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A Survey of Cross-Talk Network Communication Techniques

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Abstract

One of the most crucial communication requirements for dividing a network into smaller parts and enabling low-cost, low-distance communication over the network is communication in a cross-talk network. Reducing noise during crosstalk and safe communication is these networks' primary requirement. In order to deploy an efficient communication model across the network, this communication method comprises location-based node analysis. This paper examines many techniques of communication. The contribution of past writers to the field of Cross Talk Network Communication was also covered in the paper.

Keywords: *Communication, Network Decomposition.*

1. Introduction

Cross Talk Network Processing is one of the most required form of Cross Talk Network processing to extract the information effectively and to conclude some valuable information from it. Some of the information is integrated in Cross Talk Network in different forms. To extract this kind of information from Cross Talk Network, the Node Setup is applied over the Cross Talk Network. There are different methods to retrieve the information from Cross Talk Network under different aspects, applications and Cross Talk Network types. Some of such information representation or extraction approaches includes the segmentation, Communication etc[1][2][3]. The information retrieval process from Multistage Network is shown in figure 1. Cross Talk Network Communication is one of the most required tasks to extract information from Cross Talk Network. Itis used in different contexts to perform the Network or pattern communication as well as to perform the categorization of the Networks based on information analysis. It is actually defined in a hybrid scenario that itself covers the concept of Network categorization, Network communication as well as enable the Network search. Communication is about to characterize theCross Talk Network under the cross link analysis so that effective communication will be performed. There are number of application areas where the Communication plays an important role[4][5][6][7]. These application areas include the parallel Communication in Cross Talk Network, Network Communication in real time Cross Talk Network etc.

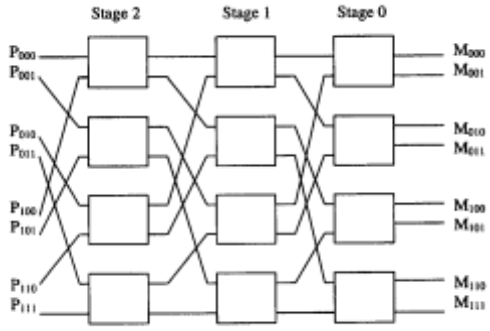

Figure 1: Multistage Network

Cross Talk Network Communication is actually to define a real time parallel communication scenario with the definition of node setup and inclusion so that the network setup will be finalized. The switch based setup is implemented to reduce the communication hardwareas well as the network setup. The Communication process is applied on a set of arbitrary Cross Talk Network setup is based on the type of network as well as number of parallel communication performed over the network. The Communication procedure in thesenetworks is divided in two broader approaches called Generalized Communication and Rule Based Communication [8][9].

A) Generalized Communication

Generalized Communication performs the analysis on the pre-classified Cross Talk Network and represents itas the setup independent Cross Talk Network. The descriptors are applied on this Cross Talk Network Cross

Talk Network to represent formation and localization of these integrated switches. These Cross Talk Network provides the communication over the network under switch specific network construction andcommunication. When Communication process is applied, at the earlier stage, the training Cross Talk Network analysis is performed. This analysis is performed to identify the setup features over the network. Now when some Cross Talk Network is accepted from the node and the pre-communication analysis is performed on it. Now these communication setup features will be compared with the actual network setup. The Cross Talk Network path with the least communication and minimum switch usage will beelected as the communication path over the Cross Talk Network and the communication will be performed over this elected path[10][11].

B) Rule Based Communication

This kind of Communication approach does not require any training set. These methods rely on the Communication process that performs the distance based analysis between the input Cross Talk Network and the available Cross Talk Network. This distance measure can be performed on complete Cross Talk Network or the switch setup. Cross Talk Network extracted from the Cross Talk Network itself. Based on this distance based analysis, the Cross Talk Network with minimum distance match will be elected as the path over the Cross Talk Network and path formation is performed on input Cross Talk Network[12][13].
In this paper, the exploration to the Communication process is been defined for cross talk network. This paper includes the study of different Communication approaches. In this section, the exploration of the Cross Talk Network Communication model is defined along with the major categorization of Communication process. In section II, the work done in the area of Cross Talk Network Communication is defined. In section III, different Cross Talk Network Communication approaches are discussed. In section IV, the conclusion obtained from the work is presented.

2. Challenges in Multistage Network

In this section, different vectors or the challenges associated with route identification is been discussed. A Multistage Network is defined with lesser centralized control and lesser capabilities. Because of these restrictions, the routing in such network is always a challenge.

A) Node Deployment

The node localiation in a Multistage Network defines the physical parameter that affects the network performance. The deployment can be either randomized or the determistic. In case of determistic placment, the node are placed at specific locations under some defined architecture. The distribution of nodes under some specific order also improves the network uniformity and the clustering so that the energy efficient processing will be performed over the network. The effective localization is defined under different vectors such as sensing range, bandwidth, type of network architecture etc.

