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DETECTING NODE FAILURES USING BINARY AND NON-BINARY ALGORITHM

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ABSTRACT

Mobile Computing could be a technology that enables transmission of knowledge, voice and video via a laptop or the other wireless enabled device while not having to be connected to a set physical link. Wireless communication could be biggest contributions to humans. Wireless communication involves the transmission of data over a distance while not facilitate of wires, cables or the other styles of electrical conductors. The transmitted distance are often anyplace between some meters (for example, a television's remote control) and thousands of kilometers (for example, radio communication). Some devices which are used for wireless communication square measure conductor telephones, mobiles, GPS units, wireless laptop components, and television. during this project , we tend to transfer knowledge the info the information's between node however before transfer the data we've to discover the node that square measure in failure mode and in weak mode. For detection the node failure we tend to use to ways in which one is binary feedback theme and alternative one is Non-Binary Feedback theme. In Binary theme the node A sends the center beat of Node B and sends the feedback to the most node. If node B is active means that A can send one to main node and once in-active means that it'll send zero to main node. And in Non-binary Feedback theme node A can send that whether or not the node B is weak or sturdy to the most node. And conjointly during this project realize|we discover} the weak node and that we find the choice path for the information throughout transmission.

1.INTRODUCTION

Mobile wireless networks have been used for many mission critical applications, including search and rescue [17], environment monitoring [11], [20], disaster relief [25], and military operations [18]. Such mobile networks are typically formed in an ad-hoc manner, with either persistent or intermittent network connectivity. Nodes in such networks are vulnerable to failures due to battery drainage, hardware defects or a harsh environment. Detecting node failures is important for keeping tabs on the network. It is even more important when the mobile devices are carried by humans and are used as the main/only communication mechanism.

Node failure detection in mobile wireless networks is very challenging because the network topology can be highly dynamic due to node movements. Therefore, techniques that are designed for static networks are not applicable. Secondly, the network may not always be connected. Therefore, approaches that rely on network connectivity have limited applicability. Thirdly, the limited resources (computation, communication and battery life) demand that node failure detection must be performed in a resource conserving manner.

One approach adopted by many existing studies is based on centralized monitoring. It requires that each node send periodic "heartbeat" messages to a central monitor, which uses the lack of heartbeat messages from a node (after a certain timeout) as an indicator of node failure [5], [12], [19].This approach assumes that

there always exists a path from a node to the central monitor, and hence is only applicable to networks with persistent connectivity. In addition, since a node can be multiple hops away from the central monitor, this approach can lead to a large amount of network-wide traffic, in conflict with the constrained resources in mobile wireless networks. Another approach is based on localized monitoring, where nodes broadcast heartbeat messages to their one-hop neighbors and nodes in a neighborhood monitor each other through heartbeat messages. Localized monitoring only generates localized traffic and has been used successfully for node failure detection in static networks [15]. However, when being applied to mobile networks, this approach suffers from inherent ambiguities—when a node A stops hearing heartbeat messages from another node B, A cannot conclude that B has failed because the lack of heartbeat messages might be caused by node B having moved out of range instead of node failure.

In this paper, we have a tendency to planning to introduce a brand new technique known as a unique probabilistic approach that judiciously combines localized observation, location estimation and node collaboration to discover node failures in mobile wireless networks.Specifically, we propose two schemes. In the first scheme, when a node A cannot hear from a neighboring node B, it uses its own information about B and binary feedback from its neighbors to decide whether B has failed or not. In the second scheme, A gathers information from its neighbors, and uses the information jointly to make the decision (see Section V for details). The first scheme incurs lower communication overhead than the second scheme. On the other hand, the second scheme fully utilizes information from the neighbors and can achieve better performance in failure detection and false positive rates.

We have evaluated our schemes using extensive simulation in both connected and disconnected networks (i.e.,networks that lack contemporaneous end-to-end paths). Simulation results demonstrate that both schemes achieve high failure detection rates, low false positive rates, and incur low communication overhead. Compared with approaches that use centralized monitoring, while our approach may have slightly lower detection rates and slightly higher false positive rates, it has significantly lower communication overhead (up to 80% lower).In addition, our approach has the advantage that it is applicable to each connected and disconnected networks.

Compared to alternative approaches that use localized observance, our approach has similar failure detection rates, lower communication overhead (up to fifty seven lower) and far lower false positive rate (e.g., 0.01 versus zero.27 in some setting).

2.EXISTING METHOD

In Existing system, they use only the binary scheme to detect the node failure , so we can detect only the ON or OFF state of the nodes, we cannot find whether the node is strong or weak.In Existing system,there is no way to detect the weak node and to find the alternate node for the data transmission.

