

CCNP (Fault finding)

Fault Challenge 1

Fault: Incorrect IP address on one of the router ports.

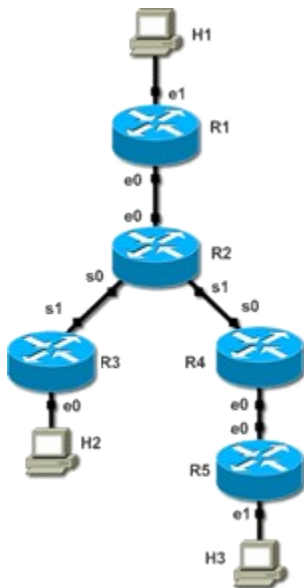
Outline

This topology has ONE fault, trying ping'ing around and perform TRACEROUTE's to find the faults. The hosts have been setup as:

H1- 192.168.0.2

H2- 192.168.1.2

H3- 192.168.2.2



Objectives

Try to use debugging tools, such as ping and traceroute to find the fault, rather than looking in each of the configurations. WHEN YOU FIND THE FAULT... FIX IT, and TEST THAT IT WORKS

Fault Challenge 2

Fault: Shutdown ports or Incorrect gateway on hosts

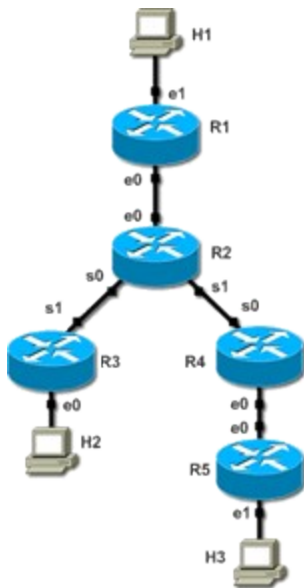
Outline

FAULT: This topology has ONE fault, trying ping'ing around and perform TRACEROUTE's to find the faults. The hosts have been setup as:

H1- 192.168.0.2

H2- 192.168.1.2

H3- 192.168.2.2



Objectives

Try to use debugging tools, such as ping and traceroute to find the fault, rather than looking in each of the configurations. WHEN YOU FIND THE FAULT... FIX IT, and TEST THAT IT WORKS.

Fault Challenge 3

Fault: Routing problem: incorrect networks defined for the router.

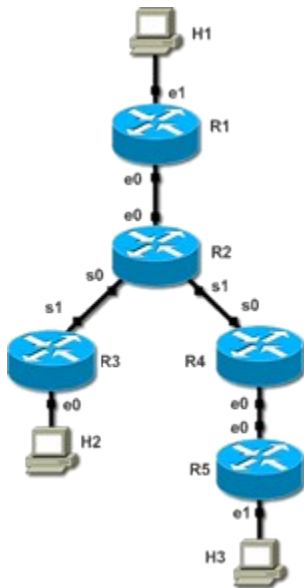
Outline

This topology has ONE fault, trying ping'ing around and perform TRACEROUTE's to find the faults. The hosts have been setup as:

H1- 192.168.0.2

H2- 192.168.1.2

H3- 192.168.2.2



Objectives

Try to use debugging tools, such as ping and traceroute to find the fault, rather than looking in each of the configurations. WHEN YOU FIND THE FAULT... FIX IT, and TEST THAT IT WORKS

Fault Challenge 4

Fault: Incorrectly applied ACL for ICMP on an incoming port

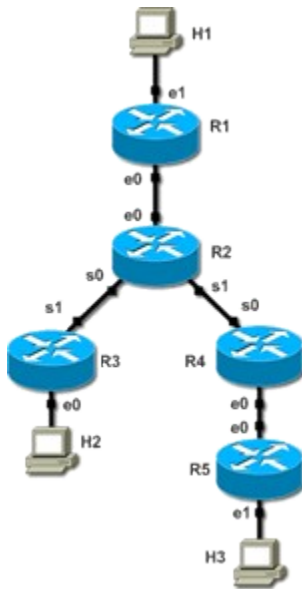
Outline

An ACL which blocks incoming ICMP pings has been added ... find it and remove it. Use ping and traceroute... The hosts have been setup as:

H1- 192.168.0.2

H2- 192.168.1.2

H3- 192.168.2.2



Objectives

ICMP deny has been applied to one of the incoming ports, find it, and remove it. Use PING and TRACEROUTE.

