

A Result Base on Various Approaches of Load Balancing in Cloud Computing

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Abstract- In this paper we are studied cloud computing techniques. The Homomorphic property of various cryptosystems can be used to create secure voting systems, collision-resistant hash functions, and private information retrieval schemes and enable widespread use of cloud computing by ensuring the confidentiality of processed data.

Keywords: *job scheduling, Directed Acyclic Graph, implement Min-Min, Shortest Job First.*

I. INTRODUCTION

Cloud computing depends on sharing of assets to accomplish intelligibility and economies of scale, like a utility over a network. At the establishment of cloud computing is the more extensive idea of met foundation and imparted administrations. Cloud computing, or in more straightforward shorthand simply "the cloud", likewise concentrates on expanding the viability of the imparted resources. Cloud resources are normally imparted by different clients as well as reallocated by every interest. This can work for allocating resources to clients. Case in point, a cloud PC office that serves European clients amid European business hours with a particular application (e.g., email) may reallocate the same assets to serve North American clients amid North America's business hours with an alternate application (e.g., a web server). This methodology is used to boost the utilization of computing power accordingly decreasing natural harm also since less power, cooling, rack space etc. are needed for variety of functions. With distributed computing, various clients can access server to recover and upgrade their information without acquiring licenses for diverse applications. The line "moving to cloud" likewise refers to an association moving far from a traditional CAPEX model (purchase the committed equipment and devalue it over a time of time) to the OPEX model.

1.1 Load Balancing:

load balancing distributes appropriate workloads over various processing resources, for example, PCs, a PC group, system joins, focal transforming units or circle drives. Load balancing aims to streamline resource utilization, maximize throughput, minimize reaction time, and keep away from over-load of any single resource. Utilizing multiple segments with burden adjusting rather than a solitary segment may build unwavering quality through repetition. Burden adjusting more often than not includes committed software or

hardware, for example, a multilayer switch or a Domain Name System server process. Load balancing is a technique which varies from direct holding in that heap adjusting partitions movement between system interfaces on a system attachment (OSI model layer 4) premise, while channel holding infers a division of activity between physical interfaces at a lower level, either every bundle (OSI model Layer 3) or on an information join (OSI model Layer 2) premise.

- [1] Load balancing is the procedure which verifies that each processor inside the framework or each node in the system consume equivalent measure of power and give or take equivalent measure of work at any moment of time. The load can be distinguished as information transferring limit, CPU load or system delay. To enhance both resource use and job reaction time, Balancer is capable to convey the heap among different node of a distributed. It additionally help in come over from the circumstance where couple of And if it does not validate then it will generate error message.
- [2] At last if primary key is not matched then it will generate the re-password message or if it matches it will start downloading the data.

nodes are intensely over loaded while rest different nodes are unmoving or delicately stacked.

- **Internet based services:** A standout amongst the most generally utilized uses load balancing is to give a single Internet service from various servers, once in a while known as a server farm. Ordinarily load-balancing frameworks incorporate mainstream sites, large Internet Relay Chat systems, high-transmission capacity File Transfer Protocol destinations, Network News Transfer Protocol (NNTP) servers, Domain Name System (DNS) servers, and databases.
- **Round-robin DNS:** A substitute technique for burden adjusting, which does not so much oblige a devoted

programming or equipment node, is called round robin DNS. In this strategy, different IP locations are connected with a single domain name; customers are required to pick which server to join with. Dissimilar to the utilization of a committed load balancer, this strategy opens to customers the presence of different backend servers. The procedure has different preferences and weaknesses, contingent upon the level of control over the DNS server and the granularity of load balancing desired.

