CHAPTER 7

CONCLUSIONS

This chapter presents the final conclusions on results obtained from the thesis. Thesis proposes different procedures for bandwidth reservation based on the optimal channel utilization time and priority based methods. The results are provided in the corresponding chapters and it can be observed that the proposed algorithms perform better when compared to the existing systems. Here the thesis briefs the results of the different algorithms that had been proposed.

The thesis proposes the algorithm which reserves the bandwidth for handoff flows based on information obtained from the cross layer architecture. Initially, some amount of bandwidth is reserved for handoff flows and later it is increased by the base station based on the user mobility. The end-to-end delay of packets is reduced and the throughput of the system is increased when the bandwidth is appropriately reserved before the flow loses its connection.

Distributed channel allocation algorithms have gained more attention because of their high reliability and scalability. In fault-tolerant channel allocation algorithm, a borrower does not need to receive a response from every interference neighbour. It only needs to receive a response from each cell in an interference partition subset as long as there is one common available channel among them. Since the number of cells in an interference partition subset is far less than the number of interference neighbours, it tolerates network congestion, communication link failure, and node failures.

Suppose a cell that tries to borrow a channel does not have to wait until it receives a reply message from each of its interference neighbours. A cell can borrow a
channel as long as it receives reply messages from each cell in a subgroup in its interference neighbourhood and there is at least one common primary channel which is not being used by any cell in this subgroup. Moreover, the channels are reused more efficiently.

In this paper an efficient cross layer based bandwidth reservation scheme is proposed. The amount of bandwidth to be reserved at each base station was calculated dynamically based on the user mobility and the traffic intensity of mobile users. This paper assumes several probabilities that the user may move left, right, straight and backwards. The analysis of the QoS performance metrics like packet throughput and end to end packet delay is carried out and observed that the proposed system is better in performance in terms of delay and throughput metrics.

A new scheduling algorithm is proposed which reduces the blocking probability and dropping probability which in turn reduces the end to end delay of packet delivery. This system utilizes bandwidth efficiently by reserving the bandwidth based on the reservation request from the MS and the type of application. The flows are considered to be originating and handoff flows. The handoff flows are given priority over originating calls. Similarly voice and video are given higher priority over data flows. Queuing system also is maintained for queuing the calls when sufficient bandwidth is not available. Three queues are used in this system. First queue is used for originating and handoff data flows, second for originating voice and video flows and then third for handoff voice and video flows. The performance of the system is evaluated in terms of call dropping probability and call blocking probability and proved to be performing better than the legacy systems such as TBR.

The proposed algorithms improves the QoS efficiently by reserving the bandwidth, which improves bandwidth utilization and the throughput of the system.