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Load Balancing Algorithm in Cloud Computing

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ABSTRACT: cloud computing is one of the most important field which creates a pool of dependency of almost of computation all over the globe directly or indirectly load balancing algorithm will decrease the waiting time and increase the utilization of resources in optimal manner.

Background – cloud computing involves a huge set of infrastructure which involves huge cost and maintenance so preparing such huge setup will definitely include high maintenance and cost so in order to have the optimal utilization and time management, sharing of resources by multiple organization at the same time is one of the most important purpose of cloud computing. Load balancing is the answer to it. Having multiple request of resources by different end users at the same time on the cloud can only be solved by a load balancing algorithm implemented efficiently on the cloud having multiple resources. Cloud computing is basically a network of multiple elements including multiple hardware and software which can provide services to the multiple users. Cloud contains different systems of resources and high level services which help organizations in resource management with high productivity and minimum cost.

I. INTRODUCTION

The organization using services on the cloud use resources without its maintenance with its optimal resources. The organization does not need to focus on the resource maintenance and handling of resources as cloud work as a third party.

II. CLOUD PERSPECTIVES

cloud includes hardware virtualization. There are three main stakeholders of cloud.

End Users: the end users must agree to the service level agreement (SLA) specified by the cloud provider specified before using it. The cloud provides various services may be related to infrastructure or software or platform. As cloud provider provides services on demand basis and the price incurred by the organization or client is based on the usage. Providing user flexibility in utilizing its resources by incorporating utility computing. Before SLA, the user on the cloud must verify quality of services, (QoS) parameter which are important for the client consumer before using.

Cloud Provider- Cloud provider can be public, private or hybrid cloud. The difference between the services provided by these clouds does not depend on its types but depend on the requirement of the client.

Public cloud may be used to store big data by individual or organization for which confidentiality is not an issue as the public cloud has its greatest level of efficiency. Some of the examples of public clouds are Amazon web services [8], HP cloud [11] etc. private cloud includes confidentiality of an organization using its services as and when needed. The information of an organization or client remains confidential on distributed data centers which has high integrity, accountability, proper resource utilization with cost incurred based on pay-as-you-need basis. Hybrid cloud is a combination of both public and private cloud. It allows organization to manage some resources internally and some externally. The main concern is the complexity of the overall management which increases the issue of security. CliQr is one of the known clouds.

Cloud provider's job is resource provisioning it includes huge set of resources which are associated with the cloud and provide services to the end user.

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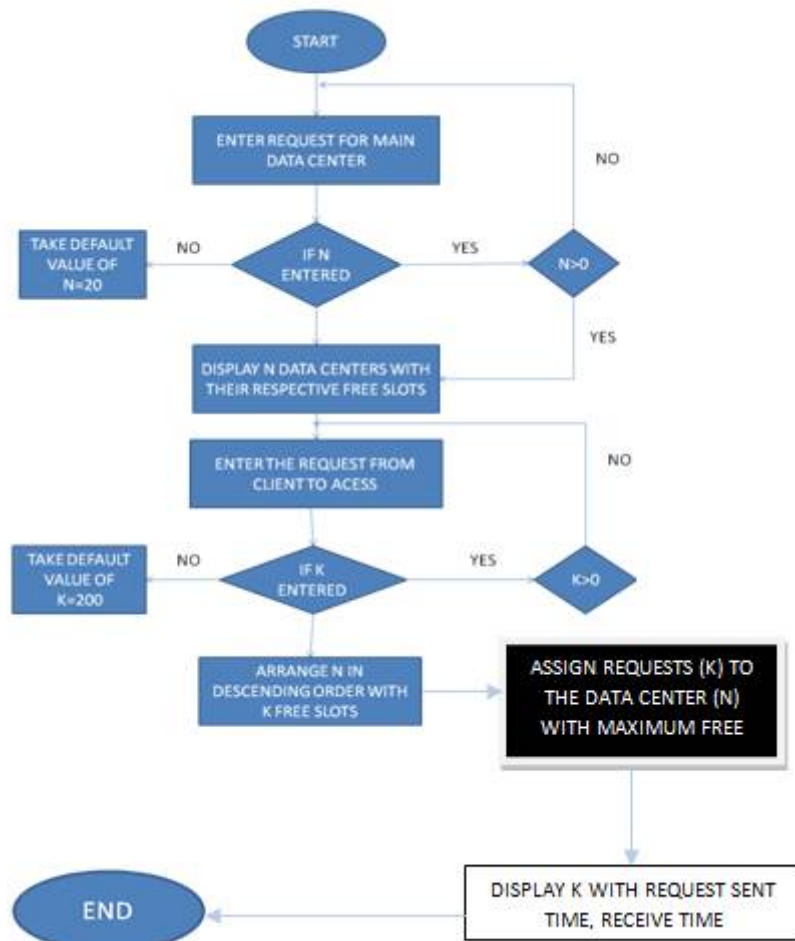
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Cloud Developer- it is the middle man between the end user and the cloud provider. It ensures all the technical requirement both the end user and cloud provider.

Load Balancing algorithm- load balancing is a process of distributing the load among various nodes of a distributed system, may be on the cloud, to improve its resources utilization and job response time load balancing algorithm ensures the maximum throughput with minimum response time. In cloud computing various end users generate there request of resources on the cloud. Cloud having multiple data centers receives multiple resources request at the same fraction of time so a queue so formed at the data centers to process their request sequentially to avoid the deadlock with minimum waiting time and maximum throughput. When the request is processed by the data centers, the client will receive its required resources.





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Case Study- lets take an example off an organization having a budget of alimited cost barrier for a project. In which the resources required incurred a huge cost which can not be included in the cost of the project. In that case the required resources can be utilize on the cloud without bearing the whole cost of the setup. The cloud will provided the resources as per the need and the cost will be on the basis of the pay-as-you uses basis. The authenticity , confidentiality, resource utilization, integrity are maintain as an when required. There are various organization like google, amazon, etc have their respective cloud and the provide the services the other organization.

III. CONCLUSION

Load balancing is one of the most important tasks of cloud computing for the optimal use of resources to incurred the maximum profit and serving maximum end users with minimum waiting time. Distributed data center handles many request at the same time provided by the client at the same time increases its utility.

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