

An Overview on Resource Manager Agent to increase the Efficiency in Cloud Distributed Computing Using BigData Application

Rashmi G.D¹, Prof Heena Kousar², Dr. B.R.Prasad Babu³,

MTech Student, Department of CSE , East Point College of Engg & Technology¹

Associate Professor, Department of CSE , East Point College of Engg & Technology²

Professor & Head of Department of CSE, East Point College of Engg & Technology³

rashmi.hongal@gmail.com, hkheenakousar73@gmail.com, brprasadbabu@gmail.com

Abstract- A distributed computing environment offers a disentangled, concentrated stage or assets for use when required effortlessly. One of the key functionalities of this sort of processing is to assign the assets on an individual interest. Numerous undertakings are devoted to vast scale conveyed figuring frameworks that have composed and created asset allotment instruments with an assortment of models and administrations. In this study, through examination, an extensive review for depicting asset distribution in different worldview is accounted for with respect to manager agent system.

Key words-Cloud computing, High Proficient Computing, Data sharing, Access control, Deduplication, Security Preservation.

1.INTRODUCTION: Numerous current works in distributed computing centre on the advancement of frameworks and devices for pooling together computational assets, this work supplements what's more, supplements existing works in distributed computing by presenting "specialist based distributed computing" applying specialist based ways to deal with overseeing cloud processing frameworks.[i] From the endless number of assets accessible on the cloud, end client is required to pay just for administrations gave by a concerned administration provider. There are various virtual machines present at cloud data centre and each virtual machine handles one asset with numerous occurrences, separately and since the assets are utilized at the solicitation of end client, hence the expense of use increments naturally which turns into a noteworthy bottleneck in the organization of an excessive number of virtual machines. With boundless number of assets at cloud server farm, allotting and finding dynamic and most reasonable administration asset is another significant test.[i][ii]

1.1 Server farm organizing design review

A cloud server farm for the most part contains servers, foundation, power draw or power supporting gadgets, cooling gadgets and systems administration segments. Each of these segments has some cost required

with them. Fetched included with server, framework and force supporting gadgets and cooling gadgets in not of direct sympathy toward the client, however organizing parts are the foundation of getting to cloud administrations for the client. In this manner, systems administration is of significance for end clients and administration suppliers. At the point when client's undertaking is calculation concentrated and requires assets from more than one server then the velocity of calculation may drop in light of an expansion in proliferation delay between servers. Further, cost of correspondence and expense of administration would increment with expansion in separation between server farms. This is because of the way that cost of WAN is fundamentally more than the expense of LANs. In this way the general expense of giving support of the client will increment if the administration includes utilization of physically circulated servers.[iii]

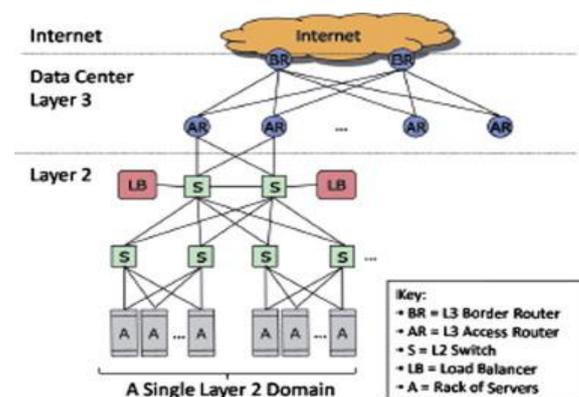


Figure 1: Server farm organizing design by CISCO (CISCO Systems, 2004).

In a server farm demands landing from the Internet are at layer 3 and they are recognized utilizing an IP address (layer 3), they are steered through fringe and get to switches to a layer 2 area taking into account the destination virtual IP address (VIP). The VIP is designed onto the two burden balancers associated with the top switches, and complex systems are utilized to guarantee that on the off chance that one burden balancer fizzles, alternate gets the activity. For

every VIP, the heap balancers are arranged with a rundown of direct IP addresses (DIPs), which are the private and inward addresses of physical servers in the racks underneath the heap balancers. This rundown of DIPs characterizes the pool of servers that can deal with solicitations to that VIP, and the heap balancer spreads demands over the DIPs in the pool.[iii].

