Recovery Schemes in MPLS Networks

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Abstract

A MultiProtocol Label Switching (MPLS) network includes many kinds of resources, each with different reliability. To provide reliable services MPLS makes use of a set of procedures (detection, notification and fault recovery) which seek to ensure appropriate protection for the traffic carried in the Label Switched Paths (LSPs). When a fault happens in the primary LSP, the recovery scheme must re-direct the traffic to a recovery path (the protection LSP or recovery LSP) which bypasses the fault.

The two basic recovery models used to redirect traffic are \textit{re-routing} (the recovery path is signaled only upon fault detection in the active path) and \textit{protection switching} (the protection path is established before any failure detection).

In this work we present a survey of several fault recovery schemes found in literature, pointing out the underlying operational research problems. The reviewed recovery mechanisms are then classified according to a set of characteristics considered relevant.