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**Scheduling Inter-Datacenter Video Flows for Cost Efficiency**

**Abstract**

As video streaming applications are deployed on the cloud, cloud providers are charged by ISPs for inter-datacenter transfers under the dominant percentile-based charging models. In order to minimize the payment costs, existing works aim to keep the traffic on each link under the charging volume. However, these methods cannot fully utilize each link's available bandwidth capacity. As a solution, we propose an economical and deadline-driven video flow scheduling system, called EcoFlow. Considering that different video flows have different transmission deadlines, EcoFlow transmits videos in the order of their deadline tightness and postpones the deliveries of later-deadline videos to later time slots. The flows that are expected to miss their deadlines are divided into subflows to be rerouted to other under-utilized links. We also propose setting each link's initial charging volume to reduce the scheduling latency at the beginning of the charging period and discuss how to deal with issues such as the prediction errors of link available bandwidth and the lack of charging volume's prior knowledge. Furthermore, we designed implementation strategies for using EcoFlow in both centralized and distributed situations. Experimental results demonstrate that EcoFlow achieves lower bandwidth costs and higher video flow transmission rates when compared to existing methods