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Resource SchedulingIn LTE-advanced System using a carrier

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Abstract: *In 2G and 3G it will support less data rate where as LTE system support high data rate. resource schdueling in the downlink is important in LTE*
System.propotionality fair algorithm is one of the good aspect in the resource allocation.propotinoality fair algorithm gives equal important to all users. Proportional fair algorithm is a compromise based scheduling algorithm.It is based upon maintaining a balance between two completing interests.Trying to maximize total throughput whie at the same time allowing all users at least a minimal level of service.Simulation results show that proportionality fair algorithm fairness.

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I. Introduction:

LTE advanced system supports huge data rate upto 1Gbits/sec. In order to achieve this speed in mobile systems we use carrier aggregation.LTE-Advanced uses carrier aggregation of multiple component carriers(CCs) to achieve high –bandwidth transmission.LTE-Advanced supports aggregation of up to five 20 MHZ ccs. Carrier aggregation supports efficient use of fragmented spectrum irrespective of peak data rate.LTE-Advanced is designed to support aggregation of a variety of different arrangements of CCs,including ccs of the same or different bandwidth .Each CC can take any of the transmission bandwidths.

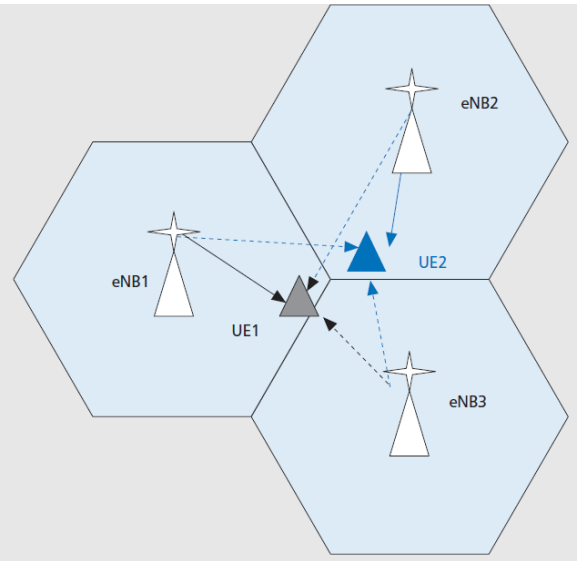
supported by LTE namely Resource Blocks(RBs),corresponding channel bandwidths in MHZ.For Frequency Divison Duplex(FDD) operation,the number of aggregated carriers in uplink and downlink is different.LTE advanced case no of carrier components is not less than the number of uplink carrier components. This enables fragmented spectrum arrangements of relevance to network operators to be supported.

IN LTE –Advanced system we use proportionality fair algorithm for resource scheduling .propotinality fair algorithm gives fairness to user.LTE-Advanced system supports backward compatability(means it will support previous versions LTE systems). If we want to allow backward computability the transmission blocks from different component carriers are aggregated at the medium access control layer.

Problem definition: All LTE systems not supported to backward compatability. Number of users and carrier components are large the complexity of the system is very high it is difficult to implement

System model: System has two kinds of users LTE-A and the LTE users.To simplify analysis we divde all carrier components are two types LTE carrier accessed by both LTE and LTE-A where as LTE-A carrier accessed by only LTE-A because it is high frequency component. When a user has arrived the system will decide which users to serve and then employs cc selection to allocate the users on different carrier components. Once user are assigned onto certain carrier component the resource scheduling will be performed in each carrier component.

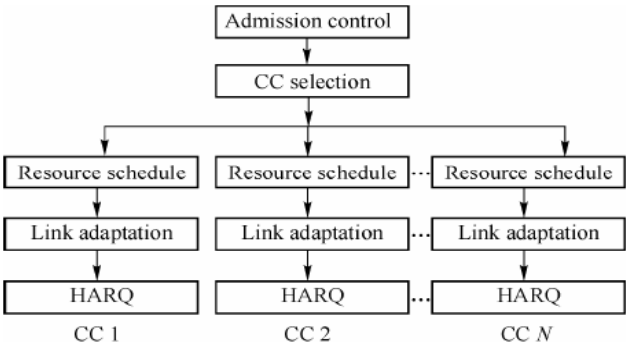
Carrier selection:



The enhanced node B selecting appropriate carrier

Importance of resource scheduling

Scheduling disciplines are algorithms used for distributing resources among parties which simultaneously and asynchronously request them. The main purpose of resource scheduling algorithm is to minimize resource reservation to particular user it give resources to all users there are many different algorithms propotinality fair algorithm is give accurate fairness among users.



Structure of multi component carrier LTE-A system

LINK ADAPTION

In celluar communication systems the quality of the signal received by a UE depends on the channel quality from theservingcell,the level of interference from other cells and the noise level.To optimize system capacity and coverage for a given transmission power the transmitter should try to match the information data rate for each user to variation in received signal quality this is commonly referred as link adaption and is typically based on adaptive modulation and coding(AMC) The degrees of freedom for the AMC consit of the modulation and coding schemes.

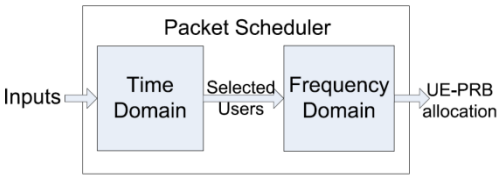
for the downlink data transmissions in LTE the enodeB typically selects the modulation schemes and code rate depending on a prediction of the downlink channel conditions.An important input to this selection process is the channel Quality indicator(CQI) feedback.CQI feedback indication of the data rate.

