



# CCNA

## 13 The Cisco Troubleshooting Methodology

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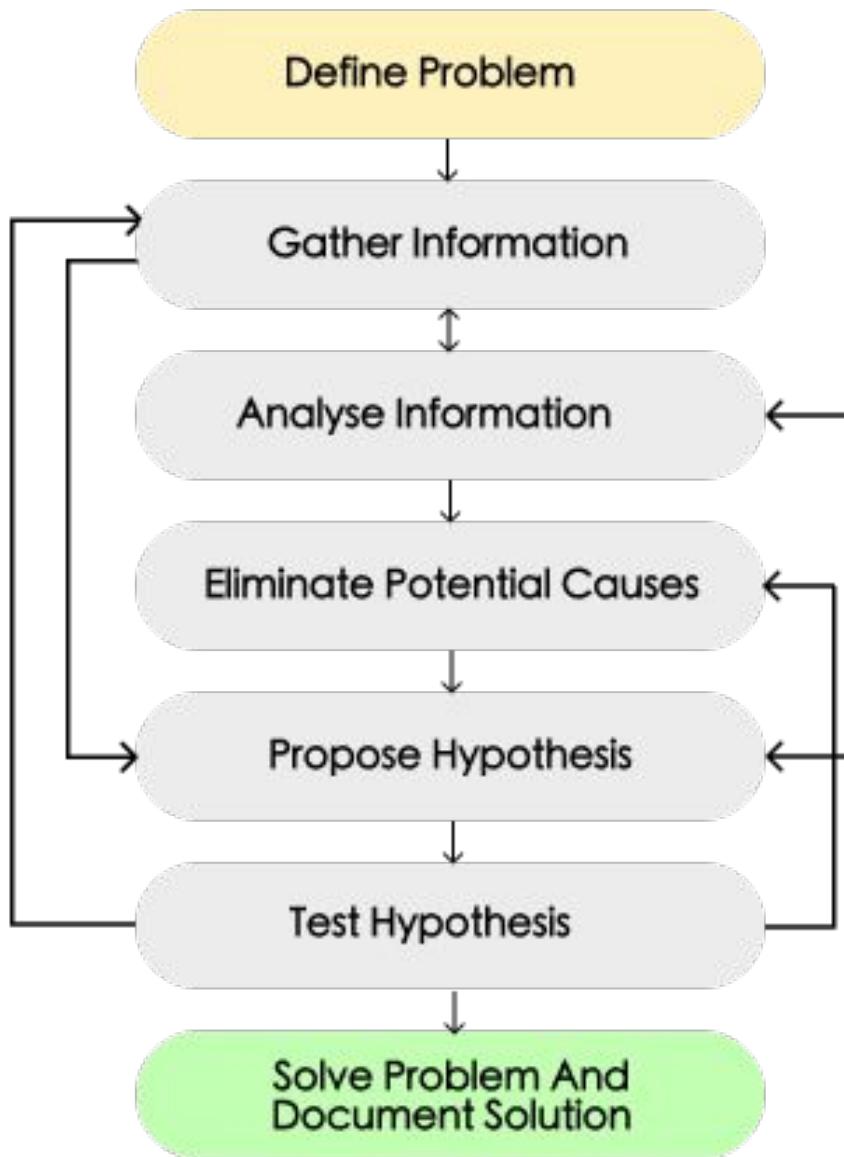
# To be considered charitable ...

- We are aimed at sharing our science in a collaborative learning environment for the advancement of the education of the public in the subject of Information Technology. So, feel free to share this video!