- **Scheduling algorithms:** Various scheduling algorithms are utilized by load balancers to figure out which backend server to send an appeal to. Basic calculations incorporate irregular decision or round robin. More sophisticated load balancers may consider extra variables, for example, a server's accounted for burden, minimum reaction times, up/down status (controlled by an observing survey or something to that affect), number of active connections, geographic area, abilities, or the amount of movement it has as of late been appointed.
- **Persistence:** A critical issue when working a heap adjusted administration is the means by which to handle data that must be kept over the numerous appeals in a client's session. In the event that this data is put away mainly on one backend server, then subsequent request going to distinctive backend servers would not have the capacity to discover it. This may be cached data that can be recomputed, in which case burden adjusting a solicitation to an alternate backend server just presents an execution issue.
- **Load balancer features:** Equipment and programming burden balancers may have a mixture of extraordinary highlights. The basic highlight of a heap balancer is to have the capacity to disseminate approaching demands over various backend servers in the bunch as indicated by a planning calculation. The greater part of the accompanying highlights is merchant particular:
- **Asymmetric load:** A proportion can be physically appointed to bring about some backend servers to get a more prominent offer of the workload than others. This is some of the time utilized as an unrefined approach to record for a few servers having more limit than others and may not generally function as wanted.
- **Priority actuation:** When the quantity of accessible server's drops beneath a specific number, or burden gets too high, standby servers can be brought online
- **SSL Offload and Acceleration:** Depending on the workload, preparing the encryption and verification prerequisites of a SSL request can turn into a significant piece of the interest on the Web Server's CPU; as the interest builds, clients will see slower reaction times, as the SSL overhead is disseminated among Web servers. One unmistakable advantage to SSL offloading in the balancer is that it empowers it to do adjusting or substance exchanging in light of information in the HTTPS as.

2. REVIEW OF LITERATURE

• **Cong Wang et al. [10]** Author concentrated on cloud information storage security, which has dependably been a vital part of nature of administration. To guarantee the rightness of clients' information in the cloud, they propose a powerful and adaptable conveyed plan with two striking highlights, contradicting to its ancestors. By using the homomorphism token with appropriated confirmation of deletion coded information, our plan accomplishes the joining of capacity accuracy protection and information blunder confinement, i.e., the recognizable proof of making trouble server(s).

Farzad Sabahi. Et al [11] Examined Cloud registering worries about basic issues, (for example, security) that exist with the across the board execution of distributed computing. These sorts of concerns start from the way that information is put away remotely from the client's area; truth be told, it can be put away at any area. Security, specifically, is a standout amongst the most contended about issues in the distributed computing field; a few endeavors take a gander at distributed computing carefully because of anticipated security dangers. The dangers of bargained security and protection may be lower in general, on the other hand, with distributed computing than they would be if the information were to be put away on individual machines rather than in an alleged "cloud".

Gaurav Raj1 et al [12] Author investigate that In this paper creator recommended that the fundamental goal of our study is to propose a new approach for burden adjusting which can adjust the approaching solicitations from worldwide clients which live in diverse geological areas to recover the data from an appropriated information sources utilizing powerful planning and virtualization strategies. We are using the mix of Batch Mode Heuristic Priority and Round Robin Scheduling for decreasing the heap on server. This paper give great results as we analyze Batch mode and Online Mode need, and close with recommendation to utilize Batch Mode set up of online mode for better load adjusting.

Jianfeng Yang et al. [13] Author described that portrays the Cloud registering is the result of the combination of customary processing innovation and system innovation like lattice figuring, conveyed figuring parallel processing et cetera. It intends to develop an impeccable framework with capable processing ability through countless ease registering element, and utilizing the propelled plans of action like SaaS (Software as a Service), PaaS (Platform as a Service), IaaS (Infrastructure as a Service) to disseminate the effective figuring ability to end clients' hands. This article presents the foundation and administration model of distributed computing. This article likewise presents the current issues in distributed computing, for example, security, protection, dependability etc. Furthermore, gives the arrangement that is

information encryption. Before putting away it at virtual area, scramble the information with your own particular keys and verify that a seller is prepared for security certificates and outer reviews.

Jaber, A.N.et al [14] Author explained that Distributed computing is a stage for extending abilities and creating possibilities alertly without utilizing new base, work force, or programming frameworks. In Addition distributed computing started from a business undertaking idea, and formed into a thriving IT development. In any case, given that extensive data on people and organizations are distinguished in the cloud, concerns have been raised in regards to the security of the cloud environment. Notwithstanding the buildup encompassing distributed computing, clients stay hesitant to send their business undertaking into the cloud. By and by, absence of assurance is the main real worry that prevents expanded utilization of distributed computing. Moreover, the many-sided quality with which distributed computing oversees information mystery, and data security makes the business sector reluctant about distributed computing

