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# VIRTUALIZED RESOURCE ALLOCATION AND INFORMATION RETRIEVAL IN CLOUD STORAGE

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**Abstract:** Cloud computing has the ability to manage a large volume of expanding effort in a predetermined means for the benefit of corporate clients. Virtualization, which sums up the foundation and makes it simple to make due, is a pivotal innovation empowered for distributed computing. The virtualization technique is utilized in this proposed work to allocate cloud resources in light of their prerequisites and to help the computing thought. The "skewness" rule is carried out right now, in which the equivalent is minimalized to blend errands and augment server use. Overseeing buyer demands for asset distribution makes testing states of available for any emergency's asset allotment. So Virtual Machine (VM) allotment procedure can be upheld, it has been locked in for asset supply. The use of virtualized environmental factors is unsurprising to decrease normal undertaking reaction time while likewise executing liabilities as per cloud asset accessibility. Thus, VMs are allotted to customers contingent upon task attributes. While the execution is running, the VM and PM (Physical Machine) planning is conceivable on account of the VM movement innovation. Successful and dynamic utilization of cloud sources can assist with settling the weight and stay away from issues, for example, slow construction run. This approach can utilize a neighborhood discussion based VM union technique to expect each assignment demand and lessen over-burdens to give virtual space when a few solicitations are made simultaneously. The proposed framework utilizes a co-area procedure to combine underused little spaces to make extra virtual space, consequently further developing server execution. Execute an implosion technique to eliminate flawed information relying upon an opportunity to-live property. The proposed framework works progressively and apportions assets productively. To start with, build an expectation model that can assess the divider sizes of abatement commitments at runtime in this system. Furthermore, after powerfully identifying data newness, appointing higher effects to minimizes with enormous boards to assist them with finishing quicker.

## 1. INTRODUCTION

Due to the rapid development of cloud computing on worldwide, standard distributed computing techniques like virtualization, equal handling, and spread data set and capacity have seen huge progression and are presently broadly utilized in an assortment of settings. Virtualization method, as one of the center instruments of distributed computing building, assumes a genuine part in offering dependable distributed computing administrations. Virtualization is a fundamental methodology that can be utilized to perceive the speedy arrangement, dynamic designation, and move region the executives of IT assets by growing two or three mimicking virtual machines (VMs) on a lot of high-show network servers and giving on-request contributions to clients through these PC created machines. [5] However, since clients' desires are continually changing, both the assortment and responsibilities of virtual machines change consistently, which, incidentally, makes another venture for source figure and migrations of computerized machines. The choice of the convey have gadget and objective host is the most basic stage for virtual gadget relocations, as indicated by a selective element of the computerized apparatus movement system.

The supposed live migration approach for digital machines is offered by a few academics to help make decisions about the options for deliver and destination host computers, as well as to avoid unnecessary digital system migrations due to temporary high workload values. There are two kinds of advanced contraption movement philosophies now accessible in the writing: one is to float the gathering gadget's better and lower edges to oversee asset use; the other is to utilize the host instrument's responsibility edge to foresee the example of its succeeding abilities. While the past arrangement can resolve the issue of help squander brought about by the static responsibility adjusting technique's asset, it can't resolve the issue of blend fight that happens in obsolete responsibility adjusting procedures [6]. The latter solution, on the other hand, is capable of resolving the matter of "false alarm" virtual device relocations caused by some brief height workload values, but it overlooks the hesitation and stochastic nature of the workload values, and also the aggregate of each, on host computers. Therefore, to draw nearer to fusing the hesitation and chance of responsibility values into the decision-making methodology of computerized framework movements, and accordingly bringing about a superior relocation technique, the proposed work proposes another virtual gadget movement system that depends on time series expectation in cloud statute. This strategy basically functions as follows: it first sets the higher and lesser responsibility edges for have machines, then utilizes the cloud idea to estimate the future responsibility pattern of the host machine, lastly determines a movement want measure, which is then used to choose the stock host, objective host gadget, and advanced system to play out the needed relocation [12]. This proposed relocation strategy tends to the vulnerability, fluffiness, and haphazardness of responsibility values, changes over subjective to quantifiable ideas as well as the other way around, wipes out the conglomeration fight migraine made by computerized machine movements due a couple of transient and momentary top responsibility esteems, and adds to accomplishing dynamic source coordinating.

