Encaminhamento de Dados
2020/2021

Relatório

Trabalho Prático

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2019127806

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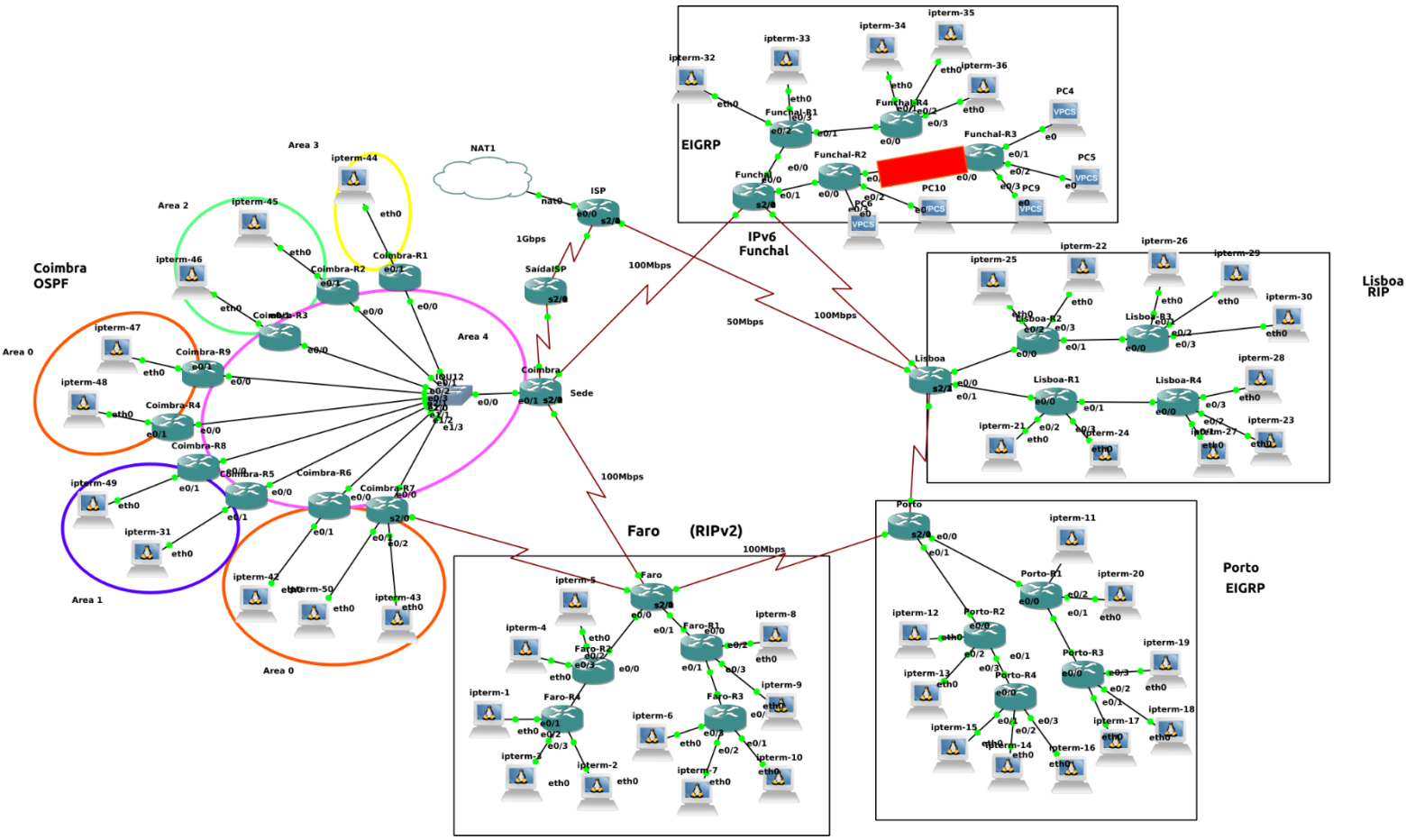
Topologia



Protocolos de Encaminhamento implementados

- Faro – RipV2
- Porto – EIGRP
- Lisboa – RipV2
- Funchal – EIGRP
- Coimbra – OSPF

