

Thesis Title	A Multicast Output-Shared Buffer ATM Switch with RQM Management
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Abstract

Data communication in ATM network by using an output shared buffer ATM switch (OSB) can decrease cell loss ratio and delay time. Nevertheless, the multicast cell is not considered and the OSB switch does not have component, which can support multicast cell. Consequently, this thesis proposes a multicast function for the OSB switch. The multicast function consists of Multicast Shared Buffer, Copy circuit, Multicast Control Table and Multicast Cell Counter. Moreover, Recycling Queue Management (RQM) is used for queue management in each output port. The operation of multicast function can be explained that when the switch receives the incoming multicast cell, the set up cell consisting of output ports are translated to vector data and stored in Multicast Control Table. Subsequently, the multicast cell is stored in Multicast Shared Buffer. Copy circuit uses vector data stored in Multicast Control Table for header queue building. The header queue is sent to the assigned output port and stored in RQM. The multicast cell in the Multicast Shared Buffer is sent to the output port, follows the assigned queue in RQM.

In simulation, the proposed switch is compared with the Output Buffer ATM switch and Shared Buffer ATM switch by cell loss and delay time evaluation. The conditions are constant traffic, buffer size is 3504 cells, total cells are 5840 cells and including 2928 multicast cells, and the span out ratio is 4 ports. The proposed switch has cell loss ratio less than the output

buffer ATM switch 999 cells and has delay time less than the shared buffer ATM switch about 2 times.

Keywords : Multicast ATM switch / Output Shared Buffer / Recycling Queue Management