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ESTABLISHMENT, REPAIR AND DELATING PROCEDURE OF DISJOINT MULTIPLE PATHS, REDIRECTION OF FRAMES AND NETWORK BRIDGE. MULTIPLE DISJOINT PATHS (MDP).

Patent

ES-2638292

Code

TIC_UAH_27

Application areas

- Information and Communication Technologies



Type of Collaboration

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

Main Researchers

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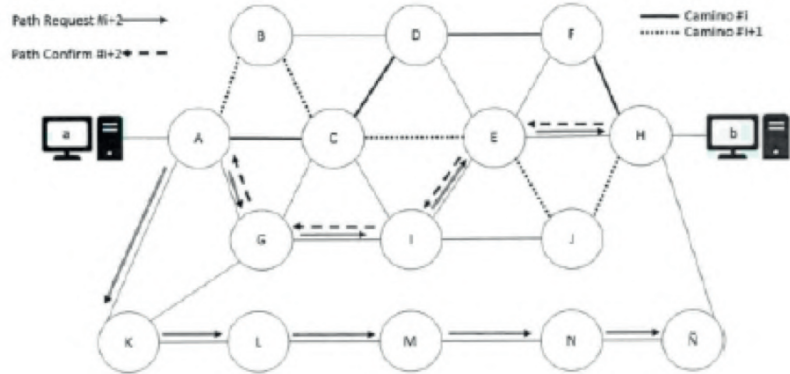
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ABSTRACT

This invention describes mechanisms that sequentially and completely explore a network of transparent bridges to discover and establish multiple bidirectional paths, disjoint in links only or disjoint in nodes and links, between pairs of bridges bordering the network, as well as a network bridge that implements these mechanisms.

The origin frontier bridge sends multicast road establishment packages to the destination bridge, that propagate until reaching the destination bridge, which confirms to the frontier bridge each disjunct road establishment by means of a message from destination to origin, that leaves identified and established the bidirectional path in each bridge.

The roads are automatically deleted when a certain time passes without confirmation, without being used or when sending the border bridge an explicit delete packet of a road or all roads. The number of created paths is parameterizable and both ends communicate to each other the number of output links available, in order to know the maximum number of disjoint paths feasible.

These multiple disjoint paths created by border bridges can be used by an entity or protocol for load sharing, reliability enhancement or other purposes.

The present technology has special application for Ethernet switches for enterprise networks and data centers.

ADVANTAGES AND INNOVATIONS

Unlike Shortest Path Bridging, Multiple Disjoint Paths does not require knowledge of the topology or any calculation against the extremely complex SPB (multiple symmetric minimum paths between nodes, to calculate disjoint routes in the network graph). In MDP, the selected paths are the fastest of the disjoint ones, so they are chosen according to the load, contrary to Shortest Path Bridging, which calculates them without having the real load in mind.

Unlike the protocols derived from AODV and DSR, MDP performs the automatic discarding, without inspection, of the many packages with redundant routes that arrive at the bridges.

The main advantages of this technology are simplicity, scalability and adaptation to real network traffic by selecting the fastest routes, without route calculations.

The protocol can also be used to establish multiple paths between terminals if desired, increasing the state stored in the switches.