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Proficient Communicate Medley and Clustering Procedure for Spectrum Sharing Network

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Abstract: **The resource allotment method for telecasting the video. Using the combination of multicast and unicast model is essential one in Wireless networking. to relay the video from source to destination by allocating bandwidth process in the WIMAX relay network .we identify the problems in this method they contains a bandwidth allocating problem. like limited and unlimited bandwidth. To solve this problem we need to find the maximization of through put in a network and find the near optimal solution for maximization problem to solve the problem the existing purpose greedy weighted algorithm to allocate the bandwidth allocation from base station to subscriber station. this method may contains an unicast model to implement the process. the greedy weighted algorithm can avoid redundant bandwidth allocation the performance may very low to archive the process and the proposed system is examined by existing the algorithm by bounded version is called bounded greedy weighted algorithm can provide multicast model to transmits the video from source to destination in high performance so when we compare to greedy weighted algorithm. The bounded weighted algorithm allocating method can archive the process of resource allotment method for telecasting video.**

Keywords: **bandwidth allocation, bounded weighted algorithm, TCP/IP, Relay Telecasting.**

I. INTRODUCTION

To implement the process we need the ieee.802.16j standard is nothing but three stations they are base station relay station subscriber station this process can be done by relay network. using advanced network called wimax relay networks. The wimax is said to be worldwide inter operability microwave access in wireless communication. the process starts from base station to subscriber station in middle the relay station is used to connect to links to transmits the video. the two links are said to be an broadcast link and access link. the link between base station to relay station that bandwidth connectivity is called broadcast link and the link between base station to subscriber station is said to access link. the data rate can be improved by the three stations by modulation code method. the base station and relay station can dynamically adapt the downlink modulation. the video telecasting performance may depend upon the three stations. and this approach bandwidth allocation consists scalable video coding the video format like h.264/svc standards .this process split the video into small base layer from source and the destination the video base layer are combined together as enhanced layers.

To provide the video in better quality to the receiver this process can be done in both modulation code method and svc. and new bandwidth allocation method have been introduced in last few years for multicasting model in wireless network th e method proposed .bandwidth allocation by using the three station.but they have faced the data traffic in each station. in this they not use the svc this study identify the bandwidth allocating problems in multicasting model in three stations. The solution is designed to solve the bandwidth allocation problem by using the proposed algorithm bounded greedy weighted algorithm.the analyses shows the worst case performance of existing bandwidth allocation algorithm using the unicast model and the study proposed the multicast model to implement allocation problems using the bounded greedy weighted algorithm.

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II. RELATED WORK

Here the existing process consists an problem like unable to find near optimal solution. and unable to retrieve the video information from interrupt signals to solve this kind of problem we need the greedy method knapsack problems. and this problem can be solved but some drawback may occurs by using the unicast model. why because the unicast model is one to one communication only. if any problem or damaged occur means it can interrupt the whole signals. and again we want to try to solve the problems. and this method is used to find the near optimal solution and through put using knapsack problems still in worst case model used in greedy weight algorithm the method called divide and conquer and this model is said to be an recursion tree format. so for allocating the bandwidth from three station we need a format so for that we have taken the multicast model as an this model is said to be an recursion tree format. so for allocating the bandwidth from three station we need a format so for that we have taken the multicast model as an example and recursion tree as an system architecture. we illustrate a tree with thirteen nodes.Example of recursion tree in divided and conquers method in greedy algorithm

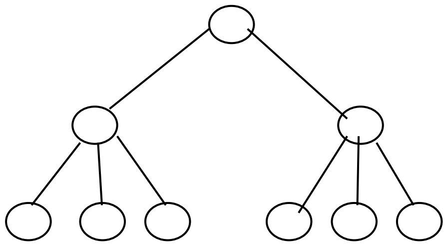

Fig 1: The number of nodes divided and managed by single node

And here the greedy method consists the divide and conquer method to implement the recursion tree. that the single node consists three nodes for a process the same way the relay station consist three subscriber station in each station. To implement this process we have taken the example from greedy method, using divide and conquer method using recursion tree.

