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Original Article

Analysis of Load Balancing for a New Approach to Support Traffic Engineering in IPv6 Networks

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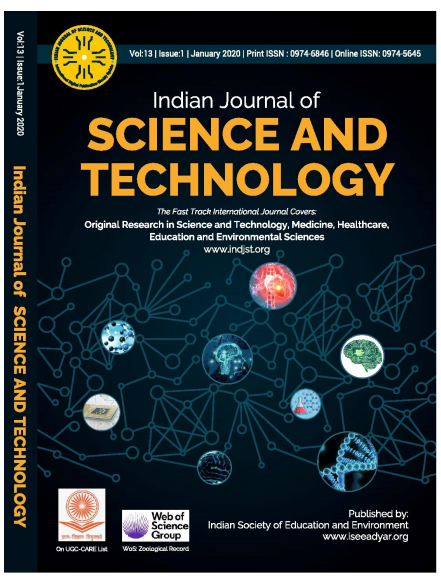

ABSTRACT

Objective: To propose a solution to support traffic engineering in IPv6 networks; such proposal is based on IPv6 capabilities. **Methods/Analysis**: Our proposal uses the IPv6 flow label field for packet switching in IPv6 networks and it also uses extended traffic engineering protocols like RSVP-TE and OSPFv3-TE. An advantage of our approach is that an MPLS transport network is not required to support traffic engineering. Our solution makes use of the tunneling concept,

which has a high potential to support traffic engineering because it allows separation of different traffic among service/users in different tunnels. In this paper, we describe the main characteristics of our proposal and also, we present the evaluation of load balancing, which is a typical situation in traffic engineering studies. We compare our approach with MPLS performance because it is a technology commonly used to support traffic engineering. **Findings/Results**: Results show that load balancing in our solution has similar performance than MPLS when the number of tunnels over links is optimized. **Improvements**: This evaluation proves that our layer-3 proposal has traffic engineering capabilities in IPv6 networks independently of lower layers.

Keywords: IPv6, IPv6 Flow Label, Load Balancing, Packet Switching, Traffic Engineering

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