

Module 3: Network Module 3 PT5

Network Layer - Layer 3 - Packets - Day 3

Review

3	Network	IPv4, IPv6, Routing, "Router Packet"
2	Data Link	MAC, Ethernet, NIC, Switch, Access Point

Vocabulary and Links

[Why we need both IP and MAC Address](#)

[Routing Technologies](#)

[Static vs Dynamic Routing & Routing Metrics](#)

[Static vs Dynamic](#)

Mr Darryl's Chart

128	64	32	16	8	4	2	1
128	192	224	240	248	252	254	255
2	4	8	16	32	64	128	x

Beyond 128 bits:

128 | 192 | 224 | 240 | 248 | 252 | 254 | 255

of bits (#number of devices within subnet assignment):

128 | 64 | 32 | 16 | 8 | 4 | 2 | 1

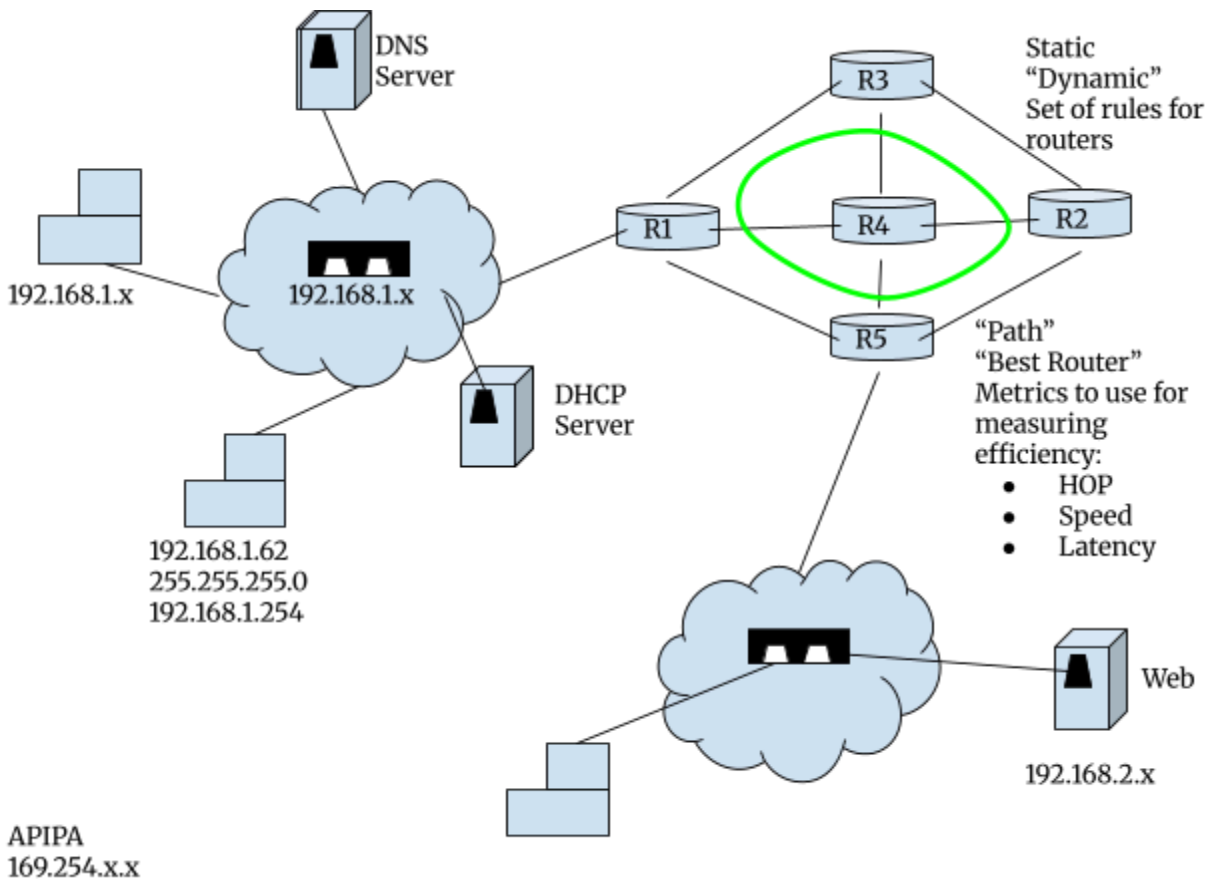
#of Subnet Blocks:

