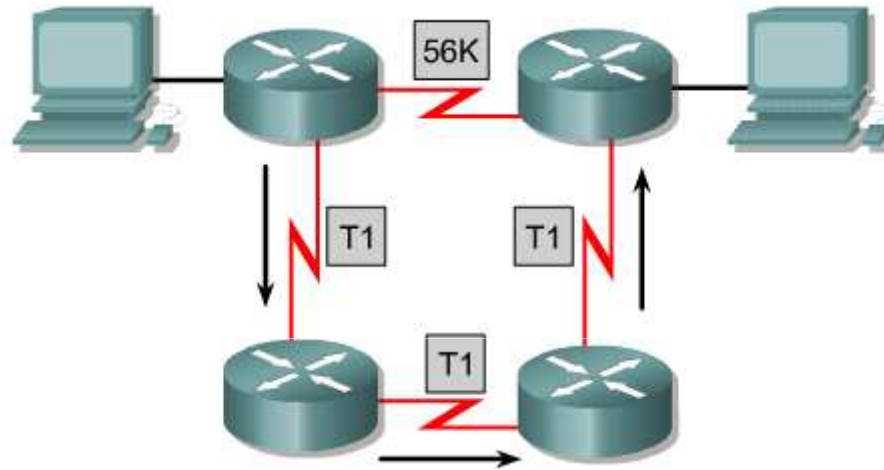




Dynamic Routing Protocols

Trần Tuấn Toàn

IGRP Composite Metric



- IGRP Metric được tính toán dựa trên:
 - Bandwidth
 - Delay
 - Load
 - Reliability



IGRP Metric Calculation

$$Metric = \left[K1 * Bandwidth + \left(\frac{K2 * Bandwidth}{256 - Load} \right) + K3 * Delay \right] * \left[\frac{K5}{Reliability + K4} \right]$$

- **Mặc định:**

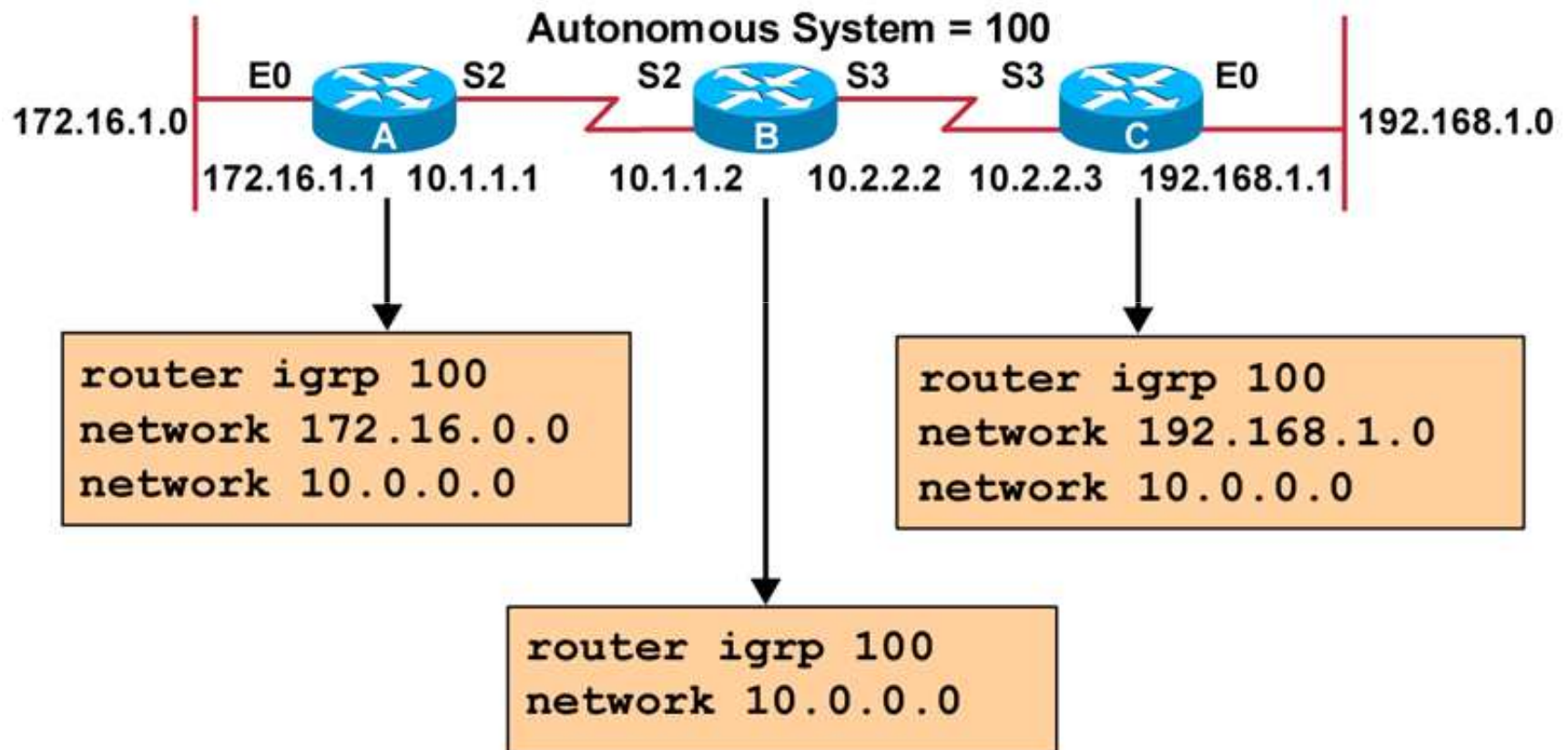
- $K1 = K3 = 1$
- $K2 = K4 = K5 = 0$
- \Rightarrow **Metric = Bandwidth + Delay**

