- EIGRP -

15 min theory cheat sheet

-RISHABH DANGWAL-

- **Name:** Enhanced Interior Gateway Routing Protocol   **Standard**: Cisco Proprietary
- **Supported Protocols:** IP, IPX, Appletalk   **Transport Protocol**: IP
- **Routing Protocol Type**: Hybrid   **Algorithm**: DUAL
- **Internal AD:** 90   **External AD:** 170
- **Route Summarization:** Yes (auto by default)   **RTP:** Reliable Transport Protocol
- **EIGRP Load Balancing :** default 4, Max 6   **Hop Count**: default 100, max 255
- **Neighbour Discovery:** Auto (multicast/unicast)   **Multicast IP:** 224.0.0.10

Timers

- **Hello Timers:** 5 seconds (high speed links) ,60 seconds (wan links 1.5mb and lower)
- **Dead Timers:** 15 seconds (high speed links) ,180 seconds (wan links 1.5mb and lower)

Terms

- **Feasible Distance (FD):** Metric based on local route to destination metric
- **Reported Distance (RD):** Metric based on the neighbours metric to the destination metric
- **Successor :** Lowest FD to the destination
- **Feasible Successor (FS):** Backup to destination if feasibility condition is met
- **Feasibility Condition:** If a non-successor route's RD is less than the FD, the route is a FS

Route States

- Passive State: Route is reachable   **Active State:** Unreachable, no **FS** exits

EIGRP Protocol Messages

- **HELLO**,**UPDATE** (sent reliably via RTP),**QUERY** (sent reliably via RTP),**REPLY** (sent reliably via RTP), **ACK** (acknowledgement)

METRICS

- **K Metrics: (K1)**Bandwidth, **(K2)**Load, **(K3)**Delay, **(K4)**Reliability & **(K5)**MTU
- **Default Metric:** Metric = 256 * ((10^7 / lowest bandwidth in path) + Cumulative Delay)
- **Full K weights:** Metric = 256*((K1*Bw) + (K2*Bw)/(256-Load) + K3*Delay)*(K5/(Reliability + K4)))

Stuck in Active

During active state, when an EIGRP speaking router doesn't gets an EIGRP reply to a query within 3 min, the route will become stuck in active (SIA), neighbour relationship is reset and learning process will start again. In IOS version 12.2 or higher, after 90 seconds a second SIA message is sent as SIA Query which helps to prevent the route from going SIA in case the neighbour relationship is still up but a response was not received. To avoid it (*generally*), either use *Passive Interfaces, Stubs* or *Summarise* properly.

EIGRP Stub Options

- *Connected*: Advertise connected routes for interfaces matched with the network command
- *Summary*: Advertise auto-summarized or manually configured summary routes
- *Redistributed*: Advertise routes learned from configured redistribution
- *Receive-only*: No routes are advertised
- *Static*: Advertise static routes but must be used with the "redistribute static" command