Cloud storage is depicted as data putting away in which information is saved in judicious pools, actual capacity traverses a couple of servers (and habitually puts), and the actual environment is traditionally moved by constrained by a site facilitating

organization [3,9]. The provider vendors are in custody of keeping the saved data available and available to the user, as well as the physical environment's security. People and businesses rent or buy garage space from vendors to preserve customer, company, or software programmed data.

Cloud storage administrations can be recovered by a lumped cloud framework, a net supplier application programming connection point (API), or API-enabled software, like a distributed storage server, a carport door, or Web-based content material fabric control structures. Cloud Distributed storage depends on virtualized foundation and, concerning reachable connection points, close moment obstruction and versatility, multi-tenure, and metered resources, it is like more extensive distributed computing. Distributed storage can be gotten to through an off-premises source (Amazon S3) or introduced locally.

Cloud storage is most commonly associated with a hosted object storage provider, although the term has come to embrace other types of data storage that are now accessible as a service, such as block storage. Object storage facilities such as Amazon S3 and Microsoft Azure Storage, object storing software such as Open stack Swift, object storage systems such as EMC Atmos, EMC ECS, and Hitachi Content Platform, and distributed storage research initiatives such as Ocean Store and VISION Cloud are all examples of garage that can be held and organized using cloud storage characteristics [12].

The following is a list of cloud storage services:

- A federated or cooperative garage cloud structure is made up of numerous allocated assets that act as one.
- Highly fault resistant due to redundancy and statistical dispersion
- Extremely long-lasting due to the use of versioned copies
- In terms of data replicas, they are usually regular sooner or later.

## 2. RELATED WORK

Cui, et.al,... [1] HotSnap is a VMC photo strategy that was created to empower for the catch of hot scattered pictures with milliseconds of device personal time and TCP ease off length. In the focal point of Hot Snap is a brief preview that saves the littles immediate country in a short measure of time, and a thorough photograph that saves the whole VM country over the course of the day. The picture convention is set down here to arrange the individual VM previews into VMC's worldwide customary country. Then, I presented Hot Snap on QEMU/KVM and ran more tests to choose the system's suitability and capability. Hot Snap brings about several milliseconds of postponement contrasted with the conventional relocation based distributed picture method, which causes seconds of hardware vacation and organization interruption.

Shen, et.al,... [2] Virtual Machine I/O Access Redirection is a cloud-explicit, prompt, non-meddling, and light-weight I/O streamlining layer (VMAR). VMAR makes a square interpretation map at the hour of VM depiction creation/catch, and uses it to reroute gets to a similar report framework handle before they arrive at the OS. With the constant extension of the cloud climate, the quantity of various sorts of virtual machines is quickly expanding. In cloud insights focuses, these depictions, each holding gigabytes or several gigabytes of measurements, make weighty plate and local area I/O troubles. Since the depictions all have something similar or comparative OS, middleware, and bundles, a portion of the VM previews incorporate many measurements blocks with copy content.

Zhang, et.al, [3] introduced a bunch of worldwide planning decides that execute on VMs in the cloud. This approach collects the global response by solving linear equations and adapting to sufficient and insufficient situations using dynamic baselines. In the recommended tests, authentic benchmarks are used as occupations, and 10 virtual machines are used. In this work, I developed a system for automated memory manipulation based entirely on Xen virtual machines. Researchers are free to use this proposed toolkit, which is distributed under the GNU GPL v3 license. Propose gadget focuses for overbooking or potentially adjusting the memory page of Xen VMs to advance the strolling cases of utilizations in merged settings. In contrast to conventional resource allocation approaches, the suggested device, coupled with MEB, is lightweight and can be introduced into user space without interfering with VMM operation. Make a worldwide booking technique that is for the most part founded on the powerful gauge to recognize the best worldwide memory distribution.