2 | 4 | 8 | 16 | 32 | 64 | 128 | x

128	192	224	240	248	252	254	255	IP Address
128	64	32	16	8	4	2	1	
/1	/2	/3	/4	/5	/6	/7	/8 (Default)	Subnet Mask

/9	/10	/11	/12	/13	/14	/15	/16 (Default)	
/17	/18	/19	/20	/21	/22	/23	/24 (Default)	
/25	/26	/27	/28	/29	/30	/31	/32 (Default)	

Routing Technologies



H/D (Hard Drive)

- Magnetic
- SSD
- Hybrid

Interface example: NIC - MAC address burned into the object.

- PATA
- SCII
- SATA
- NVME / M.2
- USB

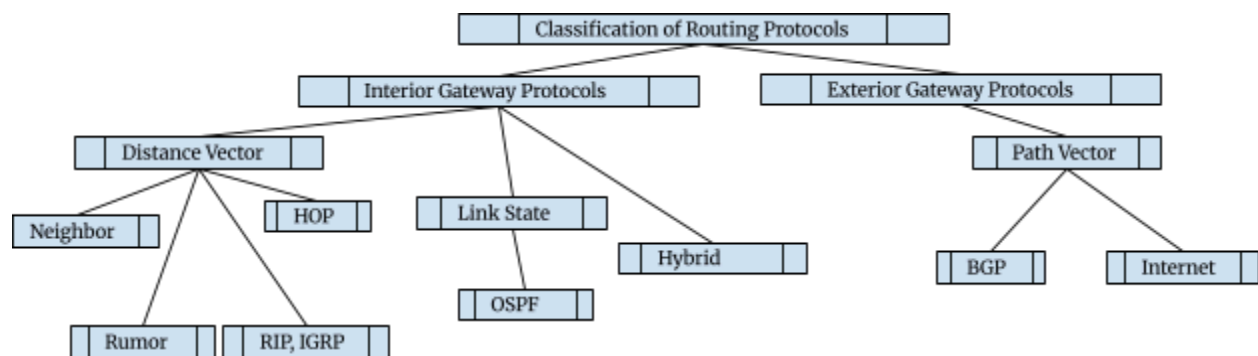
Subinterface

Dynamic Routing - practice of using algorithms (rules) to automatically determine the best path for data to take based on real-time network conditions.

- Allows routers to automatically adapt to changes in the network
- More flexible and resilient than static routers

Routing Metrics - values used by routers to determine the best path to a destination.

- Hop count
- Bandwidth/cost
- Traffic
- Delay/Latency
- MTU - Maximum transmission unit
- Reliability



Routing Protocols - Distance Vector, Link State, Hybrid and Exterior

Distance Vector - Talk to your neighbor to get information from other routers. "Neighbor", Rumor (2nd hand information). Examples: RIP, IGRP. Likes HOP

Link State - Send information and receive information. "Full" "Actual" Not Rumor. Protocol (OSPF, IS-IS). Likes Latency, HOP, Delay, Cost, Bandwidth, Reliability (Metrics). Needs a lot of CPU and RAM.

Hybrid - EIGRP

Exterior - BGP, Internet

4	Application = Payload	TCP - Reliable UDP - Unreliable
3	Network	Routing - Router IPv4, IPv6 - Packet
2	Data Link	MAC - Ethernet Switch, NIC, Frame, AP
1	Physical	Bits, Wires

