



## POD A

### I Heart Routers

I Heart Routers, a high end woodworking tool company and cloud services provider is having trouble with, of all things, the routing within their network. They have contracted you to help troubleshoot and fix the issue so that they can return to normal operations. For your efforts, they will reward you with a beautiful wooden mallard duck, all you have to do is use their tools to bring it out of the block of wood.

**Scenario:** You have (3) routers running OSPF and BGP. Along with the global routing table, you also have a VRF named "PRIVATE", and are running MPLS between R1, R2, and R3. In the global routing table, R3 peers via BGP with BB to advertise routes, while in the VRF "PRIVATE" R2 peers with BB and advertises routes from the "PRIVATE" routing table. The backbone routing is bridging these two routing tables together. At present, devices in the global routing table are unable to reach devices in VRF PRIVATE.

### Restrictions:

1. You've been given a read only account (un: readonly, pw: cisco) for Cat1. It should go without saying, modify this device is off limits. Issue "show configuration" to see current configuration.
2. No static routes may be added to any device.
3. No additional interfaces may be added.
4. Traffic crossing VRFs must traverse the backbone.
5. You may not modify the backbone in anyway.
6. You may not change/add BGP peerings.

### Connectivity:

You can connect to the following devices:

Host	Address	Username/Password
R1	172.16.10.2:2033	cisco/cisco
R2	172.16.10.2:2034	cisco/cisco
R3	172.16.10.2:2035	cisco/cisco
Cat1	172.16.10.2:2036	cisco/cisco

### Validation:

Once successfully resolving all issues, the following traceroute results should be observed:

1. R3 trace from global routing table, to its loopback100 in vrf PRIVATE

```
R3#traceroute 172.31.3.3
 1 10.99.99.99
 2 172.31.99.2
 3 10.123.123.1
 4 172.31.3.3
```

2. R3 trace from vrf PRIVATE to loopback 0 in the global routing table



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```
R3#traceroute vrf PRIVATE 10.123.3.3
 1 10.123.123.1
 2 172.31.99.2
 3 172.31.99.99
 4 10.99.99.3
```

Similar results can be observed from both R1 and R2, where all traffic crossing VRFs must traverse the backbone.