Fault Challenge 5

Fault: Incorrectly applied ACL for ICMP on an outgoing port

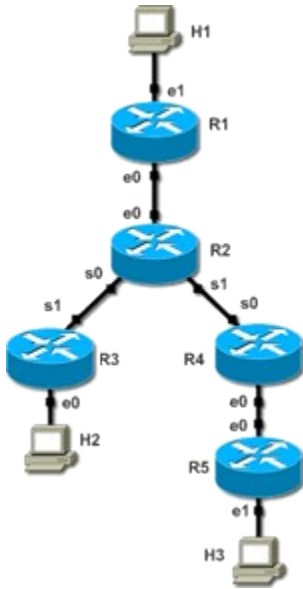
Outline

An ACL which blocks outgoing ICMP pings has been added ... find it and remove it. Use ping and traceroute... The hosts have been setup as:

H1- 192.168.0.2

H2- 192.168.1.2

H3- 192.168.2.2



Objectives

ICMP deny has been applied to one of the outgoing ports, find it, and remove it. Use PING and TRACEROUTE.

Fault Challenge 6

Fault: Break in a connection between devices

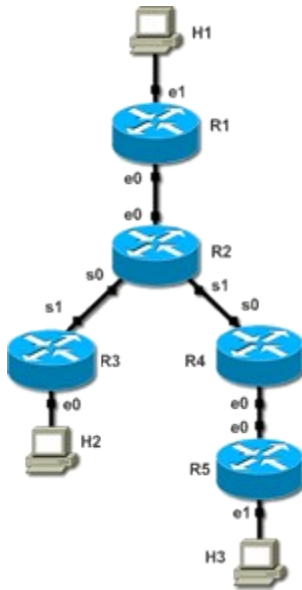
Outline

There is a break in a connection between the devices. The hosts have been setup as:

H1- 192.168.0.2

H2- 192.168.1.2

H3- 192.168.2.2



Objectives

There is a break in a connection between the devices, find it, and remove it. Use PING and TRACEROUTE. Possible solutions:

- Link between Host 1 and R1, E0
- Link between Host 2 and R4, E1
- Link between Host 3 and R5, E1
- Link between R1, S0 and R2, S0
- Link between R1, S1 and R3, S0
- Link between R2, S1 and R3, S1
- Link between R3, E0 and R5, E0
- Link between R4, E0 and R2, E0

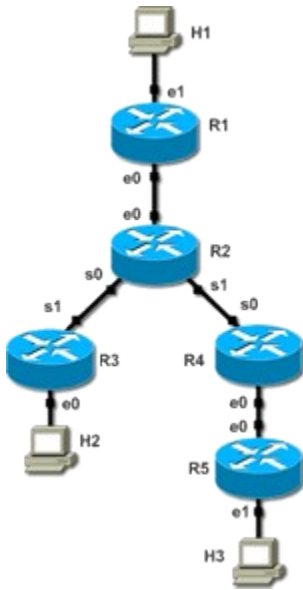
Fault Challenge 7

Fault: A standard ACL which denies H1, H2 or H3 has been applied.

Outline

This topology has an ACL set which bars either H1, H2 or H3, but no other nodes. The addresses of the nodes are:

- H1- 192.168.0.2
- H2- 192.168.1.2
- H3- 192.168.2.2



Objectives

A standard ACL which denies H1, H2 or H3 has been applied. Use PING and TRACEROUTE. Possible solutions:

- Acl Deny H1 on R1, E0.
- Acl Deny H1 on R2, E0.
- Acl Deny H1 on R4, S0.
- Acl Deny H1 on R5, E0.
- Acl Deny H2 on R3, E0.
- Acl Deny H1 on R2, S0.
- Acl Deny H2 on R4, S0.
- Acl Deny H2 on R5, E0.
- Acl Deny H3 on R5, E1.
- Acl Deny H3 on R4, E0.
- Acl Deny H3 on R2, S1.
- Acl Deny H3 on R1, E0.
- Acl Deny H3 on R3, S1.