B) Energy Consumption

Each node in Multistage Network is defined with limited energy. When some communication or the computationis performed over the network, each participating node loses some amount of energy. Because of this, the routing decision is performed under the energy awareness. It is required to generate a fault free communication, because re-routing or the reconstruction of network gives heavy energy loss. Another problem of network is the energy balancing. It means, the communication should be performed in such way, the energy consumption over the network will be performed in symmetric way otherwise, the unequal energy distribution over the network reduces the energy consumption and increases the criticality of energy challenges

C) Data Reporting Model

The data reporting or the sensing is about to deliver the information periodically to the base station. This data reporting model can be either event based, query based, time based or hybrid. The data diffusion approach is applied along with data reporting model to represent the type of information collection and the distribution. This kind of model also performs the monitoring to the network nodes and identifies the sudden changes so that more accurate and reliable communication will be performed.

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D) Heterogeneity

When the network is constructed over the homogeneous nodes, the node replacement can be done easily. But when the capabilities of each node are defined, the criticality over the network is increased. In such case, a node cannot replace other node. The degree of heterogeneity affects the network capabilities. The special nodes are defined to perform specific operations so that the service oriented constraints are specified while performing the routing decision. The route identification becomes more specific in such network, so that the route optimization is required to perform under certain limits.

E) Fault Tolerance

In Multistage Network, a node can fail or block because of different reasons. The reason can be potential damage, some attack, lack of power or some environmental interference. While performing the route selection, the fault free participating nodes are selected so that the reliable communication will be performed. Some agentsor the monitor nodes are placed over the network to identify the faulty nodes or links so that fault tolerance communication will be performed over the network.

F) Scalability

As the size of the network, the criticality of network communication and route identification also increases. The distance communication is performed using multi- hop routing and in such case, the identification of route with minimum number of intermediate nodes is also a challenge. As the number of intermediate nodes increases, the energy consumption over the route also increases. The scalability also need to identify the node state so that effective utilization of each node over the network will be performed.

G) Coverage

Coverage is defined as the sensing range that decides the communication reach of a node. Higher the range, more accurate the communication will be. The coverage is also limited to the physical area of the network. The sensing node also identifies the maximum connectivity over the network. Higher the connectivity level, more effective the routing decision will be.

H) Transmission Media

A Multistage Network performs the communication over the wireless channel under different vectors associatedwith communication channel. Some such vectors includes fading rate, error rate etc. Communication bandwidth, communication rate, MAC protocol design are also the integrated vectors with transmission media that affects the efficiency and reliability of communication over the Multistage Network.

3. Crosstalk Techniques

In this section, Cross Talk Network Communication process is defined with the exploration of Cross Talk Network Communication model. There are parametric and non-parametric Communication approaches to divide the available Cross Talk Network set in various categories based on feature analysis. The Communication process is actually the mapping between the input Network to featured set and then to label class. These basic models of Communication process. This model is defined respective to the Generalized Communication process. This Communication process is applied with two Cross Talk Networks called training set and the testing set. This is one of the simplest Communication technique that based on the computation process to achieve the accurate result. In most of the Communication implementation, it gives more accurate results. This method is processed on the feature vectorand perform the distance based analysis between the input Network and the training Networks. Here k represents the number of classes in the training set. Now when the distance analysis is performed, based on the best-fit analysis the nearest neighbor is identified. The featured classes are differentiated based on the analytical distance based. In this paper, an effective reliable, efficient and energy effective routing approach is suggested in this work. The presented work is defined ona smart Cross Talk Network in which each node is defined with some smart capabilities. The most effective properties of these nodes are the storage capability and the ability to take the decision making along with integrated processing. The main base of the presented work is to provide the energy balanced communication over the network. To provide this balancing, instead of communicating the data over a fixed static path, an arrayof the network paths is defined in this work. As the nodes are defined with memory specification, at the

earlier stage, all the possible paths are generated and stored in the available memory. These paths include the shortest path as well as alternate paths under the energy effectiveness and the load effective analysis. These paths are generated in such a way that the intermediate nodes of a path will not be included in other path. Now these paths get activated in a sequence so that each time a separate path will be elected for the communication. A time-slicing approach is suggested in this work toactivate these stored paths. The main objective of the work is improve the network life and to provide the reliable communication over the network. In this section, the assumption, working and the algorithmic approach of the presented work is explained in detail

3.1 Assumptions

a) All the network nodes are defined at static location.
b) The base station is placed at one end of the network.
c) Single source and destination points are describedso that effective route will be generated.
d) Nodes are defined with energy specification and with each participation some energy loss will be done.
e) All the node nodes are homogenous but they are having different congestion factor and the energy level.
f) All nodes are having some memory to store the associated paths.
g) Nodes are defined with decision capability about the next hop selection.
h) Each node is defined with a bit as the route participation node.

4. Conclusion

In this presented work, A study on different cross talk techniques is defined. This work is based on the intelligent switched Network where each switch is capable to store the possible paths and these nodes get activated under the scheduling mechanism. The work is expected to improve the network life by providing the effective routing.

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