

Review On Optimized Algorithm For Resource Allocation In Multi Cloud Environment

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ABSTRACT:

Cloud Federation is another idea empowering service suppliers to collaborate and distribute their architectures to satisfy clients' requests. A major issue for associated suppliers is characterizing efficient techniques for allocating the resources to use the favorable circumstances of this collaboration. The mapping of client necessities and supplier objectives to providing resources in the Cloud elevates few difficulties because of the size of present-day information centers, variegation of resources and the changeability of expected requests. The issue turns out to be all the more difficult in cloud federations which involves different suppliers and number of disseminated resources. In this article, review on optimized algorithm for resource allocation in multi cloud environment has been highlighted.

Keywords: Optimized, Algorithm, Resource, Allocation, Multi Cloud, Environment.

INTRODUCTION:

To have a more extensive perspective of the resource allotment problem in the cloud, a profound review of associated work is expected to recognize the primary concerns and problems. It gives a complete portrayal of the issue and the related difficulties. Later, it exhibits a review of best algorithms, with an extraordinary spotlight on benefit driven distribution in associated Clouds. Study of existing work depends on some features, for example, type of service request and the objectives for improvement.

REVIEW OF LITERATURE:

Varshney et al (2020) analyzed cloud Computing is a transformative computing paradigm that involves delivering applications and services over the internet using standard access mechanism through the use of workstations, laptops, smart phones etc. Due to this technology, the expense of computation, application facilitating, content storage and conveyance have been reduced. This paper presents the advantages of using cloud computing, reviewing the several cloud deployment and service models. This paper also analyzes the key challenges and security issues to cloud computing as security is one of the major issues which hamper the growth of

cloud. It also provides cryptographic algorithms of data security and a comparative analysis of data security algorithms. It also addresses some methods to minimize these challenges. [1]

Manzoor et al (2020) proposed cloud computing has become a very important computing model to process data and execute computationally concentrated applications in pay-per-use method. Resource allocation is a process in which the resources are allocated to consumers by cloud providers based on their flexible requirements. As the data is expanding every day, allocating resources efficiently according to the consumer demand has also become very important, keeping Service Level Agreement (SLA) between service providers and consumers in prospect. This task of resource allocation becomes more challenging due to finite available resources and increasing consumer demands. Therefore, many unique models and techniques have been proposed to allocate resources efficiently. In the light of the uniqueness of the models and techniques, the main aim of the resource allocation is to limit the overhead/expenses associated with it. This research aims to present a comprehensive, structured literature review on different aspects of resource allocation in cloud computing, including strategic, target resources, optimization, scheduling and power. More than 50 articles, between year 2007 and 2019, related to resource allocation in cloud computing have been shortlisted through a structured mechanism and they are reviewed under clearly defined objectives. It presents a topical taxonomy of resource allocation dimensions, and articles under each category are discussed and analysed. Lastly, salient future directions in this area are discussed. [2]

Nazir, Rashid & Ahmed et al (2020) explored in recent years, cloud computing is an emergent field in the Internet era. There is rapid development in high-performance computing and technology extended from grid computing to cloud computing to provide computing resources on pay per basis. Cloud service providers developed applications for users to easily access cloud services with quality of service (QoS) because cloud application plays an important role in service delivery of cloud organization. This paper provides a review of cloud computing technology, cloud models, deployment and cloud applications such as types of applications, reliability, and security. Finally, open research issues are provided for future research development. [3]

Stephen A et al (2019) proposed cloud computing is a shared resource pool with hardware, software and networks. The shared resources are maintained by the third-party Cloud Service Provider (CSP). Cloud service providers provide services according to the requirements of cloud user's on-demand. Cloud users have to pay for what they have used in cloud environment. This research work describes the cloud and its opportunities and challenges in various fields like Education, Health care and Entrepreneurs. [4]

Verma D K (2019) explored cloud computing is a model that helps to speed up and increase the flexibility of data management with reduced cost. It is undeniable that cloud computing has brings us lots of benefits and becoming more popular nowadays. Many large companies start using cloud service in their business. While the cloud computing is widely used, the security becomes a concern to everyone who use cloud services. There is a lot of security arises continuously while there is improvement as well on the security model of the cloud service provided. Despite the increasing use of the cloud service, the user should use the cloud service

provided wisely in a way that always ensure good security practices so that this technology have the potential to bring the information technology to the next level. In this paper we have provided the foundation in regards to major issues and challenges in cloud computing and we have also proposed a data recovery technique in cloud computing. [5]

Kadhim Q K et al (2018) introduced Cloud computing is the most promising current implementation of utility computing in the business world, because it provides some key features over classic utility computing, such as elasticity to allow clients dynamically scale-up and scale-down the resources in execution time. Nevertheless, cloud computing is still in its premature stage and experiences lack of standardization. The security issues are the main challenges to cloud computing adoption. Thus, critical industries such as government organizations (ministries) are reluctant to trust cloud computing due to the fear of losing their sensitive data, as it resides on the cloud with no knowledge of data location and lack of transparency of Cloud Service Providers (CSPs) mechanisms used to secure their data and applications which have created a barrier against adopting this agile computing paradigm. This study aims to review and classify the issues that surround the implementation of cloud computing which a hot area that needs to be addressed by future research. [6]

Srivastava et al (2018) proposed Cloud computing which is based on Internet has the most powerful architecture of computation. It reckons in of a compilation of integrated and networked hardware, software and internet infrastructure. It has various avails atop grid computing and other computing. In this paper, I have given a brief of evaluation of cloud computing by reviewing more than 30 articles on cloud computing. The outcome of this review signalizes the face of the IT industries before and after the cloud computing. [7]

