Chapter 7
Conclusions

7.1 Conclusions

The comparative study using simulations prove that the hybrid protocols like ZRP are essential for adhoc networks when the mobility increases. If the protocols depend entirely on periodic messages at the IP level then there will be high packet losses even for a slight increase in mobility. Feedback from the link layer (L.L.) protocol like IEEE MAC 802.11 is very necessary for adhoc networks.

The performance of table driven protocols like DSDV falls drastically when mobility increases and hence are not suitable for adhoc networks. The on demand routing protocols like AODV and DSR performed well even when the mobility is high. DSR is simple and well suited for simple adhoc networks. But it is based on source routing, so when the size and the load of the network increases the byte overhead of DSR increases significantly.

DSR is not suitable when the load is more or when the size of the network is large. In these situations a hop by hop protocol like AODV are better suited.

The hybrid protocols like ZRP are more suited for Mobile adhoc networks. They reduce the overhead by around 20%. They also reduce packet and byte overhead while improving the delay and throughput characteristics.

New scheduling strategies are suggested to improve the quality of service in adhoc networks, end-to-end message delay. The users are more interested in delay.
Smallest number of hops first scheduling strategy reduces the average end-to-end delay. The largest number of hops first scheduling strategy helps even the deviation for end-to-end delays over the network. It will result in near equal delays irrespective of the distances in the network.

The analysis and comparison of protocol performance have the following constraints. Each protocol performs differently when coupled with different MAC and physical layer technologies. Consequently the protocol performance is valid only in the context of the given implementation.

These schemes presented in the thesis can be used in conjunction with the MAC layer schemes to enhance the adhoc network performance.

7.2 Scope for future work

Ad-hoc networking is a new concept in the field of computer communications. The research is in the initial stages and many issues need to be solved.

- Simulations which also consider unidirectional links.
- Security: Routing protocols are the main targets for impersonation attacks. In adhoc networks as there is no centralized control, security concerns must be handled in a distributed way.
- Multicasting. It can be extended to multicasting.
- Connection of adhoc networks to the Internet.