1. Subscriber or Group based bandwidth allocation:

AG series has very unique way to protect the network usage of individuals, groups or designated IPs. Via such bandwidth managements, their network usage and application can be further protected. IT manager can easily configure the AG series to limit the bandwidth usage of network abusers or lower priority users, or even guarantee that of higher priority users or VIP whenever they intend to use the network. The users to be allocated the bandwidth, no matter setting limits or guarantees, can always be classified in advance as individuals (IPs) or groups. Where, grouping the users can be randomly selected instead of being limited by subnets or VLANs.

2. Application based bandwidth allocation:

Application visibility is the other important function of AG series products. Base on the DPI (Deep Packet Inspection) and DFI (Deep Flow Inspection) technologies, AG series product can aware the types of applications are running over the network. Similar to the subscriber based bandwidth management, IT manager can also protect the bandwidth of application by setting limitations or guarantees. For example, video conference or VoIP applications can be set as “VIP” of applications and being protected by bandwidth guarantees. In the other hand, the bandwidth of those unwanted applications such as P2P movie downloads can be limited to assigned bandwidth to further protect other applications’ bandwidth usages

III. PREVIOUS IMPLEMENTATIONS BANDWIDTH ALLOCATION

1. Allocation and Flow Selection:

Given u, the maximum number of the simultaneous data frame transmissions allowed in one time slot and M!, the scheduling decision vector, the system also need to inform the Base stations in which time slot their scheduled Video frames should be transmitted. If exactly u data frames are transmitted in every time slot, number of all data frames can be easily determined in the video layers. However, if there are not so many data frames transmitted in video layer, the combined video frames of a video files varies with the number of data frames transmitted in the same time slot.

2. Queuing Analysis:

Before presenting the optimization of the video data, we need to first analyze the average number of Video layers available in the Base Station. If a particular video layer is busy to transfer the data, then the another video layer is checking in the queue which is free. If the specified video layer is free then the data is sending via that video layer.

3. Effective Bandwidth/Capacity Model:

The effective capacity channel model captures a generalized link-level capacity notion of the fading channel by characterizing wireless channels in terms of functions that can be easily mapped to link-level QoS metrics, such as delay-bound violation probability. Thus, it is a convenient tool for designing QoS provisioning mechanisms. The bandwidth optimization technique improves the Network QOS by optimizing the band width based on the file size.

4. Video Broadcasting:

We develop optimized flow selection and resource allocation schemes that can provide end-to-end statistical delay bounds and minimized energy consumption for video distribution over cooperative wireless networks. The network flow for video content distribution can be any sequential multi hop multicast tree forming a directed acyclic graph that spans the network topology. We mode the queuing behavior of the cooperative network according to the effective capacity link layer model. Based on this model, we formulate and solve the flow resource allocation problem to minimize the total energy consumption subject to end-to-end delay bounds on each network paths. However, if there are not so many data frames transmitted in video layer, the combined video frames of a video files varies with the number of data frames transmitted in the same time slot.

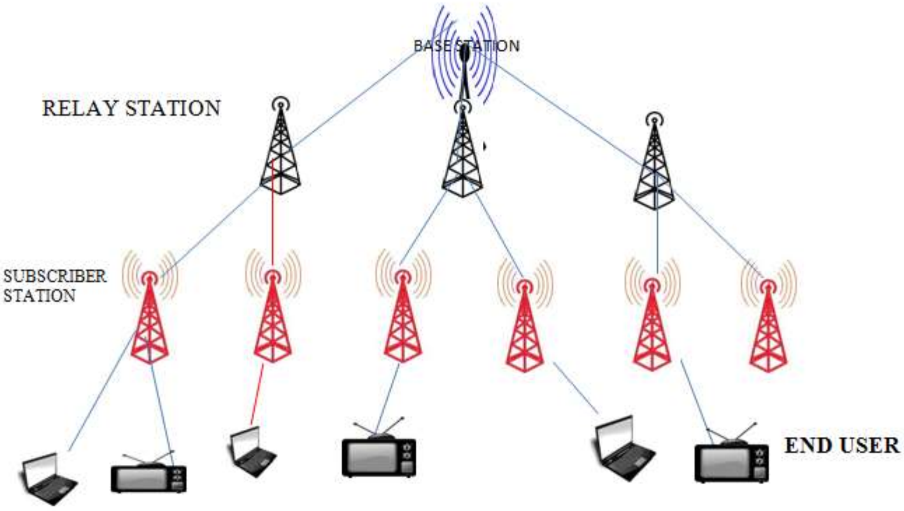

Figure 2: Relay Distribution

The concept behind the proposed system is the bandwidth allocation method is different from related work.so this related work may consider as an proposed system with explanation of existing system i.e. unicast model and multicast model is used to transmit the video in two models only. And here the greedy method consists the divide and conquer method to implement the recursion tree. that the single node consists three nodes for a process the same way the relay station consist three subscriber station in each station.to implement this process we have taken the example from greedy method, using divide and conquer method using recursion tree.

