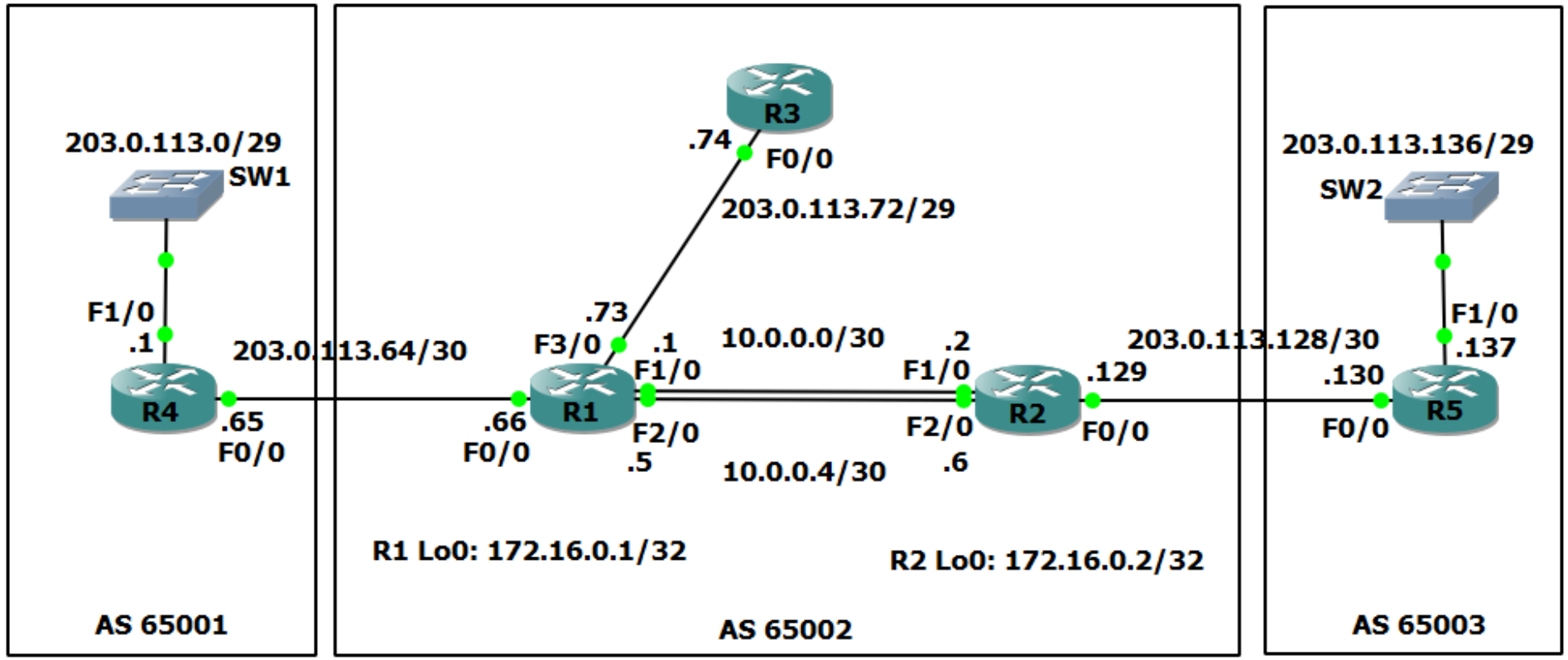
Lab

- We will configure AS 65002
- OSPF is already configured as the IGP, R3 is not running BGP
- iBGP between R1 and R2, eBGP from R1 – R4, and R2 – R5



