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Routing failure handling using enhanced protection cycles

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Abstract

Failure handling in a network is an significant phase in network protection. The Failure Handling during routing using intermediate path selection method helps in finding efficient and best paths during the failure of a particular used route. The protection initiators and safeguard terminators are distinct, and these points define the beginning and end of the sub paths for data communication. These are called the e-cycle paths. The system is then monitored for failures. When a failure occurs, then analysis is made and the correct e-cycles are selected for the transmit of data.

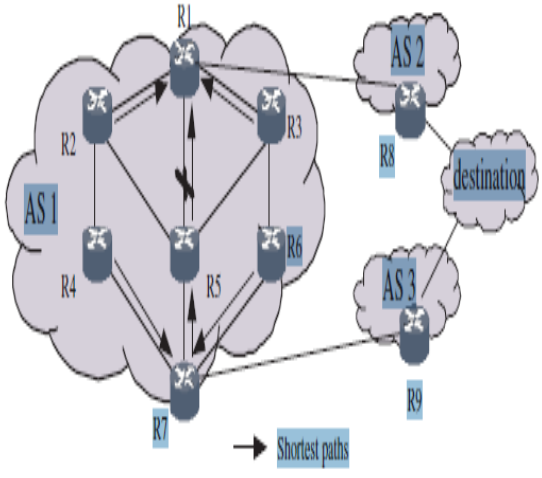
Keywords Failure handling; e-cycle; protection initiators; protection terminators

1. Introduction

Considering a large computer network, routing failures become a common scenario. If the network does not recover from the failures, it will lead to a lot of lost packets and hence require the need for retransmission of these lost packets. Hence, an efficient mechanism is required for recovering from these failures. We also need a fast rerouting algorithm, that does not take much time when traversing through the recovery path. Moreover, different type of routing protocols are used in the inter-domain and intra-domains, hence our protocol must be made suitable for handling both types of failures. We propose a unified fast rerouting solution [7], that works well on both inter and intra domains of a network. An identifier based, fast forwarding scheme is used, hence this scheme provides us better routing protection during failures, and helps in incremental deployment. Our approach uses an enhanced protection cycle, also called an e-cycle, to help provide recovery routes for broadcast of data.

Not-via

Not-via provides the best performance of failure coverage among various IP fast reroute (IP-FRR) solutions in intra-domain routing. If link R1-R5 fails and node protection for R1 will be activated to protect the link, R5 will encapsulate the packets with a new IP header, using a special not-via address as the destination address, such that these packets will **not** be routed **via** R1. Unfortunately, if the original destination of these packets is R1, it is impossible to find a rerouting path to R1 not via R1 by node protection. The problem can be solved by applying the link protection scheme. That is, we can use not-via address to forward the packets **not via** link R1-R5.



P Cycle