1.2 Agent-Based Computing

An operator is a PC framework that is able to do self-ruling (autonomous) activities, that is, choosing for itself and making sense of what should be done to fulfil its plan destinations [iv]. A multiagent framework comprises of a number of specialists, which cooperate with each other [iv]. To effectively collaborate, operators require the capacity to coordinate, arrange, and arrange with each other. Participation is the procedure when a few specialists cooperate and draw on the expansive gathering of their insight and abilities to accomplish a shared objective.

Interface Agent: Interface Agent keeps up the log of all solicitations got from clients and further partners an Assistant Agent with each solicitation. Additionally, it keeps the record of all virtual machines accessible for usage alongside the administrations determinations.

Assistant Agent: The assistant agent seeks the assets from the accessible asset occasions of current server farm being kept up by Interface Agent. It additionally keeps the expense

In this review of multi agent paradigm like to focus on more important aspects like security,deduplication and performance.

2.1 Security Provisioning

Information driven security is a way to deal with security that stresses the security of the information itself as opposed to the security of systems, servers, or applications. Information driven security is advancing quickly as endeavours progressively depend on computerized data to maintain their business and huge information ventures get to be standard.[v]Some of attacks which may occur in the internet world are[vi]

Description Tampering: An aggressor may adjust data either put away in nearby records, database or is sent over open system.

Repudiation : Sender tries to deny, or negate the legitimacy of an announcement or contract which is sent by him/her.

Eavesdropping Information Disclosure : This sort of assault happens when assailant gets entrance in the information way and accesses screen and read the messages.

Identity snooping: Identity mocking happens when an assailant mimics the clients as the originator of the message keeping in mind the end goal to get entrance on a system.

Digital signature:

Computerized signature conspire ordinarily comprises of three calculations;

of accessible assets and contains a record of all natural and prepared solicitations alongside solicitation Ids.

Broker Agent: Specialist Agent is an outsider operator that goes about as a go-between amongst customer and administration supplier in distributed computing. Its fundamental part is to spare the administration seeking time of buyer and give the data of best sellers to the clients. Dealer specialist creates the agreements with suppliers in the interest of its clients.

Directory agent: At the season of production of server farms, ventures are required to enrol all conveyed specialists with Directory Agent as this is the main operator that keeps record of all cloud operators including interface, colleague and representative operator and keeps up their status, for example, accessible or assigned. It likewise keeps up the record of its portion delay time where it is characterized as time taken for distribution of administrations by the data enter furthermore tracks the workload on individual server farms.

Resource Manager: Asset Manager Agent gets the client asks for and comparing assets prescribed by Interface Agent and solicitations by client. It plays the last and vital part in the twin layer design by assigning the reasonable assets to each relating demand.

2.MATERIAL AND METHODOLOGY

A key era calculation that chooses a private key consistently at arbitrary from an arrangement of conceivable private keys. The calculation yields the private key and a relating open key.

A marking calculation that, given a message and a private key, delivers a mark.

A mark checking calculation that, given the message, open key and mark, either acknowledges or rejects the message's case to realness.

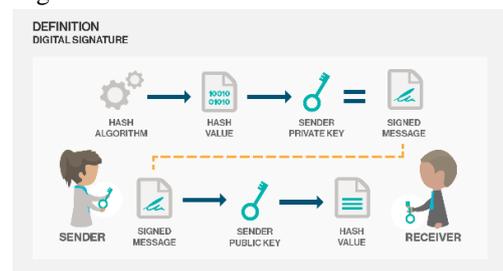


Figure 2 Definition of digital signature

The above proposed technique is proposed and implemented by Mona[viii] where research incorporated the security in the various aspects as fallows.

