

A Result on Novel Approach for Load Balancing in Cloud Computing

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1. INTRODUCTION

An interrelated cloud computing technique is used for the assessment of system function, data and file storage. The interconnection is shown between personal and universal networks by using internet. This new approach is applied for calculated power exchange, storage ability, and software and bandwidth memory. The cloud computing approach minimizes the computation charge, executive functions, information storage and transmitting rate. The cloud computing is considered a realistic method where the information hub is relocated from a capital-intensive system to an unpredictable charged atmosphere. The major objective of this technique is the elementary consumption of IT potential [1]. As compared to traditional concepts, cloud computing conveys the concept of the grid computing, distributed computing, utility computing or autonomic computing. It is also defined as the pool of abstraction, scalability manage infrastructure and end to end customer applications. Probability of data accessing for clients from any place is provided by the cloud [2]. The problems related to positioning presented in conventional computer are eliminated with the help of presented approach where an arrangement was needed for the admittance of data that is placed in other data storage device. By the use of cloud physical relocation of human is minimized as it gets access its data storage from anywhere. As if somebody is using Cloud computing then their resources get shred along with that the cost is also getting shared. This helps in the reduction of data usage cost. Cloud computing gives various computing archetype to the numerous project, clients and

ABSTRACT

Cloud computing is a large pool of system in which private or public networks are interconnected in order to provide the scalable infrastructure to application, data and file storage. It is considered as the computer archetype in which large amount of information is stored. It helps in the significant reduction of the cost of computation, application hosting, content storage and delivery. In order to experience direct cost benefits, cloud computing is considered as a practical approach and it can possibly transform a data center from a capital-intensive set up to a variable priced environment. It provides the feasibility to its customers that they can access their information from anywhere they want. Therefore, cloud overcomes the limitation of the location constraint. As compared to traditional concepts, cloud computing conveys the concept of the grid computing, distributed computing, utility computing or autonomic computing. When any virtual machine gets overloaded, fault may occur in the cloud environment. With the help of BFO algorithm, technique of adaptive task scheduling is proposed. Using this method, it becomes easy to transfer the task to the most reliable virtual machine. On the basis of calculated weight at virtual machine, the reliability of the virtual machine is calculated. The proposed and existing algorithms have been implemented in CloudSim. On the basis of the simulation results, it is concluded that the proposed method shows the reduction in the execution time as compared to existing technique.

KEYWORDS: Weight-based algorithm, Load Balancing, CloudSim

online organizations, as the resources can be utilized on demand. The key aim of the cloud resource suppliers and consumers is distribution of cloud resources and accomplish the financial profit [3]. The main concern in cloud computing is related to the allotment of the assets because they dispersed infrequently. The reserves are allotted to the clients on the basis of their requirements. The capable allotment of resource has made the companies' economical state more prevailing. Now, consumers do not pay additional money for the vacant computing assets [4]. The cost speculation business enterprises for the clients are incoming for the distribution of assets in order to promote the industry advancement. The dispersion of finest job resources is performed on the basis of given aiming capability in the resource allocation and their preparation. The major objective of this technique is the elementary consumption of IT potential. The resources are allotted in dynamic manner and used for the inclusive purpose. In cloud computing domain, different techniques have been utilized so far for analyzing the allotment of the assets [5]. The reserves are allotted on the basis of different forecasting algorithms. The cloud computing involves various features in resource allotment like elevated throughput, utmost effectiveness, SLA mindful, QoS mindful, utmost power and energy utilization and so on. The cloud scheduling problems are optimized with the help of an optimized reserve scheduling technique. These issues are based on Infrastructure-as-a-Service (IaaS) cloud systems [6].