Wei Zhang, et.al... [4] sees a support provider who uses present dispersed figuring capacities as a low-esteemed hidden other choice. For the separation of content impressions, the deduplication framework increases memory costs. Memory question is ordinary in packs since each real contraption has different VMs. Cloud transporters by and large blessing that the help association uses not very many or no assets, having irrelevant disturbing effect existing cloud associations. Another task is that old pictures looks for selecting resources, as the data dependence made by using duplication date across overviews adds managing unusualness. All of the three parts - time, worth, and deduplication capability - ought to be relinquished for the others. For example, if we were creating a deduplication machine with a high cost of duplication detection and a lightning-fast reaction time, we'd need a lot of memory to store the fingerprint index and cache.

Yoshihisa, et.al... [5] The function of virtual machine migration in cloud performance is crucial. While it permits the VMs to accurately share actual resources, it additionally permits them to interfere with one another, subsequent in general execution decrease. Experiencing the same thing, relocation permits you to reassign another gadget to these virtual machines progressively. Organizations might be more cutthroat in sending VMs assuming that the activity is quicker in settling the opposition. Individuals that put a high worth on by and large execution ought to leave asset execution for more static valuable asset portions, as well as Amazon EC2 Placements. Albeit such arrangements can guarantee in general VM execution, they waste property because of their moderate distribution. Subsequently, movement for testing VMs has its own rate, which can influence resource segment rules. Regardless, due to its different supplies, movement of various Virtual Machines in a genuine environment offers inconvenient issues to decide. It ought to restore the overall show of all the tortured VMs, particularly their blend all around execution.

## 2. EXISTING SYSTEM

The booking issue in asset portion takes into account the goal of unbalance in adventure inconvenience; for this situation, an equal hereditary calculation is used, which is a lot quicker than a normal hereditary calculation. The booking counsel utilized by GA progressed using resources when VMs are appointed, settling on it an incredible decision for managing planning issues. Hereditary Algorithms (GA) are solid methodologies that might be utilized to handle complex issues in an assortment of fields. Equivalent Genetic Algorithms (PGAs) are equivalent executions of inherited estimations that can give expanded admittance with regards to execution and adaptability. On organizations of heterogeneous PC structures or on equal centralized computers, PGAs can be effortlessly constructed. [13]. PGA is preparing for them to have cloud sources in a more productive manner, in regards to the rate at which the gigantic part series has been acquired with fast mixing. For the present circumstance, a scheduler is given on each cloud center point. In the schedule, three games are essentially wrapped up. Immediately, the machine screens inert assets, and the availability of cutting-edge machines is conceivable invigorated at standard ranges, similar to when new VM requests appear, or when VMs are in conclusion mode, or when any movements in genuine assets are recognized. Then, using the PGA, sort out which portion gathering test has the greatest model size. Subsequently, the important real machines will be apportioned to the VM requests. A couple of huge factors are considered during the most well-known approach to settling disproportionate endeavor issues with our PGA. While allocating the referenced sources, it is fundamental for review the specific innate computation limits, which consolidate chromosome model, appropriate wellbeing brand name plan, and the utilization of the fitting movement technique.

The Continuous Double Auction (CDA) has been investigated for lattice processing asset distribution. CDA is quite possibly the most notable procedure, and it's been utilized in the virtual securities exchange for quite a while. Offers from an assortment of individuals can be submitted whenever during the public deal [19]. That's what they propose, when contrasted with non-commercial center instruments, the market-based approach performs better regarding project usage and effective asset distribution. Nonetheless, the fundamental issue of this approach is that it knows nothing about asset assignment for a couple of sources, and just a single viable asset designation technique has been thought of. This method was used to allocate CPU time in a local grid context. Combinatorial twofold sale has been presented as another asset portion approach for commercial center based environmental factors in lattice, which added pay expansion and economy generally speaking execution. This arranged strategy enjoyed the benefit of being a totally money related based technique with a ton of adaptability.