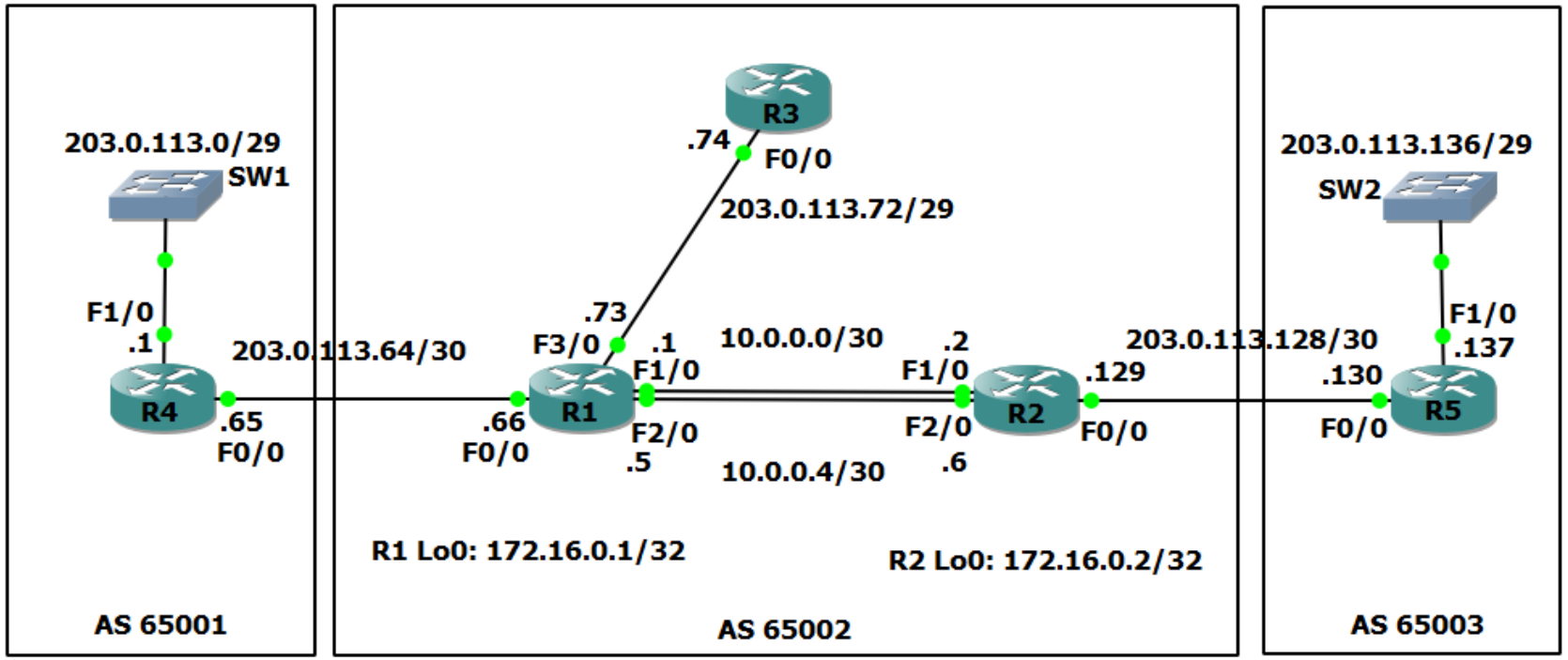
The Network Command

- The `network` command works differently for BGP than it does for IGPs
- In IGPs, it means ‘enable the IGP on all interfaces with an IP address which falls within this range, and advertise the network prefixes configured on those interfaces’
- In BGP, it has the more intuitive meaning of ‘advertise this network’
- There is no ‘enabling’ BGP on an interface. BGP uses targeted TCP sessions to form peers, not multicast Hellos

