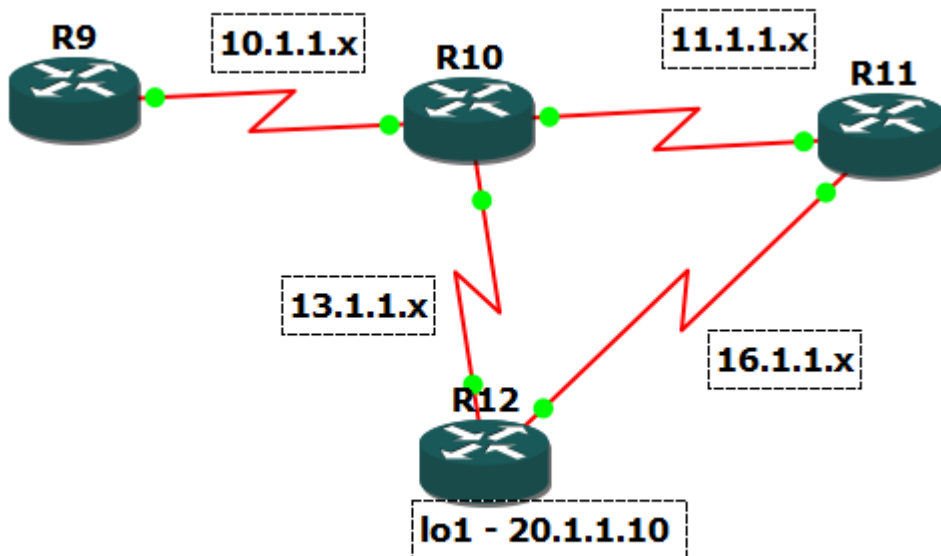


Static connected routes and the IGP's – a weird twist!

Until recently I had thought that only the network interfaces whose IP subnets fall under the purview of the network statements that we define under the routing protocol are put into the topology table and are therefore advertised to the neighboring routers running the same IGP. Folks, that's a myth. Static connected routes with the next hop as a interface acts and behaves the same way as any IP address with a interface would and if the subnet defined on the static route falls under the networks that we define for the routing protocol, well, then guess what .. the static route is picked up by the IGP and is propagated towards all its neighbors running the same protocol. Interesting as it may seem, this happens only with distance vector IGP's like EIGRP, RIP and IGRP. Link state IGP's do not do this with the static routes.

To see this in operation, lets take a look at the example network as shown in figure 1.



All the routers are running EIGRP on them and we have a static connected route defined with null 0 interface on R10 pointing towards R12's lo1 ip address of 20.1.1.x subnet .

```

r10#sh run | s eigrp
router eigrp 10
 network 10.1.1.0 0.0.0.255
 network 11.1.1.0 0.0.0.255
 network 13.1.1.0 0.0.0.255
 network 20.1.1.0 0.0.0.255
no auto-summary
r10#
r10#sh run | s ip route
ip route 20.1.1.0 255.255.255.0 Null0
r10#

```

This static connected route is picked up by EIGRP (note that we have NOT redistributed the route into EIGRP) and propagated throughout the network.

On R11 we see that EIGRP finds the static route advertised with a better feasible distance and hence adds it to the routing table.

As a result even if there is a path available to reach the loop back IP address 20.1.1.10 through 16.1.1.x subnet R11 chooses to go through R10, effectively creating a blackhole for all the traffic towards 20.1.1.x subnet.

```

r11#sh ip route | s 20.0.0.0
 20.0.0.0/24 is subnetted, 1 subnets
D    20.1.1.0 [90/2169856] via 11.1.1.1, 00:15:46, Serial0/0
r11#ping 20.1.1.10
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 20.1.1.10, timeout is 2 seconds:
U.U.U
Success rate is 0 percent (0/5)
r11#

```

This caught me off guard, hope you will better fare through the pitfall. Thanks for reading on, stay tuned for more articles.

Source: <http://ciscoworks.wordpress.com/2010/06/19/static-connected-routes-and-the-igp%E2%80%99s-%E2%80%93-a-weird-twist/>