$$Bandwidth = 10^7 / \text{smallest bandwidth}$$

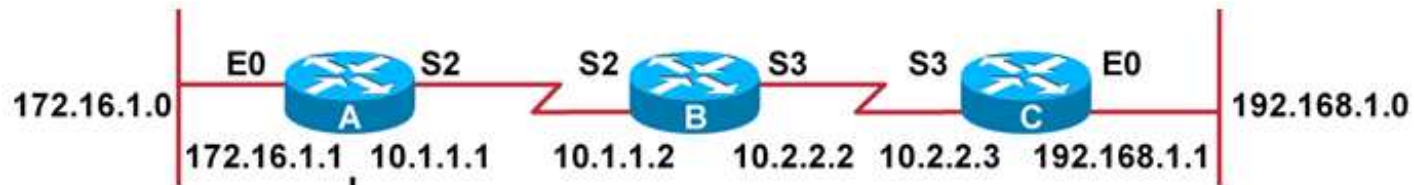
$$Delay = \sum Delay / 10$$

- **EIGRP Metric = 256 * IGRP Metric**

IGRP Configuration

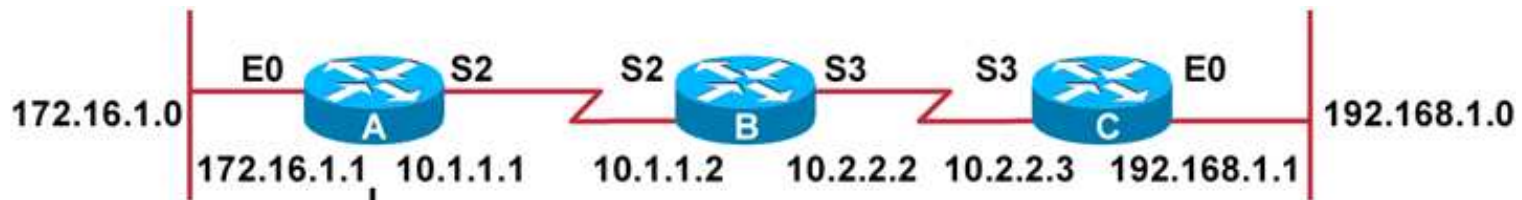


Verify the IGRP Configuration



```
RouterA#show ip protocols
Routing Protocol is "igrp 100"
  Sending updates every 90 seconds, next due in 21 seconds
  Invalid after 270 seconds, hold down 280, flushed after 630
  Outgoing update filter list for all interfaces is
  Incoming update filter list for all interfaces is
  Default networks flagged in outgoing updates
  Default networks accepted from incoming updates
  IGRP metric weight K1=1, K2=0, K3=1, K4=0, K5=0
  IGRP maximum hopcount 100
  IGRP maximum metric variance 1
  Redistributing: igrp 100
    Routing for Networks:
      10.0.0.0
      172.16.0.0
  Routing Information Sources:
    Gateway         Distance      Last Update
    10.1.1.2         100          00:01:01
  Distance: (default is 100)
```

Display the IP Routing table



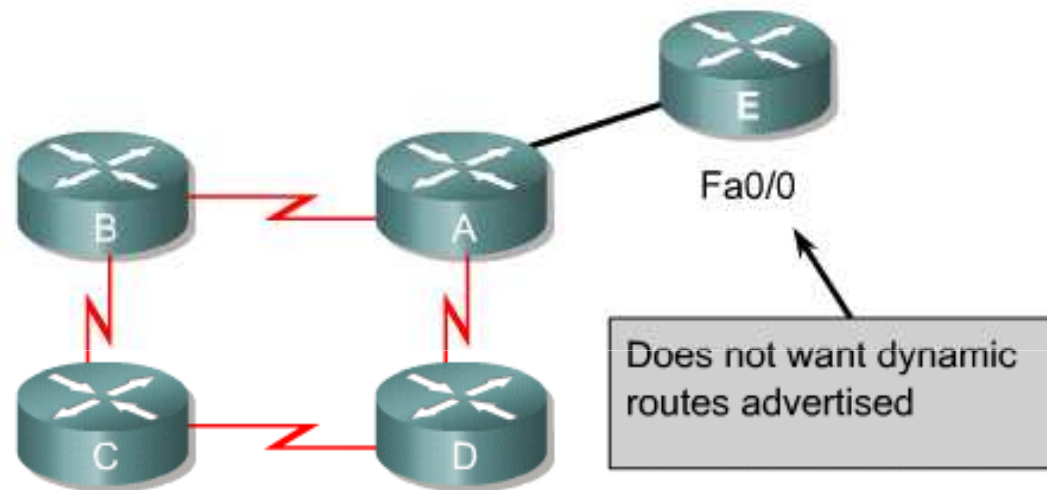
RouterA#show ip route

Codes: C - connected, S - static, I - IGRP, 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, E - EGP
i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, * - candidate default
U - per-user static route, o - ODR
T - traffic engineered route

Gateway of last resort is not set

172.16.0.0/24 is subnetted, 1 subnets
C 172.16.1.0 is directly connected, Ethernet0
10.0.0.0/24 is subnetted, 2 subnets
I 10.2.2.0 [100/90956] via 10.1.1.2, 00:00:23, Serial2
C 10.1.1.0 is directly connected, Serial2
I 192.168.1.0/24 [100/91056] via 10.1.1.2, 00:00:23, Serial2

Prevent Update through Interface



```
RouterE(config-router)#passive-interface Fa0/0
```