

# **Distributed Management for Load Balancing in Prediction-Based Cloud**

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**ABSTRACT:** A cloud computing become omnipresent casting it shadow over practically every aspect of business operations in industry. Cloud computing relies on sharing of resources to achieve coherence and economics of scale, similar to a utility over network multiple users access same server to upload and retrieve data and increase effectiveness. Platform as a service provides cloud models for delivering a computing platform including operating system, programming languages and executive environment. Load balancing was proposed in the paper to avoid network traffic between sender and receiver. The handshaking process was established between client and server to communicate and establish a connection to send and receive data without any deadlock and delay.

**KEYWORD:** Cloud Computing, Platform as a service, Load balancing, Handshaking process.

## **I. INTRODUCTION**

A cloud computing is the delivery of computing services over the internet. Cloud services allows individuals and businesses to use software and hardware that are managed by third parties at remote locations. Examples of cloud services include file storage ,social networking sites,webmail and online business applications. Cloud computing provides some resoures that are shared by the cloud users.

Cloud computing include demand self services, broad network access, resource pooling, rapid elasticity and measured service. On demand self service means customer will request and manage their computing resources. Customer draw from computing resoures usually in remote data centers. Services will be scaled larger and smaller and use of a service is measured and customers are billed accordingly.

Rapid elasticity can be easily provisioned and released. the customer and capabilities available for provisioning often appear unlimited and will be appropriated in any quantity at any time. The measured cloud systems automatically control and optimize resource use by leveraging a metering capability at some level of abstraction appropriate to the type of service storage.resource usage are monitored,controlled and reported,providing transparency for provider as well as consumer.

## **II .RELATED WORK**

A high level of redundancy and are able to detect repetition of web proxy caches [1]. The web proxy caching has been applied on the cloud. Additional volume of web traffic is redundant. The technique makes no assumption about caching semantics provided immediate benefits for other type of content such as streaming media news and mail.

A network file system designed for low band width networks. Low band width file systems exploits similarities between files of the same file to save bandwidth [2]. Avoids sending data over the network already be found in the server's file system. This technique in conjunction with conventional expressing and caching. Load bandwidth file system consumes over an order of magnitude less bandwidth than traditional network file system.

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A measurement results [3] showing the impact of the current network environment on a number of traditional and proposed protocol mechanisms. The prevalence and correctness of implementations using proposed protocol changes. The results of measurements taken using an active measurement framework to study web services and a passive measurement survey of clients accessing information from server.

A generated content has become very popular as birth of Web services such as YouTube allowing the distribution of user produced media content in an easy manner [5]. YouTube services are different from existing traditional services because the service provider only limited control over the creation of new content. The results of simulations are client based on cache in local server based distribution and proxy caching reduce network traffic significantly and allow faster access to video clips.

A Redundant Array of cloud storage (RACS) that transparently distributes storage load over cloud providers [4]. Trace Driven simulations are used to demonstrate reduce the cost of switching storage vendors for large organizations such as internet archive by varying erasure coding parameters. Many vendors using many services so that storage becomes high and transferring cost also increased. Switch over from one vendor to another vendor cost is increased double times.

The technique systems reduces cache misses regularly by continuously monitoring cpu cache misses to grade the performance of running tasks [6]. Using series of step wise refinements software system tunes the round robin ordering to find better temporal sequence of tasks. Tuning is done dynamically during program execution and adapts changes in workload stimulus.

The priority based round robin scheduling algorithm for real time systems improve the performance of cpu in real time operating systems [7]. Priority based round robin cpu scheduling is based on the integration of round robin and priority scheduling algorithm. The advantage of reducing round robin is to free from starvation and integrates advantages of priority scheduling.

The enhanced load balancing approach was proposed to avoid deadlocks in the cloud [8]. The user requesting for services of diverse applications from various distributed virtual services. Cloud inherited characteristic of distributed computing and virtualization and also possibility of deadlock. A Load balancing algorithm was proposed to avoid deadlock among virtual machines.

A dynamic round robin for load balancing is diversified with the increasing heterogeneity of resources in the cloud resources [9]. Studying the effect of round robin technique with dynamic approach by varying the vital parameters of host bandwidth, cloudlet long length, VM image Size, VM bandwidth. Load has optimized by setting dynamic round robin by proportionately varying all these parameters.