Endereçamento

Rede Faro 194.65.12.0

ID	Máscara	Rede	Primeiro End.	Último End.	Endereço Broadcast
Lan1	/28	194.65.12.0	194.65.12.1	194.65.12.14	194.65.12.15
Lan2	/28	194.65.12.16	194.65.12.17	194.65.12.30	194.65.12.31
Lan3	/28	194.65.12.32	194.65.12.33	194.65.12.46	194.65.12.47
Lan4	/28	194.65.12.48	194.65.12.49	194.65.12.62	194.65.12.63
Lan5	/28	194.65.12.64	194.65.12.65	194.65.12.78	194.65.12.79
Lan6	/28	194.65.12.80	194.65.12.81	194.65.12.94	194.65.12.95
Lan7	/28	194.65.12.96	194.65.12.97	194.65.12.110	194.65.12.111
Lan8	/28	194.65.12.112	194.65.12.113	194.65.12.126	194.65.12.127
Lan9	/29	194.65.12.128	194.65.12.129	194.65.12.134	194.65.12.135
Lan10	/29	194.65.12.136	194.65.12.137	194.65.12.142	194.65.12.143

Rede Porto 194.65.12.160

ID	Máscara	Rede	Primeiro End.	Último End.	Endereço Broadcast
Lan1	/28	194.65.12.160	194.65.12.161	194.65.12.174	194.65.12.175
Lan2	/28	194.65.12.176	194.65.12.177	194.65.12.190	194.65.12.191
Lan3	/29	194.65.12.192	194.65.12.193	194.65.12.198	194.65.12.199
Lan4	/29	194.65.12.200	194.65.12.201	194.65.12.206	194.65.12.207
Lan5	/29	194.65.12.208	194.65.12.209	194.65.12.214	194.65.12.215
Lan6	/29	194.65.12.216	194.65.12.217	194.65.12.222	194.65.12.223
Lan7	/29	194.65.12.224	194.65.12.225	194.65.12.230	194.65.12.231
Lan8	/29	194.65.12.232	194.65.12.233	194.65.12.238	194.65.12.239
Lan9	/29	194.65.12.240	194.65.12.241	194.65.12.246	194.65.12.247
Lan10	/29	194.65.12.248	194.65.12.249	194.65.12.254	194.65.12.255

Rede Lisboa 194.65.13.0

ID	Máscara	Rede	Primeiro End.	Último End.	Endereço Broadcast
Lan1	/29	194.65.13.0	194.65.13.1	194.65.13.6	194.65.13.7
Lan2	/29	194.65.13.8	194.65.13.9	194.65.13.14	194.65.13.15
Lan3	/29	194.65.13.16	194.65.13.17	194.65.13.22	194.65.13.23
Lan4	/30	194.65.13.24	194.65.123.25	194.65.13.26	194.65.13.27
Lan5	/30	194.65.13.28	194.65.13.29	194.65.13.30	194.65.13.31
Lan6	/28	194.65.13.32	194.65.13.33	194.65.13.46	194.65.13.47
Lan7	/29	194.65.13.48	194.65.13.49	194.65.13.54	194.65.13.55
Lan8	/29	194.65.13.56	194.65.13.57	194.65.13.62	194.65.13.63
Lan9	/29	194.65.13.64	194.65.13.65	194.65.13.70	194.65.13.71
Lan10	/29	194.65.13.72	194.65.13.73	194.65.13.78	194.65.13.79

Rede Funchal 194.65.13.0

ID	Máscara	Rede	Primeiro End.	Último End.	Endereço Broadcast
Lan1	/29	194.65.13.80	194.65.13.81	194.65.13.86	194.65.13.87
Lan2	/29	194.65.13.88	194.65.13.89	194.65.13.94	194.65.13.95
Lan3	/29	194.65.13.96	194.65.13.97	194.65.13.102	194.65.13.103
Lan4	/30	194.65.13.104	194.65.123.105	194.65.13.106	194.65.13.107
Lan5	/30	194.65.13.108	194.65.13.109	194.65.13.110	194.65.13.111
Lan6	/30	194.65.13.112	194.65.13.113	194.65.13.114	194.65.13.115
Lan7	/30	194.65.13.116	194.65.13.117	194.65.13.118	194.65.13.119
Lan8	/30	194.65.13.120	194.65.13.121	194.65.13.122	194.65.13.123
Lan9	/30	194.65.13.124	194.65.13.125	194.65.13.126	194.65.13.127
Lan10	/30	194.65.13.128	194.65.13.129	194.65.13.130	194.65.13.131

