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Intelligent Routing Algorithms Assess Mobile Network

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Abstract- The use of wireless networks is widely increasing. One of these networks, ad hoc mobile networks (Mobile ad hoc networks) is. Mobile Ad hoc Network known as network short-lived. Nature-inspired algorithms (swarm intelligence) such as ant nest optimization algorithms and genetic algorithms to solve the routing problem in recent years have introduced mobile-specific networks.

Keywords- Mobile Ad hoc networks, genetic algorithms, algorithms ant nest.

I. Introduction

Once the internal destination of internal routing protocols such as RIP, OSPF is used. But when that path is outside the boundary AS, external routing protocols like BGP is used.BGP protocol is an external routing protocol is that it can help on many parameters such as paid subscription, our security and routing policy.

II. Routing algorithms and routing protocols

Each router has a routing table based on routing protocol in your memory that the structure of this table is different for each protocol.

Routing algorithm, a mathematical formula or carriages that acts on the routing table "utility" or "the optimality" different routes calculated based on the optimal and most efficient path possible is obtained. These codes are stored in memory for each protocol router is different.

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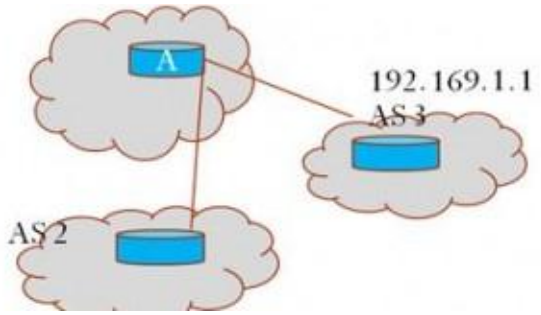


Figure1.The difference networks IBGP, EBGP

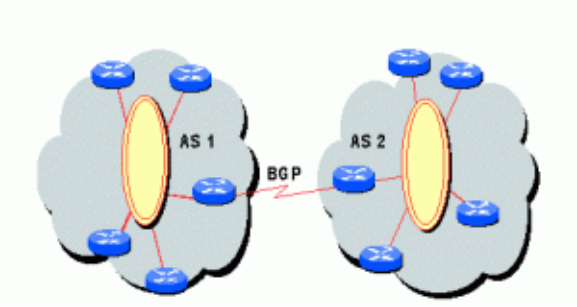


Figure2.Internal and external routing

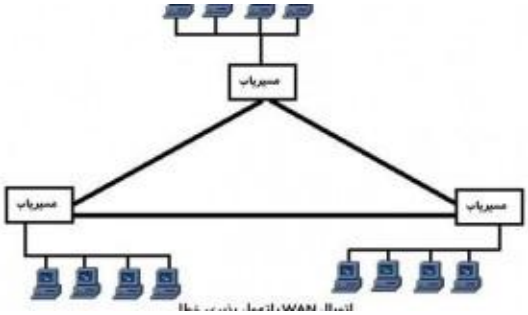


Figure3.Routing Protocol (NLSP (Link State Protocol)

Figure4.The introduction of routing protocols

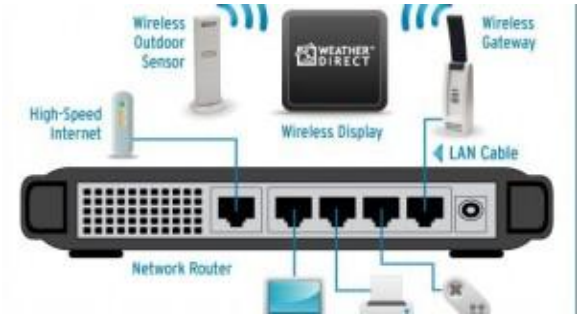


Figure5.The type of connection Router

V. AD hoc routing network

Networks, wireless networks wireless ad hoc (in English (: AD hoc Networks), includes a set of Grhhaytvzy, which together are Bysymartbat there. Nodes can host computer or Msyryabbashnd. Nodes directly without any access points communicate with each other are and the constant do so in a Tvpvlvzhydlkhvah formed. each node is equipped with a transmitter and receiver is. the most important feature of this network is a dynamic topology and is variable as a result of network mobility is. nodes in the network are constantly changing their position the This in turn, will require a routing protocol that has the ability to adapt to these changes, reveals.