The Network Command

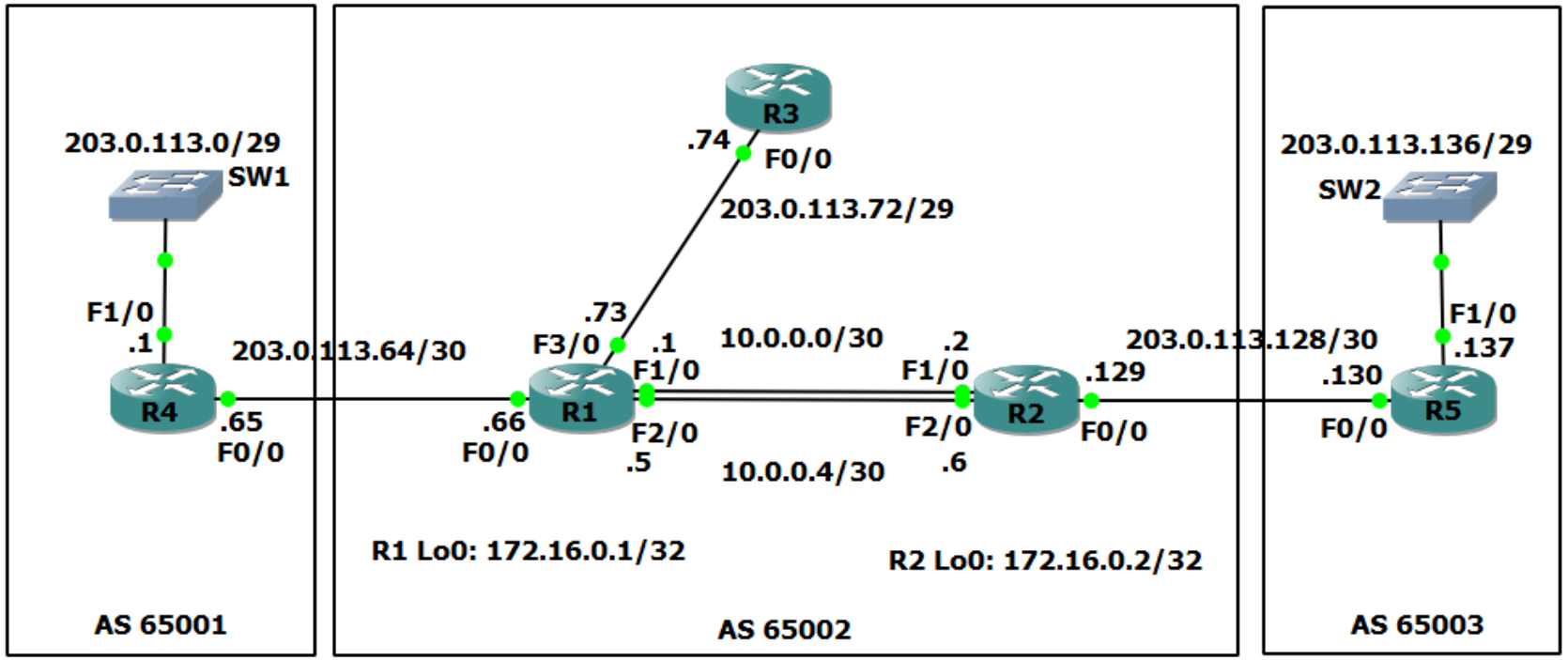
FLACKBOX
www.flackbox.com

```
R1(config)#router bgp 65002
R1(config-router)#network 203.0.113.64 mask 255.255.255.252
R1(config-router)#network 203.0.113.72 mask 255.255.255.248
```



The Network Command


```
R2(config)#router bgp 65002
R2(config-router)#network 203.0.113.128 mask 255.255.255.252
```



The Network Command

- The route in a network statement will only be advertised by BGP if there is an exact match in the routing table
- For example, if you have 203.0.113.0/30, 203.0.113.4/30, 203.0.113.8/30 etc. you cannot advertise them all with 203.0.113.0/24
- You can summarise by adding a matching null route in the routing table

```
ip route 203.0.113.0 255.255.255.0 null0
```

Null Route for BGP

```
Demo#sh ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route, H - NHRP, l - LISP
       + - replicated route, % - next hop override

Gateway of last resort is not set

      203.0.113.0/24 is variably subnetted, 7 subnets, 3 masks
S        203.0.113.0/24 is directly connected, Null0
C        203.0.113.0/30 is directly connected, FastEthernet0/0
L        203.0.113.1/32 is directly connected, FastEthernet0/0
C        203.0.113.4/30 is directly connected, FastEthernet1/0
L        203.0.113.5/32 is directly connected, FastEthernet1/0
C        203.0.113.8/30 is directly connected, FastEthernet2/0
L        203.0.113.9/32 is directly connected, FastEthernet2/0
```

