MASTERS DISSERTATION

Automated Service Selection Algorithm in Cloud Computing

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APPROVAL SHEET

This is to certify that we have examined this copy of the Master's thesis written by **Hassan Bin Naseer** and have found that it is complete and satisfactory in all respects and that any and all revisions required by the final examining committee have been made.

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Dedicated to my caring, supportive and loving Parents

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Abstract

Cloud computing has created a buzz in the field of computing due to its service oriented architecture. It allows individuals and businesses to use software and hardware managed by third parties at distant locations.

However the growth of cloud computing has brought about the increase in cloud vendors and service providers offering variety of services to end users. The diversity in cloud platforms and services has made it difficult to decide which service to choose depending upon varying needs and constraints.

Quality of Service (QoS), attributes help us in examining the quality of a service that a vendor provides. However selecting the best service under certain conditions is still a cumbersome task. The Process is considered to be NP-hard (Non-deterministic Polynomial-time hard) problem as there is no ultimate solution.

This thesis addresses the challenge of finding near-optimal solutions of the problem, with reduced computational complexity, and is suitable for selecting services in real-time. In order to achieve this goal, user requirements are given top priority and happiness measure of user is calculated upon which services are filtered. Simulated Annealing algorithm along with greedy approach is used to determine to find the near optimal solution with time efficiency.

A formal model is used to calculate weights for each service according to user requirements and priority for each service class which plays a major role in increasing the satisfaction level of a user and helps in filtering the services that makes the algorithm work fast.

Enhanced service selection algorithm can reduce latency and help achieve higher level of user satisfaction in cloud computing environment.