

Cisco Enterprise Networks: Network Assurance

Network Diagnostics



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Ping and Extended Ping



What Is Ping and Extended Ping?

Verify network connectivity between two hosts

Utilizes Internet Control Message Protocol (ICMP)

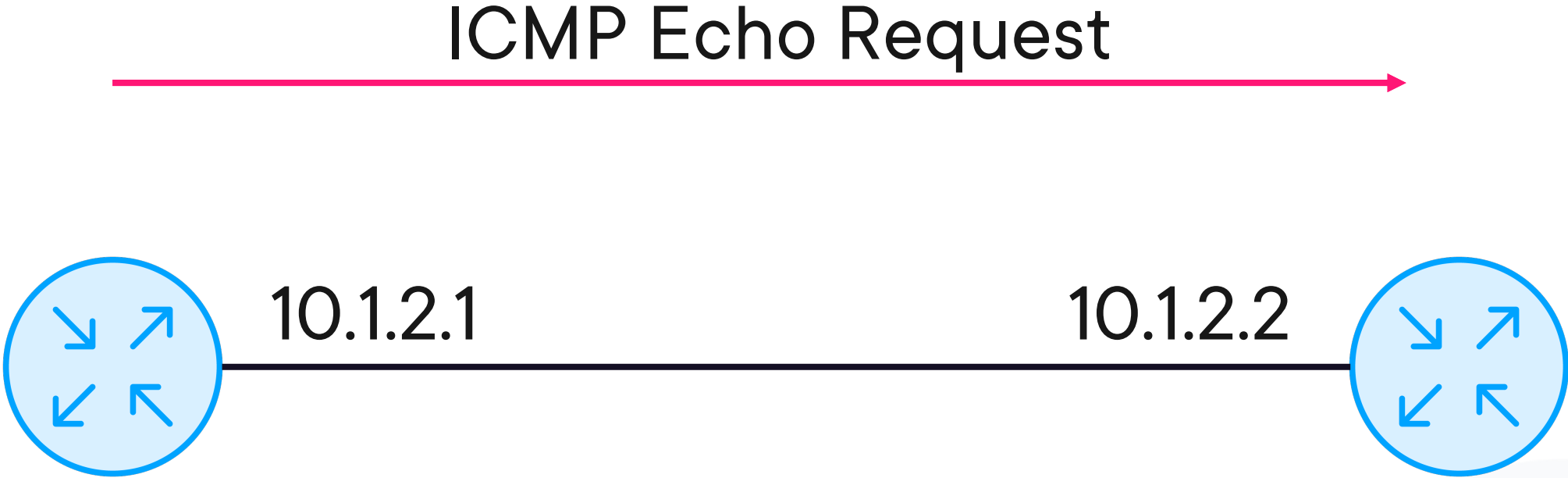
Support for both IPv4 and IPv6 connectivity testing



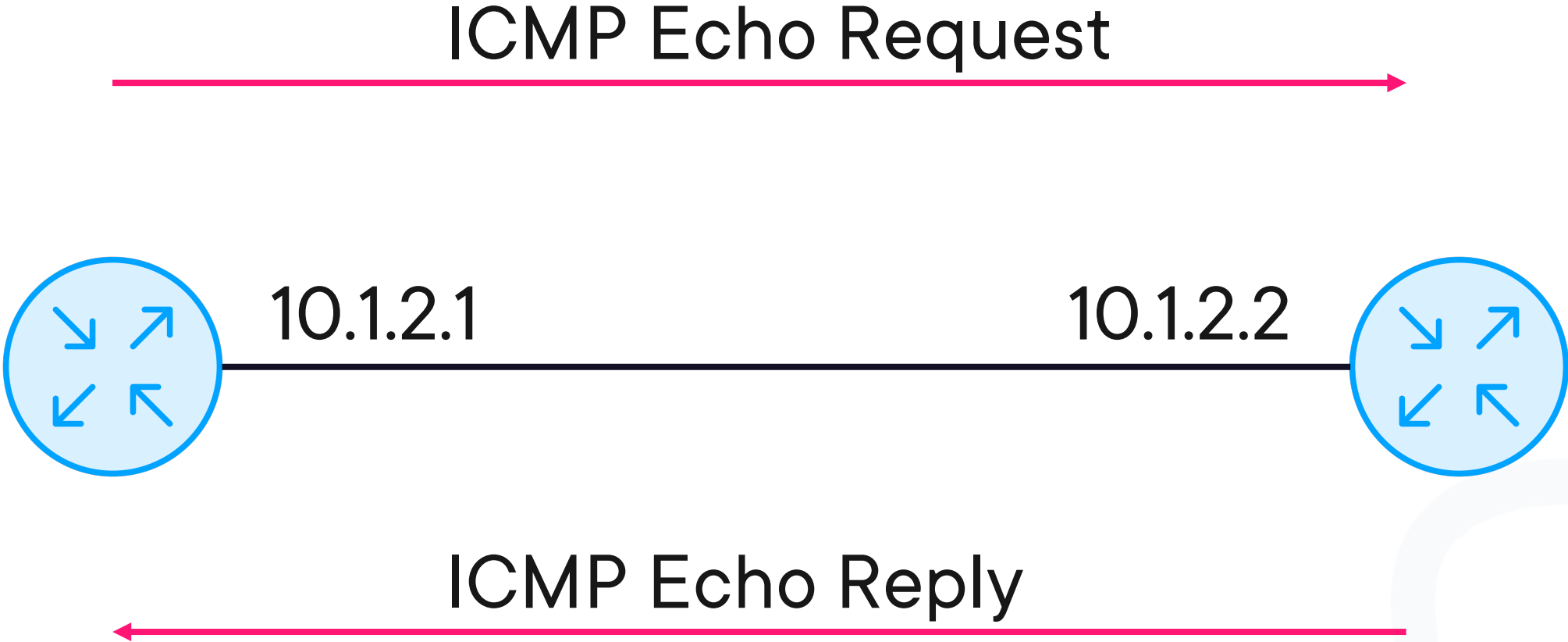
How Does a Ping Work?



