MULTICAST-A DISTRIBUTED NETWORK APPLICATION

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Abstract

Computers have revolutionized the development of Industries. It has unique property of automation. Efforts are on to maximize the independent activities within and across the entire organization by using *Digital Control system*. Multicast routing is to find a routing tree, which is routed from the source and contains all the destinations. The distributed multicast routing protocol under constraints is one of the software, which requires simultaneous transmission of the messages from a source to a group of destinations within specified time delay. The principal goal of multicast routing is to minimize network cost. A tree with minimal overall cost is called a Steiner tree. Finding such tree is the problem of NP complete.

Many inexpensive heuristic algorithms have been proposed for the Steiner tree problem. However, most of the proposed algorithms are centralized in nature. Centralized algorithms require a central node to be responsible for computing the tree and this central node must have full knowledge about the global network. But, this is not practical in large networks. Therefore, existing distributed algorithms suffer from the drawback such as heavy communications cost, long connections setup time, and poor quality of the produced routing trees. So far, little work has been done on finding delay-bounded Steiner tree in a distributed manner. The study reveals that the drawbacks mentioned above have been significantly reduced.

Keywords: Distributed Control System, Multicast Routing, Steiner's tree & Jia's Algorithm.