Network troubleshooting interview: answer key

Three faults on four Cisco routers, easy to hard, with the commands, the fixes and the results from our recorded run.

> *Read to the candidate: users at the branch, 10.10.10.0/24, can't reach 203.0.113.10. The branch runs OSPF area 0 and has two circuits to one provider, a primary on EDGE1 and a backup on EDGE2. Traffic should use the primary in both directions. Get the branch working, then confirm the design intent is met.*

FAULT 1 OF 3

☐ Fault 1 (easy): the OSPF neighbor that won't form

EDGE1's link to CORE runs hello 5 and dead 20 against CORE's 10 and 40. CORE lists one OSPF neighbor, EDGE2.

```
EDGE1# show ip ospf interface ethernet0/1 | include Timer|Hello
  Timer intervals configured, Hello 5, Dead 20, Wait 20, Retransmit 5
EDGE1(config-if)# ip ospf hello-interval 10
EDGE1(config-if)# ip ospf dead-interval 40
```

In our run: EDGE1 came up FULL and PC1's ping went to 3 of 3. The ticket now looks solved. Watch whether the candidate stops here.

FAULT 2 OF 3

☐ Fault 2 (medium): BGP is up and advertises nothing

EDGE2's session to the provider is Established, and advertised-routes shows 0 prefixes. Its network statement asks for a /16 the routing table does not hold.

```
EDGE2# show ip bgp neighbors 198.51.100.5 advertised-routes
Total number of prefixes 0
EDGE2# show ip route 10.10.0.0 255.255.0.0
% Subnet not in table
router bgp 65010
 no network 10.10.0.0 mask 255.255.0.0
 network 10.10.10.0 mask 255.255.255.0
```

In our run: 1 prefix advertised, and return traffic moved to the backup circuit. That is fault 3 showing itself.

FAULT 3 OF 3

☐ Fault 3 (hard): return traffic takes the wrong exit

The provider prefers the backup: EDGE2 sends MED 20, not 200. Its prefix-list has no le 24, so the /24 misses set metric 200 and leaves with its IGP metric.

```
ISP# show ip bgp 10.10.10.0
  198.51.100.6 ... Origin IGP, metric 20, localpref 100, valid, external, best
  198.51.100.2 ... Origin IGP, metric 50, localpref 100, valid, external
no ip prefix-list BRANCH-NETS seq 5 permit 10.10.0.0/16
ip prefix-list BRANCH-NETS seq 5 permit 10.10.0.0/16 le 24
clear ip bgp 198.51.100.5 soft out
```

In our run: the provider's best path moved to the primary with MED 50 and INET to PC1 answered 5 of 5. IOS refuses to overwrite seq 5 in place (%Insertion failed): remove the line first.

SCORING GUIDE

Junior	Fixes fault 1 with show ip ospf interface and stops when pings work
Mid	Checks advertised-routes on both edges and fixes fault 2 with the exact-match rule
Senior	Notices the asymmetry from traceroutes or the provider's table, follows MED 20 back to the prefix-list, and explains the IGP-metric MED

Reset for the next candidate: redeploy the lab. The faults live in the startup configs, so all three come back. Ours took 2 min 08 s.

Build this interview lab

One prompt builds the broken Cisco lab and this answer key. The candidate opens a link with no account to create, and you watch every command.

[The prompt, the lab files and every frame: netpilot.io/blog/network-engineer-troubleshooting-interview-lab]