Fault Challenge 8

Fault: An extended ACL which denies a whole subnet

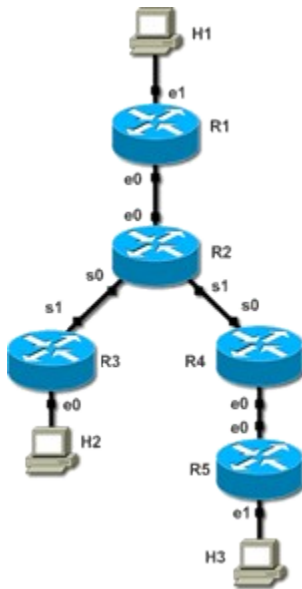
Outline

This topology has an extended ACL set which bars a whole subnet which contains either H1, H2 or H3. The addresses of the nodes are:

H1- 192.168.0.2

H2- 192.168.1.2

H3- 192.168.2.2



Objectives

This topology has an extended ACL set which bars a whole subnet which contains either H1, H2 or H3. Use PING and TRACEROUTE. Possible solutions:

- Acl R1, E1, where all hosts on the subnet that H1 is on cannot ping a single host: on H2
- Acl R1, E1, where all hosts on the subnet that H1 is on cannot ping a single host: on H3.
- Acl R3, E0, where all hosts on the subnet that H2 is on cannot ping a single host: on H1.
- Acl R3, E0, where all hosts on the subnet that H2 is on cannot ping a single host: on H3.
- Acl R5, E1, where all hosts on the subnet that H3 is on cannot ping a single host: on H1.
- Acl R5, E1, where all hosts on the subnet that H3 is on cannot ping a single host: on H2.

Fault Challenge 9

Fault: Single IP error

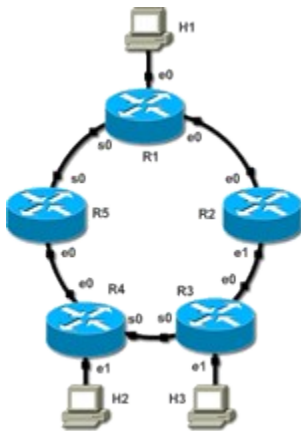
Outline

The devices have been set but there is a fault in one of the IP addresses. As we have a ring the devices may still give a ping, but the traceroute will give unexpected results. The addresses of the nodes are:

H1- 192.168.0.2 H2- 192.168.1.2 H3- 192.168.2.2

The interconnected networks are:

10.1.1.0, 10.2.2.0, 10.3.3.0, 10.4.4.0 and 10.5.5.0.



Objectives

The devices have been set but there is a fault in one of the IP addresses. Use PING and TRACEROUTE. Possible solutions:

- R1, E0.
- R1, S0.
- R1, E1.
- R2, E0.
- R2, E1.
- R3, E0.
- R3, E1.
- R3, S0.
- R4, E0.

- R4, E1.
- R4, S0.
- R5, S0.
- R5, S1.

Note: The IP addresses for the routers have been hidden, so that it is not possible to simply view the addresses, rather than actually fault-finding.

Fault Challenge 10

Fault: Port shutdown on a port in the network

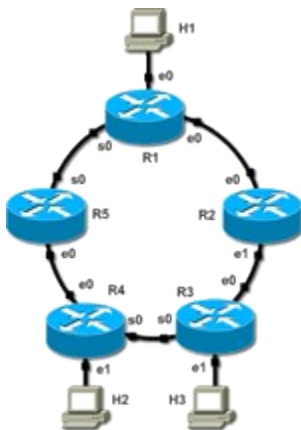
Outline

The devices have been set but there is a fault in the status of one of the ports or on the gateways of the hosts. As we have a ring the devices may still give a ping, but the traceroute will give unexpected results. The addresses of the nodes are:

H1- 192.168.0.2 H2- 192.168.1.2 H3- 192.168.2.2

The interconnected networks are:

10.1.1.0, 10.2.2.0, 10.3.3.0, 10.4.4.0 and 10.5.5.0.



Objectives

One of the ports has been shutdown. Use PING and TRACEROUTE to find it. Possible solutions:

- R1, E0.
- R1, S0.
- R1, E1.
- R2, E0.
- R2, E1.
- R3, E0.
- R3, E1.
- R3, S0.
- R4, E0.
- R4, E1.
- R4, S0.
- R5, S0.
- R5, S1.

Note: The IP addresses for the routers have been hidden, so that it is not possible to simply view the addresses, rather than actually fault-finding.

Fault Challenge 11

Fault: Routing protocol problems

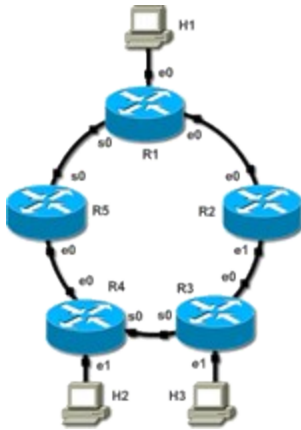
Outline

The devices have been set but there is a fault in the routing network definition. As we have a ring the devices may still give a ping, but the traceroute will give unexpected results. Once you have found the fault, fix it. The addresses of the nodes are:

H1- 192.168.0.2 H2- 192.168.1.2 H3- 192.168.2.2

The interconnected networks are:

10.1.1.0, 10.2.2.0, 10.3.3.0, 10.4.4.0 and 10.5.5.0.