In order to approve the maximum usage of corporeal resources, the distribution of the Virtual Machines (VMs) is considered as the feasible approach. For the development of the computerized policy the used method is an Improved Genetic Algorithm (IGA). In cloud information centers, for the advancement of resource distribution, resource allocation strategy is needed based on market (RAS-M) that is providing successively good results. In cloud computing surroundings, the proposed method helps in the on demand conveyance of resources. The Service Level Agreements (SLAs) are used for providing the services in cloud processing environments. The violation of the services provided by the SLA must be prohibited for the minimization of costly penalties [7]. In order to minimize the costly penalties,

For avoiding the under usage and over usage of the resources, a Rule Based Resource Allocation Model (RBRAM) is proposed where allocation of the resources is done on assignment necessities. The rule is $\mu > \text{where}$ Resource allocation rate or Resource request rate is denoted by symbol μ . For enhancing the performance of presented scheme, a supply demand analysis is done which is time relied.

2. Literature Review

Xiao-long Zheng, et.al, [8] proposed a Pareto based fruit fly advancement algorithm (PFOA) for solving the problem in cloud processing settings such as task scheduling and resource allocating (TSRA). To introduce the population, researcher projected the heuristic view of property for the minimum cost. Assigned resources to the operator developed non-dominated solutions. For improving the exploitation capacity, researcher projected a critical path based search operator. A number of test were carried out for evaluating the performance of projected approach with the help of comparative outcomes and mathematical investigations. For storing and updating the explored non-dominated solutions, the visual memory was utilized. Implemented investigations depicted that presented technique PFOA shows the effective results in comparison with existing algorithm.

Wahid Hussain, et.al, [9] proposed an agent based architecture for reserve allotment in dynamic environment by characterizing the roles at every level. There are various strategies that are identified by the proposed architecture for distribution of reserves like reliability, performance, scalability and in addition security. Researcher presents various proposed architecture and their disadvantages that are defined by the various researchers. According to author proposed method overcomes all the issue that is not sorted by the existing methods. In the proposed algorithm, it comprised of consumer agent, broker agent, service providers, expert agent, monitoring agents and network administrator. This method also provides the reliability, proficiency, content analysis, scalability of the system. The alerts are obtained network administrator by changing every agent on dashboard.

Fabio Lopez-Pires, [10] proposed that many virtual machines in actual cloud computing markets are provided using cloud computing datacenters. For the efficient management of these infrastructures all the issue that hinders its capability addressed in the presented study. In this paper author examined the Many-Objective Virtual

Machine Placement (MaVMP) problems. Author also proposed the novel taxonomies for the VMP problem in order to achieve gain from the existing approaches and formulation. For the settlement of Many-Objective Optimization Problems (MaOPs) detailed study was done on the problems related to MaVMP. Various investigations showed that the projected technique proves its rightness, effectiveness and scalability.

Shahin Vakilinia, et.al, [11] proposed a platform for VM migration for the minimization of whole power consumption of cloud DCs. Main problem in the cloud computing for the cloud providers is the power consumption. Author in the presented study, combined the advancement scheduling and estimation techniques, so that it reduce the power consumption of DC. An evaluation element is implemented in the system for the prediction of incoming loads. For the scheduling of predictable and unpredictable loads, it is essential to consider the two schedulers. To handle the Integer Linear/Quadratic Programming (ILP/IQP) enhancement problem, a Column Generation (CG) system is used by this proposed method. This proposed method shows the scalability of projected approach as it shows the effective performance in VM placement and migration forms. The proposed method shows the optimal solutions in comparison with presented methods and various experimental results has proved it.

Haohao Zhou, et.al, [12] proposed a novel approach named as cloud processing. This approach was implemented in the form of a line scheme. In accordance with the speculative process, the convenience of foundation poignant is provided to the user. Several resources such as memory, storage capacity etc. can be demanded by the user by utilizing this technique. For the enhancement of scheme exploitation beneath steady condition, an association among the consumption and the steadiness of the cloud computing scheme is presented in this research work. For the attainment of steady situations for the arrangement, the utilization of preventive and non-preventive precedence is essential. The researcher also analyzed the effect of different factors on this approach. A characteristic steadiness area is there in the cloud in a line scheme for different development strategies. During the execution of scheduling task, different parameters are required to take in account like quality of service, consumption etc.