HARQ:

Hybrid automatic repeat request is combination of high rate forward error correcting coding and arq error control.in standard ARQ redundant bits are added to data to be transmitted using an error detecting code such as cyclic redundancy check (CRC).Receivers request a new message from the sender in hybrid arq the original data is encoded with a forward error correction code.Hybrid arq isperoforming better than arq in poor signal conditions.

Proportionality fair algorithm:

The main purpose of propotianlity fair algorithm is balance between throughput and fairness among all the user equipments.It tries to maximize total throughput while at the same time it provides all users at least a minmal level of service in propotinality fair strvation is avoided.In propotinality fair algorithm above steps are peroformed and give necessary resource allocation according to that.steps will be perofomed.

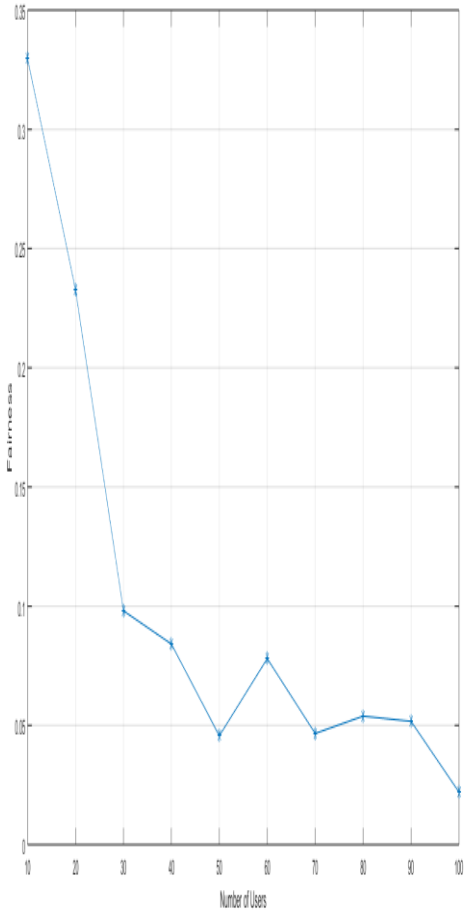


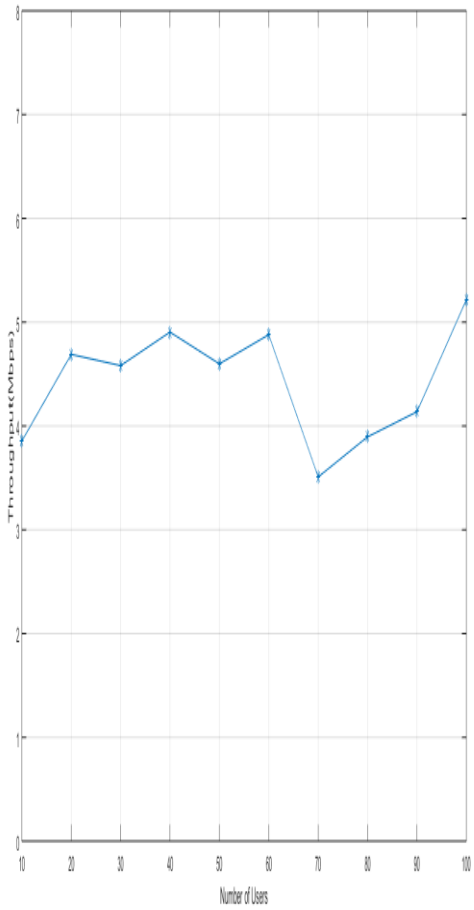
The following steps are peroformed
Step1: first it will select no of users
Step2:According to users it will perfrom it will check how many carriers are required and how many resource blocks.
Step3:According to users it will perform resource schdueling
Step4:According to that it will give link adaption

So in this way propotinality fair works and it give fairness to all users

II. Result

If the no of users will increases how throughput will be done. And we are expecting how the fairness will be done in our algorithm





so our prposed algorithm works better than classical algorithms.

References

[1]. Parkvall S, Furuskar A, Dahlman E. Evolution of LTE toward IMT-advanced. IEEE Communications Magazine, 2011, 49 (2): 84_91
[2]. Ghosh A, Ratasuk R, Mondal B, et al. LTE-advanced: next-generation wireless broadband technology. IEEE Wireless Communications, 2010, 17(3): 10_22
[3]. Nokia. Carrier aggregation configurations and DL/UL linkage. 3GPP TDocs (written contributions) at Meeting, R1-59, Nov 11_13, 2009, Jeju Island, Republic of Korea. 2009: R1-094642
[4]. Johansson K, Bergman K, Gerstenberger D, et al. Multi-carrier HSPA evolution. Proceedings of the 69th Vehicular Technology Conference (VTC-Spring'09), Apr 26_29, 2009, Barcelona, Spain. Piscataway, NJ,
[5]. USA: IEEE, 2009: 5p
[6]. Iwamura M, Etemad K, Fong M, et al. Carrier aggregation framework in 3GPP LTE-advanced. IEEE Communications Magazine, 2010, 48(8): 60_67
[7]. Yuan G X, Zhang X, Wang W B, et al. Carrier aggregation for LTE-advanced mobile communication systems. IEEE Communications Magazine, 2010, 48(2): 88_93
[8]. CATT, RITT. Carrier aggregation for LTE-A. 3GPP TDocs (written contributions) at Meeting, R1-55b, Jan 12_16, 2009, Ljubljana, Slovenia. 2009: R1-090187
[9]. Wang Y Y, Pedersen K I, Mogensen P E, et al. Resource allocation considerations for multi-carrier LTE-advanced systems operating in backward compatible mode. Proceedings of the 20th IEEE International
[10]. Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC'09), Sep 13_16, 2009, Tokyo, Japan. Piscatawaw, NJ, USA: IEEE, 2009: 370_374

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