CHAPTER 7

CONCLUSION AND FUTURE DIRECTION

7.1 Summary

In this research work, security and clustering are focused for effective virtualization of MANET. In clustering, energy efficient clustering with effective node deployment is proposed. In security, dynamic group key management based security model is proposed.

The proposed node deployment model is explained in chapter 3. From the result, it is obvious that the proposed node deployment architecture provides effective utilization of power, minimum wastage of bandwidth and stable clustering structure, minimized overhead, effective maintenance phase and maximized lifespan of mobile nodes in the system.

The proposed EE-ABC based clustering model is described in chapter 4. From the result and performance analysis, it is proved that the Latency of the proposed work is improved around 5% more than LEACH and around 8% more than CGSR. Similarly the throughput of the proposed work is improved around 15% more than LEACH and around 10% more than CGSR. The packet loss of the proposed work is shown always above 95%. Hence, it is
concluded that the proposed work outperforms than the existing methodologies.

The proposed DGKMS is shown in chapter 5. In the result and performance analysis, scalability and reliability are computed. The scalability is observed from the above data, in which the system has 70% and above packet delivery ratio only accepted as scalable system. Hence, when 10% attacker nodes are inserted, the TA supports up to 300 Nodes, whereas the MA supports up to 500 Nodes and proposed DGKMS support 1000Nodes. When attacker nodes are increases to 20% of number of nodes, the TA supports up to 300 Nodes only, whereas the MA supports up to 500 Nodes and proposes DGKMS support even for 1000Nodes.

Similarly, the TA supports only 100 Nodes, the MA supports up to 200 Nodes when 30% of attacker nodes are inserted. The proposed system always supports above 80% packet delivery ratio. Hence, the proposed system proves better scalability than the existing systems.

From the above results and performance analysis, it is concluded that the proposed work will perform optimal than the existing works.

7.2 Future Scope

The proposed methodologies for clustering, security are implemented in the simulation environment using NS2. The result of real time implementation of these methodologies may differ from the simulation result. This may lead to a study of the performance degradation factors which affect
the proposed methodologies. Hence, the real time implementation may provide additional research problems to the active researchers.

The security model of the proposed work concentrates on MANET. Cellular communication is one among the important resource of everyone’s life time and which is growing rapidly over the past few decades. Hence, the proposed secured model can be implemented to the upcoming 5G and beyond cellular networks.