Kalagiakos, P. et al [15] Author need to recommended that this paper sees distributed computing biological system as another open door in planning distributed computing instructive stages where learning performing artists can reuse learning assets took care of by cloud instructive working frameworks. To improve learning items movability and interoperability not just distributed computing API measures ought to be pushed by the key cloud suppliers additionally learning assets benchmarks ought to be characterized by the Open Cloud Computing Education Federation as proposed by this paper

Mehmet Yildiz et al. [16] Author presented a functional security model taking into account key security contemplations by taking a gander at various base parts of Cloud Computing, for example, SaaS, Utility, Web, Platform and Managed Services, Service business stages and Internet Integration which was presented with a brief writing audit. The reason for this paper is to offer a full scale level answer for distinguished normal framework security necessities. This model with various rose examples can be connected to base part of Cloud Computing as a proposed imparted security approach in framework advancement life cycle concentrating on the arrangement constructed run scope. Furthermore, inferred that base of distributed computing arrangement is key. The dynamic model presented in this paper offers an evenly and vertically configurable and arrangement based security approach. This paper concentrates on the base extension secured inside the spaces of system, servers, stockpiling and frameworks administration.

Mohammed Achemlal et al. [17] Author examined the likelihood of utilizing TCG (Trusted Computing Group) particulars to build confide in Cloud Computing, particularly

between the supplier of Cloud Computing frameworks and his clients. The main part portrays the connection and the inspirations that prompted TCG details. The second part depicts the construction modeling, the capacities and the properties of TPM (Trusted Platform Module) which is the base of trust in TCG. The last part examinations a few ways to deal with adjust TPM keeping in mind the end goal to manufacture confide in Cloud processing.

3. METHDOLOGY

In the Purposed work various phases has to use for the development of the load balancing system in the cloud computing environment. These different phases have to be done for the completion of purposed work. Load balancing has been done by using dividing different tasks into no of jobs so that they can be allocate to different resource for processing to completes in less computation time. In cloud computing scenario no. of tasks has to be assigned on various processes to handle load on the cloud. These tasks have been divided into sets and the dependency checking is done for prevention of dead lock state or to prevent demand of various extra resource allocations. Make span has been developed on the basis of the allocation. Tasks have to be check for dependency by using directed Acyclic Graph. The round robin and shortest job first approach for the allocation of different tasks on the resources available in the cloud computing environment.

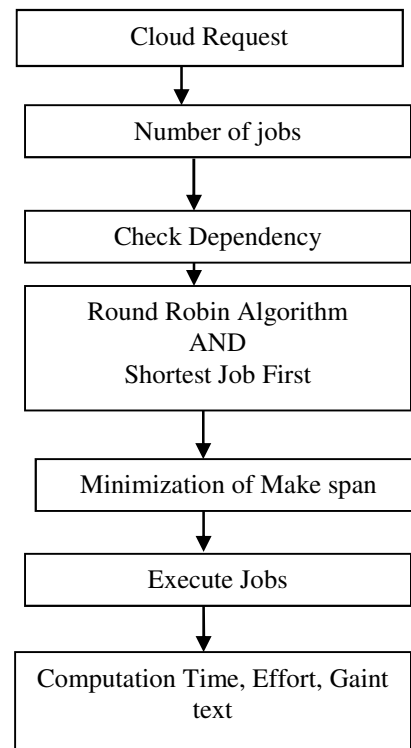


Fig 3.1 Flow diagram for purposed work

4 RESULTS

Overall Response Time Summary

	Avg (ms)	Min (ms)	Max (ms)
Overall response time:	242.43	36.58	396.11
Data Center processing time:	0.38	0.01	1.12

Response Time by Region

Userbase	Avg (ms)	Min (ms)	Max (ms)
UB6	199.30	160.11	240.11
fifth	50.67	36.58	63.85
fourth	50.14	36.88	64.38
one	50.26	40.35	59.86
second	200.30	151.26	260.21
third	300.14	208.60	396.11

Fig.4.1. overall Response Time at different users using RR
Data Center Request Servicing Times

Data Center	Avg (ms)	Min (ms)	Max (ms)
DC1	0.33	0.01	0.86
DC2	0.44	0.01	0.88
DC3	0.46	0.01	1.12