Parte vermelha é IPv6

Lan1 /125 2002::c241:d51 2002::c241:d56

Lan2 /125 2002::c241:d59 2002::c241:d5e

Lan3 /125 2002::c241:d61 2002::c241:d66

Lan4 /125 2002::c241:d69 2002::c241:d6a

Lan5 /125 2002::c241:d6d 2002::c241:d6e

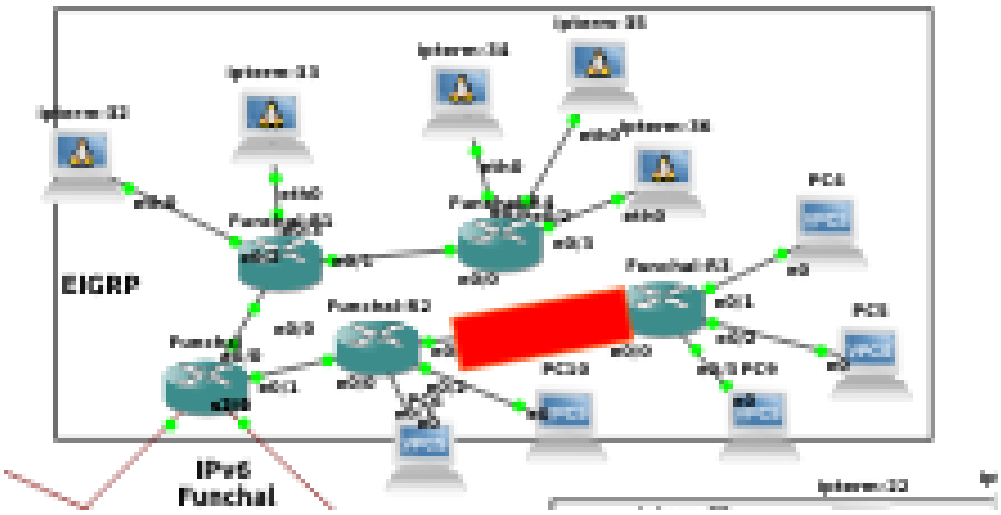
Rede Coimbra 194.65.13.132

ID	Máscara	Rede	Primeiro End.	Último End.	Endereço Broadcast
Lan1	/30	194.65.13.132	194.65.13.133	194.65.13.134	194.65.13.135
Lan2	/30	194.65.13.136	194.65.13.137	194.65.13.138	194.65.13.138
Lan3	/30	194.65.13.140	194.65.13.141	194.65.13.142	194.65.13.143
Lan4	/30	194.65.13.144	194.65.123.145	194.65.13.146	194.65.13.147
Lan5	/30	194.65.13.148	194.65.13.149	194.65.13.150	194.65.13.151
Lan6	/30	194.65.13.152	194.65.13.153	194.65.13.154	194.65.13.155
Lan7	/30	194.65.13.156	194.65.13.157	194.65.13.158	194.65.13.159
Lan8	/30	194.65.13.160	194.65.13.161	194.65.13.162	194.65.13.163
Lan9	/30	194.65.13.164	194.65.13.165	194.65.13.166	194.65.13.167
Lan10	/30	194.65.13.168	194.65.13.169	194.65.13.170	194.65.13.171

Túnel estático e IPV6

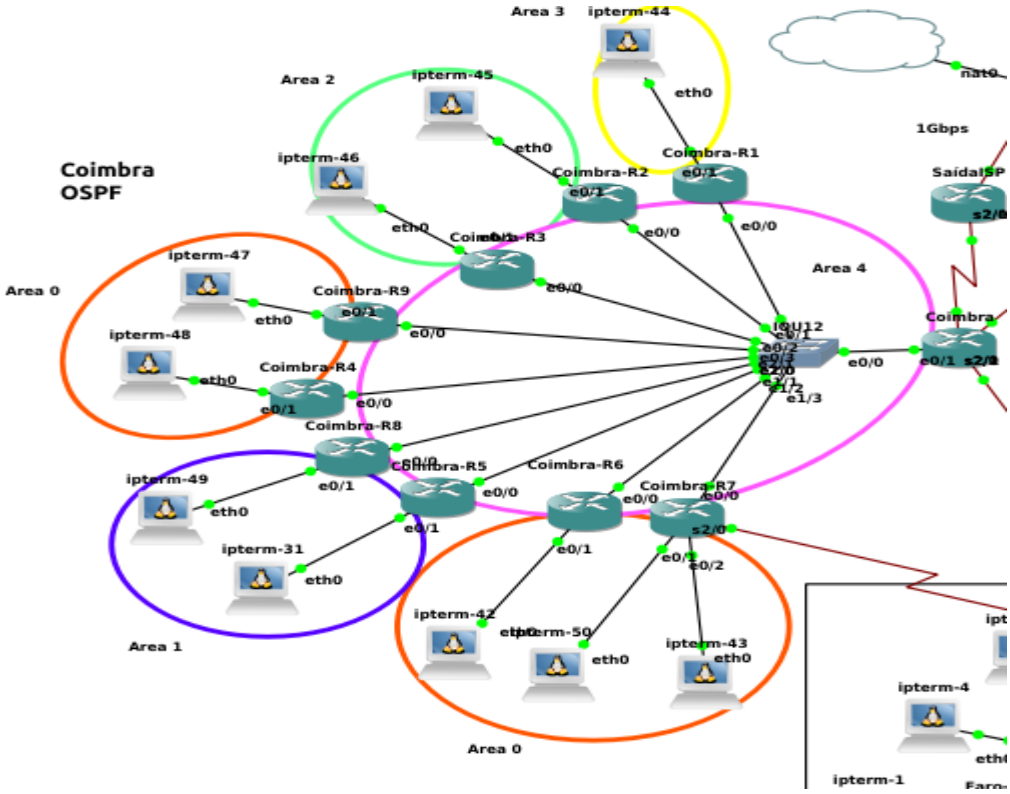
O túnel estático foi implementado do router Funchal-R2 para Funchal R3.

