

Comparison study of transmission control protocol and user datagram protocol behavior over multi-protocol label switching networks in case of failures.

ABSTRACT

Problem statement: In only a few years, Multi-Protocol Label Switching (MPLS) has evolved from an exotic technology to a mainstream tool used by service providers to create revenue-generating services. MPLS provides a high reliable Label Switched Path (LSP). MPLS failures may degrade the reliability of the MPLS networks. **Approach:** For that reason, many studies have been conducted to keep the high reliability and survivability of the MPLS networks. Unlike User Datagram Protocol (UDP), Transmission Control Protocol does not perform well in case of like-failure of MPLS networks because of its inability to distinguish packet loss due to link-failure. After the recovery time, TCP takes longer time than UDP to continue as it was before the failure. **Results:** In terms of packet loss, TCP performs better than UDP. However, the receiving rate of the TCP traffic is much worse than UDP traffic. A need for a mechanism to improve the behavior of TCP after a link failure is needed. This study focused on comparing the behavior of different types TCP as well as UDP traffic over MPLS networks in case of link, node or congestion failures. **Conclusion:** Although extensions of RSVP-TE protocol support fast recovery mechanism of MPLS networks, the behavior of TCP will be affected during recovery time much more than with UDP.

Keyword: MPLS; TCP; UDP; Failures