The load balancing model based on cloud partitioning for public cloud [7]. Load balancing in cloud computing environment has an important impact on the performance. A better Load balancing model for the public cloud based on the cloud partitioning concept with switch mechanism to chose different strategies for different situations.

To avoid the reputations of same data using single server and single Client the prediction method is used. For many client and single server the handshake process will be used to establish a connection between client and server.

Providing Load balancing the cloud user might send the data easily and received data very fastly without any traffic. The process could be very useful for social networks such as facebook, twitter. The handshaking is the main process to communicate with all clients and servers in the network.

## III LOAD BALANCING PROCESS

Load Balancing Process describes the load balancing systems work in cloud. The cloud service consumers will send the data to all the clouds in the network. The load will distribute the data to all the cloud servers in the network. The load balancer sends the data to the cloud server 1 and cloud server 2. The replication will come on progress between two servers. If the cloud server1 and cloud server 2 has same data we have to redundant the same data. The Figure 1 shows the Load balancer model.

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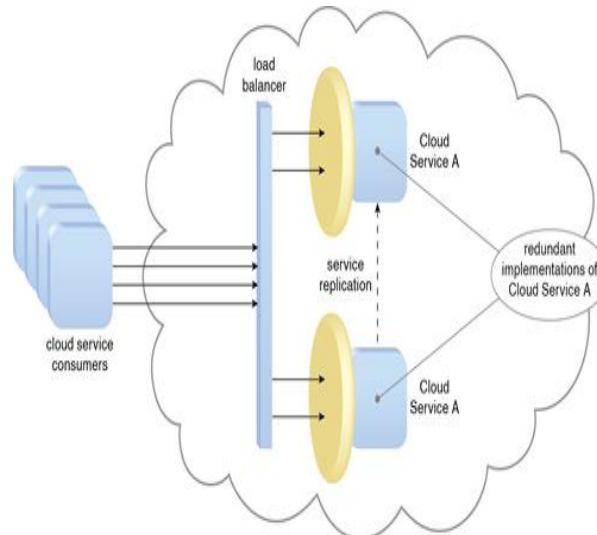


Figure 1 Load Balancer

Data Owner used to upload the data into the cloud. The data owner will login into the account by using data owner login and password. Once the data owner will put the data the data owner logout his account. The existing user will sign in. for new data owner there have to register and create new password to login and put data into the cloud.

Cloud user helps to access the data from the cloud already uploaded by cloud user. The cloud user cannot access data without permission from the data owner. If the cloud user wants to access the data means the clouds user will send the request to the owner. If the cloud user accepts the request from the cloud user the cloud user will access the file from the data owner. After downloading the file the cloud user will logout from their account.

Receiver Data helps to avoid repeated datas.once sender sends the data the receiver stores the data in the file chunk mechanism was used in the receiver side. If the sender sends the same data the receiver checks the data already available in the buffer .the chunk mechanism uses the hint concept for dividing the data's into Meta data. If the same data is receives the receiver sends the acknowledgement to the server. The figure 2 shows the receiver module.

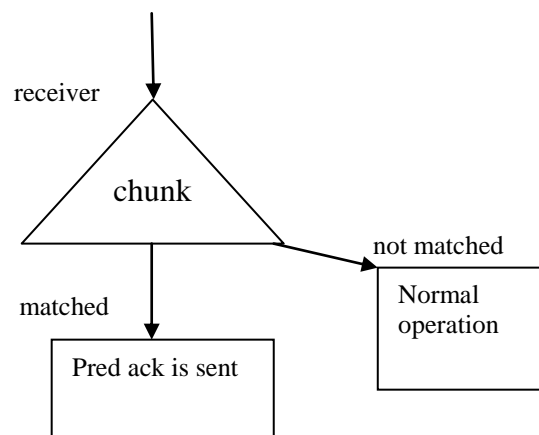


Figure 2 Receiver algorithm

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The sender data sends the data to the receiver once it gets acknowledgement from the receiver as the data is already available. The sender will check the data in the buffer and assumes the receiver will receive the data already by comparing keys. The sender module has own buffer for finding hints. The sender module depends upon the speed also. If the cloud user is not register have to create new session with the server.

The secret key will be generated once the file is clicked and secret is send to the mail of the user .By using the key only the file will be downloaded into the user account. Based on the secret the chunks and prediction of the file will be calculated.

