

A Hybrid Algorithm for SATELLITE-TERRESTRIAL Network

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A number of routing algorithms have already been developed to transmit packets in shortest possible time from the sender to receiver. Still, a high growth of internet traffic is causing network performance always lagging behind. The concept of integrating satellite and terrestrial network has come up with newer and better solution. However, routing algorithms, so far developed are still considering only its surroundings in creating the routing table. The most popular and most used routing algorithms which all are static routing table generator are being created not taking into consideration the global phenomena of the whole route. There already exist a good number of congestion control algorithms for end-to-end congestion control. It is to be noted that congestion control is not the same as routing. While it is true that a congested link could be assigned a large edge weight by the route propagation protocol, and as a consequence, routers would route around it, “routing around” a congested link does not solve the congestion problem.

In this paper, a new approach in developing a routing algorithm for hybrid Satellite-Terrestrial Network has been developed. In this scheme, the whole earth is covered by a set of satellites that collect information from selected router, generates a routing table in the satellite and distributes the new routing table to each of the selected router. As we know that only 66 LEO satellite can cover whole earth as if every time and every place in the earth get a LEO satellite over them though the LEO satellites are moving around the earth. So we segmented whole world in 66 subnets with 66 global routers. These 66 subnets cover each and every part of the world. In every subnet there may be different number of local routers. All the local routers are connected to the global router through the existing configuration. All the global routers are connected to the satellite. The topology in the subnet is the existing topology that is star topology and the global router to satellite topology is star also.

In this paper, our proposed algorithm takes into consideration the global impact of traffic that causes the overall delay of a packet to reach its destination. For the purpose of collecting information from a wider area of earth, the data collecting capacity of satellite have been employed. To generate an optimal table, emphasis has been given to make a trade-off between local maxima vs global minima or local minima vs global maxima.

A simulation is performed to study the performance of this hybrid network with respect to satellite only and terrestrial only version. It is found that the combination of satellite – terrestrial information may come up with a better routing table compared to the existing concepts of generation of routing table. In this simulation work we consider the above parameters to compare the result with the existing system. It has been found that the proposed system will give much better result than the existing system.