

An efficient multipath routing schema in multi-homing scenario base on protocol- oblivious forwarding

Pufang MA, Jiali YOU, Jinlin WANG

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Problems & Ideas

- **Problems of multipath routing schema in multi-homing scenario**
 - The current multi-homing routing schema could not dynamically adjust the packet in the process of forwarding to improve the stability and efficiency of transmission.
 - It is difficult to manage today's network and hard to deploy new protocols without updating the network devices.
- **Ideas: Dynamic multipath routing schema in multi-homing scenario**
 - We introduce the multiple destination addresses packet to allow the router to adjust the path of the packet in the process of forwarding, and the dynamic selection of path could improve the transmission efficiency and network resource utilization.
 - The maintaining of network dynamic status information supports the switch to dynamically select the forwarding port to bypass the links of poor ability.

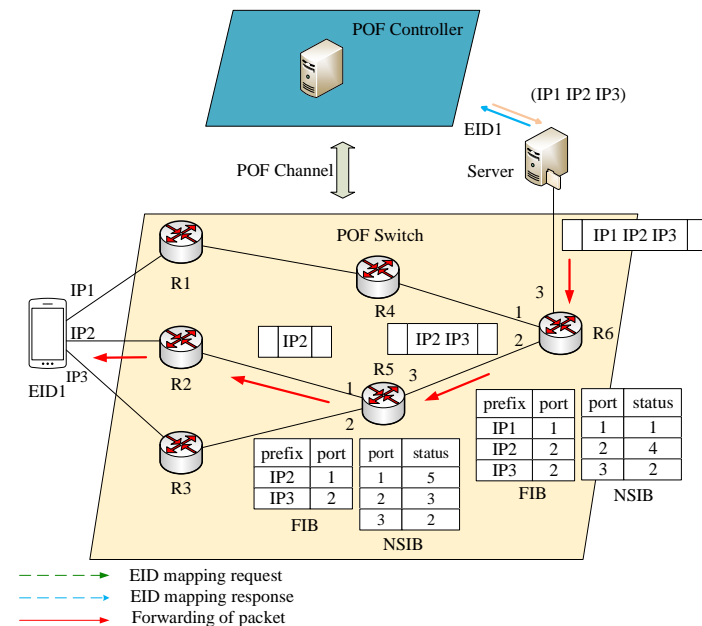


Fig. 1 Network routing architecture in Multi-homing scenario

Main Contributions

- **Transmission stability in heterogeneous paths**

The average throughput of our method improves 20% compared with MPTCP.

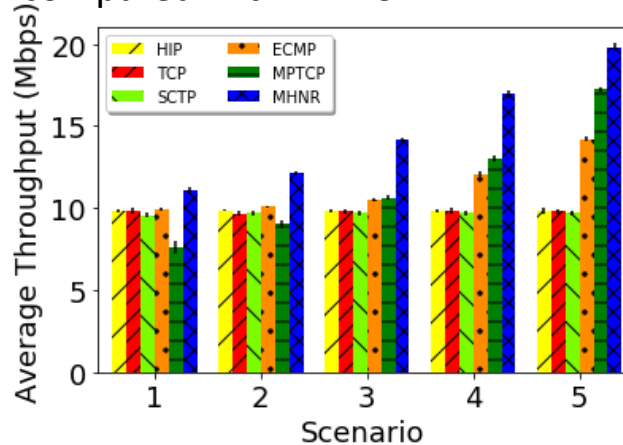


Fig. 2 Transmission performance in heterogeneous paths

- **Flow completion time in different network loads**

When the load of network is up to 70%, the FCT of MHNH decreases about 18% than MPTCP.

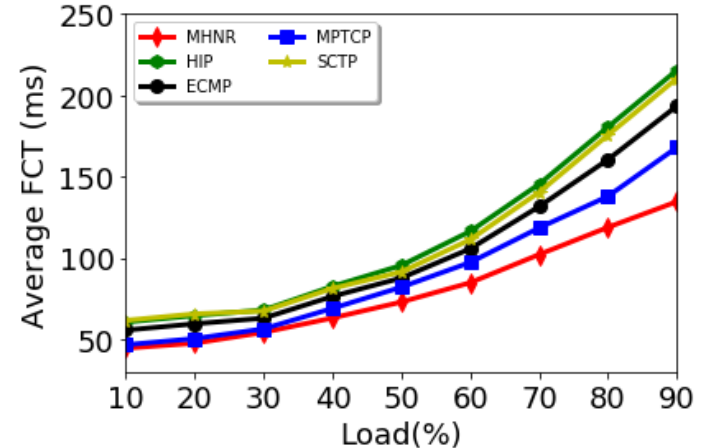


Fig. 3 FCT under different network loads

- **Transmission performances of different port selection methods**

The status selection could achieve higher throughput and more stable than random selection and polling selection.

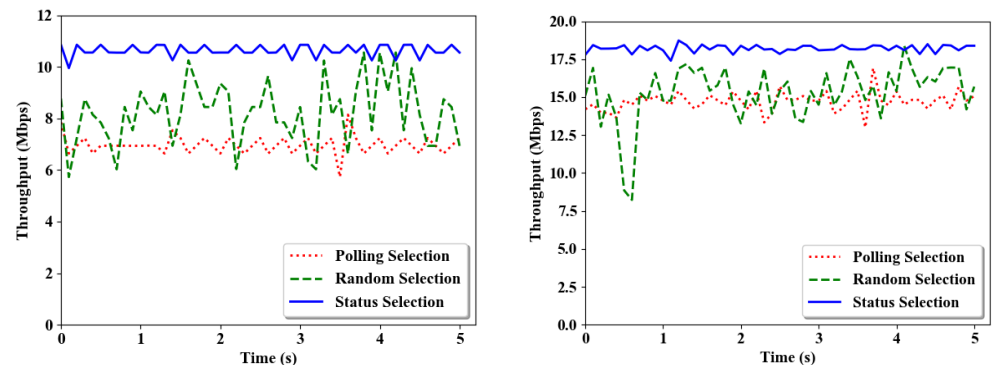


Fig. 4 Transmission stability of different port selections