O ipv6 foi implementado nos VPCs, PC6, PC10, PC9 e PC5.

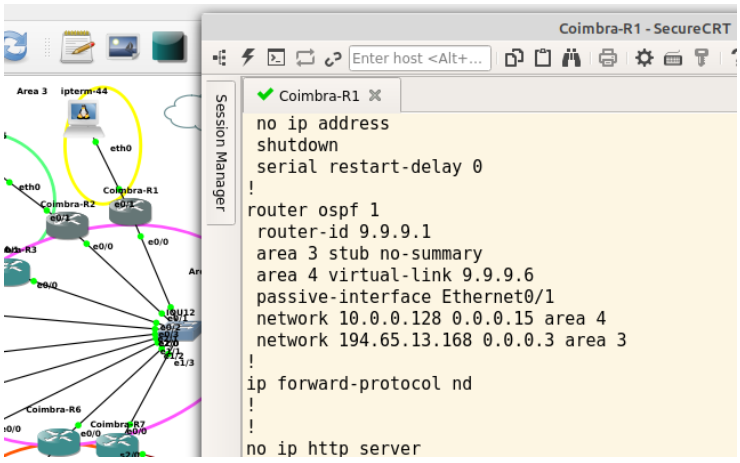


Área OSPF

Foram implementadas 4 áreas na sede Coimbra com protocolo de encaminhamento OSPF, com a implementação de multiáreas com links virtuais.



A área 3 é uma área stub.