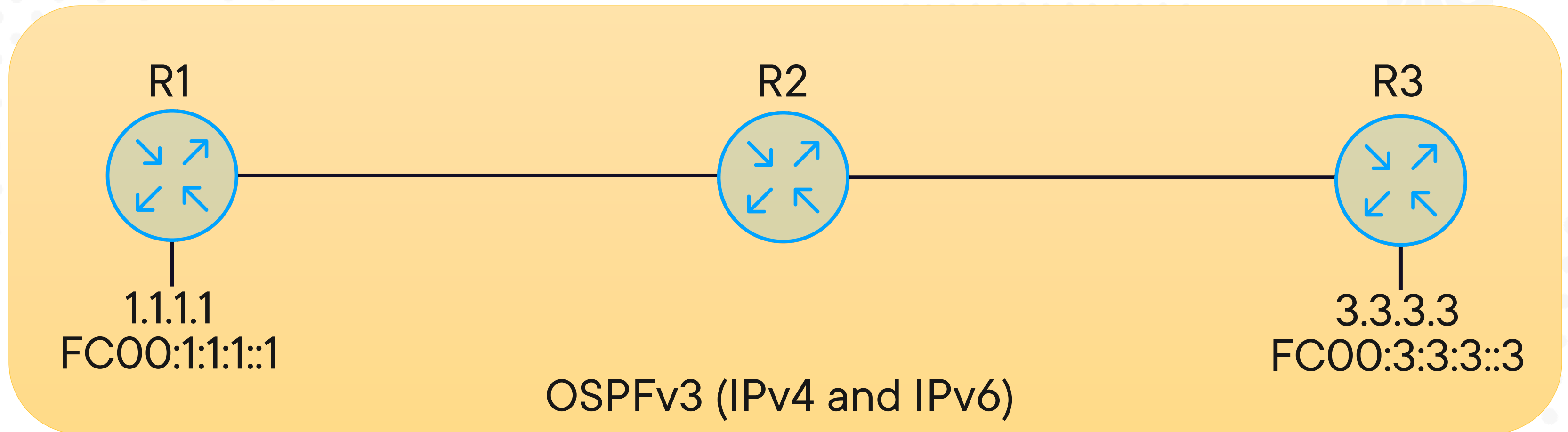
How Does a Ping Work?