Hamdy N et al (2017) introduced resource Allocation Strategies in Cloud Computing. Cloud computing is an attractive processing model, it allows clients to use the internet and central remote servers to manipulate data, applications and access their personal files at any computer without installation of extra software. This technology allows more efficient computing by centralizing storage, memory, processing and bandwidth. Optimizing resources in the cloud is a main benefit, minimizing cost and satisfying client requests are the goal. In this paper, many resource allocation strategies and their challenges are presented. It is believed that this paper would help both cloud users and researchers to be aware with many applied resource allocation strategies. [8]

Raghavendran Ch. V et al (2016) demonstrated that Cloud computing is a computing model of providing IT resources, such as application, infrastructure, and platform in the form of service by using Internet. Cloud Computing provides infrastructure for computing and processing of all types of data resources and adopted to deal with the large amounts of data. This Internet based current technology has brought flexibility, capacity and power of processing. This technology has recognized service- oriented idea and has formed a new system in the computing world with its influence and benefits. The capabilities of Cloud computing have been able to move IT industry one step forward. Nowadays, huge and prominent enterprises have migrated to cloud computing and have relocated their processing and storage to it. In this paper, we provide an overall perception on cloud computing and draw attention to its services.

[9]

Moura J et al (2016) investigated that Cloud computing is a new way of delivering computing resources and services. Many managers and experts believe that it can improve health care services, benefit health care research, and change the face of health information technology. However, as with any innovation, cloud computing should be rigorously evaluated before its widespread adoption. This paper discusses the concept and its current place in health care, and uses 4 aspects (management, technology, security, and legal) to evaluate the opportunities and challenges of this computing model. Strategic planning that could be used by a health organization to determine its direction, strategy, and resource allocation when it has decided to migrate from traditional to cloud-based health services is also discussed. [10]

Ali, Maaruf & Miraz, Dr. (2013) proposed an overview of cloud computing applications including its particular characteristics, traits and issues. Many cloud applications also request and send location data. This sensitive information of the user also needs to be “cloaked” or hidden. This can be implemented as an “in-device” service . Even though end-to-end security may be available when utilizing cloud computing, the issue of who is responsible for “personal data” is a very important issue. [11]

Ronak Patel (2013) took a survey on Resource Allocation Strategies in Cloud Computing. Cloud computing is the next generation of technology which unifies everything into one. It is an on-demand service because it offers dynamic flexible resource allocation for reliable and guaranteed services in pay as-you-use manner to public. In Cloud computing multiple cloud users can request number of cloud services simultaneously. So, there must be a provision that all resources are made available to requesting user in efficient manner to satisfy their need. In this paper a review of various policies for dynamic resource allocation in cloud computing is shown based on Topology Aware Resource Allocation (TARA), Linear Scheduling Strategy for Resource Allocation and Dynamic Resource Allocation for Parallel Data Processing. Moreover, significance, advantages and limitations of using Resource. [12]

CONCLUSION:

Proficient organization of the resources is a major issue in the architecture of Cloud and becomes prime enthusiasm to both clients and suppliers of the cloud. It has turned into an interesting domain for research as of late. In contrast with the investigations concentrated on client cost minimization, significantly less consideration has been paid to supplier driven allocation which helps them to construct beneficial business. Cloud suppliers are in charge of facilitating, keeping up and apportioning system assets to the clients for computing the job requests. Decreasing the computing expenses by keeping up abnormal amounts of client fulfillment are vital parameters for suppliers to expand their incomes and stay in business. Accomplishing this objective requires effective designation methodologies to plan client tasks for on the supplier architecture.

The resource allotment comprises of finding the best way of allocating the clients requests with diverse prerequisites on the need of the resources and goals related to performance, accessible local and perhaps distant physical resources with heterogeneous capabilities and distinctive

properties related to the performance and cost models. The mapping has a few difficulties and motivated by client prerequisites (SLA, limitation, idleness) and supplier's objectives (cost, streamlining or effective vitality utilization). The issue of system asset allotment in extensive amounts of shared cloud architectures identified as NP-hard and contemplated in numerous ways previously. Related work has tended to various optimization issues that include separate contemplations and objectives. Studied literature includes various types of plans for providing the resources (e.g., on-request, early booking and Best-exertion demands), different kinds of service demands (straightforward VMs, composite services, VDC, and so forth.) and diverse allocation approaches. Since it is a nondeterministic issue, many algorithms are utilized to solve the allocation problems such as mathematical methods (stochastic programming, constraint programming etc.), multi criterion resolution making, genetic procedures, and Bin Packing estimate methods.

The current work concentrates on cost efficient allotment of resources for dynamic job requests to enable suppliers to choose appropriate allotment plan for all simple and composite services.

In the architecture of only one cloud, the allotment process of resources is selecting the best set of physical devices (VMs) to complete the job requests, by maintaining the constraints on resources and service quality. The service as well as framework qualities (constant observing data, valuing approaches, etc.) are typically presented to the optimization method and can be utilized as parameters for deciding the VM. Diverse methodologies were utilized for this problem to take care of the NP-Hard issue with an intention of accomplishing great tradeoffs among eminence and processing time.

Cloud users select the resources from multi-clouds with an aim of fulfilling their necessities that are changed and increased dynamically. In multi-cloud implementation, the fundamental problem to be studied is cloud compatibility. It comprises of the capacity to gain right to use of resources from various suppliers. To confront the issue, different software were available for managing the multi-cloud like library supported multi-clouds, and service supported multi-clouds.

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