# We are going to cover:

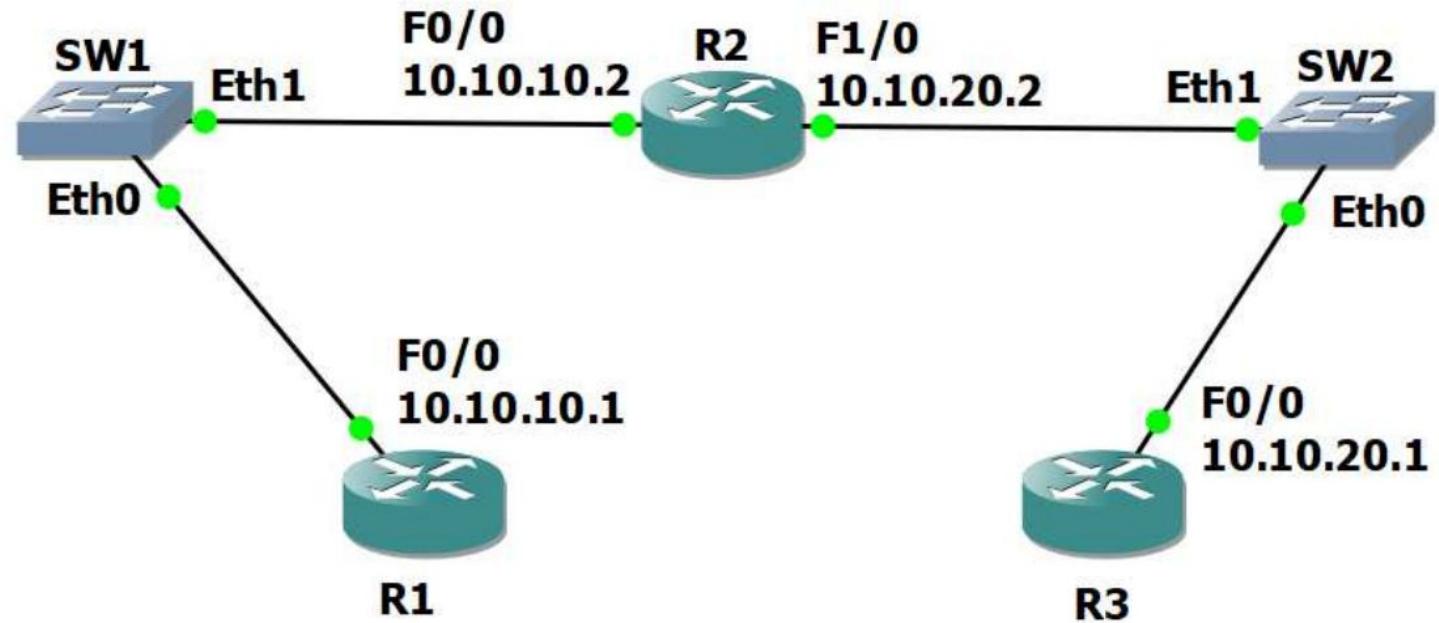
- 1 - Troubleshooting Explanation
- 2 - Configure The Lab Topology
- 3 - Troubleshoot Connectivity to DNS Server