Verification – show run | section bgp

```
R1#show run | section bgp
router bgp 65002
 bgp log-neighbor-changes
 network 203.0.113.64 mask 255.255.255.252
 network 203.0.113.72 mask 255.255.255.248
 neighbor 172.16.0.2 remote-as 65002
 neighbor 172.16.0.2 update-source Loopback0
 neighbor 203.0.113.65 remote-as 65001
```

Verification – show ip bgp

```
R1#show ip bgp
BGP table version is 8, local router ID is 172.16.0.1
Status codes: s suppressed, d damped, h history, * valid, > best, i - internal,
              r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,
              x best-external, a additional-path, c RIB-compressed,
Origin codes: i - IGP, e - EGP, ? - incomplete
RPKI validation codes: V valid, I invalid, N Not found

     Network          Next Hop            Metric LocPrf Weight Path
 *>  203.0.113.0/29   203.0.113.65             0             0 65001 i
 *>  203.0.113.64/30  0.0.0.0                  0         32768 i
 *>  203.0.113.72/29  0.0.0.0                  0         32768 i
 r>i 203.0.113.128/30 172.16.0.2               0    100      0 i
 *>i 203.0.113.136/29 203.0.113.130            0    100      0 65003 i
```

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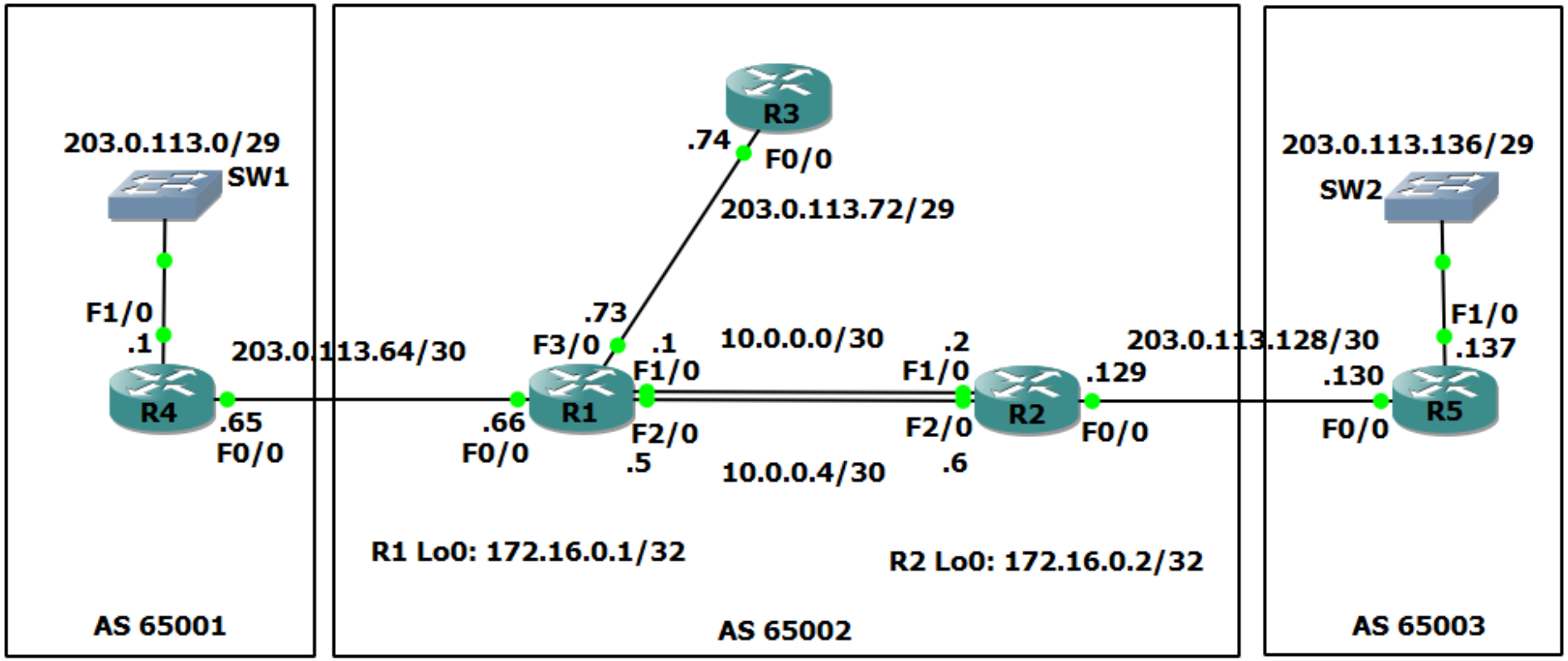
Verification – show ip bgp