### 1.1 Advantages of VM Migration

#### Load balancing:

Load adjusting limits the divergence in asset utilization levels across each of the PMs in the group. This dodges several machines from becoming over-inconvenience inside seeing different machines that are fundamentally gently stacked and have adequate extra limit. Live development can be utilized to keep the contraption stable. Moving VMs from over-trouble PMs to under stacked PMs can help with changing the ordinary machine load.

#### Server Consolidation:

Server consolidation methods are necessary in Carrier Company in order to reduce server sprawl. These techniques are VM pressing procedures that endeavor to fit however many VMs as would be prudent onto a PM to augment asset utilization and mood killer undesirable machines. Solidification will bring about lower energy utilization, bringing down current functional expenses for server farm executives.

#### Hotspot & Cold spot Migration:

Area of interest and cold spot identification is continually founded on limits that can be set with the utilization of a help organization's asset or in light of the Service Level Agreements given by cloud clients. A greater useful resource utilization price near the maximum is usually ready owing to the top threshold, whereas a completely low useful resource utilization fee is usually ready due to the decrease threshold. PMs with aid usage levels over the upper criterion are referred to as hotspots, whereas those with usage values below the lower threshold are referred to as cold spots [15]. The former denotes excessive use, while the latter denotes insufficient use, and both are true regardless of resource length. Transfer a running virtual records garage to a new server. Customers can also flow into the digital machine discs or folders to a fantastic statistics shop as an option. The term "hot migration" refers to the use of another term such as "live VM migration" or "vMotion." People can transfer their digital devices using vMotion without affecting their availability.

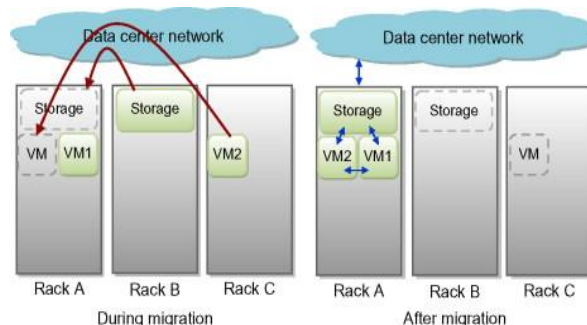


Fig 1: VM Migration Approach

#### 4. PROPOSED FRAMEWORK USING VM MIGRATION WITH SELF-MONITORING APPROACH

The outstanding development of information in different application areas, for example, internet business, person to person communication, and logical registering, has provoked tremendous interest for huge scope information handling as of late. In this specific situation, the VM consolidation method has recently received a lot of traction as an equal processing design. Each solicitation takes a block of input data and generates an interim scheduling phase by running a user-specified function. Following that, each job accumulates intermediate requests and produces the final result using a user-specified reduce function [12]. A one-sided responsibility decrease circulation can make genuine impacts. A clever asset distribution technique was made in this proposed framework to effectively limit framework over-burden while restricting the quantity of servers used. Present the possibility of "skewness" to depict how a server is utilized unevenly. Nonetheless, server farms could utilize these elements to just acknowledge more VMs than the actual assets accessible in the server farm. The term "resource overbooking" or "resource over commitment" is commonly used to describe this situation. The all-out accessible limit in the asset the executive's interaction is not exactly the hypothetical greatest mentioned limit [16]. This is an eminent methodology for directing insufficient and significant resources that has been used in a collection of fields for a long time. In cloud settings, over-burdening cloud assets is the best methodology for expanding machine use. The program may detect a rising trend in resource utilization patterns and assist location negotiation in greatly reducing placement churn.

