7. CONCLUSIONS

7.1 SUMMARY

The main objective of the research work discussed is to overcome the cold start problem in recommending new cloud services like the cloud renderfarm services. The research work has developed cloud renderfarm domain specific recommendation engine and in specific a cloud broker framework with the recommendation engine in the topmost layer to recommend the cloud renderfarm services. This research work has also identified the methods and techniques to acquire the domain knowledge about the cloud renderfarm services, discover the services that match the functional requirements of the user.

The research work also identifies the Quality of Service (QoS) parameters specific to the domain and the right Multi Criteria Decision Making (MCDM) methods to rank the services based on the Multi Criteria QoS requirements of the user. It also identifies the Quality of Experience (QoE) parameters specific to the domain that would reflect the user preferences and techniques to re-rank the services based on QoE rating of users.

We have also created an experimental test bed and have conducted experiments on real cloud renderfarm services, collect data and have applied the proposed methodology to generate recommendations in cold start situations.

The experimental results were also evaluated using the appropriate evaluation metrics. The results show that the proposed methodology of recommending cloud renderfarm services is efficient in generating the recommendations in cold start situations.

Hence, when the recommendations are generated at each level based on the availability of the information using the approaches namely, knowledge based filtering using ontology, QoS using ranking Multi Criteria Decision Making methods (MCDM) and re-ranking based on QoE rating the cold start problem can be overcome efficiently.
7.2 LIMITATIONS AND SCOPE FOR FURTHER WORK

This research work has considered the cold start problem in recommending the domain specific new type of cloud services and has applied the proposed methodology only for the cloud renderfarm services domain. However, the proposed recommendation methodology could be applied for other domain specific services and the effectiveness of the proposed approach could be verified.

Further, this research work has identified only four Quality of Service (QoS) attributes and five Quality of Experience (QoE) attributes that are important for animation file rendering. More attributes could be identified and the proposed methodology could be applied to verify the results.

This research work has applied three selected MCDM methods like the AHP, SAW and the TOPSIS methods for ranking, the services based on the multiple QoS criteria requirements of the users. The other MCDM methods could also be applied to rank the cloud renderfarm services.