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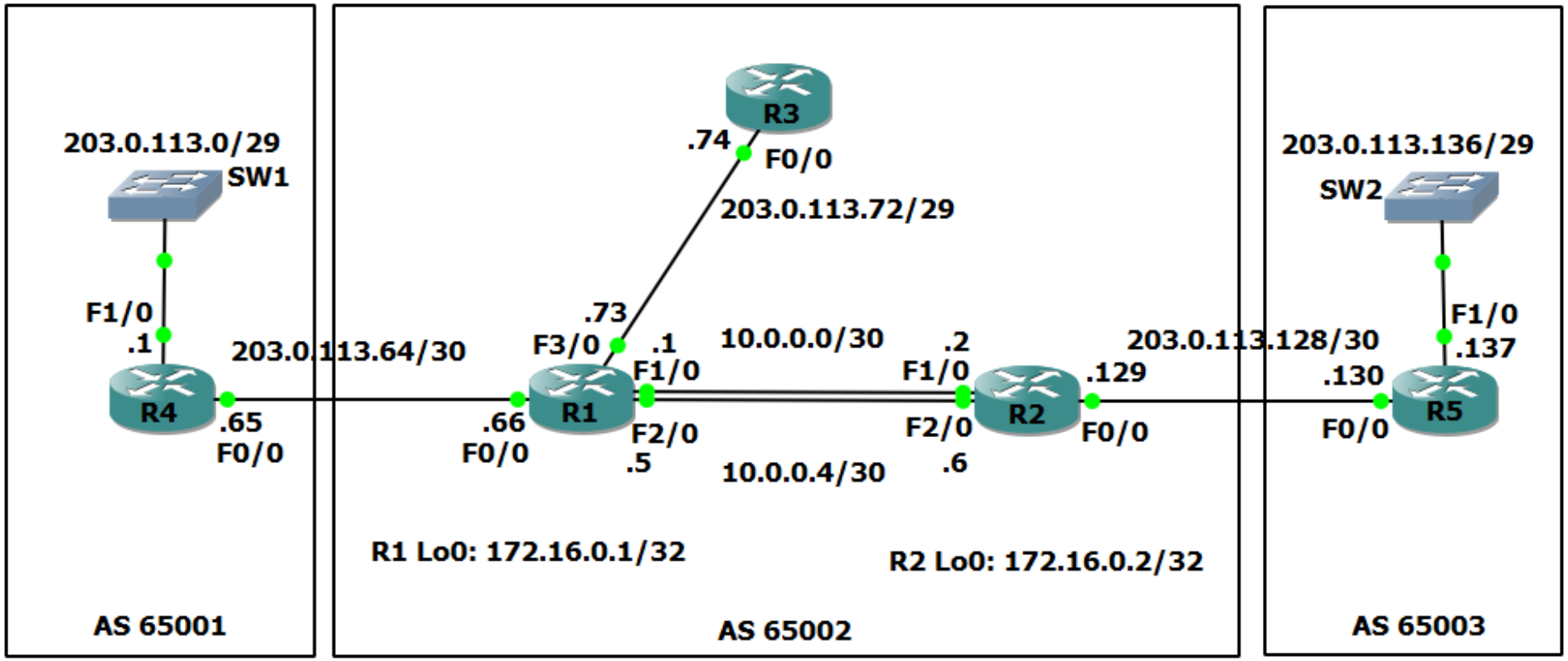