Resource allotment model with bandwidth allocation table based values:

The study confirms that the values is unlimited to allocate the bandwidth from base station to relay station in this transmission the problem may not occur. why because the bandwidth allocation is unlimited. and in relay station to subscriber station the problem will occur why because the bandwidth allocation is limited.i.e we want to fix the proper bandwidth values to transmits the video from relay station to subscriber station. the bandwidth is lower than other link means a signal strength is too low to connect the subscriber station. this concept had been shown using a tool called java eclipse with diagram and table column

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IV. SYSTEM ANALYSIS

A. PROBLEM DEFINITION:

We consider a spectrum sharing network consists of N_p primary nodes and a secondary system with an **M**-antenna source, an **M**-antenna destination and **n** single-antenna half-duplex relays, as shown in Figure 1. The average interference power caused by the secondary on each of the primary nodes must be less than **7** Let H G $C^{M\times n}$ be the channel coefficient matrix from the source to the Respectively. Denote hpl G CMx1 as the channel vector from the source to the primary node I, 1 < I < Np. The source has no direct link to the destination, a widely used model appropriate for geometries where the relays are roughly located in the middle of the source and destination. A block-fading model is considered where all entries of H, F, G and hpl are zero-mean i.i.d. circular symmetric complex Gaussian (CN) with variance a2s, o\, up and respectively. The source communicates with the destination via two hops, which in general lowers the required transmit power and thus reduces the interference on the primary. In the first hop, the source sends M independent data streams across M antennas with equal power. The relay i receives

$$r_i = \sqrt{\frac{P_s}{M}} \mathbf{h}_i^t \mathbf{s} + n_i, \quad (5)$$

where Ps is the source transmit power, which must be less than a power constraint Ps, s G CMx1 is i.i.d. Gaussian signals, h| G C1xM is the row i of H, namely the channel vector between the relay i and the source, and ni is additive noise with distribution CN(0,1). In the second hop, a subset of the relays is selected to transmit to the destination. We define a random variable Ti to indicate whether the relay i is selected (eligible):

$$T_i = \begin{cases} 1, & \text{the relay } i \text{ is eligible} \\ 0, & \text{otherwise} \end{cases} \quad (6)$$

No cooperation among the relays is allowed due to their distributed nature. Each relay rotates and scales ri by

$$c_i = e^{j\theta_i} \sqrt{\frac{P_r}{\mathbb{E}[T_i](P_s\sigma_s^2 + 1)}}. \quad (7)$$

Where Pr is the average relay power and 0i is the rotation angle, which is designed in the sequel.

After the relay forwarding, the received signal vector at the destination is

$$\mathbf{y} = \sqrt{\frac{P_s}{M}} \underbrace{\mathbf{FDHs}}_{\tilde{\mathbf{H}}} + \underbrace{\mathbf{FDn} + \mathbf{w}}_{\tilde{\mathbf{w}}}, \quad (8)$$

System testing ensures that the entire integrated software system meets requirements. It tests a configuration to ensure known and predictable results. An example of system testing is the configuration oriented system integration test. System testing is based on process descriptions and flows, emphasizing pre-driven process links and integration points.

The software without any knowledge of the inner workings, structure or language of the module being tested. Black box tests, as most other kinds of tests, must be written from a definitive source document, such as specification or requirements document, such as specification or requirements document. It is a testing in which the software under test is treated, as a black box .you cannot “see” into it. The test provides inputs and responds to outputs without considering how the software works

Regulation option for primary spectrum usage:

Regulator control access	License control access	Application requirements
Traditional Licensing	Spectrum manager makes guarantees	Guaranteed QoS
Unlicensed band, regulator sets etiquette	Spectrum manager sets etiquette, no QoS guarantee	No QoS support coexistence, horizontal spectrum sharing
Cognitive radio, regulator sets protocols	Cognitive radio, license sets protocols	QoS support, cooperation horizontal spectrum sharing.

