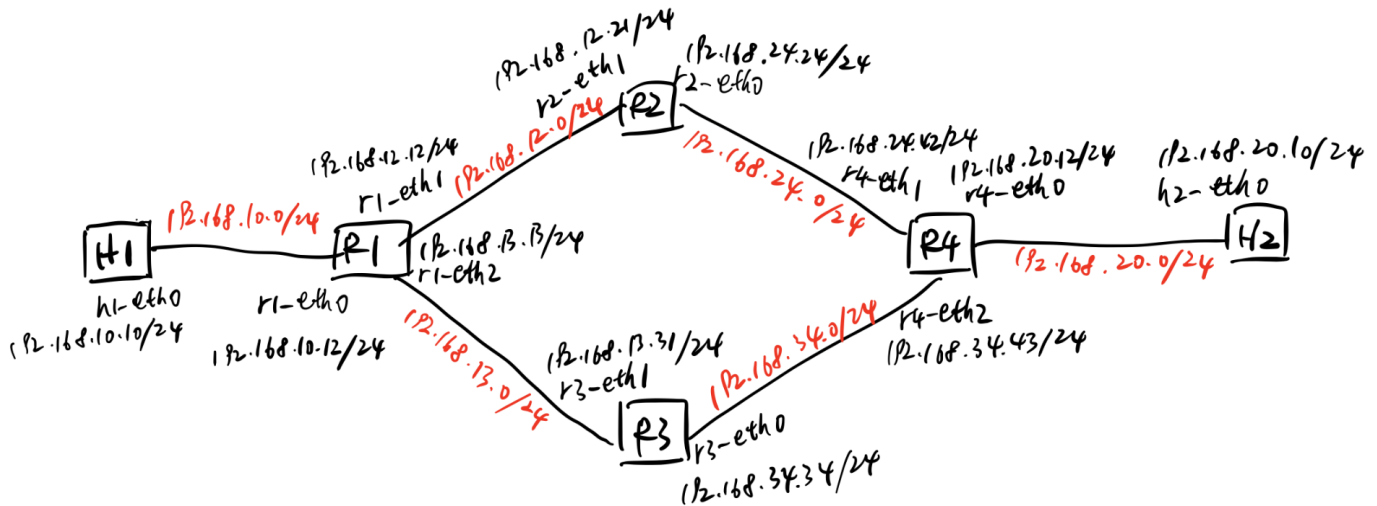


A1



A2

(a) Routing Table

*** Routing Table on Router r1:

Kernel IP routing table

Destination	Gateway	Genmask	Flags	Metric	Ref	Use	Iface
0.0.0.0	192.168.12.21	0.0.0.0	UG	0	0	0	r1-eth1
192.168.10.0	0.0.0.0	255.255.255.0	U	0	0	0	r1-eth0
192.168.12.0	0.0.0.0	255.255.255.0	U	0	0	0	r1-eth1
192.168.13.0	0.0.0.0	255.255.255.0	U	0	0	0	r1-eth2

*** Routing Table on Router r2:

Kernel IP routing table

Destination	Gateway	Genmask	Flags	Metric	Ref	Use	Iface
0.0.0.0	192.168.24.42	0.0.0.0	UG	0	0	0	r2-eth0
192.168.10.0	192.168.12.12	255.255.255.0	UG	0	0	0	r2-eth1
192.168.12.0	0.0.0.0	255.255.255.0	U	0	0	0	r2-eth1
192.168.24.0	0.0.0.0	255.255.255.0	U	0	0	0	r2-eth0

*** Routing Table on Router r3:

Kernel IP routing table

Destination	Gateway	Genmask	Flags	Metric	Ref	Use	Iface
0.0.0.0	192.168.13.13	0.0.0.0	UG	0	0	0	r3-eth1
192.168.13.0	0.0.0.0	255.255.255.0	U	0	0	0	r3-eth1
192.168.20.0	192.168.34.43	255.255.255.0	UG	0	0	0	r3-eth0
192.168.34.0	0.0.0.0	255.255.255.0	U	0	0	0	r3-eth0

*** Routing Table on Router r4:

Kernel IP routing table

Destination	Gateway	Genmask	Flags	Metric	Ref	Use	Iface
0.0.0.0	192.168.34.34	0.0.0.0	UG	0	0	0	r4-eth2
192.168.20.0	0.0.0.0	255.255.255.0	U	0	0	0	r4-eth0
192.168.24.0	0.0.0.0	255.255.255.0	U	0	0	0	r4-eth1
192.168.34.0	0.0.0.0	255.255.255.0	U	0	0	0	r4-eth2

Explanation:

- 1) Add default gateway for every router to make the default flow order is from R1-R2-R4 and R4-R3-R1, for example, the default gateway for r1 is on the interface and the related IP that connects h1.
- 2) Add static routes for every router to reach the network that is not directly connected.

(b) Traceroute output:

*** trace route output from h1 to h2

traceroute to 192.168.20.10 (192.168.20.10), 30 hops max, 60 byte packets

1	192.168.10.12 (192.168.10.12)	0.028 ms	0.006 ms	0.004 ms
2	192.168.12.21 (192.168.12.21)	0.018 ms	0.007 ms	0.007 ms
3	192.168.34.43 (192.168.34.43)	0.019 ms	0.008 ms	0.008 ms
4	192.168.20.10 (192.168.20.10)	0.014 ms	0.010 ms	0.009 ms

*** trace route output from h2 to h1

traceroute to 192.168.10.10 (192.168.10.10), 30 hops max, 60 byte packets

1	192.168.20.12 (192.168.20.12)	0.029 ms	0.006 ms	0.004 ms
2	192.168.34.34 (192.168.34.34)	0.017 ms	0.007 ms	0.006 ms
3	192.168.12.12 (192.168.12.12)	0.018 ms	0.008 ms	0.008 ms
4	192.168.10.10 (192.168.10.10)	0.015 ms	0.013 ms	0.065 ms