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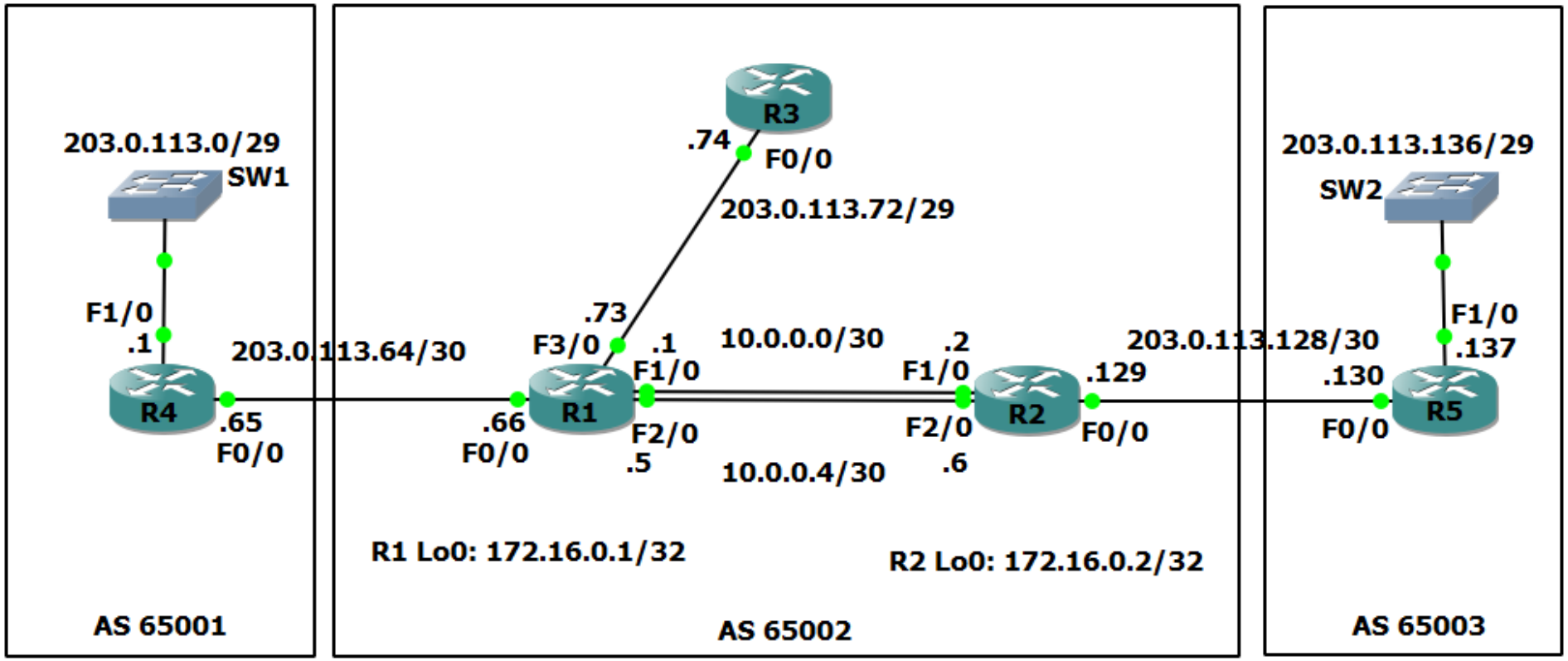
Verification – show ip bgp