The network routing and security challenges of today's networks. Wireless ad hoc networks are of two types: Mobile ad hoc networks, sensor networks smart. The network routing ad hoc type of sensor hardware limitations on network actions that need to choose the routing method be considered, including the source Tghzyhdr nodes is limited in practice, to replace or recharge it is not possible, so routing method proposed in this Khvdmkhtarbvdn and adaptability to create nodes.[3,5]

VI. Security in wireless networks

These networks are highly vulnerable to attack and resist the attacks of the challenges today is the development of the network. The main reasons for these problems are:

• FM radio channel data transfer

• insecure operating environment

• inadequate central power

•limited resources

• Being physically vulnerable

• lack of communication intermediate nodes.

VII. Three wireless network's security

.WEP:WEP encryption is based on the RC4 algorithm by RSA.

.SSID: WLAN networks with multiple network Mhlymybashnd each of which has a unique identifier that identifiers are placed at multiple points of access. Each user has access to the network must be configured SSID identifier corresponding

.MAC : A list of MAC addresses used in a network access point corresponding so only computers with the MAC addresses are allowed access, in other words, when a computer sends MAC address list MAC address of the access point are compared and access or lack of it is examined. This security method is suitable for small networks because in large networks is very difficult to enter the IP address of the access point. Generally low to reduce the radius of coverage and network signals encrypted information. [4]

VIII. Routing

In ad hoc networks, nodes prior knowledge of network topology which are not therefore obliged to communicate with other nodes on the network to discover the destination location. The basic idea here is that a new node voluntarily publishes its presence across the network and the neighbors listen.[6]

Routing protocols

Routing protocols between any two nodes of the network because each node can move randomly and can even out when the network is their problem. This means an optimal path at a time may be a few seconds later there is no way. In the following three categories of routing protocols that we introduce in this network.

1.Table Driven Protocols

The Hrnvdy routing routing information with other nodes in the network uses local data storage, and this information is then used to transfer data through various nodes.

2. Hybrid protocols

The combination of the two protocols is high. Distance-vector routing protocols to find the shortest way to employ and routing information only when there is a change in topology Shbkhvjvd report. Each node in the network to its

routing zone is a record of the routing information is stored in this zone.

Multi-path routing

Some routing algorithms in ad hoc networks, routing multipath I do act, in the sense that simultaneously establish multiple paths between source and destination. In general, the following benefits for Multipath algorithms against Tkmsyry algorithms, as follows: 1. Increased tolerance against errors and downtime. 2. Azdhamv network load balancing and traffic control. 3. End-to-end bandwidth. 4. End-to-end latency. Multi-path routing algorithms actually discover multiple paths between source and destination, which use this route is usually done in two ways. In the first approach has always been one of the routes as the main route of transmission is selected and write data to the destination only through the original route will be done and the rest of the route as an alternative route is kept in case of inefficient or the sweep path original, one of which is used to send information. Thus, in case of failure, much less network delay is imposed. Finally, this approach also for sending data parallel, end to end delay is severely reduced.

The multi-path routing algorithms such as SMR, AOMDV, AODVM, ZD-AOMDV and IZM-DSR noted.[7]

Routing algorithms

In small networks, and in areas where direct data transfer usually is not taken seriously routing. But when network workstations are out of state and are a bit more complicated, in this case, routing and selection of the optimal route for sending packets, it becomes an important issue. In large networks, devices as routers (1) that do the routing operation.

Msyryabyay algorithm is useful to have the following 6 features: (1) the accuracy of (2), simplicity (3), reliability (4), stability (5), justice (6) optimality.

Obviously, the better algorithm that health is a high performance, yet simple, but the algorithm has good reliability?A suitable algorithm is that over time, by changing the software and hardware and changing network protocols, as well as provide proper routing.

Shortest path algorithm

The simplest method of routing method is the shortest route. In this case, each edge a weight will be given the shortest path algorithm Dijkstra (8) can calculate the shortest route possible.

Distance vector algorithm

In this way, routing table (operation) are stored as distance vector routing where the best distance to each other in the store network. In this case, make better decisions when routing is adopted. This table neighbor routers updated information.

The Dijkstra's algorithm is as follows

1. Select a source vertex

2 sets of S, including vertex of the graph is determined. At the start, the empty set and the progress of the algorithm, the vertex set it has been found that the shortest path to the covers.

3. Ross Made with zero index within the S puts.

4. To outline the outside of S, the index equivalent, previous head of the mane + index, considers. If the head is off-set the index, the new index and the lowest level of the previous index + index top edge to them.

