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Distributed Control of ATM Networks

Report on WP4.3: Switch Control Protocol

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Abstract

A previous report [APM.1525.01] described the design of a low level switch control protocol suitable for use in the DCAN project. A fundamental requirement of a signalling system is a mechanism which permits a signalling association between a client and the network to be established. The process of establishing a signalling channel is termed metasignalling. An extension of the metasignalling concept can be used to control a switch, using a simple, single-cell based protocol. The protocol, named MAST, has also been submitted to the RBB (residential broadband) group of the ATM Forum for consideration for use in low cost ATM equipment.

This document reports on an implementation of MAST, and describes experience resulting from its operational use. It also considers the needs arising in a second scenario in which we envisage the need for management of switching equipment to be removed from the network elements, namely its use in more sophisticated switches such as are likely to be found in a second generation ATM LAN. Since such networks will in practice require sophisticated algorithms to manage the delivery of Quality of Service (QoS) to the applications using the network, it is natural to consider the requirements that this will make of the switch control protocol.

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