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Review of User Authentication, Distributed Server Based Green Computing

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Abstract: Computer science educators are uniquely positioned to promote greater awareness of Green Computing, using the academic setting to encourage environmentally conscious use of technology. This paper reports on practical techniques that can engage faculty and students, enabling Green computing to be integrated into the classroom and research laboratory. Analysis and empirical evaluation of each reported technique is given, comparing the efficacy of each in terms of energy, environmental and financial cost savings. These results are provided as technological and economic evidence for the benefits of "Going Green," and to promote education in Green Computing in the classroom, department and research lab.

Keywords: Green computing, Cloud base, server management and virtual machine.

1. INTRODUCTION

Today's computing vision is utility based Consumers only need to pay provider only when and how they access, they need not to invest much and there is no need to develop an complex and costly infrastructure, this model of computing is cloud computing .Cloud means a user can access application as a service from anywhere in the world on demand cloud computing services are supported by a state of data center (data server) which uses the virtual machines for isolation purpose. Cloud computing is attracting great attention nowadays. The elastic nature of cloud makes it suitable for almost any type of organization. The major challenge faced by cloud users and providers are security concerns towards cloud services. These security issues acts as a barrier in the growth of cloud computing. The trust between provider and users is the most important factor to be considered for a cloud service and application.

There are several approaches: Product longevity, Algorithmic efficiency, Resource allocation, Virtualization, Power management etc. for green computing. Here power consumption is analyzed and optimization will be done using some intensive application like input output and CPU intensive and hybrid deployment of application, and Algorithmic efficiency approach is used for green computing .Power consumption is analyzed by resource allocation and then analyzed the power consumed by the equipment and resources which are allocated. Cloud computing is an extend of Grid Computing, Distributed Computing and Parallel Computing. It's to provide secure, quick, convenient data storage service centered by internet.

Cloud computing delivers infrastructure platform and software (application) as a service on demand as a subscription based services [3]. To reduce the power consumption here the term green computing is used .When we introduced

the term green computing we thought going green with computers [2].

Green computing concentrates on energy efficiency reducing recourse consumption. Green computing is environmentally responsible use of computing. As computer system increasing so the amount of energy conservation and the carbon contents are increasing in atmosphere. Measure being taken to reduce the problem superficially called "green computing".

Green Computing is practice of designing manufacturing, using and disposing of computer server and associated sub system such as monitors, printer's storage devices networking and communication system efficiently and effectively with no impact on environment [5].The Technical processes adopted by the industries creates challenges in the management of the waste. Green computing shows how to use resources efficiently and how to reduce the waste

Green computing is the requirement to save the energy with the expenses .Currently the implementation on green computing practice is going on, but firstly we have to know what kind of energy should be gained and how it is achieved. So analysis of the gap what are the resources we have and what we are going to do to achieve the benefits of green computing

"Green computing" represents environmentally responsible way to reduce power and environmental e-waste. Green Data Center, Virtualization, Cloud computing, Power optimization and grid computing are the technologies of green computing. Main goals of green computing are to reduce the use of toxic and hazards materials and improve the energy efficiency, recycling of factory waste. Such practice includes the efficient implementation of server and peripherals as well as reduces the power consumption.

2. GREEN DATA CENTER

Data centers or computer center has a computer system and its associated system such as telecommunication system data storage system. It needs backup power supply, some cooling system and security system. A green data center is a data center which has a efficient management of the system and associated system less power consumed environment.

Practical requirement of data centers are as follows:

- Provide a physical secure location for server.
- Should provide all-time network connectivity in data center.
- Should provide necessary power to operate all equipment.

3. CHARACTERISTICS

Cloud computing has a variety of characteristics, with the main ones being: [16]

Shared Infrastructure — Uses a virtualized software model, enabling the sharing of physical services, storage, and networking capabilities. The cloud infrastructure, regardless of deployment model, seeks to make the most of the available infrastructure across a number of users.

Dynamic Provisioning — Allows for the provision of services based on current demand requirements. This is done automatically using software automation, enabling the expansion and contraction of service capability, as needed. This dynamic scaling needs to be done while maintaining high levels of reliability and security.

Network Access — needs to be accessed across the internet from a broad range of devices such as PCs, laptops, and mobile devices, using standards-based APIs (for example, ones based on HTTP). Deployments of services in the cloud include everything from using business applications to the latest application on the newest smartphones.

Managed Metering — uses metering for managing and optimizing the service and to provide reporting

and billing information. In this way, consumers are billed for services according to how much they have actually used during the billing period.

In short, cloud computing allows for the sharing and scalable deployment of services, as needed, from almost any location, and for which the customer can be billed based on actual usage.

4. PREVIOUS METHOD

This section includes the previous method of VM scheduling and implemented method description. The new method includes the algorithm details and their processing steps. According to an article [14] one of the ways to reduce power consumption by a data center is to apply virtualization technology. This technology allows one to consolidate several servers to one physical node as Virtual Machines (VMs) reducing the amount of the hardware in use. Recently emerged Cloud computing paradigm leverages virtualization and provides on-demand resource provisioning over the Internet on a pay-as-yougo basis. This allows enterprises to drop the costs of maintenance of their own computing environment and outsource the computational needs to the Cloud. It is essential for Cloud providers to offer reliable Quality of Service (QoS) for the customers that are negotiated in terms of Service Level Agreements (SLA), e.g. throughput, response time. Therefore, to ensure efficient resource management and provide higher utilization of resources, Cloud providers (e.g. Amazon EC2) have to deal with power-performance trade-off, as aggressive consolidation of VMs can lead to performance loss.

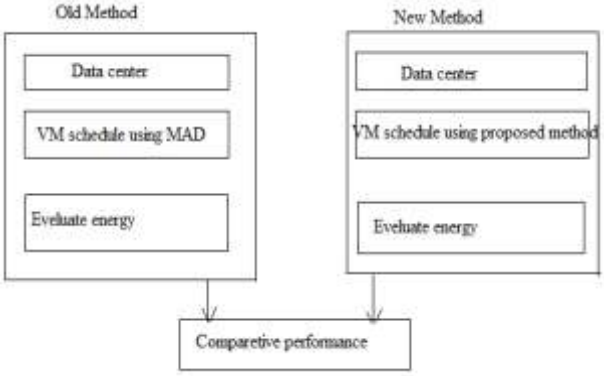

Figure:-1 System architecture

In this section of the document contains the system architecture by which the complete simulation designed. An overview of the system architecture is given using figure.

1. **Data center:** that is primary data center setup, which consumes the previous data centers load and their relevant load. This log contains information about the loads under data center over 24 hour time. System collect load is given to the designed architecture.
2. **MAD:** that is an in build method used to schedule VM using the median absolute deviation, and in next step the energy consumption over cloud data center is estimated.
3. **Proposed computational model:** in this phase the designed VM scheduling model is implemented, and in next step energy consumed is estimated.
4. **Comparative performance:** in this phase the computed all requests and outcome basis average energy consumption is calculated and provided as performance comparison.

5. CONCLUSION

Incorporating the Green Computing techniques discussed in this paper into classrooms can have an immediate impact by reducing power consumption of entire labs of computers. Over the longer term, students and faculty will share their knowledge with others, increasing the reach of Green Computing ideas. Power management features such as the sleep and hibernate modes are most likely to be effective because computers can automatically go into low power states after a preset idle time without human intervention. Techniques such as

unplugging a computer or using a lab-wide "kill switch" to eliminate phantom loads are less effective because they require constant action by the user. Using intelligent power strips help to reduce user interaction since they can automatically shut down peripherals when a computer shuts down, thereby reducing phantom loads.

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