Regulation option for Secondary spectrum usage:

Regulator control access	License control access	Application requirements
Not Possible unlicensed underlay Unlicensed with opportunistic access.	License guarantees QoS secondary market with overlay opportunistic access.	Guaranteed QoS. No QoS support, coexistence, vertical spectrum sharing
Interruptible secondary operation, regular sets cooperation protocol	Interruptible secondary operation, regular sets cooperation protocol	Interruptible secondary operation, regular sets cooperation, vertical spectrum sharing

V. EVALUATION RESULT

A. PERFORMANCE ANALYSIS:

In this subsection, the SCP from the CRtx to the CRrx will be analyzed first. Then the SCP within multiple consecutive time slots will be further investigated. Also, the coexistence of multiple CR links with primary links will be considered.

Slot Allocation and Flow Selection:

Given u, the maximum number of the simultaneous data frame transmissions allowed in one time slot and M!, the scheduling decision vector, the system also need to inform the Base stations in which time slot their scheduled Video frames should be transmitted. If exactly u data frames are transmitted in every time slot, number of all data frames can be easily determined in the video layers. However, if there are not so many data frames transmitted in video layer, the combined video frames of a video files varies with the number of data frames transmitted in the same time slot.

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APPROXIMATION ALGORITHMS FOR FLOW SELECTION:

Finding the globally optimal distribution strategy requires converting each of the N Video layers sequences into a spanning tree and finding the minimal energy consumption using that tree structure, then choosing the tree that minimizes energy consumption among all candidates, and allocating resources accordingly. Here, we propose two approximation algorithms to reduce the complexity involved in choosing the best flow for a given fading state. The objective of the proposed algorithms is to avoid searching through the exponential number of possible tree structures. The first algorithm uses negated SNRs as link weights on the complete network graph, and finds the minimum spanning tree using these weights. The second algorithm is based on selecting a set of dominant flows that are optimal for a large percentage of fading states for a given network topology.

Video Broadcasting:

We develop optimized flow selection and resource allocation schemes that can provide end-to-end statistical delay bounds and minimized energy consumption for video distribution over cooperative wireless networks. The network flow for video content distribution can be any sequential multi hop multicast tree forming a directed acyclic graph that spans the network topology. We mode the queuing behavior of the cooperative network according to the effective capacity link layer model. Based on this model, we formulate and solve the flow resource allocation problem to minimize the

View User Details Via Mobile Alerts:

Cooperation among mobile devices in wireless networks has the potential to provide notable performance gains in terms of increasing the network throughput and user events, extending the network coverage, decreasing the end-user communication cost for a specified Video File From the base station, and decreasing the energy consumption. For example, the ICAM architecture presents an integrated cellular and ad hoc multicast scheme to increase the cellular multicast throughput through the use of mobile stations (MSs) as ad hoc relays. In the UCAN architecture, the MSs use their WLAN interface to enhance the throughput and increase the coverage of a wireless wide area network. In MSs are assumed to be connected to several wireless networks with different characteristics in terms of bandwidth, packet loss probability, and transmission cost. A near-optimal solution is shown to reduce end-user cost while meeting distortion and delay constraints.

B. SPECTRUM MULTIPLEXING AMONG CR USERS:

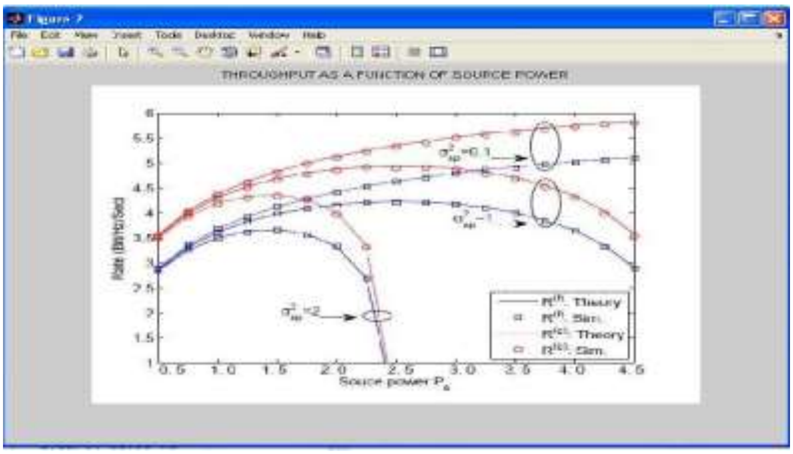

Fig 3: Secondary rate under two clustering schemes

Illustrates we propose an augmented scheduling algorithm that recovers the half-duplex loss and improves the constant factor in the throughput growth rate. Finally, we characterize the tradeoffs between the secondary rate and the primary interference, showing that the interference on the primary can be reduced asymptotically to zero while the secondary rate still grows logarithmically with n.