Predictive Acknowledgment used for prediction. It sends the predictive acknowledgement from the sender and receiver. If the client or the cloud user downloaded the data from the cloud. Once again the cloud user try to download the file into same account the predictive message comes in place and displays file is already downloaded in your account. The popup window is displayed and diaplays a message. After downloading the file user can view the file in the user account. The figure 3 shows Predictive Acknowledgement.

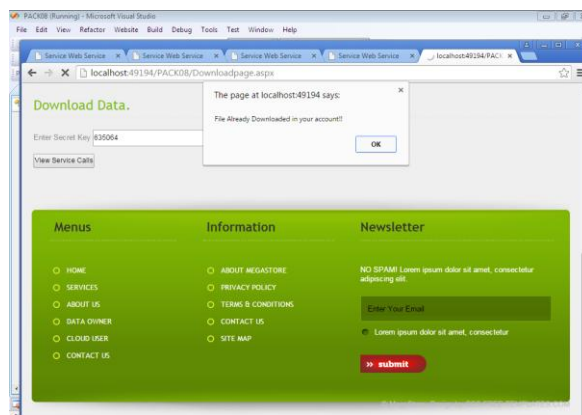


Figure 3 Predictive Acknowledgement

Load Balancing helps to increase the bandwidth and avoid network traffic between the sender and receiver. If single client and single server available we avoid load balancing. If the maximum number of client wants to access the same server definitely deadlock and delay in processing between sender and receiver because of the problem cost may increase. Load balancing is the one strategy handled and uses algorithm to switch the load from one process to another process. Using handshaking process and load balancer the network latency was avoided. The figure 4 shows the load balancing calls.



Figure 4 Load balancing

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## IV HAND SHAKE PROCESS

It dynamically sets parameters of a communication channel established between two entities. It is a process takes place while a computer is about to communicate with a device to establish rules for communication. A simple handshaking protocol might involve the receiver sending a message that "I received your last message and I am ready for you to send me another one".

A complex protocol defines sender to ask the receiver if it is ready to receive. Figure 5 shows the communication between the sender and receiver using handshaking process.

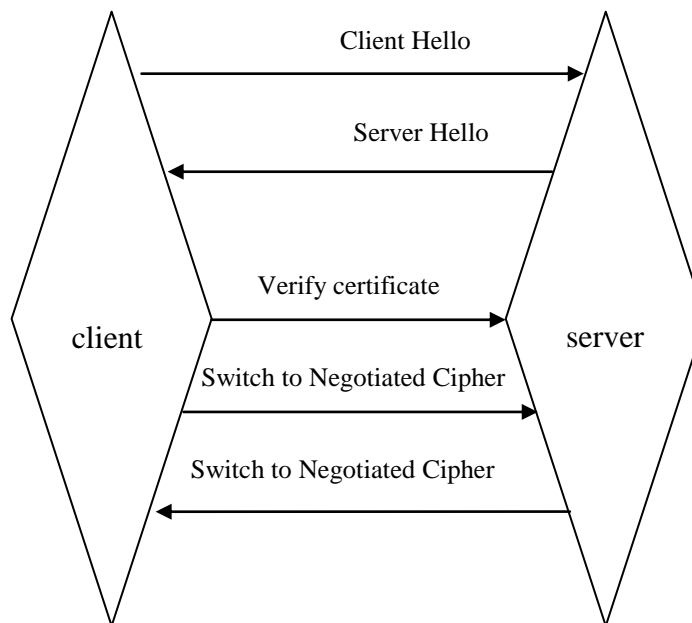


Figure 5 Hand Shake Process

The Hand Shake Process involves the following steps:

- Step 1:** The client will communicate with the server by using Client Hello Command.
- Step 2:** If the server is free it does not run any other process means it will reply for client request.
- Step 3:** If the server is busy it will not reply and do the same process.
- Step 4:** The server sends the hello message with the certificate and authorized key to the client.
- Step 5:** The client accepts the response from the server and and exchange keys for checking tha availability of data already available in the cloud.
- Step 6:** The Client is changed into negotiated cipher once the job is finished.
- Step 7:** Once the client finished the negotiated cipher server also finishes the negotiated cipher.

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## V. CONCLUSION

By providing load balancing the network traffic was reduced and is minimized cost. A healthy communication will be a key in the establishment between client and the server. If one server and client fails another server will take care and switches the process between one clients to another client. Content Based Routing will be used for download the data based on the content. And also further different algorithm should be used for speed purpose and extra bandwidth.

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