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PROCEDURE TO REPAIR CLUSTERED ROADS IN FAILURE AND ARP-PATH/ALL-PATH NETWORK BRIDGE

Patent
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Code

TIC_UAH_07

Application areas

- Information and Communication Technologies

Type of Collaboration

- Technical cooperation
- Commercial agreement and Technical assistance
- License agreement

Main Researchers

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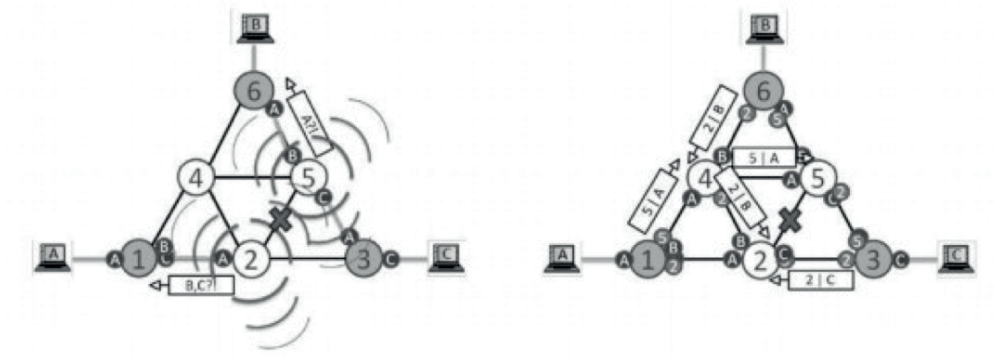

ABSTRACT

The main drawback of the path establishment protocols based on the instant scanning of the network, that are called Fast-Path, ARP-Path and generically All-Path, occurs when a link or bridge falls.
If that happens when the link is going to be used it is necessary to individually repair each existing path, which requires to spread a frame across the entire network (and process it especially on the bridges).
One of the ways that requires to be repaired. This is a significant process load for the bridges especially when the number of simultaneous active connections on a link is very high (1 Gbps or 10 Gbps).
The present invention achieves a group repair in the paths in fault. This repair is done in a jointly and proactively way. When the failure in the link is detected, it is sent with the joint repair plot of all (or part of) the terminals directions (hosts) associated with the output port link when it failed.
By mean of a broadcast message to the management of common multicast group to all the All-Path bridges and with an All-Path protocol identifier. The message is forwarded to all bridges in the network and then processed in each of the All-Path bridges. That process is responded issuing an unicast message from each bridge border of the terminal (host) for the direction or directions to repair.
This message is directed with destiny the intermediate bridge that originated the broadcast message and connected to the link in failure. The message goes through each bridge and produces the learning in that bridge the terminal direction destination. Thus repairing the road to destiny.
This unicast message may be a special Unicast Path Reply message or a standard ARP Reply message.

ADVANTAGES AND INNOVATIONS

The main innovative aspect of the patent is the clustered joint repair of all paths used by a link when it fails, which resolves the main limit scalability of the protocol.
It is computationally less expensive because of:

- Dramatically reduce the burden of repair messages broadcast on the network and the processing at intermediate switches.
- Not required to distribute across all network (and process together bridges).
- The repair is performed in a jointly way by destination switch and not individually.