Routers and Forwarders in a Router domain would likely have different amount of hardware Resources. The least capable switch should not hold the performance of the Router network domain to ransom. This write up lists some smart choices the forwarders and routers in the Router domain can make to most efficiently utilize the hardware forwarding capabilities of each node in the network.

In a Router domain, all forwarders and routers belonging to a single Router domain keep every other Forwarder or router updated of all the host routes for each host known and present in the network.
Algorithms to Optimally Use Hardware Forwarding Resources in a Router Domain

The above is done for every subnet in the Router domain. Each forwarder and router installs all the routes in the fast path forwarding database (for example hardware forwarding tables).

In this new scheme, all the routers and forwarders learn all the routes, build the topology table for all subnets, but the difference is the router/forwarder can choose to put subnet of the routes in the fast path database (hardware database). This would save of the hardware resources, without sacrificing the network performance in most cases. In the cases where network path chosen is potentially suboptimal a further set of enhancements comes and loosens the optimization to further improve the network performance without wasting the forwarding resource utilization.

Reference

Algorithms to Optimally Use Hardware Forwarding Resources in a Router Domain


Index Terms

Computer Science Networks

Key words

Routers

Forwarders

Router Domain

Host

Fast path Database