This recommended work investigates stochastic burden adjusting through VM movement to beat the issue of demand unpredictability and dynamic workloads. Dissimilar to existing strategies, the stochastic weight changing way of thinking probabilistically depicts VM resource interest and obligation territories of, still up in the air to ensure that all out cloud resource use on each PM doesn't outperform its capacity with a high probability. The SLA understanding appraisals the likelihood and illuminates every PM regarding the gamble of SLA infringement. Stochastic load balancing can handle the unpredictability and dynamic variations in resource consumption. The heap adjusting decision can guarantee that the came about application execution is stronger against exceptionally powerful jobs while guaranteeing productive measurable multiplexing of assets [18] with the probabilistic guarantee for handling overloads. Nonetheless, stochastic burden adjusting presents new challenges, for example, assessing stochastic asset interest, identifying areas of interest, and performing VM movements while catching multi-faceted stochastic asset prerequisites.

The proposed work executes the VM combination strategy, which is an establishment for dynamic asset assignment. Lately, the VM solidification procedure has turned into a conspicuous idea for huge scope information handling. The result of asset planning assignments is unevenly disseminated among different frameworks because of existing booking procedures. The VM union method, which is a structure that permits run-time parceling slant relief, is introduced in this venture. Dissimilar to earlier methodologies that endeavored to adjust the responsibility of minimizers by repartitioning the middle information assigned to each lessen work, we manage parceling slant in the VM combination system by changing undertaking run-time asset portion. We show that with our strategy, VM union components can lessen information repartitioning upward. In the VM consolidation method, there are two key issues that must be solved [18]. This recommended work recognizes parcel slant to build a run-time expectation technique that figures every minimizer's segment size. Second, an endeavor execution model that associates task running time with resource conveyance ought to be made to perceive the appropriate holder size for each diminishing work. The repartitioning strategies are based on a partitioning plan, which necessitates the execution of a progressive report each time the work is started. There is compelling reason need to change the apportioning execution in the proposed work; the parcel size forecast should be possible completely on the web. Thus, we found that our current forecast plot is essential yet successful in delivering excellent outcomes. We can set up a co-found virtual machine when assets become accessible. We can combine unused little proportions of virtual machine space to supply new virtual machine space to clients, as well as apply an implosion procedure to flush information from the cloud supplier by using an opportunity to live element. We save personal data in Cloud Storage that contains details that take up more space when their validity expires. Cloud Service Providers copy and cache this information [22]. The basic goal of a self-destruction system is to destroy the user's important data based on the time live property. All information, as well as copies of information, has been destroyed. Present a framework that fulfills the reconciliation of dynamic stockpiling techniques in this proposed study. Figure 2 depicts the fundamental layout of the VM migration.

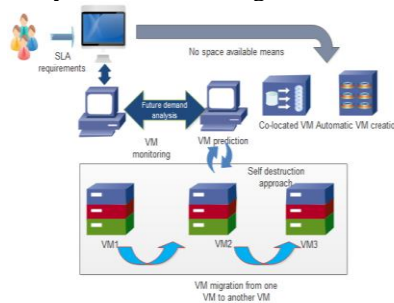


Fig 2: Proposed framework

#### ALGORITHM IMPLEMENTATION

The proposed approach depends on expected execution time instead of complete time. As a result, utilizing this method to schedule jobs in a cloud environment can achieve a shorter make span than using the original heuristic set of criteria.

The following is a description of the suggested algorithm:

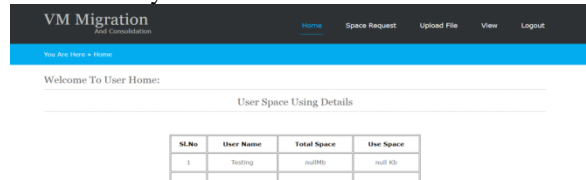
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for all endeavors  $T_i$  in Meta experience  $M_v$ 
    for all assets  $R_j$ 
         $C_j = E_j + r_j$ 
complete till all liabilities in  $M_v$  are arranged in case the number of sources is even, for each commitment in  $M_v$  consider the earliest complete time and the assets that goes along with it
notice the  $T_k$  to the resources  $R_k$  with most prominent earliest culmination time
apportion task  $T_k$  to the assets  $R_k$  that offers the earliest last detail time
erase task  $T_k$  from  $M_v$ 
update  $R_k$ 
update  $C_j$  for all  $I$ 
else
for each assignment in  $M_v$  find the earliest complete time and the sources that wires it
observe the  $T_k$  to the assets  $R_k$  with most noteworthy earliest completing time
relegate project  $T_k$  to the sources  $R_k$  that offers the earliest last touch time
erase task  $T_k$  from  $M_v$ 
update  $R_k$ 
update  $C_j$  for all  $I$ 
quit if
cease do
    
```

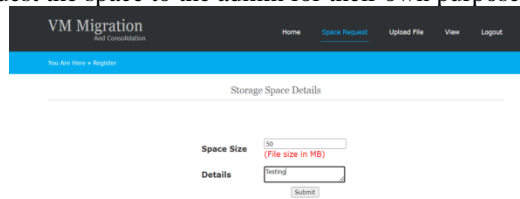
Expect that  $m$  assets  $R_j (j = 1, \dots, m)$  are expected to satisfy  $n$  commitments  $T_i (i = 1, \dots, n)$ . An arrangement for each errand is the assignment of no less than one periods of time to no less than one assets. The surveyed time of execution When  $R_j$  has no stack when  $T_i$  is designated,  $E_{ij}$  of mission  $T_i$  on help  $R_j$  is portrayed as the time period it requires greater investment to complete  $T_i$ . The ordinary fulfillment time  $C_{ij}$  of errand  $T_i$  on help  $R_j$  is portrayed as the divider clock time when  $R_j$  completes  $T_i$  (resulting to having finished any recently allotted commitments). Permit  $b_i$  to mean the beginning of task  $T_i$ 's execution.  $C_{ij} = b_i + E_{ij}$ , as exhibited by the definitions above. Permit  $C_i$  to the mission's end up back at ground 0 importance time, and  $C_{ij}$  be when help  $R_j$  is given out to do endeavor  $T_i$ . We can examine the device's show to the extent that reaction time, still up in the air as the time between the completion of a solicitation or requesting on a PC contraption and the start of a reaction.

**5. RESULTS AND DISCUSSIONS:**

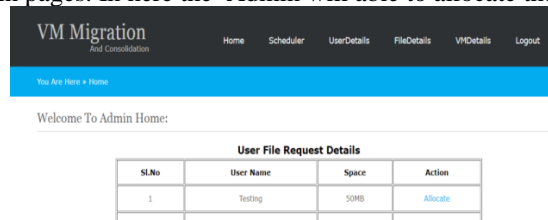
1-This is the page which will accrues right after the user logged in to the page which shows the total and used space the user has. In here the user will be able to see the how many times the user.



2-In this page the user will be able to request the space to the admin for their own purpose.



3-The below page is the one of the admin pages. In here the Admin will able to allocate the space for the requested user.



After the space allocated to the user from the admin the user will be easily able to use the cloud space and store their data without

the problem of leaking.

## 6. CONCLUSION

In Cloud Computing, a Resource Allocation System (RAS) is some strategy that inspirations to guarantee that the architects' necessities are met exactly utilizing the financier's design. Alongside this attestation to the fashioner, significant resource assignment parts should similarly think about the current remaining of each and every resource in the Cloud environment, with the objective that estimations can be used to better apportioning of physical and moreover virtual resources for specialists' applications, cutting down the cloud environment's working costs. Our system adaptively complexes digital to physical capitals based entirely on the conversion need. The proposed artworks make use of the Migration technique to combine VMs with different support qualities, as it should be so that server capacity is correctly utilized. For systems with many resource constraints, the proposed approach accomplishes overload reduction and green computing.

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