Huangke Chen, et.al, [13] showed an apprehension about green cloud processing in various areas like business and academe. The researcher has effectively raised this issue in this research work. The ambiguity presented in computing surroundings is described by a novel interval number hypothesis. In order to minimize the consequences of uncertainty of task within a cloud data center, a system of business practice occurs. A new scheduling approach is proposed in this study for the utilization of practical and hasty scheduling approaches. This scheduling approach is provided for the scheduling of concurrent, episodic and gratis assignments. These three ideas were given for power competence and reserve exploitation for cloud information hub. A comparison between PRS and four typical baseline forecasting techniques was conducted on the basis of different researches. The experimental results demonstrated the dominance of PRS. The PRS technique provided assistance in the augmentation of data center recital.

3. Research Methodology

The foraging performance of E is the base of geographically stimulated calculating method. Coli bacteria are named as BFO algorithm. Poor foraging strategies have been utilized remove animals in the natural selection process and animals containing victorious rummaging approaches; enjoy the reproductive success as these animals' favors the circulation of genes. Various alterations are performed in the meager foraging policies with the advancement of techniques. For optimization process the foraging activity is performed. For resolving the node failure within the cloud networks, BFO technique is projected here. The proposed method utilizes numerous nodules. In order to choose the aspirant nodule, failure rate and minimum implementation time period is considered. The main nodule sets a threshold level.

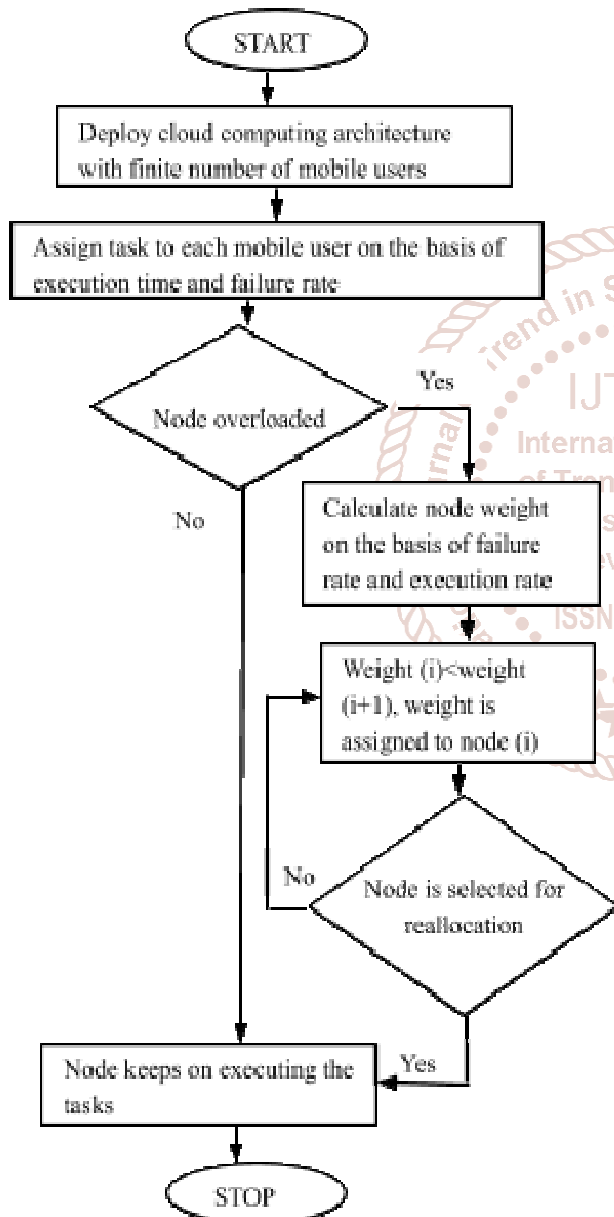


Figure1: Flowchart of Proposed Work

In this threshold level, two features such as breakdown rate and execution time are the main concern. Less failure value and least completing time period is the base of aspirant nodule selection by the main nodule.