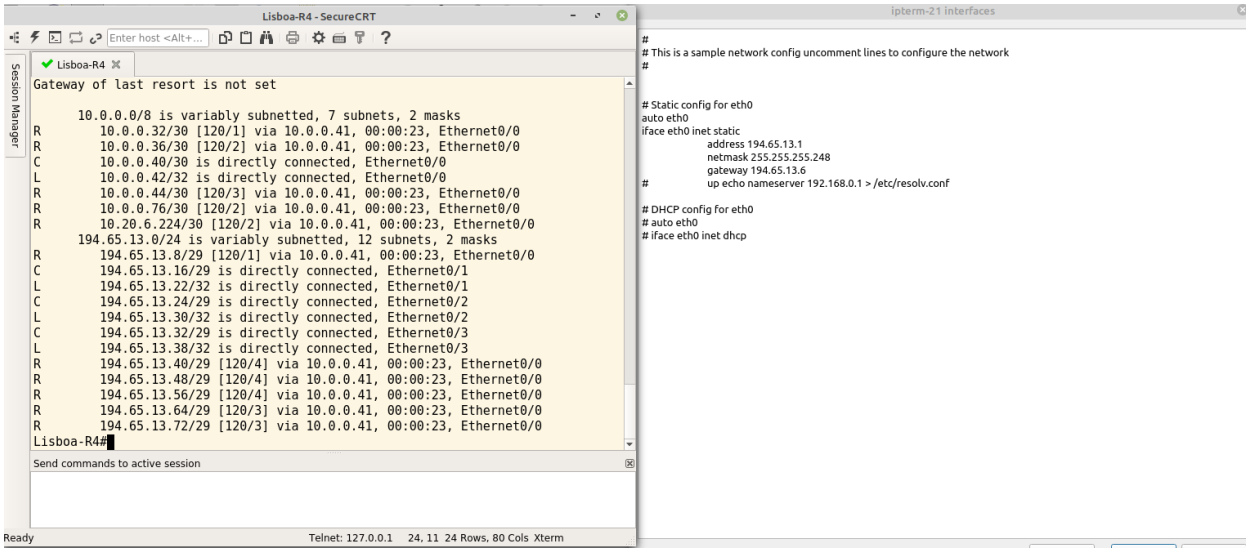


PS: Esta rede de Coimbra contem um problema, que não consegui resolver, foi tudo implementado, mas as redes dos iptemers não conseguem pingar o exterior (1.1.1.1).

Devido à rota que não foi automaticamente implementada pelo Coimbra Sede (0.0.0.0).

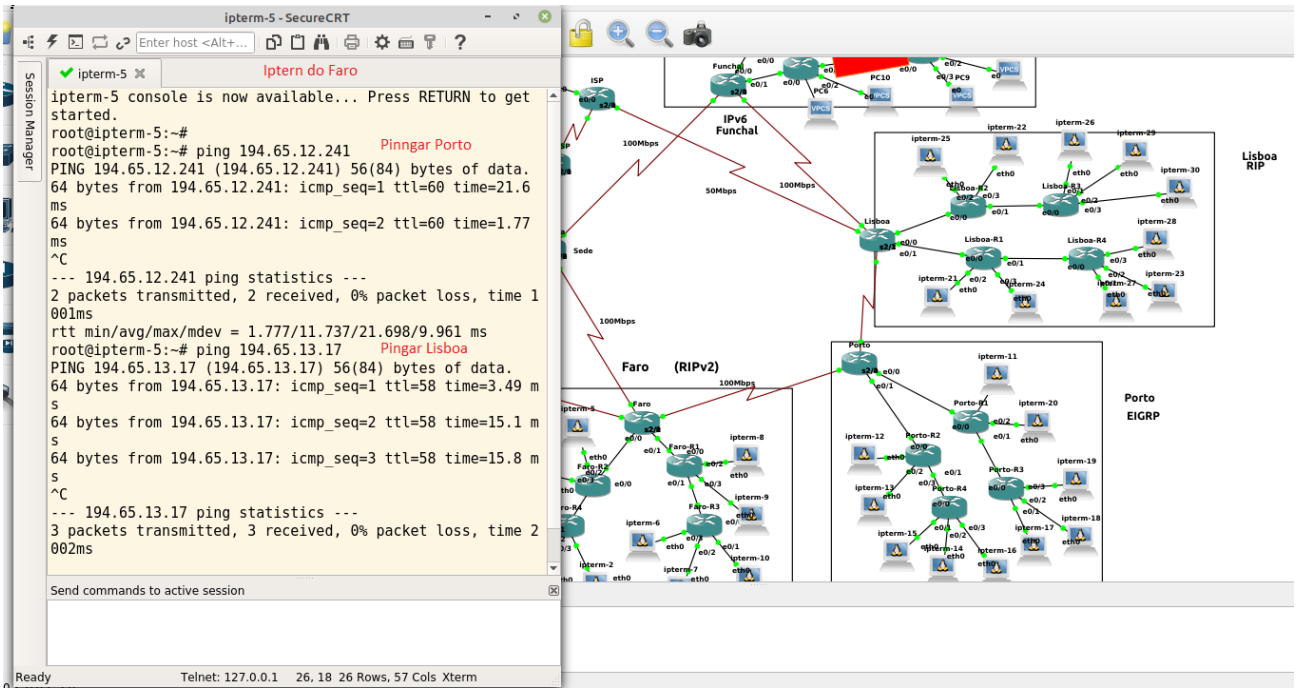
Prefix-List em Lisboa

A Prefix-list foi implementada na filial de Lisboa no router Lisboa-R4, este impede que o ipterm-21 receba anúncios RIP.