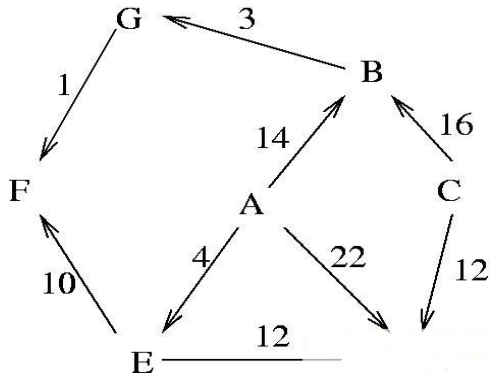
5. Out set of vertices, vertex with the lowest index is selected and the set S is added.

6. do it again from Step 4 continues to be the top destination set S.

If the head has to be at the end of the index, the index represents the distance between the source and the destination. Otherwise, any path between origin and destination is not available.

Also to find out route can be different for each vertex in the index that represents the top of the previous path. Thus, after the execution of the algorithm, following the previous Rios from destination to source, the shortest route between two points can also be found.

For example, consider the following graph:



Consider the apex A as a source vertex. The algorithm is as follows:

1.A with the index set S is zero. S = {A}

2.B index 14, D and E index 22 index will be 4. S = {A, E}

3.B index 14, D 16 and F index index will be 14. The B and F to give a choice to make.

s= {A, E, F}

4.andys does not change. S = {A, E, F, B}

5.andys was like before Ross G only takes 17 index. S = {A, E, F, B, D}

6. In this step, the index does not change .

S = {A, E, F, B, D, G}

7.mlyat stopped because no head off S is not indexed.

Currently, the index represents the shortest distance from the source to the top of the graph. Note that no index points (such as C), there is no path from the source vertex.

Multipurpose route

In the world of Tran IP routing by making a copy of a package along the way, by the router, it is sent to multiple recipients. These multi-building process (Multicasting) is called.

Single-purpose IP routing, IP address to one of the addresses of class A, B, C, which is a specified host on the Internet showed Dhd.nqsh single-purpose IP routing protocols, routing IP packets from one single source by increasing the number of hosts to send the destination, the number of single-purpose IP packets that must be sent by the source increases and takes a long time to source and network cache another IP addresses are used when Gyrndkh more than one recipient to information sent from the source fact (Multicasting) is a good solution to communicate with multiple hosts is.[12]

Independent multi-protocol routing

Cisco protocol independent multicast (Protocol IndependentMulticast-PIM) is used as a routing protocol multi-protocol Knd.dm dependence this means that you choose a single integrated IP router protocols such as RIP, IGRP, EIGRP, OSPF , iS-iS routing protocol as free entrance to Hstyd.rabt RPF single-purpose IP routing table is determined by the IP routing table IP routing protocols occurs.T Hoc routing protocol configurationEnable multi-routeActivation Interface for Multicasthree steps to do routing for multi-purpose routingconfiguration should be taken include.

Intelligent Routing

Intelligent routing in wireless sensor networks to be aware of swarm intelligence techniques and neural networks:

Routing problem in wireless sensor networks, including the most important issues that function guarantees optimal sensor network. Due to the limitations of the energy of each node in a sensor network, routing must be done so that the total lifetime of the network is optimized. The routing method of distribution Ant agents for data collection, integration and training of the neural network nodes, which are derived from ant algorithm network. During the process of routing weights are trained neural network so that justice is respected and lifetime of the network routing to reach the highest possible value. Property adaptability of routing methods, it is able to various changes in the movement of nodes or network topology battery running out they arise, in terms of the optimal routing process. The major applications of sensor networks, identification of friendly forces and enemy forces in a military area is located. Sensor network identified randomly distributed over an area and move military equipment enmity between the nodes of this network. Simulation indicated a significant increase in the lifetime of a sensor network in the routing process this method is superior to other available methods. All parts of this method, follow linear relationships and the ability to implement the sensor nodes have low processing power.

IX. Conclusion

Mobile ad hoc networks, wireless networks are the real future because they are inexpensive, simple, flexible and easy to use with. It is also appropriate to have low mobility to avoid unnecessary costs to maintain the routing table is better than reactive algorithms used, the Manndprvtkl ZRP feature of Pro active for routing node near to each other and the characteristics of the type of Reactive to routing node farther uses, so this protocol can be used in both the active and inactive efficiency is relatively good.[9,10,11]

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