Research propose a protected multi-proprietor information sharing plan. It infers that any client in the gathering can safely impart information to others by the untreated cloud.

Research proposed plan can bolster dynamic aggregates productively. In particular, new allowed clients can specifically decode information records transferred before their interest without reaching with information proprietors. Client denial can be effectively accomplished through a novel denial list without upgrading the mystery keys of the remaining clients. The size and calculation overhead of encryption are consistent and autonomous with the quantity of renounced clients.

This design give secure and protection saving access control to clients, which ensures any part in a gathering to namelessly use the cloud asset. Additionally, the genuine characters of information proprietors can be uncovered by the gathering supervisor when question happen. This thorough security examination, and perform broad re-enactments to exhibit the productivity of our plan as far as capacity and calculation overhead.

Deduplication:

In processing, information deduplication is a particular information pressure system for taking out copy duplicates of rehashing information. Related and to some degree synonymous terms are shrewd (information) pressure and single-case (information) stockpiling. This procedure is utilized to enhance stockpiling use and can likewise be connected to network information exchanges to diminish the quantity of bytes that must be sent. In the deduplication process, remarkable pieces of information, or byte examples, are recognized and put away amid a procedure of examination. As the investigation proceeds, different lumps are contrasted with the put away duplicate and at whatever point a match happens, the excess piece is supplanted with a little reference that focuses to the put away piece. Given that the same byte example may happen handfuls, hundreds, or even a large number of times (the match recurrence is subject to the piece estimate), the measure of information that must be put away or exchanged can be enormously diminished.

Recently research paper called Big File In Cloud come up with design and architecture implementation of deduplication very efficiently in big data application and the its explanation is below.

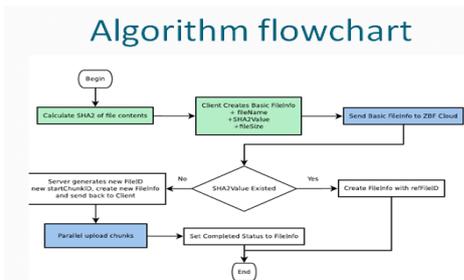


Figure 3. Big file in cloud with deduplication algorithm.[ix]

Key-Value stores have numerous favourable circumstances for putting away information in information

power administrations. They frequently beat conventional social databases in the capacity of overwhelming burden and largescale frameworks. As of late, key-esteem stores have an extraordinary development in both scholarly and modern field. They have low-idleness reaction time and great versatility with little what's more, medium key-esteem pair size.[ix]

Meta-data information is basically portrayed in FileInfo structure comprise of taking after fields: fileName - the name of record; fileID: 8 bytes - exceptional distinguishing proof of document in the entire framework .[ix]

Zing database (ZDB) is an elite keyvalue store that is enhanced for auto increase Integer-key. It has a common memory level record for quick gazing upward position of key-worth passages in information records. ZDB bolsters consecutive composes, arbitrary read. ZDB is served in ZDBService utilizing thrift convention and circulate information utilizing reliable hash strategy. In BFC, both document id and piece id are auto increase whole number keys, so it is great to utilize ZDB to store information. The point of interest of ZDB is lightweight memory record and execution for huge information.[x]

III.RESULTS

Security

It propose a protected multi-proprietor information sharing plan. It infers that any client in the gathering can safely impart information to others by the untrusted cloud. It also proposed plan can bolster dynamic gatherings proficiently. In particular, new allowed clients can specifically censure pt information documents transferred before their cooperation without reaching with information proprietors. Client denial can be effortlessly accomplished through a novel repudiation list without overhauling the mystery keys of the remaining clients. The size and calculation overhead of encryption are consistent and autonomous with the quantity of disavowed clients.