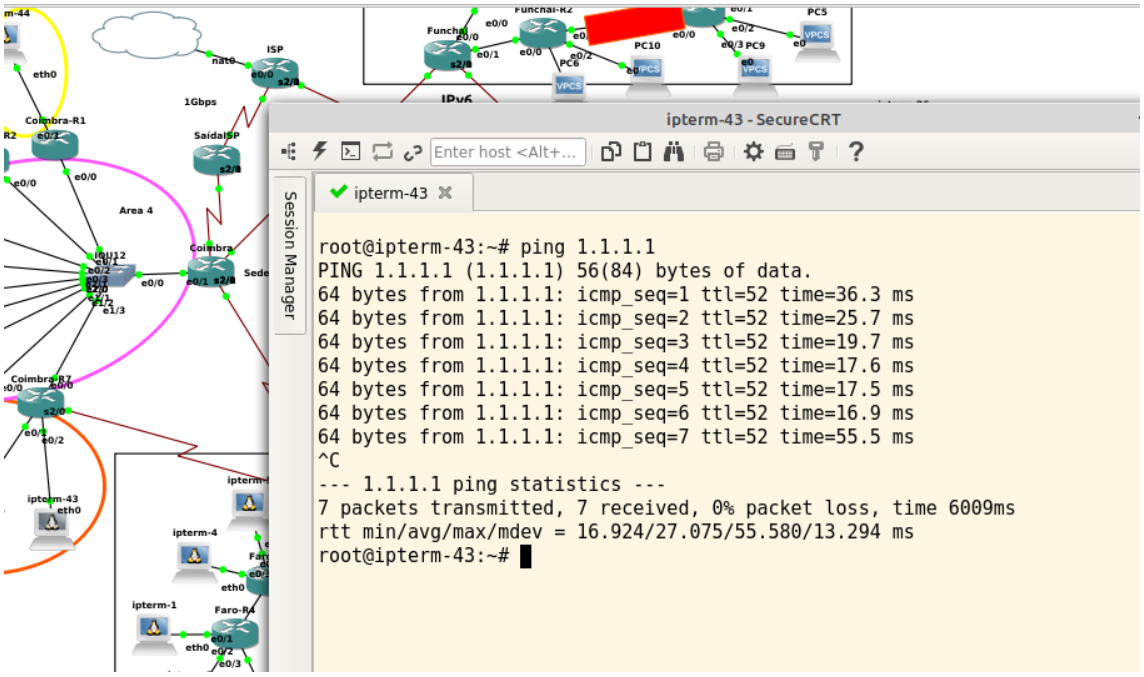
Conectividade entre a empresa e o exterior

