Analysis of Shortest Path Routing for Large

Multi-Hop Wireless Networks

Abstract:

Routing in the Internet is based on the hop-by-hop shortest-path paradigm. Finding the shortest-path does not place a heavy processing burden on the routers and usually requires at most one entry per destination network in every router.

As it minimizes the bandwidth consumed by every packet, it does not guarantee full utilization of the network resources under high traffic loads. When the network load is not uniformly distributed, some of the routers introduce an excessive delay while others are underutilized.

For a given total offered load on the network, our analysis shows that the nodal load at each node is a function of the node’s Voronoi cell, the node’s location in the network, and the traffic pattern specified by the source and destination randomness and straight line routing. In the asymptotic regime, we show that each node’s probability that the node serves a packet arriving to the network approaches the products of half the length of the Voronoi cell perimeter and the load density function that a packet goes through the node’s location.

**EXISTING SYSTEM**

* Generally the existing routing schemes like virtual routing take the decisions based on the load imposed on every network link.
* When a particular link, or an area, becomes congested, some of the routes are modified. Alternate routes are found for every source-destination pair and the load is distributed between them.
* However, due to the complexity of these schemes, their increased processing burden, and their considerable deviation from the conventional, they cannot be adopted over internet.
* It does not guarantee full utilization of the network resources under high traffic loads.
* When virtual-circuit routing is used, only one or two routes are usually established between every two routers. Therefore, it is not possible to react to changes in the traffic pattern

**Demerits of existing system:**

* The source cannot choose the optimal path
* Find only one or two paths
* Memory burden is on all nodes
* Does not react to changes dynamically

**Proposed system**:-

Whatever the algorithm we pupils are using in the existing system are not the efficient one so to get some optimal result here itself we are using one efficient algorithm to get the minimal path as well as to consume minimal energy. our purposed architecture is straight-line routing.

Here itself we draw a straight line in between the source & destination & calculate the deviated route weight from the straight line & calculate the area of corresponding polygon which are created by combining the source ,destination & the router in between.

We set some threshold value to get the optimal path.

**Modules:**

* Client
* Server
* Router

**Modules Description:**

**Client:**

In computing, a client is a system that accesses a (remote) service on another computer by some kind of network. The term was first applied to devices that were not capable of running their own stand-alone programs, but could interact with remote computers via a network. Client selects a path to save a file, which is sent by the Server in order to find the impact of straight line routing.

**Server**:

Here server is a system that provides file transfer, or a program that provides such a service. A kind of daemon which performs a service for the requester, which often runs on a computer other than the one which the server runs. We can transfer the files and clients can receive the files at specified location. To transfer these files continents all the packets are transferred in a straight line routing from source to destination.

**Router**:

In a multi-hop wireless networks packets are transferred through routes. That could be composed of multiple relay nodes between source and destinations. In many multi-hop wireless networks shortest-path routing is often used for its simplicity and scalability, and this is closely approximated by straight line routing for large multi-hop wireless networks.

**Straight line routing** is defined as sequence of nodes whose voronoi cell is cut by a straight line segment between source and destination. When the packet arrives at the network node i in the network participates in routing packet when straight line segment between source and destination cuts the perimeter Si of the node i. If two cells are simultaneously chosen as the next cell either can be arbitrarily selected.

System requirements:-

**Hardware Requirements:**

* System : Pentium IV 2.4 GHz.
* Hard Disk : 40 GB.
* Floppy Drive : 1.44 Mb.
* Monitor : 15 VGA Colour.
* Mouse : Logitech.
* Ram : 256 Mb.

**Software Requirements:**

* Operating System : - Windows Xp Professional.
* Front End : - Net 3.5.
* Coding Language : - Visual C# .Net.