



ANALYSIS OF MOBILE NODE PERFORMANCE FOR MANAGING PACKET DELIVERY

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ABSTRACT:

Within a hybrid wireless mobile system, we consider the complexity of cooperative packet delivery towards mobile nodes, in which infrastructure-based as well as infrastructure-less communications are used. Based on the representation of coalitional game; we learn the dynamics of actions of mobile nodes serving each other to convey data packets on the basis of their individual selfishness by an intention to maximizing their individual payoffs. We advise a solution on basis of a coalition formation among mobile nodes to jointly distribute packets between these mobile nodes in same coalition. A coalitional game is built up to compute the performance of the rational mobile nodes in support of cooperative packet delivery. By the network analysis basis technique, bargaining game-based optimal data forwarding, as well as distributed coalition formation within a combined framework meant for cooperative packet delivery within a hybrid wireless network forms the most important novelty of our work. A distributed algorithm is exploited to obtain response of coalitional game as well as a Markov chain-basis analysis to assess the constant coalitional structures that are obtained from distributed algorithm.

Keywords: Wireless mobile system, Mobile nodes, Coalitional game, Hybrid network, Data packets.

1. INTRODUCTION:

A few works that were introduced in literature has introduced several models of for wireless systems with relay-based methods to reduce delay of data delivery. In these techniques, mobile nodes within a cluster cooperatively distribute data packets between each other [1]. Coalitional games were used to model and analyze the problem of resource allocation within wireless networks. In this circumstance, theory of coalitional game can be functional to analyze dynamics of coalition formation between mobile nodes. Mobile nodes outline coalitions and jointly share the restricted bandwidth of vehicle-to-roadside links to attain high spectrum utilization. Altered from the previous efforts in our work, we put forward a cooperative packet delivery system in a hybrid wireless networking situation. In the situation under consideration, a base station contains packets to convey to a mobile node which might not be in the transmission range of base station. On the basis of coalitional game representation, we learn the dynamics of actions of mobile nodes serving each other to convey data packets on the basis of their individual selfishness by an intention to maximizing their individual payoffs [2][3].

By means of social network analysis based method bargaining game-based optimal data forwarding, as well as distributed coalition formation within a combined framework meant for cooperative packet delivery within a hybrid wireless network forms the most important novelty of our work. While the packet delivery delay and the approved cost diverge with the possibility that every mobile node assist other mobile nodes distribute packets, a bargaining game is employed to discover the best possible helping probabilities for the entire mobile nodes in a coalition. The rationale of proposed social network analysis on basis of mobile node grouping is to decrease difficulty of coalition formation when there are numerous mobile nodes participating in supportive data delivery scheme. The proposed structure will be useful for supporting a variety of mobile applications on basis of delivering distributed cooperative packet.

2. METHODOLOGY:

The technology of wireless communications is the key to support a variety of applications for instance safety as well as emergency notification; applications of infotainment when users are mobile. For time responsive

applications, a mobile node might be capable to obtain information in a well-timed manner just if it is within transmission range of a base station and associated to base station for a satisfactory amount of instance. Mobile node, which is at present associated to a base station, can assist the base station to forward packets to other mobile nodes until packets make their destinations. This is an instance of hybrid wireless networking representation since it makes use of communications between mobile nodes and base stations in addition to communications between mobile nodes [5]. In our work we consider the difficulty of cooperative packet delivery towards mobile nodes within a hybrid wireless mobile network, in which infrastructure-based as well as infrastructure-less communications are used. We recommend a solution on the basis of a coalition formation between mobile nodes to jointly distribute packets between these mobile nodes in same coalition. A coalitional game is built up to analyze performance of the rational mobile nodes in support of cooperative packet delivery. Coalitional game is developed to analyze behaviour of rational mobile nodes for supportive packet delivery. To diminish delay of packet delivery, coalitions of

mobile nodes are formed. The social relationship between mobile nodes can be exploited to decrease the difficulty of coalition formation [4]. Mobile nodes in similar coalition assist each other to convey packets sent from base station to target mobile nodes.

3. AN OVERVIEW OF PROPOSED SYSTEM:

In our work, we propose a cooperative packet delivery system in a hybrid wireless networking situation. We recommend a solution on the basis of a coalition formation between mobile nodes to jointly distribute packets between these mobile nodes in same coalition. The mobile nodes are reasonable to form coalitions to make the most of their individual payoffs. By means of coalitional game representation, the performance of cooperative packet delivery has been estimated in terms of average packet delivery delay. The proposed system as shown in fig1 consists of three interconnected steps. We make use of a social network analysis based method initially for identification of mobile nodes that contains a potential to aid other mobile nodes meant for data delivery in similar group. Subsequent to the formation of social

network analysis based mobile node grouping, the mobile nodes in every group plays a coalitional game to get hold of a constant coalitional structure. The important mechanism of social network analysis - based mobile node grouping is to sort out a number of mobile nodes which will not contribute to supportive packet delivery. The most important purpose of proposed social network analysis on the basis of mobile node grouping is to decrease difficulty of coalition formation when there are numerous mobile nodes participating in cooperative data delivery system. The payoff of every mobile node is a function concerning cost that is incurred by mobile node in relaying packets and delivery delay intended for packets that are transmitted to mobile node from base station. A continuous-time model of Markov chain is formulated to obtain the expected cost as well as packet delivery delay for every mobile node in the similar coalition. While the accepted cost as well as packet delivery delay diverge with the possibility that every mobile node assist other mobile nodes distribute packets, a bargaining game is employed to discover the best possible helping probabilities for the entire mobile nodes in a coalition. For every mobile node,

subsequent to optimal probability of assisting other mobile nodes is gained; we can conclude the payoff of every mobile node when it is a component of its present coalition. The payoffs that are obtained from bargaining game are employed to determine explanation of coalitional game regarding constant coalitional structure. By means of social network analysis based method bargaining game-based optimal data forwarding, as well as distributed coalition formation within a combined framework meant for cooperative packet delivery within a hybrid wireless network forms the most important novelty of our work. The structure will be useful for supporting a variety of mobile applications on basis of delivering distributed cooperative packet. A distributed algorithm is utilized to get hold of solution concerning coalitional game as well as Markov chain-based analysis to assess constant coalitional structures that are obtained from distributed algorithm [6].

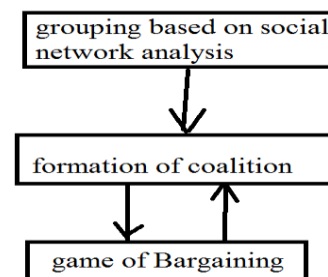


Fig1: An overview of proposed system.

4. CONCLUSION:

The expertise of wireless communications is the key to hold up a number of applications for instance safety as well as emergency notification; applications of infotainment when users are mobile. Coalitional games were employed to model and analyze the difficulty of resource allocation within wireless networks. Differing from earlier efforts in our work, we put forward a cooperative packet delivery system in a hybrid wireless networking situation. On source of coalitional game depiction; we learn the dynamics of actions of mobile nodes serving each other to convey data packets on the basis of their individual selfishness by an intention to maximizing their individual payoffs. We consider the complicatedness of cooperative packet delivery towards mobile nodes within a hybrid wireless mobile network, in which infrastructure-based as well as infrastructure-less communications are used. A coalitional game is introduced to analyze performance of the rational mobile nodes in support of cooperative packet delivery. A distributed algorithm is utilized to get hold of explanation of coalitional game as well as Markov chain-based analysis to measure the

constant coalitional structures that are obtained from distributed algorithm.

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