Big File In Cloud

Utilized for building versatile circulated information distributed storage that backing enormous record with size up to a few terabytes. It is valuable to spare storage room and system transfer speed when numerous clients transfer the same static information. Along with supporting less storage space it even increases the performance of the storage by just referring the existing file from second time onwards if duplicate files comes more times.

IV.CONCLUSION

The above resource manager agents can be effectively used to give the higher security to the user and the cloud data enters can be effectively used in the upcoming industry application design and implementation in very effective

way. Such more resources can be added with research innovation in this particular field.

Acknowledgement

I would like to express my sincere thanks to **Dr. B M Satish**, Principal, East Point College of Engineering and Technology, **Dr. B.R.Prasad Babu**, HOD, Department of CSE, **Dr. Chandramouli H**, Professor and PG Coordinator, Department of CSE, **Prof Heena Kousar**, Associate Professor for their guidance to complete technical paper work on time.

REFERENCES

- [i] . Kwang Mong Sim, Senior Member, IEEE
Agent-Based Cloud Computing
IEEE TRANSACTIONS ON SERVICES COMPUTING, VOL. 5, NO. 4, OCTOBER-DECEMBER 2012
- [ii] Hameed Hussain, Saif Ur Rehman Malik, Abdul Hameed, Samee Parallel Computing November 2013, Vol.39(11):709-736
- [iii] Aarti Singh^a, Dimple Juneja^b, Manisha Malhotra^a A novel agent based autonomous and service composition framework for cost optimization of resource provisioning in cloud computing MMICT & BM, M.M. University, Haryana 133207, India DIMIT, Kurukshetra, Haryana, India
- [iv] M. Wooldridge, An Introduction to Multiagent Systems, second ed. John Wiley & Sons, 2009.
- [v] https://en.wikipedia.org/wiki/Data-centric_security
- [vi] Dhaval Patel¹ (ME scholar), M.B.Chaudhari², DATA SECURITY IN CLOUD COMPUTING USING DIGITAL SIGNATURE, International Journal For Technological Research In Engineering Volume 1, Issue 10, June-2014
- [vii] https://en.wikipedia.org/wiki/Digital_signature
- [viii] Xuefeng Liu, Yuqing Zhang, Member, IEEE, Boyang Wang, and Jingbo Yan Mona: Secure Multi-Owner Data Sharing for Dynamic Groups in the Cloud, IEEE TRANSACTIONS ON PARALLEL AND DISTRIBUTED SYSTEMS, VOL. 24, NO. 6, JUNE 2013
- [ix] https://en.wikipedia.org/wiki/Data_deduplication
- [x] Thanh Trung Nguyen*, Tin Khac Vu[†], Minh Hieu Nguyen* BFC: High-Performance Distributed Big-File Cloud Storage Based On Key-Value Store

[xi] P. Jin, P. Yang, and L. Yue. Optimizing b+-tree for hybrid storage systems. *Distributed and Parallel Databases*, pages 1-27, 2014.

AUTHORS PROFILE

Ms. Rashmi G.D. is a MTech Student in Software Engineering in Department of Computer Science & Engineering, East Point College Of Engineering, Visvesvaraya Technological University. She has attended 2 Conference and presented 2 papers in National and International Conferences. Her research areas are Software Engineering, Testing, Development. Attended hands on workshop on Design Pattern held by CSI Chapter, Bangalore.

Prof Heena Kousar is working as a Associate professor, Department of Computer Science & Engineering, East Point

College of Engineering & Technology. Her research areas are Wireless Sensor Networks, Mobile Adhoc Networks, IOT and Cloud Computing. She published more than 10 papers in various international Journals.

Dr. B.R. Prasad Babu is working as Professor and Head, Department of Computer Science and Engineering at East Point College of Engineering and Technology. His research areas are Mobile Adhoc Networks, Mobile Communication and Software Engineering. He published more than 50 papers in various international Journals. Presently he is guiding for PhD Scholars in Visvesvaraya Technological University (VTU) and Jawaharlal Nehru Technological University (JNTU) India.