Selecting Best Route

3 criterias

(1) Longest prefix match
(2) Administrative Distance (AD)
(3) Metric

Longest Prefix Match

- The longest match to the destination address

E.g. Dest. addr = 192.168.12.1

Route 1 : 192.168.0.0 / 16 (255.255.0.0)
Host = 192.168.0.1 to 192.168.255.254

Route 2 : 192.168.0.0 / 24 (255.255.255.0)
Host = 192.168.0.1 to 192.168.0.254

∴ Best Route = 2

Administrative Distance (AD)

Same Route from multiple routing protocols ⟶ Best route (lowest AD)

Routing Protocols	Default AD
Connected	0
Static	1
Enhanced Interior Gateway Routing Protocol (EIGRP) - summary	5

External Border Gateway Protocol (BGP)	20
Internal EIGRP	90
IGRP	100
OSPF	110
Intermediate System-to-Intermediate System (IS-IS)	115
Routing Information Protocol (RIP)	120
Exterior Gateway Protocol (EGP)	140
On Demand Routing (ODR)	160
External EIGRP	170
Internal BGP	200
Unknown	255

AD - Trustworthiness of the route source
(Lower → Better)

Metric - Value assigned to the remote network
[Hop Count, Bandwidth, Delay, Load, Reliability)

Load Balancing

2 or more identical metrics → Packets will be forwarded to the same destination network using both paths equally

* OSPF supports equal load balancing.
* EIGRP supports unequal load balancing

Dynamic Routing Protocols

Interior Gateway Protocols		Exterior Gateway Protocols
Distance	Link-State	Path Vector

	Vector		
IPv4	RIPv2 EIGRP	OSPFv2 IS-IS	BGP-4
IPv6	RIPng EIGRPv6	OSPFv3 IS-IS v6	BGP-MP