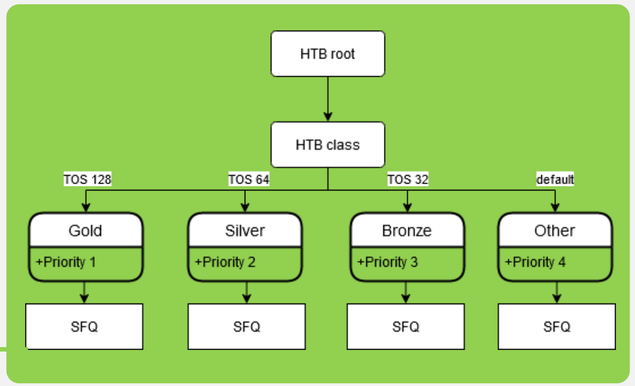
Team von Neumann

ETH zürich

- We split bronze and silver by their TOS fields as they have higher data-rate than the bandwidth of the egress links
- Per packet splitting is done as packet re-ordering does not matter for our network

- The controller computes all valid next-hops (neighbors which are not hosts) for the bronze and silver traffic
- For gold traffic , the controller computes the shortest path for routing

- Send 10 BFD packets to each router to receive them at sub-second rate
- Send S-S BFD packets for failure detection
- Sniff on all switches for BFD packets to detect link failures (no packet in 1.2 seconds -> link failure)
- Use threads for parallelization

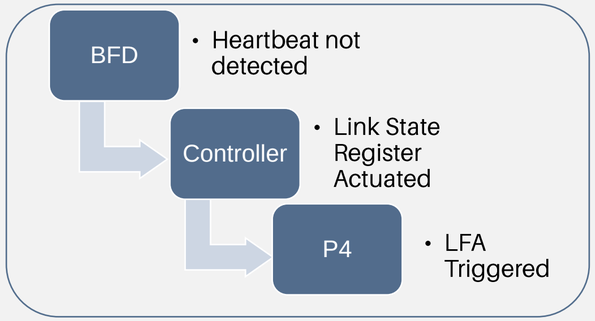


- Gold traffic is not being split
- We use shortest path routing + LFA for Gold traffic for increased packet preservation

Changed OSPF link weights so that travelling across the backbone has the same cost as going over the edges

- Triggers LFA's via the Controller
- Uses Dijkstra's Algorithm to calculate ideal next hop and LFA
- Switches between the two based on link failures via P4

Setup BFD for Router-Switch & Router-Router links
- static IP and ARP entries for switches



- Per packet splitting is done by assigning a new hash value for every packet
- As all the links are used, a portion of bronze and silver traffic always reach

Typical Gold Performance with LFAs enabled: 98% to 100%

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