Conexão entre a empresa

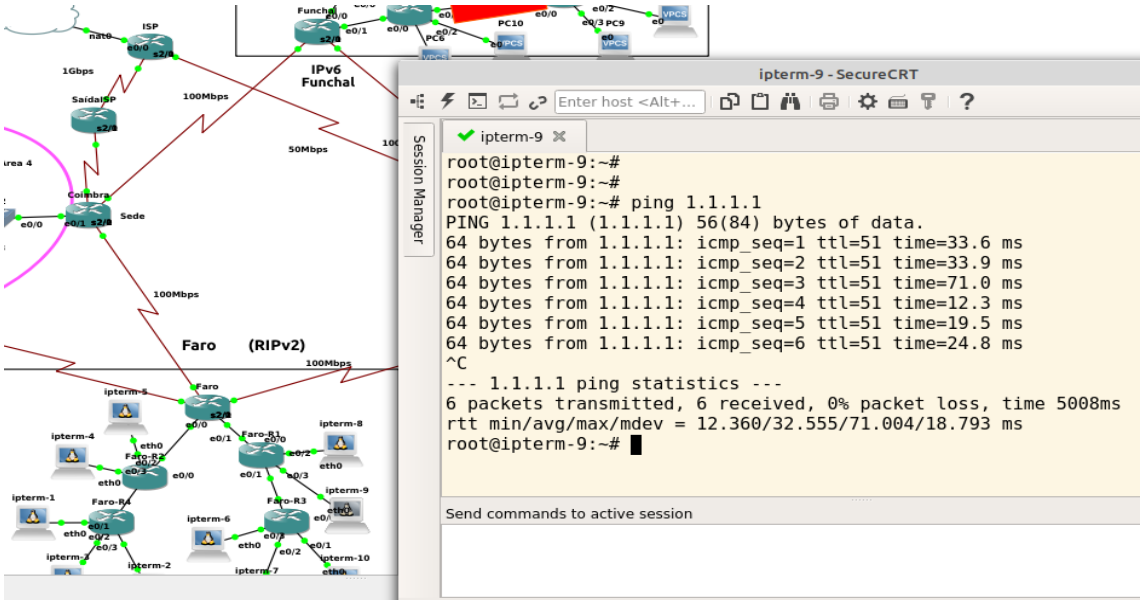


Conexão com o exterior

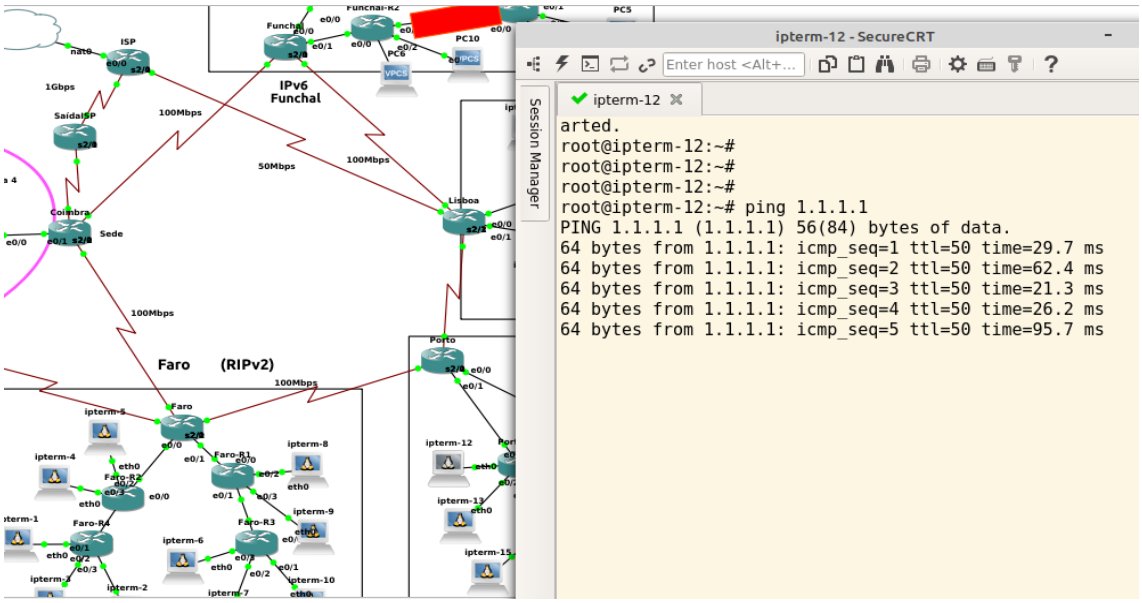
Coimbra:



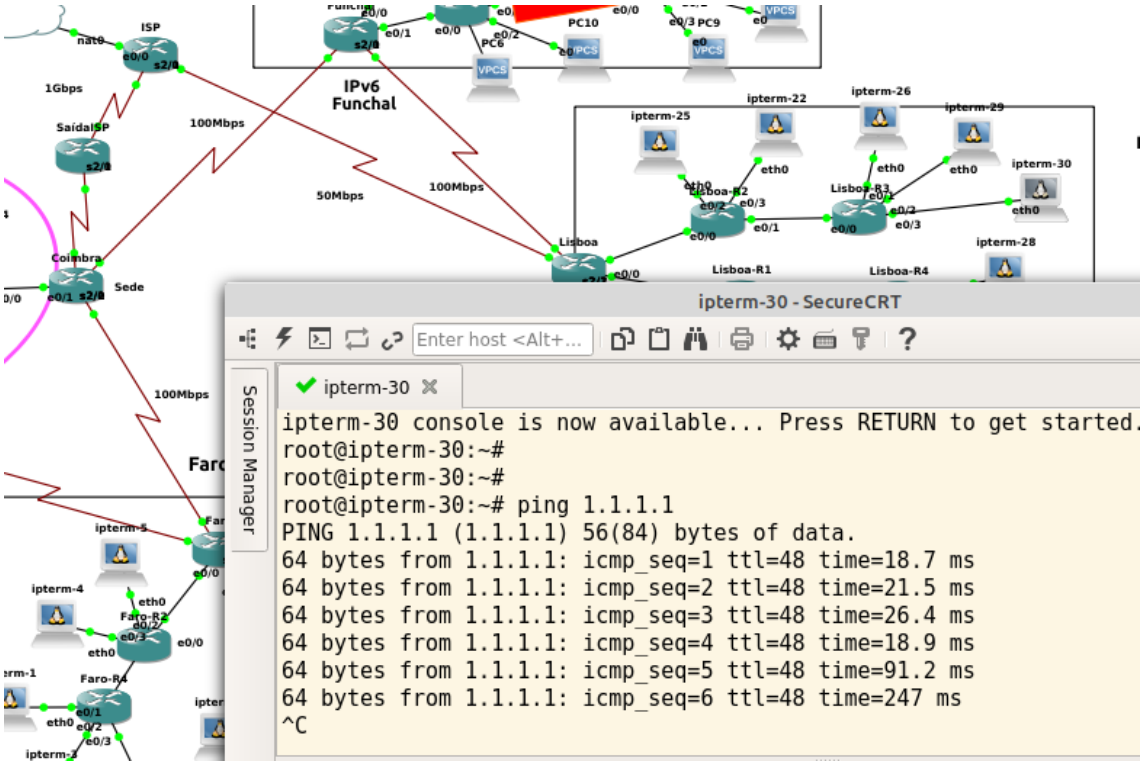
Faro:


