How to Detect Failure Node in a Selected Network?

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Abstract- We focus only how to recognize a failure node in selected network. In autonomous system a queue is playing important role for node to node communication with the knowledge of node to its neighbour node.

Index Terms- Queue, Autonomous system, router protocol

I. INTRODUCTION

In an autonomous system, communicate to each other by using router protocol the parameter like time, queue length are major role play to detect the failure node in an selected network

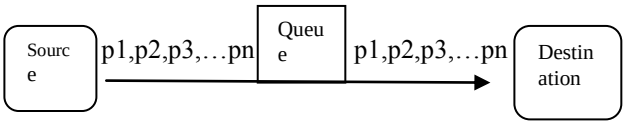


Fig-1 showing communication path established using queue

In this figure from source to destination a queue is for stored packet and depart the packet to particular destination. here queue play a role like a router. Having information about arriving node and departing node before stored packet means that stored the status about the packets

Timing factor- when queue established the time is main factor to communicate to each other.

Queue length-Queue length having no of packets to arrived for processing and ready for departing from queue but there is time limits for all departing and arriving packets like m/s per packets.

Reason-

If the error rates occur in transmit a packet, retransmit the packets and allotted time is finished, then retransmit take double time to transmit packets or delay time, means that one node is failure and not participating in communicate path from source to destination

For Autonomous system

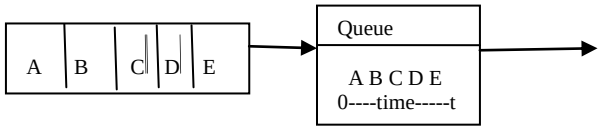
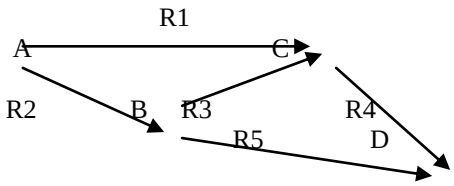


Fig-2 Packet transmission, either depart or not to destination

In fig-2,the autonomous system having five nodes A,B,C,D,E communicate to each other and these belongs to selected network. Suppose that packets A B C D E are coming into queue in FIFO order. timing for A is 1 m/s ,for B 2m/s ,for C 3 m/s,for D and E 4m/s and 5 m/s respectively, A came and depart at proper time but B having delay to departing from queue ,then delay occur in communication, But question is that how to detect failure node in selected network?



A-R1-C, A -R2- B, B-R3-C, B-R5-D, C-R4-D
(R1, R2, R3, R4, R5 are routers between nodes)

Fig-3 Selected path but change the route because of failure node

Router R1 having information about A and its neighbour C, R2 having information about A and its neighbour B, R3 having information about B and C, R4 having information about C and D, R5 having information about B and D. all this network router having information about all nodes, whose established communication path.

If node B failed then router R2 having knowledge about fail then router R2 inform to node A. node A change the path from A to C and then C to D through router R4.

Note-router having some distance from node to node and choose shortest path using shortest path algorithm from source to destination for successfully path.

II. BROADCASTING FOR FURTHER COMMUNICATION

Broadcasting using multipath is alternate approach for communication from source to destination node .if intermediate node failed then announced to all other node to inform about the failure. It is also helpful process for communication.

For point to point communication there is node to node sequence from source to destination for communication, it is also helpful for established path.

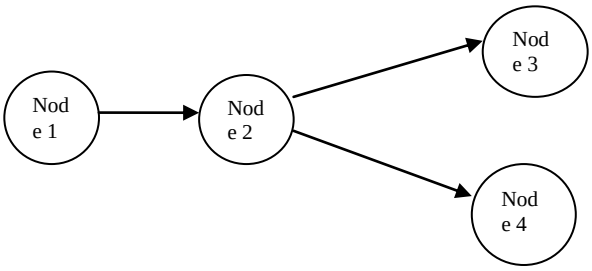


Fig-4 Refer to count to infinity problem.

In this figure node 1 communicate to node 2 and node 2 again communicate to node 3 and node 4,if node node is failed then there are communication gap arise.

III. NETWORK FAILURE DETECTION THROUGH GRAPH THEORY

As we know that the complete network build by the nodes and intermediate nodes and here we represent by the graph theory, in graph theory the edges represent the communication path/link between nodes and the nodes are connected by the link,

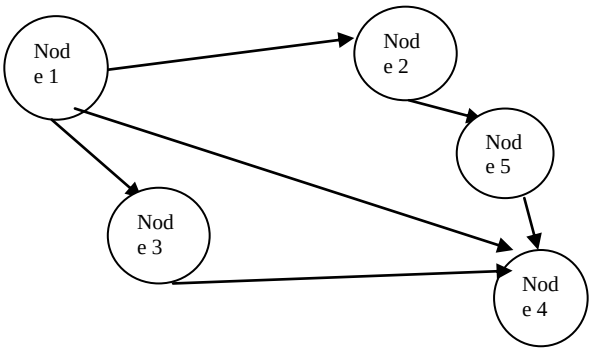


Fig-5 communication network

In this fig, selected network node 1 communicate with node 2, node 3 and node 4 and our source is node 1 and destination is node 5, if node 1 failure then broadcast the message to node 3 node 2 and node 4, but here time delay is possible .suppose node 1 communicate to node 2 in 20 m/s but after failure node 2 have no message from node 1 then delay is possible.

IV. RELATED WORK

In future we use sensor with each node to detect node is failure or not. This sensor intimate to next node with less delay and inform about failure node, this is helpful to successful communication with time factor from source to destination.

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