



RESEARCH ARTICLE

LOAD BALANCING & RESOURCE MONITORING ON CLOUD

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ABSTRACT

Load balancing is the mechanism of distributing workload among multiple, servers or other large scale infrastructure. This mechanism mainly depends on large scale hardware-based and network-based infrastructure. Load Balancing is a concept differs from classical cloud processing and classical functioning of load balancing which includes implementation of multiple cloud servers to perform this mechanism. This concept can be used for large scale as an economy efficient as unique load balancing technique. As a day to day competitive world only the concept of user interface is no longer completely enough. The concepts like low cost and less available loyalty may result in shifting of many multiple applications to service level management to bring more such concept to information technology environment.

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INTRODUCTION

The concept of cloud computing cannot be defined completely. This concept mainly consists of servers, resource monitors, scalability managers and data centers. The use of this concept mainly depends on infrastructure on which it can be applied. Cloud can be divided into 3 types:

- 1. Public cloud:** - It is a type of cloud which can be accessed and used by anyone on a large scale geographical area. Amazon and Google can be called as best examples of public cloud.
- 2. Private cloud:**-The users of this type of cloud are mainly multi-national companies, organization. Specific users and employees related to organizations or employees only get authentication and access to this cloud.
- 3. Hybrid cloud:** -These types of cloud consist a combination of both type of cloud which are public and private cloud. The users of this type of cloud are mostly commercial users.

One of the main issue of cloud is Addressing Scalability. The main purpose of this concept is to provide an easy user interface and flexible application which can perform multiple tasks on cloud. The main purpose to develop the solution is to provide the performance, scalable, cost efficient application.

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Classically data centers mainly depend on large network and hardware infrastructure which creates a risk in different problems related to physical and computational devices. As a result load balancing is very important. The concept of classical load balancing provides many multiple opportunities and large scaling of economy.

Literature review

Existing Approaches

1. Proactive Workload Management in Hybrid Cloud Computing: - The design of a hybrid cloud computing model Presented in this model with the proposed proactive workload Management technology, the hybrid cloud computing model allows users to develop a new architecture where a dedicated resource platform runs for hosting base service workload, and a separate and shared resource platform serves ash crowd peak load. Given the elastic nature of the cloud infrastructure, it creates a situation where cloud resources are used as an extension of existing infrastructures.

2. A Load Balancing Model Based on Cloud Partitioning for the Public Cloud: -Load balancing and computing environment are equally dependent on each other with respect to performance. It helps making cloud more efficient and improves the performance gradually. Which gives us a better and more efficient option of a more advanced load balancing model for multiple types of cloud which involves multiple

strategies which act as per situation .the concepts used and the algorithms implemented in load balancing results in improving the efficiency of cloud environment

3. Load Balancing and Resource Monitoring in Cloud: -

Load Balancing is a technique in which the workload on the resources of a node is shifts to respective resources on the other node in a network without disturbing the running task. A standard way to scale web applications is by using a hardware-based load balancer. The load balancer assumes the IP address of the web application, so all communication with the web application

4. Exploiting Dynamic Resource Allocation for Evident Parallel Data Processing in the Cloud: -

In recent researches ad-hoc data processing has become a more important aspect required for infrastructure as a service .most of the IT related companies use an integrated network for data processing and help multiple companies to deploy and use their programs on cloud. The main purpose of cluster in cloud is to use the homogenies aspect.

5. Dynamic Load Balancing Mechanism based on Cloud

Storage: -Day to day more usage of more domains of extensive cloud, accessing of, multiple types of data have become highly populated due to access. As a result lot of similar type of duplicate data is found which reduces the flexibility and availability of data on cloud. Hence to enhance the performance and avoid the load on cloud the implementation of (INS) which stands for Index Name Server which gives multiple access point to the cloud nodes and optimizes the performance of cloud processing and data storage on cloud.

Proposed system architecture

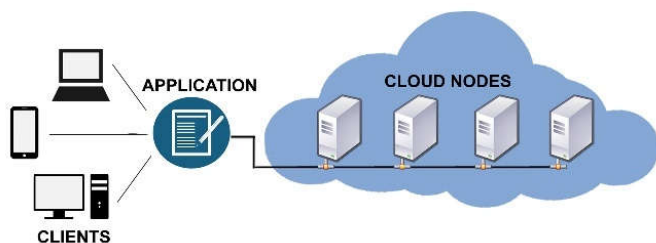


Fig. 1. Projected System Architecture

Load balancing system checks the memory and CPU performance of the cloud node when client request to the server and it allocates the cloud node to the client request. The diagram given bellow depicts special features connection and workflow of the load balancing system. This system works efficiently having number of users that can access multiple applications running simultaneously. In this system the main key part is central system. Main application will be deployed on this central system. Whenever user request to access the cloud application analysis survey of cloud node will be performed by system machine on the basis of their performance of CPU and RAM, when user requirement are fulfilled by the node the central system will assign cloud node to user. The user is capable to use all the services provided by application as it is equally divided on cloud node. Initially the user needs

credentials for connection. For load balancing cloud node space is made free for the user to switch to another node.

Approaches

What is resource monitoring?

It can be defined as monitoring and keeping track of multiple node resources which are CPU, RAM, Memory and information regarding overall current running processes, additional information regarding specialized utilization of resources. The concept of cloud computing has become important and key aspect for business to manage their application and resources. This concept provides concept of remote server which work on internet instead of classical method of wired system. This concept gives you privilege of sharing application and resources by less maintenance and less utilization of hardware resources in company. Load balancing can be called as new concept which includes concept of workload balancing and providing resources to the nodes in a network without causing any interference in running task. The load balancer makes connectivity between web services and application backend, which is completely dependent on user session and load on each web node. Load balancer is responsible for transferring of packets to web servers for application processing.

Computational techniques

The implementation of two main algorithms are required to implement this concept.

1. Advanced Encryption Standard: -This algorithm uses a key size and bit size of 200 bits. An AES is expected to supersede DES which provides a standard algorithm for encryption. This algorithms consists of two sides expanding from 32 to 48 bits. The result is combined in a round by performing XOR operation.

2. Dynamic Time Wrapping Algorithm: -This algorithm is a time series algorithm which was mainly developed for wrapping the alignment of two sequences among matching optimal number of sequences which are found.

Conclusion

Load balancing is the process of distributing the work load among nodes of the system to improve both resource utilization and job response time while also avoiding a situation where some nodes are heavily loaded while others are idle or doing little work. Eventually, due to redundant and duplicate data, the cloud storage system becomes in exible and inecient. Load balancing is the process of roughly equalizing the work load among all nodes of the distributed system.

Future work

We can use this project can be implemented on the large scale i.e. for large number of users. The help section can be inserted which can give any particular help and information regarding the facilities about the software. Time complexity can be reduced over time.

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