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RESEARCH ARTICLE

A MODEL FOR EVALUATING AND MAINTAINING LOAD BALANCING IN CLOUD COMPUTING

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ABSTRACT

Cloud computing is emerging as a new paradigm of large-scale distributed computing. It is a framework for enabling convenient, on-demand network access to a shared pool of computing resources. Load balancing is one of the main challenges in cloud computing which is required to distribute the dynamic workload across multiple nodes to ensure that no single node is overwhelmed. It helps in optimal utilization of resources and hence in enhancing the performance of the system. The goal of load balancing is to minimize the resource consumption which will further reduce energy consumption and carbon emission rate that is the dire need of cloud computing."Cloud computing" is a term, which involves virtualization, distributed computing, networking, software and web services. A cloud consists of several elements such as clients, data enter and distributed servers. It includes fault tolerance, high availability, Scalability, flexibility, reduced overhead for users, reduced cost of ownership, on Demand services etc. Central to these issues lies the establishment of an effective load balancing algorithm. The load can be CPU load, memory capacity, delay or network load. Load Balancing is the process of distributing the load among various nodes of a distributed System to improve both resource utilization and job response time while also avoiding a situation where some of the nodes are heavily loaded while other nodes are idle or doing very little work. Load balancing ensures that all the processor in the system or every node in the network does approximately the equal amount of work at any instant of time. This technique can be sender initiated, receiver initiated or symmetric type (combination of sender initiated and receiver initiated types). Our objective is to develop an effective load balancing algorithm using Divisible load scheduling theorem to maximize or minimize different performance parameters (throughput, latency for example) for the clouds of different sizes (virtual topology depending on the application requirement).

Keywords: ABC-Artificial Bee Colony, EA-Evolutionary Algorithm CSP-Cloud Service Provider, CSA- Cloud Security Alliance IaaS-Infrastructure as a Service, IP- Intellectual Property

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