IETF Hackathon

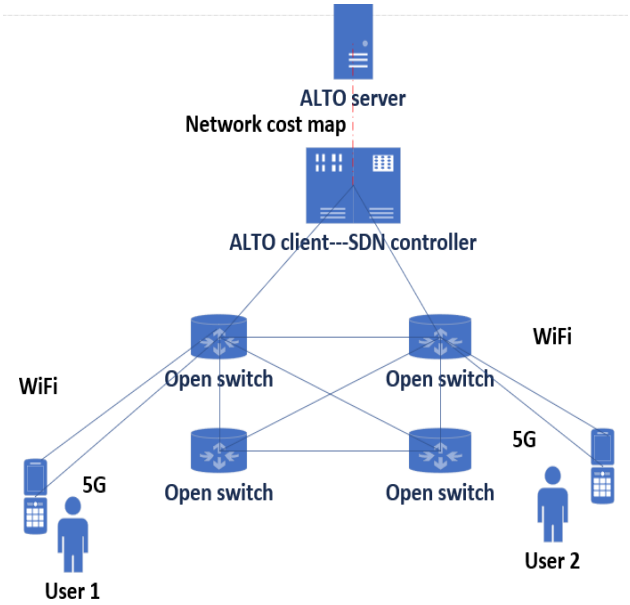
IETF 114
24 July 2022
Philadelphia, Pennsylvania
Remote

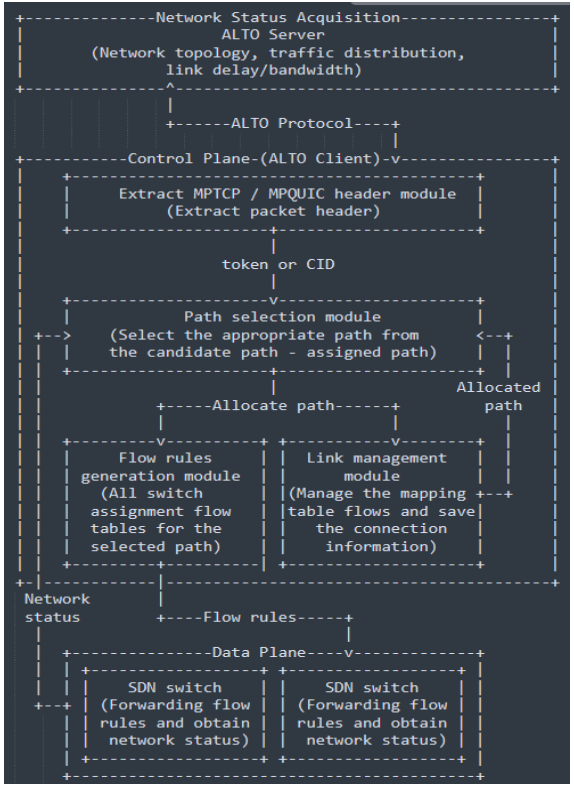
Hackathon Plan

- SDN controller helps host to select the path for traffic optimization in multipath
  - https://datatracker.ietf.org/doc/draft-xing-alto-sdn-controller-aware-mptcp-mpquic/
  - Default transmission control mode of MPTCP or MPQUIC in SDN only select one same path every time
- Controller extracts MPTCP or MPQUIC packet header to allocate MPTCP or MPQUIC packet to suitable transmission path according to the network cost indicators by ALTO

