Networking

Routing Technologies

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Static vs. Dynamic Routing

- Static Routing
  - Routes packets through a network describe by fixed paths
- Dynamic Routing
  - Routes packets through different routes based on the current conditions of the communication circuits within a system

Dynamic Routing Protocols

- Exterior (EGP) or Interior (IGP)?

- Routing Internet Protocol (RIP)
  - Uses hop count to determine the most efficient route
- Open Shortest Path First (OSPF)
  - Uses an algorithm to find the best path
- Enhanced Interior Gateway Routing Protocol (EIGRP)
  - Uses an autonomous system describing the set of contiguous routers running the same protocols and sharing the same information
- Border Gateway Protocol (BGP)
  - The core routing protocol of the Internet. Uses an algorithm to determine the best route

Link state vs. distance vector vs. hybrid

- Link state protocols (also called shortest path first protocols) have routers create three separate tables:
  - one table tracks directly attached to neighbors
  - another table determines the topology of the entire internetwork
  - the third table is the actual routing table itself
  - OSPF is a link-state protocol

- Distance vector protocols determine the best path to a remote network by distance
  - RIP is a distance-vector protocol (both RIPv1 and v2)

- A hybrid protocol uses aspects of both link-state and distance vector protocols
  - EIGRP and BGP are hybrid protocols

Default Time to Live

- Default route
  - an IP configuration that establishes a forwarding rule for packets when no specific address of a next hop host is available via routing tables
- Time to live (TTL)
  - the number of hops a packet is can take before the data is discarded