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Joint Incorporation of OFDMA Multicast Scheduling with Effective transmission

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Abstract: ***In era of technology, Wireless communication domain growing rapidly due to user mobility & different business operator to deploy Multicast & Broadcast based applications combining video, voice & text. To compute with it; two hop Orthogonal Frequency Division Multiple Access (OFDMA) relay network are being efficiently used in combination with Multicasting which forms a promising communication model for many multiparty applications.***

We can achieve multiplexing gains in OFDMA network by certain multicast strategy. Grouping of relay network and cooperation between them is one way of multicast strategy. For effective use of relay network, grouping and scheduling for the same must be carried out in intelligent manner. Different scheduling algorithms have been used for different relay network to maximize the multicast flow. While using the scheduling algorithm for OFDMA relay network we have notice the problem of multicast transmission between networks when failure occurs. To solve the problem of multicast transmission when failure occurs one must use dynamic method to choose different path i.e. routing dynamically over the network. Relay network group themselves and cooperate between, also reporting for the failure.

Keywords: Orthogonal Frequency Division Multiple Access (OFDMA), Relay Network, Multicast Scheduling.

I. INTRODUCTION

Recently, internet dependability and access of it is growing rapidly, especially after smart phones inventions. People are using the internet for various new trend application, data transfer, and chats and streaming live video etc. These demands has enormous strain on available resources i.e. unicast infrastructure available in world. For which innovation & research being started for infrastructure that support one to many & many to many data transfer applications that led to implementation of Multicasting. There are many challenges during the deployment of multicasting listed as group management, security, authorization and many more.

Wireless mesh networks (WMNs) are being developed actively and deployed widely for a variety of applications, such as public safety, environment monitoring, and city-wide wireless Internet services. They have also been evolving in various forms (e.g., using multi-radio/channel systems to meet the increasing capacity demands by the abovementioned and other emerging applications. However, due to heterogeneous and fluctuating wireless link conditions, preserving the required performance of such WMNs is still a challenging problem. For example, some links of a WMN may experience significant channel interference from other co-existing wireless networks. Some parts of networks might not be able to meet increasing bandwidth demands from new mobile users and applications. Links in a certain area (e.g., a hospital or police station) might not be able to use some frequency channels because of spectrum etiquette or regulation. We address the energy efficiency problem in wireless communication by cooperation among the nodes in the network. Cooperative multicast helps us to distribute load fairly at standpoints thereby increasing the efficiency and scalability.

To overcome the above limitations, we propose an Autonomous network Reconfiguration System (ARS) that allows a multi-radio to autonomously reconfigure its local network settings—channel, radio, and route assignment—for real-time recovery from link failures. In core, ARS is equipped with a reconfiguration planning algorithm that identifies local configuration changes for the recovery, while minimizing changes of healthy network settings. Briefly, ARS first searches for feasible local configuration changes available around a faulty area, based on current channel and radio associations. Then, by imposing current network settings as constraints, ARS identifies reconfiguration plans that require the minimum number of changes for the healthy network settings.

II. Related Work

A. Two Hop Relay Network

To use the mobile nodes or relay we use two hop relay network. If there is no route between the source and destination they are allowed to send the packets to its entire neighbouring relay's. And relay modes thereafter are only allowed to send the data to destination as per its name [3].

B. Relay Cooperation

To satisfy the requirement of high speed data rate transmission the more practical solution for base station is to cooperate with several relay stations. In two hop relay network, relays are the decision maker to transfer data between the users having cooperation with other relay. Besides sending user's data, relays also help in channel message transferring and channel synchronization. Relays also provide multiple user's with space diversity and with multiple data link. There are three type of relaying protocol used in multicast. Amplify- and-forward (A&F), decode- and -forward (D&F), estimate- and-forward (E&F).

Fig. 1 Example of a Relay network.

C. Multicasting

IP multicasts are in dynamic nature. Any host can remove from or join to any number of multicast groups. Multicast can be a Broadcast radio and multicast address can be radio frequency. Multicast use UDP transport protocol for multicast applications. IP multicast does not offer reliable transmission and sequence delivery of data in bytes. Hence, reliable transmission way should be applied by application layer. Wireless communications (with exception to point-to-point radio links) are inherently broadcasting media, i.e. multipoint channels, especially if the antennas are radio/TV and omni-directional transmitters covering a region form a broadcasting network that send the same content [2][1].

D. OFDMA

To support quality of service (QoS) applications, transmission of data over a wide range of band using OFDMA network is efficient technique. Also OFDMA provides concurrent transmission via Subchannel without interference by using multiple sub-channels. Generally it has two techniques modulation and multiplexing. Modulation as the combination of input and output and multiplexing is viewed as output signal linear to modulation. OFDMA are sensitive to clock, frequency and phase offset [1].

III. Proposed System

In two hop relay network with multicasting scheduling algorithm relay station only do the work of reporting. Hence the proposed system could be efficiently used with the combination of OFDMA relay network and their cooperation with each other with addition of dynamically changing the route rather than reporting the failure to specific server or client. We can effectively increase the performance of the network by increasing the throughput. It can be achieve it by applying efficient multicasting algorithms with socket programing.

IV. Conclusion

We considered the problem of multicast scheduling in two-hop OFDMA relay networks. We showed that intelligent grouping of relays for cooperation is needed to address the tradeoff between cooperation and session multiplexing gains. We designed efficient scheduling algorithms (with performance guarantees) at the core of the multicast strategy to address the tradeoff and maximize aggregate multicast flow. Dynamically changing the route rather than reporting to the source and destination may have been proving a useful change in existing system.

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References

1. K. Sundaresan, S. Rangarajan, "Cooperation versus Multiplexing: Multicast Scheduling Algorithm for OFMDA relay Networks," IEEE/ACM TRANSACTIONS ON NWTEWORKING, VOL. 22. NO.3, JUNE. 2014.
2. http://www.cs.virginia.edu/~itlab/book/pdf/Ch10_v1.pdf
3. http://www.bionets.eu/docs/valuetools06.pdf

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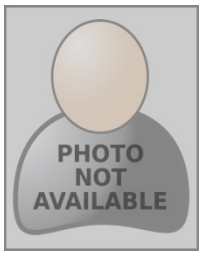

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