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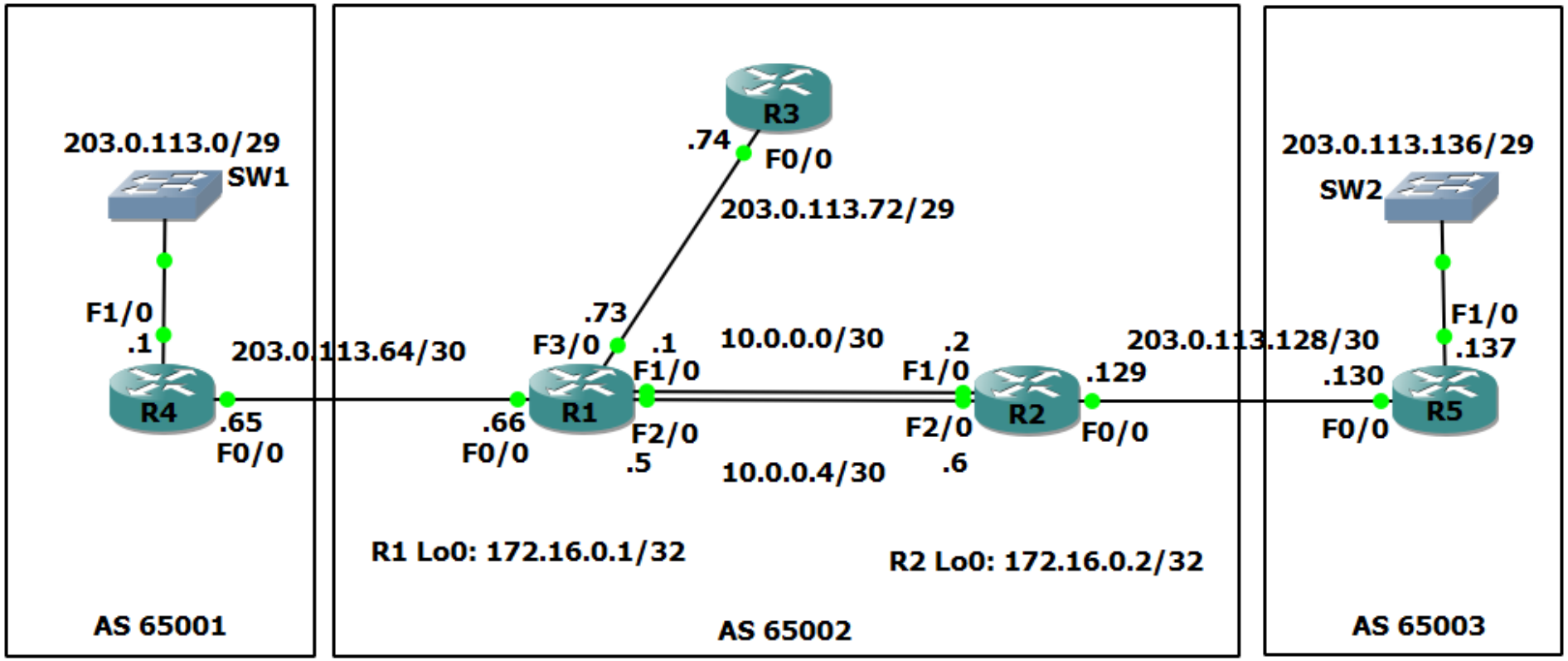
Verification – show ip bgp



Verification – show ip route

```
R1#show ip route

      10.0.0.0/8 is variably subnetted, 4 subnets, 2 masks
C        10.0.0.0/30 is directly connected, FastEthernet1/0
L        10.0.0.1/32 is directly connected, FastEthernet1/0
C        10.0.0.4/30 is directly connected, FastEthernet2/0
L        10.0.0.5/32 is directly connected, FastEthernet2/0
      172.16.0.0/32 is subnetted, 2 subnets
C        172.16.0.1 is directly connected, Loopback0
O        172.16.0.2 [110/2] via 10.0.0.6, 00:20:21, FastEthernet2/0
                    [110/2] via 10.0.0.2, 00:20:21, FastEthernet1/0
      203.0.113.0/24 is variably subnetted, 7 subnets, 3 masks
B        203.0.113.0/29 [20/0] via 203.0.113.65, 00:15:03
C        203.0.113.64/30 is directly connected, FastEthernet0/0
L        203.0.113.66/32 is directly connected, FastEthernet0/0
C        203.0.113.72/29 is directly connected, FastEthernet3/0
L        203.0.113.73/32 is directly connected, FastEthernet3/0
O        203.0.113.128/30 [110/2] via 10.0.0.6, 00:20:21, FastEthernet2/0
                          [110/2] via 10.0.0.2, 00:20:21, FastEthernet1/0
B        203.0.113.136/29 [200/0] via 203.0.113.130, 00:14:37
```