# Cisco Troubleshooting Methodology diagram



# Troubleshooting Methods

- Compare configurations
- Trace the path



# List of the commands

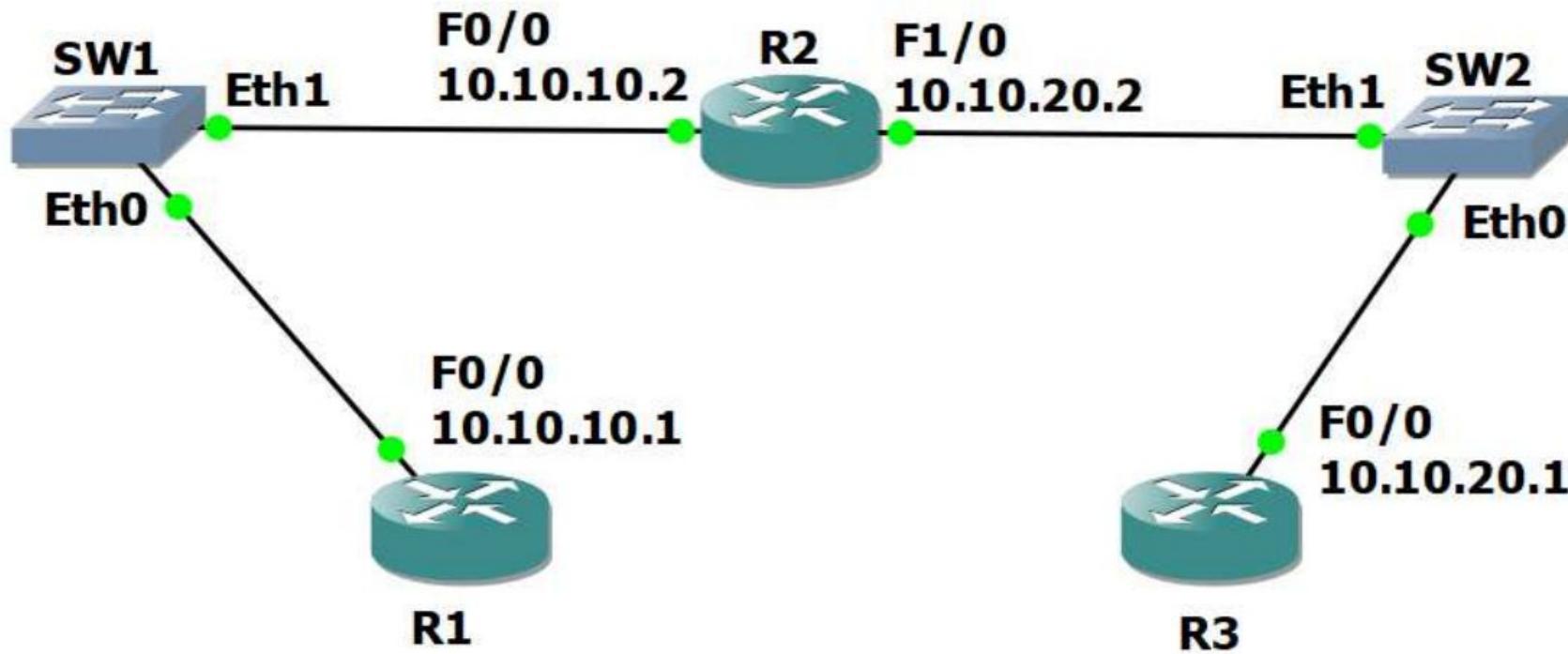
- **telnet**: used for interactive communication with another host using the TELNET protocol
- **ping**: used to test the reachability of a host
- **traceroute**: used for displaying possible routes and measuring transit delays of packets

★ Find more at [CheatSheet](#)

A graphic element consisting of two vertical bars. The left bar is yellow and the right bar is black, meeting at the top and bottom corners.

# **Configure The Lab Topology**

# Lab Topology



3 Routers :  
R1,  
R2,  
R3(DNS Server)

2 Switches:  
SW1,  
SW2

# Set Up

- 1) Routers IP and Hostname Configurations
- 2) Setting Up R3 as DNS Server
- 3) Setup R1 and R2 to resolve hostnames using R3
- 4) Set R1 and R2 to use R3 as the default gateway

# Problems

- port FastEthernet1/0 is shut down on R2
- R1 is using the wrong IP address for the DNS server
- The DNS service is not running on R3

# Set Routers IP and Hostname

```
R1(config)# hostname R1
R1(config)# interface f 0/0
R1(config-if)# ip address 10.10.10.1 255.255.255.0
R1(config-if)# no shut
R1(config-if)# do wr
```



Use same commands for R2 and R3

# Set Up R3 as a DNS server

```
R3(config)# ip host R3.flackbox.lab 10.10.20.1 → add hostnames and their IP addresses
```

```
R1(config)# ip domain lookup  
R1(config)# ip name-server 10.10.10.1  
R1(config)# ip route 0.0.0.0 0.0.0.0 10.10.20.1
```

```
R2(config)# ip domain lookup  
R2(config)# ip name-server 10.10.20.1  
R1(config)# ip route 0.0.0.0 0.0.0.0 10.10.20.1
```

