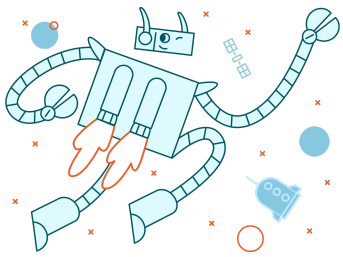
Around The World



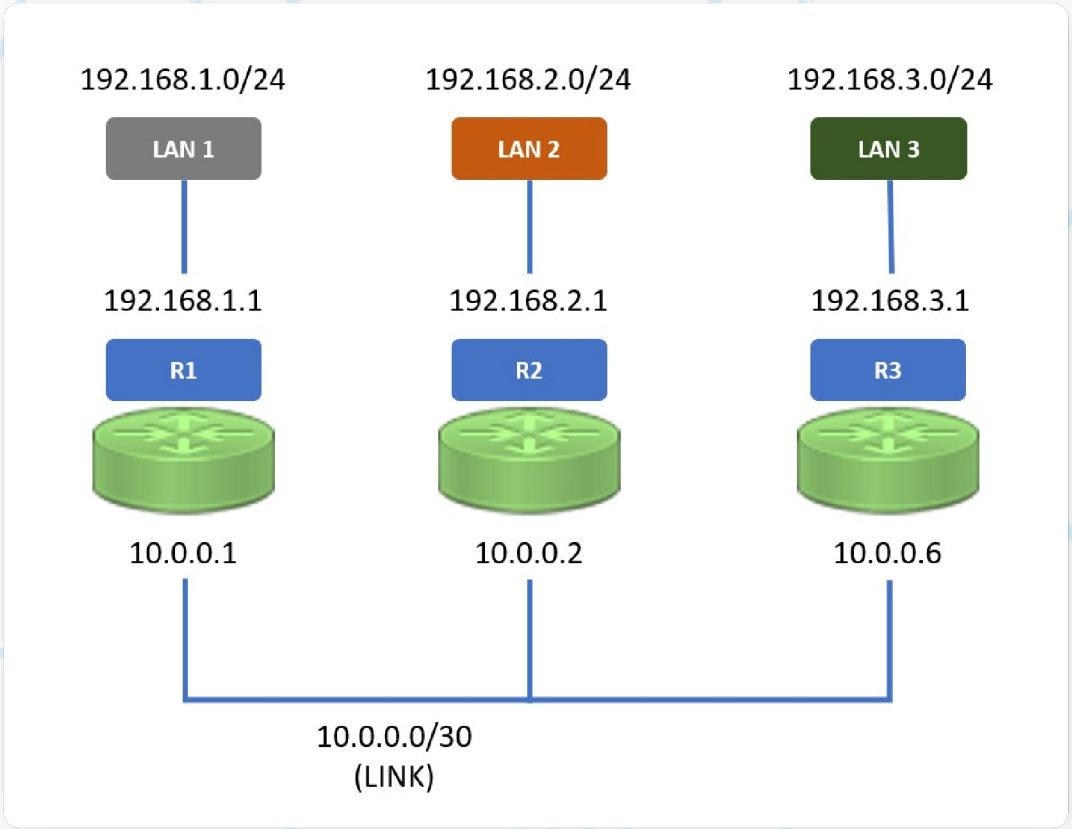
Analyzing paths between source and destination IPs is important skill for a network analyst.

In this exercise, you will analyze a network diagram and routing tables to determine the path taken by packets between various source and destination IP addresses.

Background

When a packet is sent from a source device to a destination device across a network, it is forwarded by routers based on the information in their routing tables. Each router looks at the destination IP address and matches it with the most specific entry in its routing table to determine the next hop for the packet.

Network Diagram



Routing Tables

R1 Routing Table:

Destination	Subnet Mask	Next-hop
0.0.0.0	0.0.0.0	10.0.0.2
10.0.0.0	255.255.255.252	On-link
192.168.1.0	255.255.255.0	On-link

R2 Routing Table:

Destination	Subnet Mask	Next-hop
0.0.0.0	0.0.0.0	10.0.0.6
10.0.0.0	255.255.255.252	On-link
192.168.1.0	255.255.255.0	10.0.0.1
192.168.2.0	255.255.255.0	On-link

R3 Routing Table:

Destination	Subnet Mask	Next-hop
0.0.0.0	0.0.0.0	10.0.0.1
10.0.0.0	255.255.255.252	On-link
192.168.2.0	255.255.255.0	10.0.0.2
192.168.3.0	255.255.255.0	On-link

Instructions

Determine the path taken by packets for the following source and destination IP address pairs:

1. 192.168.1.100 → 192.168.2.150
2. 192.168.2.200 → 192.168.3.100
3. 192.168.3.200 → 192.168.2.100

4. 192.168.3.50 → 192.168.1.200
5. 192.168.1.200 → 192.168.3.50
6. 192.168.1.100 → 192.168.1.200
7. 192.168.2.150 → 192.168.2.200
8. 192.168.2.100 → 192.168.1.100

For each pair, list the routers the packet will go through (if any), in order.

For each router in the way, write the relevant row in its routing table that helped you decide what is the next hop.

Bonus tasks (Optional)**

Create a source-destination pair that would cause a routing loop in this network, assuming a misconfiguration in one of the routing tables.

To submit

Submit your answers in a text file and upload it.