论文

OBS网络中基于优先级与突发包分割的偏射路由机制

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摘要：

为了有效地降低突发包的丢失率和保证OBS网络中不同优先级业务的服务质量,提出了一种基于优先级与突发包分割的偏射路由机制.当冲突发生时,首先基于突发包的优先级进行"竞争突发包头部分割或者原突发包尾部分割"处理;无冲突部分直接在事先预留的输出数据信道上处理,冲突部分的分割突发包根据参数可调的偏射路由机制被偏射到最佳偏射路径上.仿真结果表明,该机制能够有效地降低整个网络的丢包率和端到端的延时,并且得到高优先级突发包的丢失率和延时低于低优先级突发包.由此可知,基于优先级与突发包分割的偏射路由机制能够有效地解决突发包的冲突问题,从而提高整个OBS网络的性能.

关键词：   光通信   光突发交换   冲突解决   突发包分割   偏射路由   服务质量

A Deflection Routing Mechanism Based on Priority and Burst Segmentation in Optical Burst Switching Networks

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Abstract:

To effectively reduce the packet loss probability (PLP) and guarantee quality of service (QoS) of different priority bursts, a deflection routing mechanism is proposed based on priority and burst segmentation in optical burst switching networks. In the core node, contention is resolved through incorporating prioritized burst segmentation with deflection routing scheme. The burst segmentation scheme allows the head of contending bursts or the tail of original bursts to be segmented. The segmented burst is scheduled on the optimum deflection path by the parameter-tunable deflection routing scheme. An analytical model is proposed to evaluate the contention resolution scheme through calculating PLP and the normalized end-to-end delay. Results show that high-priority bursts have significantly lower PLP and the delay than low-priority. So the deflection routing mechanism based on priority and burst segmentation can effectively resolve the issue of the burst contention, and improve the performance of OBS networks.

Keywords: Optical communications   Optical Burst Switching (OBS)   Contention resolution   Burst segmentation   Deflection routing   Quality of Service (QoS)

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