Objectives

One of the ports has been shutdown. Use PING and TRACEROUTE to find it.

Fault Challenge 12

Fault: ACL applied on an incoming port for ICMP.

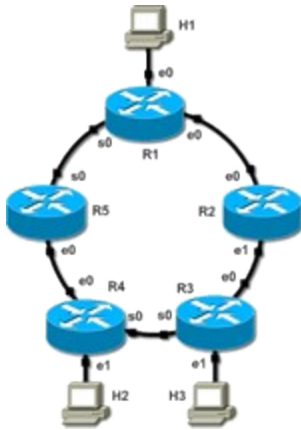
Outline

An ACL which blocks incoming ICMP pings has been added ... find it and remove it. Once you have found the fault, fix it. The addresses of the nodes are:

H1- 192.168.0.2 H2- 192.168.1.2 H3- 192.168.2.2

The interconnected networks are:

10.1.1.0, 10.2.2.0, 10.3.3.0, 10.4.4.0 and 10.5.5.0.



Objectives

ICMP deny has been applied to one of the incoming ports, find it, and remove it. Use PING and TRACEROUTE. Remember as it's a ring you will still be able to ping and traceroute, but it might take a longer route, as there could be an alternative route. Example solutions:

- ICMP Deny applied to incoming port of R1, E0.
- ICMP Deny applied to incoming port of R1, E1.
- ICMP Deny applied to incoming port of R1, S0.
- ICMP Deny applied to incoming port of R2, E0.
- ICMP Deny applied to incoming port of R2, E1.
- and so on.

Fault Challenge 13

Fault: An extended ACL applied on an outgoing port.

Outline

An ACL which blocks outgoing ICMP pings has been added ... find it and remove it. Once you have found the fault, fix it. The addresses of the nodes are:

H1- 192.168.0.2 H2- 192.168.1.2 H3- 192.168.2.2

The interconnected networks are:

10.1.1.0, 10.2.2.0, 10.3.3.0, 10.4.4.0 and 10.5.5.0.



Objectives

ICMP deny has been applied to one of the outgoing ports, find it, and remove it. Use PING and TRACEROUTE. Remember as it's a ring you will still be able to ping and traceroute, but it might take a longer route, as there could be an alternative route. Example solutions:

- ICMP Deny applied to outgoing port of R1, E0.
- ICMP Deny applied to outgoing port of R1, E1.
- ICMP Deny applied to outgoing port of R1, S0.
- ICMP Deny applied to outgoing port of R2, E0.
- ICMP Deny applied to outgoing port of R2, E1.
- and so on.

Fault Challenge 14

Fault: An ACL which bars one of the hosts.

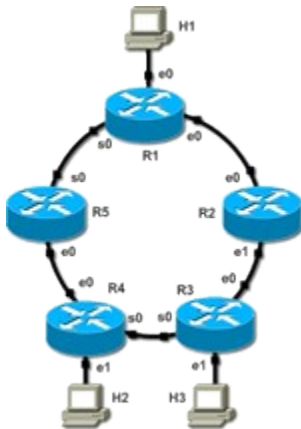
Outline

This topology has an ACL set which bars either H1, H2 or H3, but no other nodes. Try ping'ing around and perform TRACEROUTE's to find the ACL. The addresses of the nodes are:

H1- 192.168.0.2 H2- 192.168.1.2 H3- 192.168.2.2

The interconnected networks are:

10.1.1.0, 10.2.2.0, 10.3.3.0, 10.4.4.0 and 10.5.5.0.



Objectives

This topology has an ACL set which bars either H1, H2 or H3, but no other nodes, trying ping'ing around and perform TRACEROUTE's to find the ACL. Example solutions:

- Acl Deny H1 on R1, E1.
- Acl Deny H1 on R3, E1.
- Acl Deny H1 on R4, E1.
- Acl Deny H3 on R4, S0.
- Acl Deny H2 on R3, S0.
- Acl Deny H1 on R3, E0.

