Chapter Five

Conclusion and Recommendations

5. Conclusion and Recommendations

5.1 Conclusion

Cellular networks need to provide quality of service (QoS) guarantee to different types of data traffic in a mobile environment. A call admission control (CAC) scheme aims at maintaining the delivered QoS to the different calls (or users) at the target level by limiting the number of ongoing calls in the system. One major challenge in designing a CAC arises due to the fact that the cellular network has to service two major types of calls: new calls and handoff calls. The QoS performances related to these two types of calls are generally measured by new call blocking probability and handoff call dropping probability.

In this thesis Call Admission Control in LTE Network was discussed, both the adaptive and static bandwidth reservation methods were simulated using Matlab to compare their performance on the network.

Different scenarios were carried out using different values of the thresholds. Three types of services were considered; handoff calls, VoIP calls and video calls. Prioritizing the handoff calls over the new calls by reserving a large amount of bandwidth for it than that reserved for VoIP and video calls, and prioritizing the VoIP over Video type.

The simulation results showed that the performance of the handoff and video was better in the adaptive than in the static method. This is due to the fact that the calls are admitted randomly and both thresholds the th_{ho} and the th_{voip} were adjusted to accommodate more incoming handoff and video calls than VoIP calls, resulting in a poor performance for the VoIP calls.

Also it was noticed that as the bandwidth reserved increases, the dropping and blocking probabilities decrease as more calls are allowed to enter the network.

5.2 Recommendation

This thesis discussed the call admission control in LTE network using both; the adaptive and static bandwidth reservation algorithms, for future work the following recommendations are hereby made:

- Consider more services like Extended Real-time Polling Service (ertPS), Non-real-time Polling Service (nrtPS), and Best Effort (BE).
- Prioritize other services.
- Place the call in a queue until resources become available to admit it.