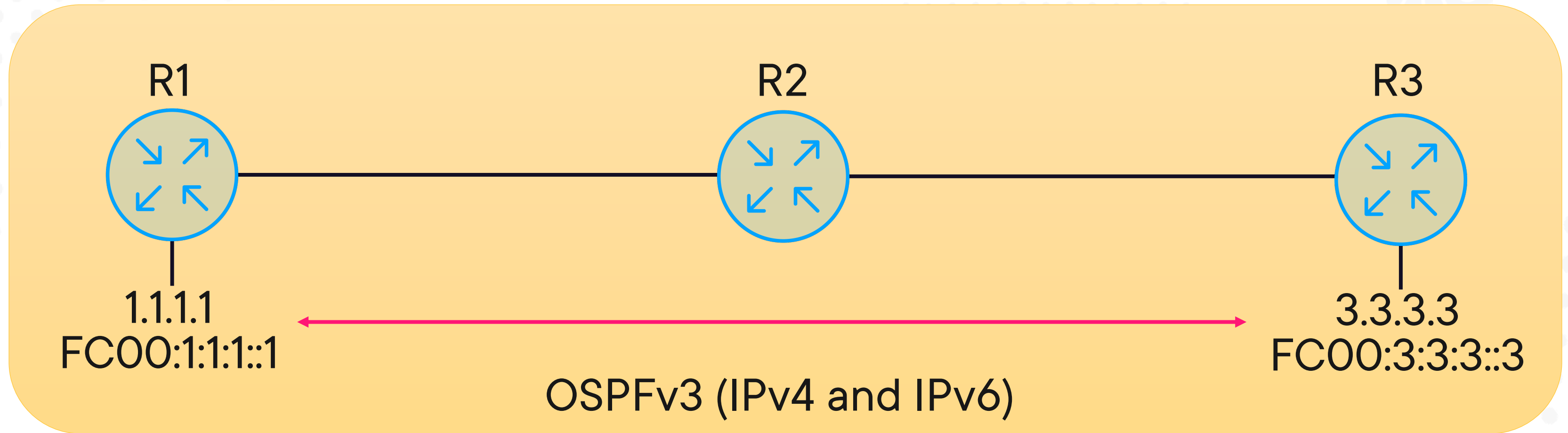
How Does a Ping Work?



Demo Topology



Demo Topology





Traceroute



What Is Traceroute?

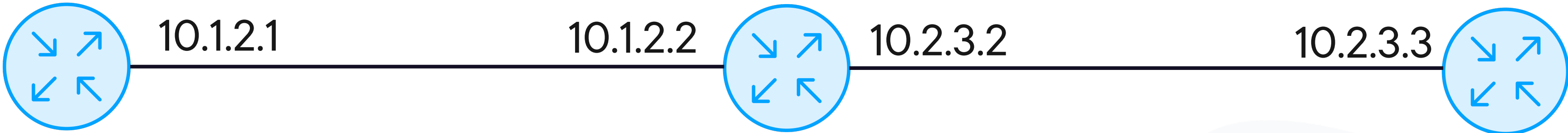
Network diagnostic tool used to track the path that packets take throughout the network

Used for troubleshooting network issues like latency, routing issues, and packet loss



How Does Traceroute Work?

ICMP Echo Request TTL=1

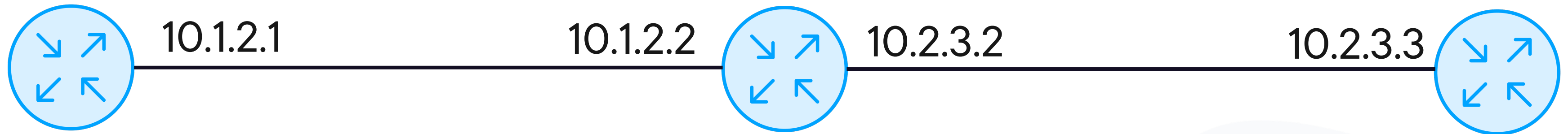


ICMP Time Exceeded



How Does Traceroute Work?