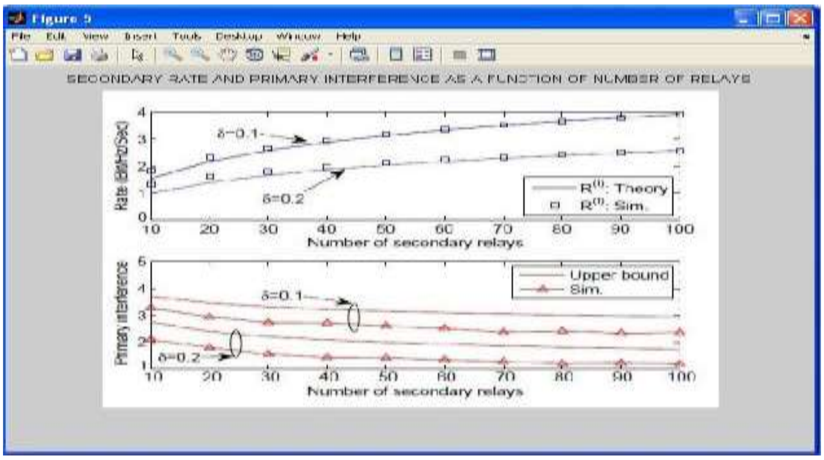

Fig 4: Secondary rate and primary interference as a function of number of relays

Illustrates the tradeoff between maximizing secondary rate and minimizing interference on the primary. The interference power is γ = 5(n)−δ with δ = 0.1 and 0.2, respectively. For δ = 0.2, the interference power decreases faster than δ = 0.1, while the secondary rate increases more slowly.

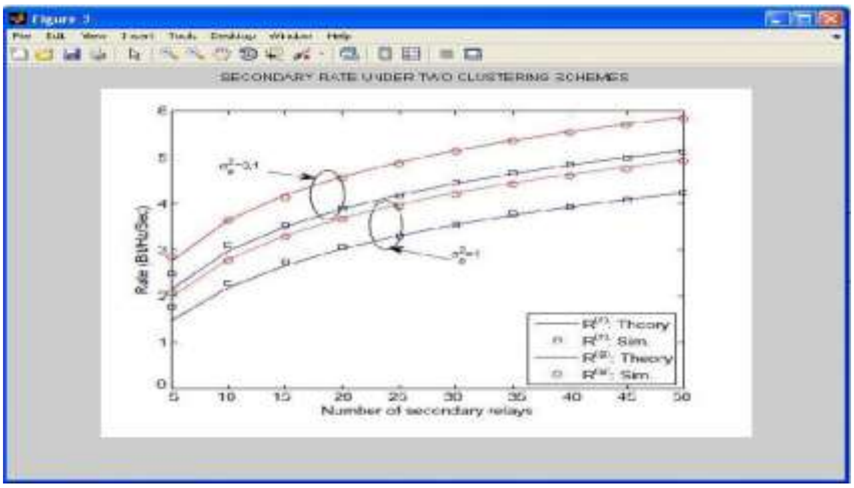

Fig. 5. Secondary rate under the alternating relaying protocol

The simulated rates match the theoretic analysis well under modest value of n. As the relay relay channel becomes weaker (smaller σ2 r), the inter-relay interference is reduced, and thus the secondary rate increases. our results show that even without cross channel information at the secondary, the secondary rate can achieve the growth rate log n.

VI. CONCLUSION

The problem in bandwidth allocation is resolved in the proposed system by using multicast model and bounded greedy weighted algorithm using n/p problem. this paper may consists an domain of mobile computing and networking. the proposed Algorithm greedily makes the locally optimal choice based on the weighted value. This approach significantly reduces computational complexity. In addition, by consulting the multicast tables in each greedy stage, the proposed Bounded greedy weighted algorithm can effectively avoid redundant bandwidth allocation.

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