# Trouble shooting

# Check Connectivity

- R1# telnet 10.10.20.1 53

```
[R1#telnet 10.10.20.1 53
Trying 10.10.20.1, 53 ...
% Destination unreachable; gateway or host down
```

- R1# ping 10.10.20.1

```
[R1#ping 10.10.20.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.10.20.1, timeout is 2 seconds:
UUUUU
Success rate is 0 percent (0/5)
```

- R1# traceroute 10.10.20.1

```
[R1#traceroute 10.10.20.1
Type escape sequence to abort.
Tracing the route to 10.10.20.1

 1 10.10.10.2 72 msec 60 msec 64 msec
 2 10.10.10.2 !H !H !H
```

# Solve Connectivity between R1 and R3

- R2#sh ip int brief

```
R2#sh ip int brief
Interface                  IP-Address      OK? Method Status          Protocol
FastEthernet0/0            10.10.10.2    YES NVRAM   up           up
FastEthernet0/1            unassigned     YES NVRAM   administratively down down
FastEthernet1/0            10.10.20.2    YES NVRAM   administratively down down
FastEthernet2/0            unassigned     YES NVRAM   administratively down down
FastEthernet3/0            unassigned     YES NVRAM   administratively down down
```

- R2(config)#interface f1/0  
R2(config-if)#no shut

```
[R2(config)#interface f1/0
[R2(config-if)#no shut
```

- R1#ping 10.10.20.1

```
[R1#ping 10.10.20.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.10.20.1, timeout is 2 seconds:
.!!!!
Success rate is 80 percent (4/5), round-trip min/avg/max = 88/92/100 ms
```

# Check DNS Server

- R1#ping R3.flackbox.lab

```
[R1#ping R3.flackbox.lab

Translating "R3.flackbox.lab"...domain server (10.10.10.1)
% Unrecognized host or address, or protocol not running.
```

# Solve R1 DNS Server Problem

- R1(config)#ip name-server 10.10.20.1

- R1#ping R3.flackbox.lab

```
[R1#ping R3.flackbox.lab

Translating "R3.flackbox.lab"...domain server (10.10.10.1) (10.10.20.1)
% Unrecognized host or address, or protocol not running.
```

- R1(config)#no ip name-server 10.10.10.1

# Check DNS Server

- R3#sh run | include dns

```
R3#sh run | include dns  
R3#
```

- R3(config)#ip dns server

- R3#sh run | include dns

```
[R3#sh run | include dns  
ip dns server  
R3#]
```

# Problem Solved!

- R1#telnet 10.10.20.1 53

```
[R1#telnet 10.10.20.1 53
Trying 10.10.20.1, 53 ... Open

[Connection to 10.10.20.1 closed by foreign host]
R1#]
```

- R1#ping R3.flackbox.lab

```
[R1#ping R3.flackbox.lab

Translating "R3.flackbox.lab"...domain server (10.10.20.1) [OK]

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.10.20.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 60/102/156 ms
R1#]
```

# Resource

- [https://www.youtube.com/watch?v=bDxxxT\\_DB4U](https://www.youtube.com/watch?v=bDxxxT_DB4U)
- [https://www.aparat.com/v/HNdYw/telnet\\_%D8%AF%D8%B1\\_LPIC2](https://www.aparat.com/v/HNdYw/telnet_%D8%AF%D8%B1_LPIC2)
- <https://computingforgeeks.com/ccna-labs-dns-server-configuration-on-qns3-and-packet-tracer/>

● دوره درک مقدماتی شبکه مکتب خونه (قسمت نهم: ابزارهای عیب یابی در شبکه)

**THANK  
YOU!**