CSC579: Learning-Based Scheduler for Multipath QUIC (Update)

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1 Update

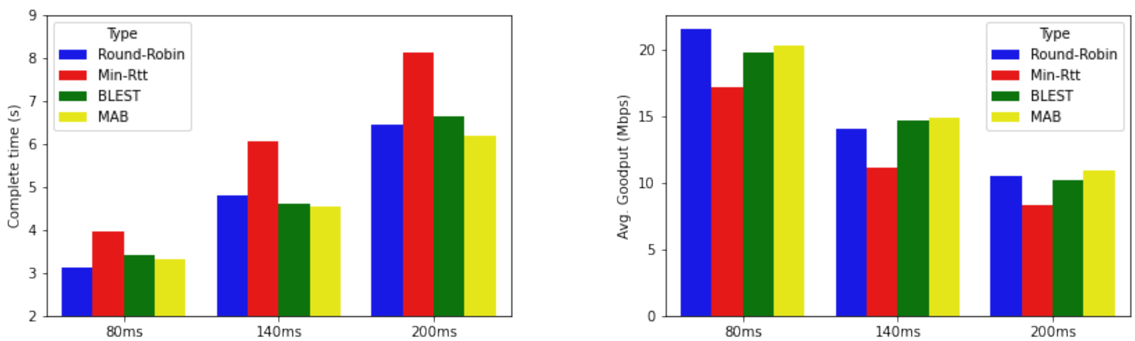
Based on the discussion in Brightspace, we further compared our algorithm with the BLEST algorithm. We implement the BLEST algorithm according to [1] in ns-3 and test it under the same scenarios that we implemented with MAB-based scheduler. The result are shown in next section.

2 Performance Analysis

We test for transmitting a file with 8 MB, which is using the bulk sending application. In the first scenario, we consider two-path have the same data rate and delay which is 25 Mbps with 80ms delay, 140ms delay and 200 ms delay. Figure 1a show the complete time. From the diagram, the blue one is Round-Robin, the red one is Min-RTT, the green one is BLEST, and the yellow one is our MAB scheduler. The round-robin performs better than min-RTT with the same data rate. We can see MAB performance is good compared to both min-RTT and round-robin. The goodput shown in figure 1b also present that MAB has a better performance in this scenario.

For the second scenario, we consider the transmission with different data rates and delays. For subflow 0, we fix the data rate and delay with 50 Mbps and 20 ms. and for subflow 1, we test with 10 Mbps 80ms delay, 10 Mbps 140ms, and 10Mbps, 200ms delay. From figure 2, we can see min-RTT perform better than round-robin, and our mab performs better in both complete time and goodput.

From the experiment in these two scenarios, we can see that round-robin or min-RTT can have good performance in one of them, which means Round-Robin does better with the same data rate and min-RTT do better with different data rate. They cannot maintain better performance in different scenarios, while our MAB can do better in both scenarios, which presents the adaptation of our scheduler.

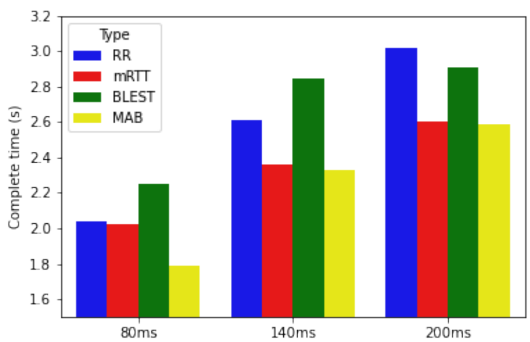


(a) Complete Time (b) Average Goodput

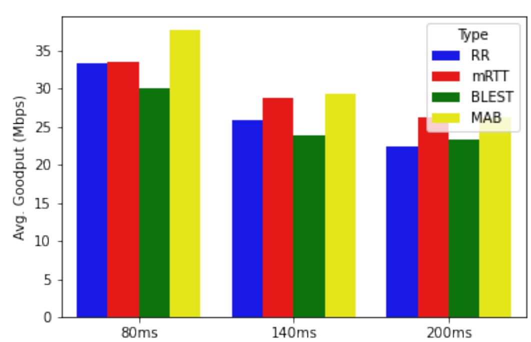
Figure 1: s0 and s1: 25Mbps/80ms to 25Mbps/200ms

References

[1] S. Ferlin, Ö. Alay, O. Mehani, and R. Boreli, "Blest: Blocking estimation-based mptcp scheduler for heterogeneous networks," in *2016 IFIP Networking Conference (IFIP Networking) and Workshops*. IEEE, 2016, pp. 431–439.



(a) Complete Time



(b) Average Goodput

Figure 2: s0: 50Mbps/20ms, s1: 10Mbps/80ms to 10Mbps/200ms