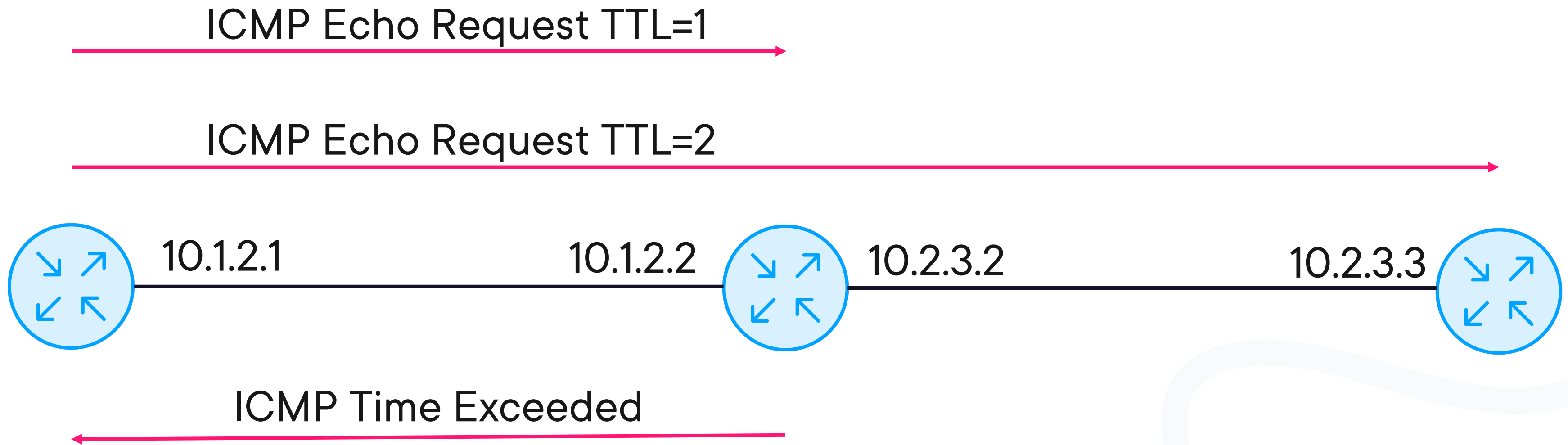
ICMP Echo Request TTL=1



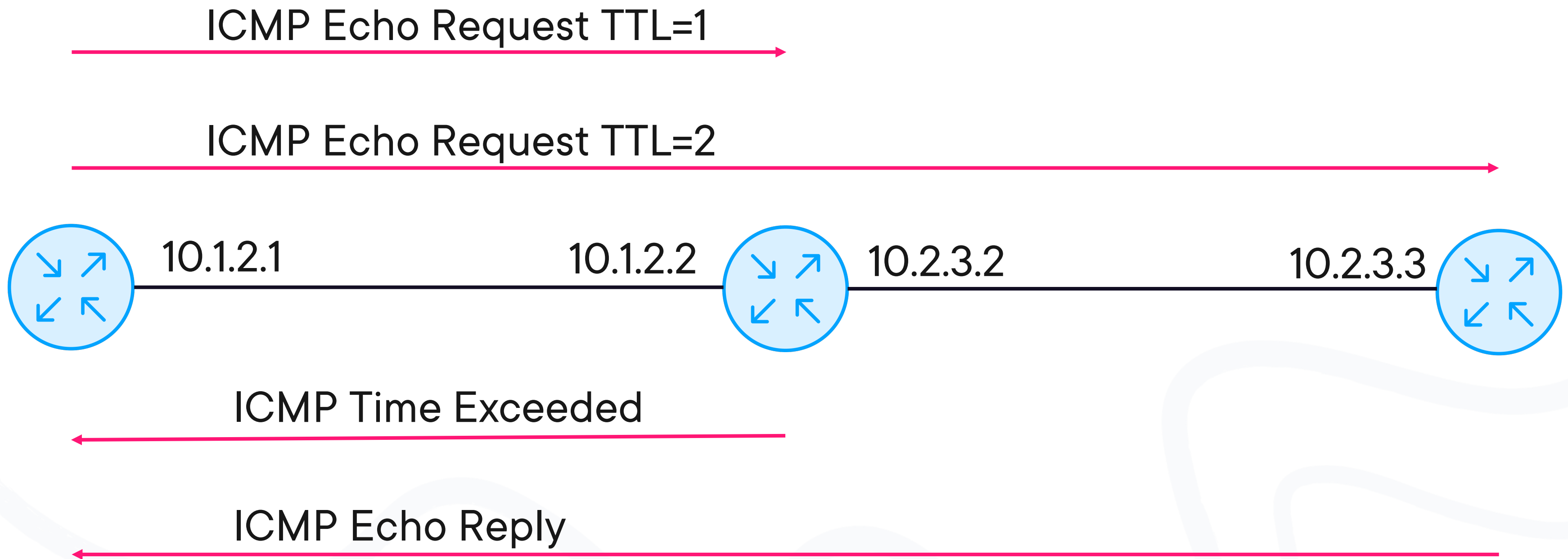
ICMP Time Exceeded



How Does Traceroute Work?



How Does Traceroute Work?





Ping and Extended Ping Demo





Traceroute Demo

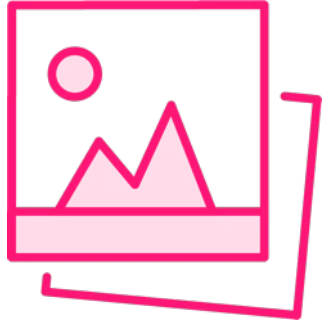




Debugging and Conditional Debugging



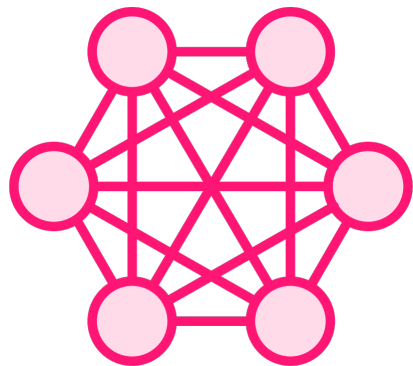
What Is Debugging?