Fault Challenge 15

Fault: An extended ACL which bars a whole subnet access to a single host

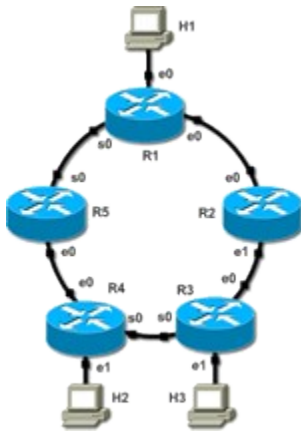
Outline

This topology has an extended ACL set which bars hosts from a host subnet access to a single host. The addresses of the nodes are:

H1- 192.168.0.2 H2- 192.168.1.2 H3- 192.168.2.2

The interconnected networks are:

10.1.1.0, 10.2.2.0, 10.3.3.0, 10.4.4.0 and 10.5.5.0.



Objectives

This topology has an extended ACL set which bars hosts from a host subnet access to a single host. Example solutions:

- Acl R1, E1, where all hosts on the subnet that H1 is on cannot ping a single host: on H2. You should be able to ping the port 192.168.1.1 as it only blocks for one destination.
- Acl R1, E1, where all hosts on the subnet that H1 is on cannot ping a single host: on H3. You should be able to ping the port 192.168.2.1 as it only blocks for one destination.
- Acl R3, E0, where all hosts on the subnet that H2 is on cannot ping a single host: on H1. You should be able to ping the port 192.168.1.1 as it only blocks for one destination.
- Acl R3, E0, where all hosts on the subnet that H2 is on cannot ping a single host: on H3. You should be able to ping the port 192.168.2.1 as it only blocks for one destination.
- and so on.

Fault Challenge 16

Fault: Disabled port on a switch or a router

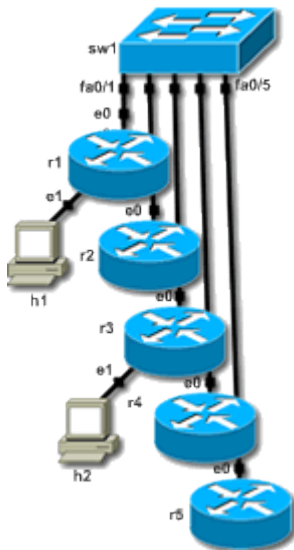
Outline

This topology has a disabled port on the switch or on the routers. The addresses of the nodes are:

H1- 192.168.0.2 [Gateway: 192.168.0.1]
H2- 192.168.1.2 [Gateway: 192.168.1.1]

and:

R1, E0: 1.2.3.4
R1, E1: 192.168.0.1
R2, E0: 1.2.3.5
R2, E1: 192.168.1.1
R3, E0: 1.2.3.6
R4, E0: 1.2.3.7
R5, E0: 1.2.3.8



Objectives

This topology has an extended ACL set which bars hosts from a host subnet access to a single host. Example solutions:

- Switch Port FA0/1.
- Switch Port FA0/2.
- Switch Port FA0/3.
- Switch Port FA0/4.
- Switch Port FA0/5.
- Switch Port R1 E0.
- Switch Port R2 E0.
- Switch Port R3 E0.
- Switch Port R4 E0.

- Switch Port R5 E0.
- Switch Port R1 E1.
- Switch Port R3 E1.

Fault Challenge 17

Fault: Incorrect assignment of a VLAN

Outline

This topology has one of the switch ports incorrectly assigned to the wrong VLAN. The addresses of the nodes are:

H1- 192.168.0.2 [Gateway: 192.168.0.1]

H2- 192.168.1.2 [Gateway: 192.168.1.1]

and:

R1, E0: 1.2.3.4

R1, E1: 192.168.0.1

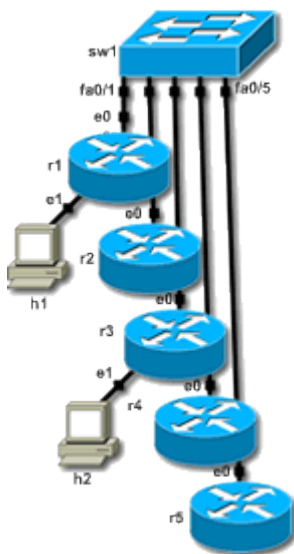
R2, E0: 1.2.3.5

R2, E1: 192.168.1.1

R3, E0: 1.2.3.6

R4, E0: 1.2.3.7

R5, E0: 1.2.3.8



Objectives

This topology has an extended ACL set which bars hosts from a host subnet access to a single host. Example solutions:

- Switch Port FA0/1 on VLAN 2.
- Switch Port FA0/2 on VLAN 2.
- Switch Port FA0/3 on VLAN 2.
- Switch Port FA0/4 on VLAN 2.
- Switch Port FA0/5 on VLAN 2.