ipterm-9 - SecureCRT
Enter host <Alt+...
ipterm-9
root@ipterm-9:~#
root@ipterm-9:~#
root@ipterm-9:~# ping 1.1.1.1
PING 1.1.1.1 (1.1.1.1) 56(84) bytes of data.
64 bytes from 1.1.1.1: icmp_seq=1 ttl=51 time=33.6 ms
64 bytes from 1.1.1.1: icmp_seq=2 ttl=51 time=33.9 ms
64 bytes from 1.1.1.1: icmp_seq=3 ttl=51 time=71.0 ms
64 bytes from 1.1.1.1: icmp_seq=4 ttl=51 time=12.3 ms
64 bytes from 1.1.1.1: icmp_seq=5 ttl=51 time=19.5 ms
64 bytes from 1.1.1.1: icmp_seq=6 ttl=51 time=24.8 ms
^C
--- 1.1.1.1 ping statistics ---
6 packets transmitted, 6 received, 0% packet loss, time 5008ms
rtt min/avg/max/mdev = 12.360/32.555/71.004/18.793 ms
root@ipterm-9:~#
Send commands to active session
Session Manager
IPv6 Funchal
Faro (RIPv2)
100Mbps
50Mbps
1Gbps

Porto:


ipterm-12 - SecureCRT
Enter host <Alt+...
ipterm-12
arted.
root@ipterm-12:~#
root@ipterm-12:~#
root@ipterm-12:~#
root@ipterm-12:~# ping 1.1.1.1
PING 1.1.1.1 (1.1.1.1) 56(84) bytes of data.
64 bytes from 1.1.1.1: icmp_seq=1 ttl=50 time=29.7 ms
64 bytes from 1.1.1.1: icmp_seq=2 ttl=50 time=62.4 ms
64 bytes from 1.1.1.1: icmp_seq=3 ttl=50 time=21.3 ms
64 bytes from 1.1.1.1: icmp_seq=4 ttl=50 time=26.2 ms
64 bytes from 1.1.1.1: icmp_seq=5 ttl=50 time=95.7 ms
Session Manager
IPv6 Funchal
Faro (RIPv2)
100Mbps
50Mbps
1Gbps

Lisboa:


ISP
nat0
1Gbps
100Mbps
SaidalISP
IPv6
Funchal
50Mbps
100Mbps
Coimbra
Sede
100Mbps
Faro
ipterm-5
ipterm-4
Faro-R2
Faro-R4
ipterm-3
PC10
PC6
PC9
ipterm-22
ipterm-25
ipterm-26
ipterm-29
ipterm-30
ipterm-28
Lisboa
Lisboa-R1
Lisboa-R2
Lisboa-R3
Lisboa-R4
ipterm-30 - SecureCRT
Enter host <Alt+...
Session Manager
ipterm-30
ipterm-30 console is now available... Press RETURN to get started.
root@ipterm-30:~#
root@ipterm-30:~#
root@ipterm-30:~# ping 1.1.1.1
PING 1.1.1.1 (1.1.1.1) 56(84) bytes of data.
64 bytes from 1.1.1.1: icmp_seq=1 ttl=48 time=18.7 ms
64 bytes from 1.1.1.1: icmp_seq=2 ttl=48 time=21.5 ms
64 bytes from 1.1.1.1: icmp_seq=3 ttl=48 time=26.4 ms
64 bytes from 1.1.1.1: icmp_seq=4 ttl=48 time=18.9 ms
64 bytes from 1.1.1.1: icmp_seq=5 ttl=48 time=91.2 ms
64 bytes from 1.1.1.1: icmp_seq=6 ttl=48 time=247 ms
^C