A crucial tool for diagnosing and troubleshooting issues in a network



Allows for captured and real-time monitoring of specific events and protocols



Primarily used to troubleshoot issues happening on a network, including control and protocol-level operations





Debugging and Conditional Debugging Demo





System Message Logging (Syslog)



What Is System Message Logging (Syslog)?

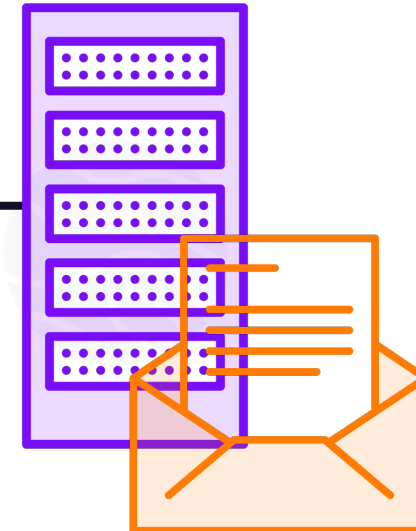
Storage Locations:

1. Locally on the device
2. Externally on a Syslog Server

Syslog Client



Syslog Server

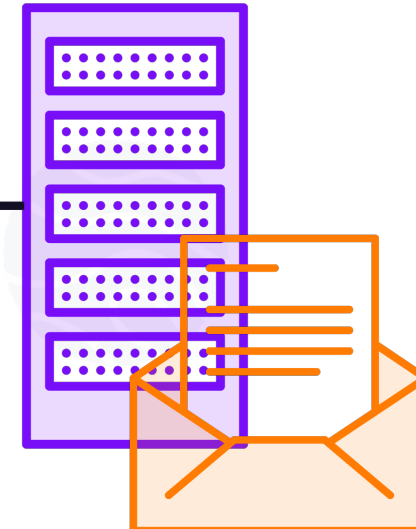


What Is System Message Logging (Syslog)?

Syslog Client



Syslog Server



Severity:

0 – Emergency

1 – Alert

2 – Critical

3 – Error

4 – Warning

5 – Notification

6 – Informational

7 – Debugging



What Is System Message Logging (Syslog)?

Syslog Client

Syslog Server



Syslog Message Format:
Sequence number: timestamp: %facility-severity-MNEMONIC:description



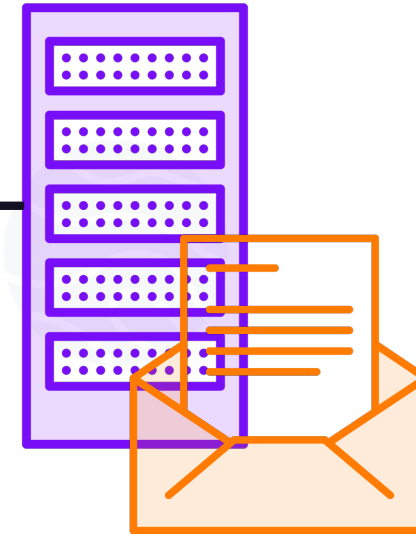
What Is System Message Logging (Syslog)?

000208: *Sep 29 16:49:12: %OSPF-5-ADJCHG: Process 1, Nbr 7.7.7.7
on GigabitEthernet1 from LOADING to FULL, Loading Done

Syslog Client



Syslog Server



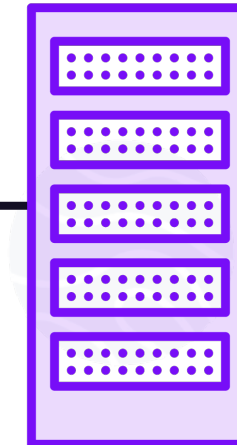
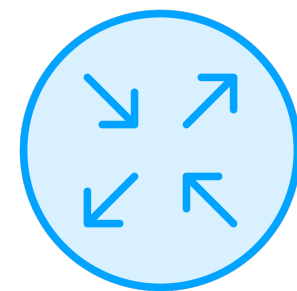
Syslog Message Format:
Sequence number: timestamp: %facility-severity-MNEMONIC:description



What Is System Message Logging (Syslog)?

Syslog Client

Syslog Server



Displaying Syslogs:

1. Internal buffer
2. Console
3. VTY Lines
4. Syslog Server(s)





System Message Logging Demo

