allow PRTG Scan	
☐ ✓	0/35 KiB	IPv4+6 TCP	Bastion	*	IPv4v6_Private_IP_Space	22 (SSH)	*		none	Allow SSH from MC-Bastion	
☐ ✓	0/0 B	IPv4+6 ICMP any	DMZ	*	IPv4v6_Private_IP_Space	*	*		none	Allow pings from DMZ	
☐ ✓	0/0 B	IPv4+6 *	*	*	*	*	*		none	Allow All	
☐ ✗	0/1 KiB	IPv4+6 *	*	*	*	*	*		none	Deny All	

Firewall / Rules / LAN

URL: 172.25.129.254/firewall_rules.php?if=lan — 70%

Tabs: Floating | WAN | **LAN** | OPT1

Rules (Drag to Change Order)

	States	Protocol	Source	Port	Destination	Port	Gateway	Queue	Schedule	Description	Actions
☐ ✓	0/7.91 MiB	*	*	*	LAN Address	80	*	*		Anti-Lockout Rule	
☐ ✗	0/46 KiB	IPv4+6 *	*	*	BlockedWebsites	*	*		none	Block Facebook	
☐ ✓	1/13.39 MiB	IPv4+6 TCP/UDP	*	*	*	80 - 443	*		none	All Outbound Web Connections Permitted	
☐ ✓	4/54 KiB	IPv4+6 TCP/UDP	ITAdminNet	*	DNSServer	53 (DNS)	*		none	Allow DNS	
☐ ✓	1/752 B	IPv4+6 ICMP any	LAN net	*	*	*	*		none	Allow Ping	
☐ ✓	0/0 B	IPv4 *	LAN net	*	*	*	*		none	Default allow LAN to any rule	
☐ ✓	0/0 B	IPv6 *	LAN net	*	*	*	*		none	Default allow LAN IPv6 to any rule	
☐ ✓	0/0 B	IPv4+6 *	*	*	*	*	*		none	Allow All	
☐ ✗	0/6 KiB	IPv4+6 *	*	*	*	*	*		none	Deny All	

Firewall / Rules / OPT1

URL: 172.25.129.254/firewall_rules.php?if=opt1 — 70%

The changes have been applied successfully. The firewall rules are now reloading in the background.
Monitor the filter reload progress.

Tabs: Floating | WAN | LAN | **OPT1**

Rules (Drag to Change Order)

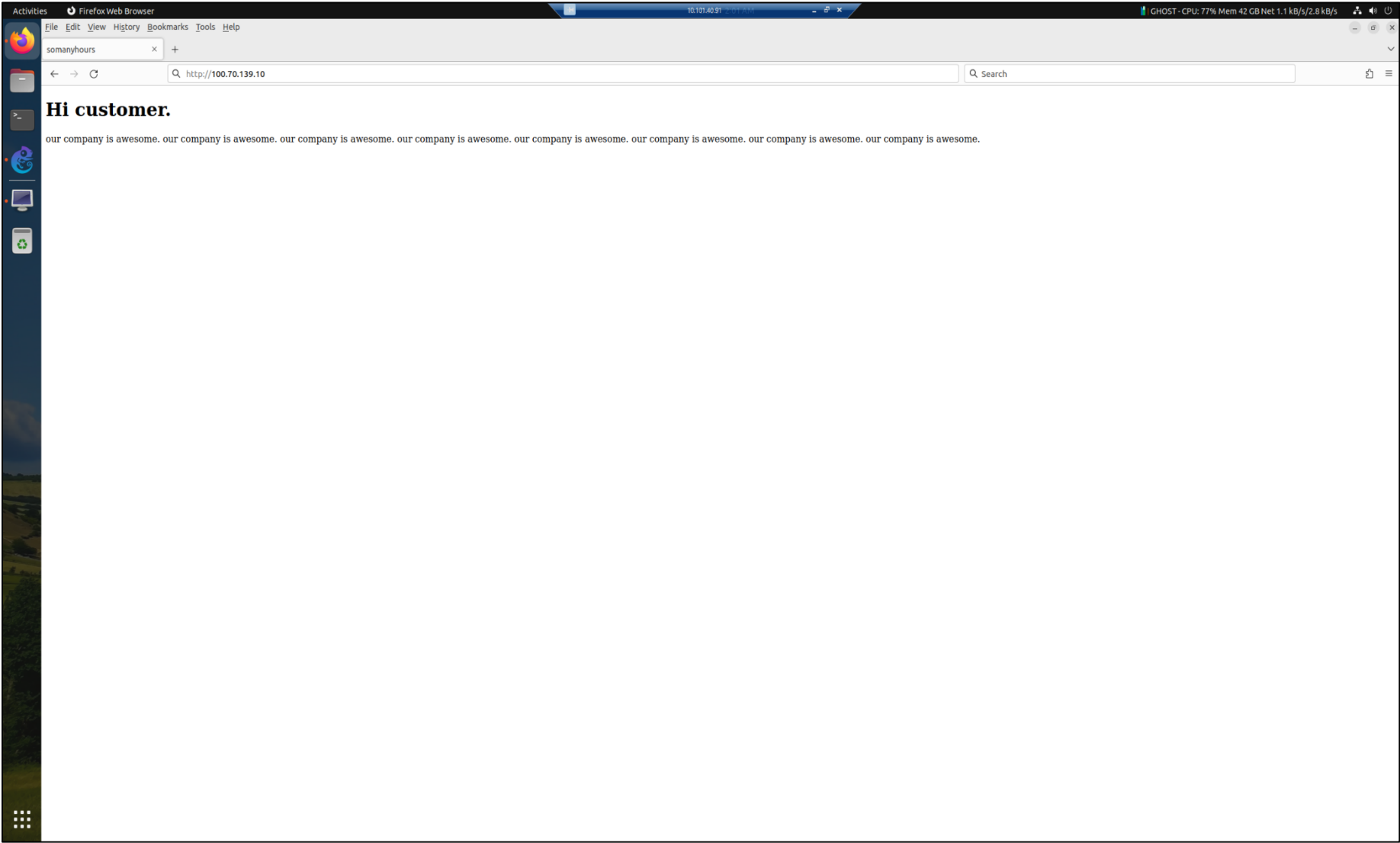|	States	Protocol	Source	Port	Destination	Port	Gateway	Queue	Schedule	Description	Actions
☐ ✗	0/700 B	IPv4+6 *	*	*	BlockedWebsites	*	*		none	Block Facebook	
☐ ✓	0/341 KiB	IPv4+6 OSPF	*	*	*	*	*		none	allow OSPF	
☐ ✓	0/237 KiB	IPv4+6 TCP/UDP	CorpClientNet	*	DNSServer	53 (DNS)	*		none	Allow DNS	
☐ ✓	3/180.40 MiB	IPv4+6 TCP/UDP	*	*	*	80 - 8080	*		none	All Outbound Web Connections Permitted	
☐ ✓	0/336 B	IPv4+6 ICMP any	CorpClientNet	*	*	*	*		none	Allow Ping	
☐ ✓	0/0 B	IPv4+6 *	*	*	*	*	*		none	Allow All	
☐ ✗	0/3 KiB	IPv4+6 *	*	*	*	*	*		none	Deny All	

Static webpage (from gHost/Outside world):

Hi customer.

our company is awesome. our company is awesome. our company is awesome. our company is awesome. our company is awesome. our company is awesome. our company is awesome. our company is awesome.

PRTG Scans (This can be better. Just showing that all interfaces detected via SNMP on the internal network):