Fig.4.2 Data Center Request Servicing Time using RR

Cost

Total Virtual Machine Cost (\$):	1.50
Total Data Transfer Cost (\$):	29.01
Grand Total: (\$)	30.51

Data Center	VM Cost \$	Data Transfer Cost \$	Total \$
DC2	0.50	2.82	3.32
DC1	0.50	13.65	14.15
DC3	0.50	12.55	13.05

Fig.4.3 Cost Analysis of Data Center & Virtual Machine using RR
Overall Response Time Summary

	Avg (ms)	Min (ms)	Max (ms)
Overall response time:	242.81	36.86	954.03
Data Center processing time:	0.78	0.02	627.02

Response Time by Region

Userbase	Avg (ms)	Min (ms)	Max (ms)
UB6	201.62	160.38	247.39
fifth	51.22	39.68	65.33
fourth	50.76	36.86	64.13
one	50.40	40.78	62.36
second	200.77	144.54	255.96
third	300.44	212.24	954.03

Fig.4.4 overall Response Time at different users using Min -Min

Data Center Request Servicing Times

Data Center	Avg (ms)	Min (ms)	Max (ms)
DC1	0.69	0.02	627.02
DC2	1.17	0.02	6.49
DC3	1.22	0.05	5.93

Fig.4.5. Data Center Request Servicing Time using Min-Min

Cost

Total Virtual Machine Cost (\$):	9.52
Total Data Transfer Cost (\$):	29.01
Grand Total: (\$)	38.53

Data Center	VM Cost \$	Data Transfer Cost \$	Total \$
DC2	3.25	1.05	4.30
DC1	3.25	17.18	20.43
DC3	3.01	10.79	13.80

Fig.4.6. Cost Analysis of Data Center & Virtual Machine using
Min-Min

Overall Response Time Summary

	Avg (ms)	Min (ms)	Max (ms)
Overall response time:	242.40	35.63	396.13
Data Center processing time:	0.37	0.01	1.12

Response Time by Region

Userbase	Avg (ms)	Min (ms)	Max (ms)
UB6	201.37	160.11	247.11
fifth	50.62	38.45	64.70
fourth	50.10	35.63	63.38
one	50.13	40.11	62.36
second	200.48	144.24	255.33
third	300.07	211.62	396.13

Fig.4.7 overall Response Time at different users using Min -Min

Data Center Request Servicing Times

Data Center	Avg (ms)	Min (ms)	Max (ms)
DC1	0.34	0.01	0.86
DC2	0.50	0.02	0.88
DC3	0.60	0.02	1.12

Fig.4.8. Data Center Request Servicing Time using RR & SJF

Cost

Total Virtual Machine Cost (\$):	1.50
Total Data Transfer Cost (\$):	29.01
Grand Total: (\$)	30.51

Data Center	VM Cost \$	Data Transfer Cost \$	Total \$
DC2	0.50	1.05	1.55
DC1	0.50	17.18	17.68
DC3	0.50	10.79	11.29

Fig. 4.9. Cost Analysis of Data center & Virtual Machines using RR & SJFS

4. CONCLUSION & FUTURE SCOP

Cloud computing depends on sharing of assets to accomplish intelligibility and economies of scale, like a utility (like the power matrix) over a network. At the establishment of cloud computing is the more extensive idea of met foundation and imparted administrations. load balancing distributes appropriate workloads over various processing resources, for example, PCs, a PC group, system joins, focal transforming units or circle drives. Load balancing aims to streamline resource utilization, maximize throughput, minimize reaction time, and keep away from overload of any single resource. In cloud computing various users sends request for the transmission of data for different demands. The access to different no. of user increases load on the cloud servers. Due to these cloud server does not provides best efficiency. To provide best efficiency load has to be balanced main problem in the paper is that different jobs can be divides in tasks. The job dependency checking is done on the basis of directed a cyclic graph. The dependency checking the make span has to created on the basis of shortest job first and pound robin approach. The minimization can be done on the basis of using min-min algorithm. Firstly we check dependency between different tasks using Directed Acyclic Graph. Than Min Min algorithm is used for minimization of Make span & Round Robin and Shortest Job First approach for allocation of tasks on different processor. From results various parameters are analyzed & On the basis of these

parameters we conclude our system gives us better results.

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