4. Result

CloudSim is used for the implementation of projected approach. The proposed and obtainable methods are compared in terms of region utilization and completion time period in order to evaluate the results.

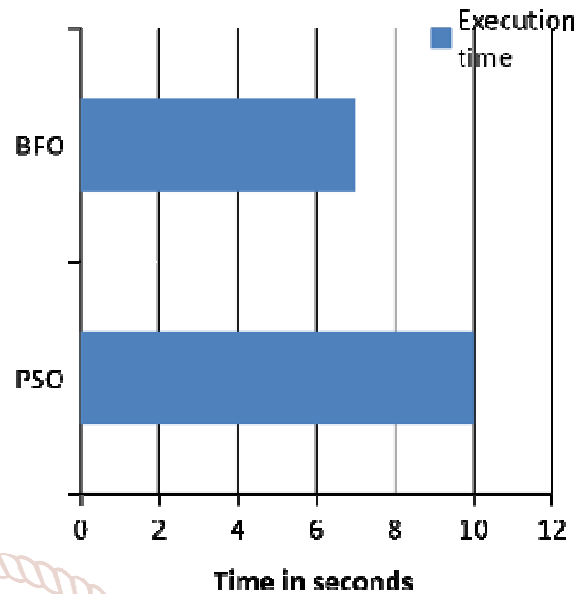


Fig2: Execution time

The comparisons are conducted amid proposed and available methods as demonstrated by the fig. 2. The proposed scheme successfully minimizes the completion time span due to the error revival in the scheme.

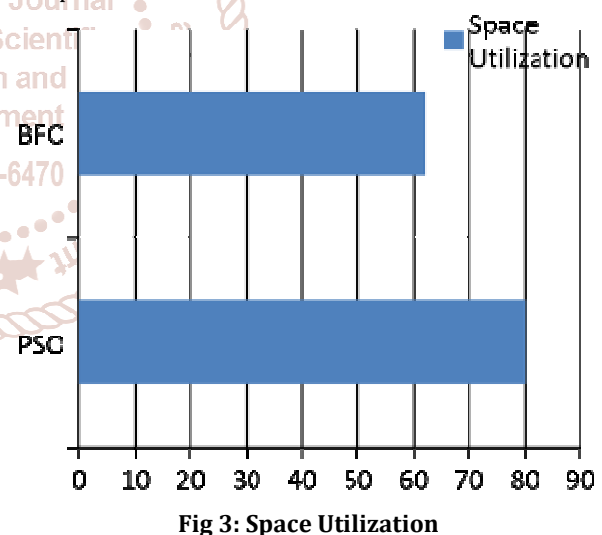


Fig 3: Space Utilization

Several comparisons amid accessible and projected approach are performed on the basis of space utilization as depicted by the fig. 3. The proposed approach shows a considerable reduction in space utilization. The proposed approach also enhances the system effectiveness due to the error revival within the scheme.

5. Conclusion and Future Work

There is a need to increase the number of data centers according to the needs of host in order to ensure the Quality of Service within the network. There will be an increment in the energy being consumed by the network at fixed rate as the number of data centers increase. Thus, the QoS can be ensured at the required level through this. On the basis of resource consumption, migration time as well as the CPU utilization, the uncertainty is computed. In order to provide

virtual machine migration, a technique is proposed in this work on the basis of weight based algorithm. In order to evaluate the reliability of proposed algorithm, some other algorithms can be compared with the proposed algorithm. With the help of using secure authentication procedure, the security of proposed algorithm can further be enhanced.

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