7. CONCLUSIONS AND FUTURE ENHANCEMENTS

7.1 CONCLUSIONS

The proposal of this research has been revolving around one of the core issues of Web Service Based systems which is the UDDI registry. Issues and Challenges of a Centralized UDDI registry and the need for a distributed approach has been well established through enough research references and evidences. Based on the well established researches and research evidences, it is accepted by many researchers that the distributed approach is a better alternate for the well understood problems of the Centralized UDDI approach. But, the Distributed UDDI registry also, being similar to any other distributed applications or the distributed database applications, throws challenges to the research community in terms of its performance issues and other technical issues which are generally common in any distributed data oriented applications whichever is taken into consideration. It was felt that among the many different issues which are concerned with a Distributed UDDI registry, the issue related to Consistency of Service registry information across the nodes of the Distributed UDDI registry was considered to be a core issue to be addressed by us for the benefit of the Web Service based System developers and that served the motivation for taking up the research in Distributed UDDI for its Service Consistency related concerns.

Maintenance and Management of the Replica Consistency across the nodes of the Distributed UDDI registry and the Reduction in the overall Response Time for Service Inquiry, Service Registration and Updation in the DUDDI registry were identified as the research goals. In support of the identified goals, an Effective Model for Replica Management in the Distributed UDDI Environments was proposed. After a thought process, a layered experimentation framework was proposed, which was used as a base for the experiments conducted later. The
layered experimentation framework was useful enough to have the clear cut plan to evaluate the performance of the proposed Distributed UDDI Model through the set of Performance Attributes and Assessment Criteria like the Service Consistency, Response Time, Service Availability, Number of Message Passes and Scalability.

Based on the proposed experimentation framework, methodologies were developed for the establishment of the Distributed UDDI model and to carry out various operations like Node Search for Service Read, Service Write/Update, DST Structures to reduce the Number of Message Passes and Message Density, Optimization to find the optimal route between the Service requester and UDDI registry for better response time etc.,. The proposed Distributed UDDI Model was analyzed both theoretically and through the promising experimental results. Analysis of the Experimental Results prove that the proposed Distributed UDDI model provides an effective means and ways to carry out the replica management process and thereby consistent Service information or its replica is ensured to Service Requesters and to facilitate the Web Service based Systems development process.

7. FUTURE ENHANCEMENTS

The DUDDI Model recommended through this research considers the core issues related to the Service Replica Consistency, Response Time, Scalability and Availability. The DUDDI Model can be further enhanced to include the left out functionalities like Service Composition, Selection and Ranking, which have not been considered in this research. In addition, an optimal cache replacement and cache admission control technique can be formulated to ensure automated cache replacement with a new and updated version of the cache after its expiry. Further, in place of time based consistency model, which ensures the replica consistency
for a predefined time duration and is just enough for the Service Replica consistency, other methodologies like Global consistency and Local consistency models can be used to enhance the consistency and consistent service retrieval.