Hackathon Plan

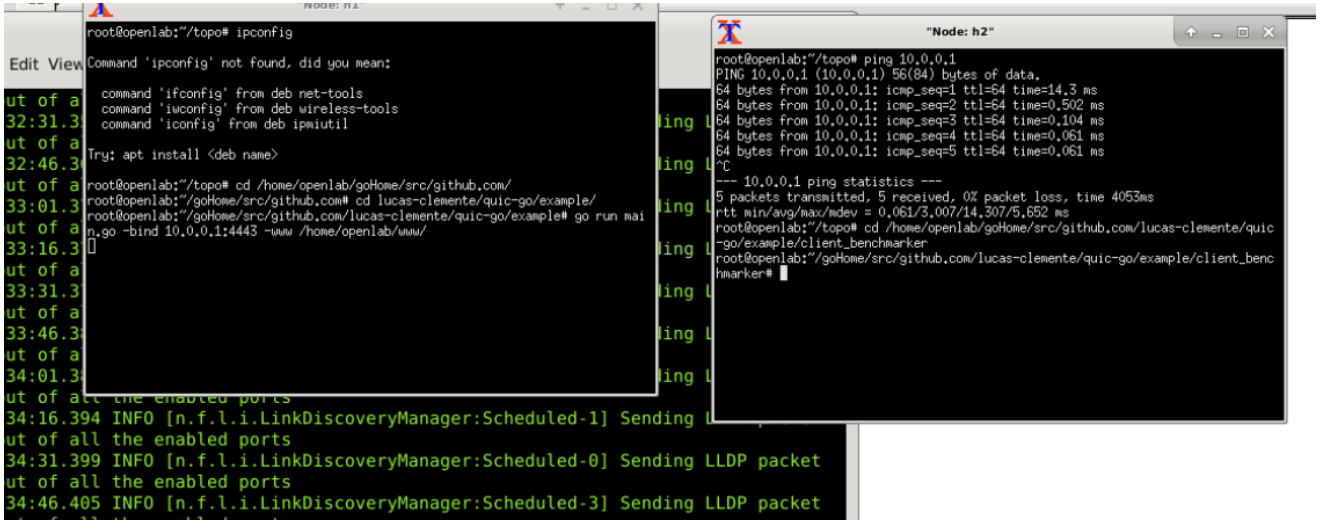
- Implemented SDN-based MPTCP-aware and MPQUIC-aware transmission control using ALTO





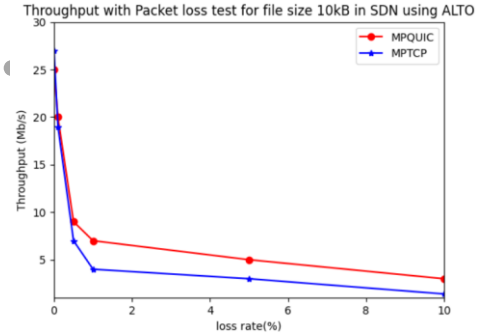
Hackathon Plan

- 1.SDN controller(ALTO client): OpenDaylight
- 2.SDN server and client: MPQUIC-go \ MPTCP

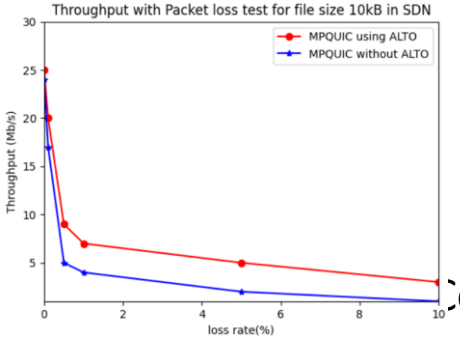


Hackathon Result

- The throughout of MPQUIC/MPTCP using ALTO is higher than without ALTO in SDN especially in poor network.
- QUIC's new characteristics: 0-RTT connections, Forward error correction, Adaptive congestion control …
- IPv6 new characteristics: simple header, No-NAT changed, Aggregation-routing …



DN-based MPTCP and M



Control

What we learned

- How to deploy ALTO in SDN.
- What is the different for ALTO deployment with SDN in IPv6 and IPv4.

Wrap Up

Conclusion:

The transmission control method proposed improves the throughput using ALTO by about 3 times compared to the default transmission control method.

References:

[1] MPQUIC source https://github.com/lucas-clemente/quic-go

[2] traffic measurement http://mahimahi.mit.edu/

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