

光突发交换网络核心结点中数据突发缓存与调度的新策略

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摘要 提出一种采用光纤延迟线的数据突发缓存调度新策略, 这些光纤延迟线按照一定的结构设置在光突发交换网络的核心结点中. 利用光纤延迟线来缓存低优先级的数据突发, 而尽可能实时转发高优先级业务的数据突发; 再通过突发控制分组的“二次信令”调整网络中传送低优先级数据突发的波长信道预约. 通过仿真光突发交换网络系统, 研究了网络业务流量、数据突发长度和光纤延迟线缓存深度对系统数据突发的丢失率和端到端时延的影响. 结果表明, 所提出的调度策略可以有效地减小网络中突发竞争的概率和减小高优先级数据突发的丢失率及端到端时延, 从而向高优先级业务提供了端到端的QoS保证.

关键词 [光突发交换](#) [调度策略](#) [信令](#) [光纤延迟线](#) [数据突发](#) [突发控制分组](#)

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A new buffering and scheduling policy for data bursts at core nodes of OBS networks

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Abstract

The paper proposes a new buffering and scheduling policy for data bursts (DBs) with fiber delay lines (FDL), which is set at core nodes according to a specific configuration. The main idea is that when competing at a core node, the low-priority class data burst (DB) is buffered with FDL in order to forward the high-priority DB as early as possible, and the reserved wavelength channel for the low-priority DB will be re-assigned to the contending high-priority DB by sending a new burst control packet (BCP), called the second BCP signaling, from the node to the downstream nodes. The effects of network traffic loads, the average length of DBs and the size of FDL buffer on DB's loss probability and end-to-end delay are studied by an OBS network system simulation. Results show that the proposed scheduling policy can reduce obviously the DB loss probability and end-to-end delay for high-priority class DB. So it can improve significantly the end-to-end QoS for high-priority DBs.

Key words [optical burst switching](#) [scheduling policy](#) [fiber delay line](#) [data burst](#) [burst control packet](#)

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