DISADVANTAGES

- Use Only Binary Scheme which gives Zero’s or Ones.
- It will not show the weak or strong Status of nodes
- In this there is no way to find alternative path for data transfer.

3. PROPOSED METHOD

In Proposed system, the user can detect the node failures from main node by using two schemes one is binary scheme and other one is non-binary scheme. So by using these two schemes the user can get the On - OFF and Wear -Strong status of the each nodes. After detecting the node failure we can find the alternative path to transfer the data during transmission.

ADVANTAGES

- Uses both Binary and Non-Binary Scheme
- User Can check, both the on-off and weak-strong status
- Alternative path for node failures.

4.SYSTEM ARCHITECTURE:

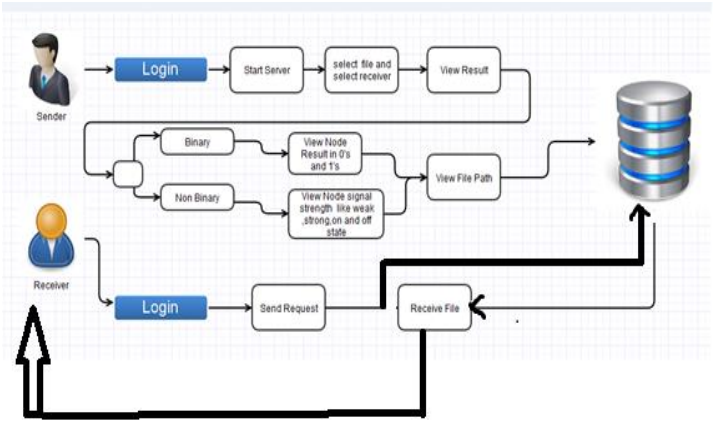

Fig:4.1 system architecture

The proposed system has several modules. The detailed explanation of the system can be obtained from the modules namely:

- Authentication module
- Share Data to Client
- Binary Code Detection
- Non Binary Code Detection
- File Path in Router
- Node Failure and Recover Path
- Receive Data And Admin Node

AUTHENTICATION MODULE:

In this project they are only two users one is sender and other one is receiver.Any user who wants to the share and receive the data by using this project, must have to do registration in this project. After registration was done successfully they can login into this project by their user-name and password which they entered during registration process.

SHARE DATA TO CLIENT:

Sender must share the data to client only after getting the request from client but client cannot send a request directly to the sender before that they have to get the connection path by entering the IP address of the sender.

After getting the request,the request which contains the IP address of the client, by using that IP address the sender can share the information or data to multiple clients.

BINARY CODE DETECTION:

Before sending the data the sender can check the status of each nodes by two schemes one is binary code and other one is non-binary code. In Binary code detection, the sender can check the ON or OFF status in the binary format (0's and 1's). If the node is in ON state means the result will be 1 and if the node is in OFF state means the result will be 0.

NON-BINARY CODE DETECTION:

In Binary code detection, the sender can check the ON or OFF status in the binary format (0's and 1's). But Sender cannot check the Weak or Strong Status of the nodes. For that problem the sender go for Non-Binary code detection, by using this scheme the sender can check the strength of every nodes whether they are Strong or Weak to receive the datas.

FILE PATH IN ROUTER:

Sender can view the path of the data which was shared by him in router. In this router the node which is expressed in blue color in active state, the node which is in red color is in off state and the node which is in yellow color is in on state but they are weak to receive and send the datas.Sender can view all this details of nodes during the transmission time.

NODE FAILURE AND RECOVER PATH:

In this module, the sender share a files there will be a checking for each each node before they receiving the data.For example ,checking will be done for Node A before the data reaches Node A, if the Node A is active and strong means the data will move through Node A or it will find a alternate node automatically and then data will move through that alternate node. This process will be done for each and very nodes.

RECEIVE DATA AND ADMIN NODE :

In this module, the client will receive the data after passing by all the nodes successfully. By using the Admin Node the Sender can check the binary and Non binary scheme for each nodes. Node A will send the binary and Non Binary results of Node B to Admin Node,Node B will send the binary and Non Binary results of Node C to Admin Node,Node C will send the binary and Non Binary results of Node C to Admin Node. And Also we can see the performance of each nodes while transmission.

CONCLUSION:

In this project the sender can view both the binary and non binary result. So by using this the sender can check both the on/off state and also he can check the whether the node is strong or weak. And also the sender can view the path how the data was send by the sender is sending.

FUTURE WORK:

As future work, we have a tendency to arrange to assess our schemes victimization real world mobility traces and in situations with irregular transmission ranges. Our approach depends on location estimation and the usage of heartbeat messages for nodes to watch everyother. Therefore, it doesn't work once location data is not out there or there's communication blackouts.Developing effective approaches for those situations is left as future work.

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