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CLOUD COMPUTING

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ABSTRACT

On demand or on pay per use of resource such as :network, storage and server these all facilities are provided by cloud computing through internet is called cloud computing .Although ,cloud computing is facilitating the Information Technology industry, the research and development in this arena is yet to be satisfactory. We have contribution in this paper is an advanced survey focusing on cloud computing concept and most advanced research issues. Cloud computing is the development of parallel computing, distributed computing, grid computing and virtualization technologies which define the shape of a new era. Cloud computing is an emerging model of business computing.

In this paper, we explore the concept of cloud architecture and compares cloud computing with grid computing. We present several case studies for educational clouds introduced by popular cloud providers which reflect the increasing interest in this new trend. We also discuss future challenges to cloud education.

1. INTRODUCTION

Cloud Computing is defines as a distributed architecture that centralizes server resources on a scalable platform so as to provide on demand computing resources and services. Due to the unprecedented success of internet in last few years, computing resources is now more ubiquitously available. And this is enabled the realization of a new computing concept called Cloud Computing. Cloud Computing environment requires the traditional service providers to have two different ways. Where the IT resources include network, server, storage, application, service and so on and they can be deployed with much quick and easy manner and least management and also interactions with service providers. Cloud computing can much improve the availability of IT resources and owns many advantagesover other computing techniques. Users can use the IT infrastructure with Pay-per-Use-On-Demand mode; this would benefit and save the cost to buy the physical resources that may be vacant.

While the economic appeal of cloud computing is often related as "converting capital expenses to operating expenses" (CapEx to OpEx), we believe the phrase "pay as you go" more directly captures the economic benefit to the buyer. Hours purchased via cloud computing can be distributed non-uniformly in time (for example, use 100 server-hours today and no server-hours tomorrow, and still

pay only for 100); in the networking community, this way of selling bandwidth is since known as usage-based pricing's In extension, the absenteeism of up-front capital expense allows capital to be redirected to core business investment. Therefore, even if Amazon's pay-as-you-go pricing was more expensive than buying and depreciating a comparable server over the same period, we argue that the cost is outweighed by the extremely main cloud computing economic advantage of elasticity and transference of risk, especially the risks of overprovisioning (underutilization) and under provisioning (saturation).

2. CLOUD COMPUTING OVERVIEW

Cloud computing is a way of leveraging the Internet to consume software or other IT services on demand. Users share processing power, storage space, bandwidth, memory, and software. With cloud computing, we shared the resources and so the costs.

In other words, we can say that Cloud is something, which is present at remote location. Cloud can provide services over public and private networks, i.e., WAN, LAN or VPN. Applications such as e-mail, web conferencing, customer relationship management (CRM) execute on cloud. Cloud Computing provides us means of accessing the applications as utilities over the Internet. It allows us to create, configure, and customize the applications online.

3. COMPARISION BETWEEN CLOUD AND GRID COMPUTING

Cloud computing uses client-server architecture to deliver computing resources such as servers, storage, databases, and software over the cloud (Internet) with pay-as-you-go pricing

Cloud computing becomes a very popular option for organizations by providing various advantages, including cost-saving, increased productivity, efficiency, performance, data back-ups, disaster recovery, and security. Grid aims to provide the maximum computing capacity for a huge task through resource sharing. Cloud aims to suffice as many small-to-medium tasks as possible based on users' real-time requirements. Therefore, multi-tenancy is a very important concept for Cloud computing. Grid trades re-usability for (scientific) high performance computing. Cloud computing is directly pulled by immediate user needs driven by various business requirements

Public cloud:

Public cloud environment is maintained by an outsourced cloud provider and is reachable to many businesses through the internet on a pay-per- use model.

This distribution model provides services and organization to businesses who want to save money on IT operational costs, but it's the cloud provider who is responsible for the invention and safeguarding of the resources. Public clouds are model aimed at minor with average magnitude businesses with a constricted budget requiring a quick and easy platform in which to deploy IT resources. Merits of a public cloud Easy scalability No geographical restrictions Cost effective Highly reliable Easy to manage Demerits of a public is Not examine the safest option for sensitive data

Private cloud:

This cloud distribution model is a modified infrastructure maintained by a single business. It offers a precise environment in which contact to IT resources is additionally centralized within the business. The present exemplary perhaps visibly introduced either obtainable handled internal. Even though secluded cloud introducing obtainable valuable, as largest productions it could be action a developed equal of safety and extra self-sufficiency to modify the storing, interacting and calculate mechanisms toward ensemble their IT necessities.

Merits of an isolated cloud:

Merits of an isolated cloud

Better-quality level of safety Superior switch ended the slave Customizable benefit of an individual cloud firm to approach details out of isolated position Requires IT expertise Hybrid Cloud For businesses in search of the good of both secluded and communal cloud distribution copies, a mixture cloud atmosphere is a moral decision. By merging the two representations, a mixture cloud prototypical provides a more tailor-made IT solution that meets explicit business requirements.

From a hardware provisioning and pricing point of view, three aspects are new in cloud computing which are as follows:

- The arrival of unlimited computing resources available on demand, fatly enough to follow load surges, thereby eliminating the need for cloud computing users to plan far ahead for provisioning.
- The destruction of an up-front commitment by cloud users, thereby allowing companies to start little and rise hardware resources only when there is an rise in their needs'
- The ability to pay for use of computing resources on a short-term basic as needed (for example, processors by the hour and storage by the day) and release them as needed, thereby rewarding conservation by letting machines and storage go when they are no long time useful.

4. RELATED WORK

K. Santhi [2] propose Service Oriented Trace back Architecture (SOTA) applying framework to OGSA. We further add to our work by introducing a defense filter called X Detector [XML Detector], in which it is distributed throughout the grid, in order to properly defend it. Our system is one of the first defense systems to attempt to defend against these new attacks. DPM methodology is applied to our SOTA framework; by placing the Service-Oriented Traceback Mark (SOTM) within web service messages. If any other web security services (WS-Security for example) are already being employed. Defense filter is used in this paper to detect suspicious messages and attacks. If attack is found, the corresponding request is dropped before forwarding it to server. The request is transferred to the server only when no attack is found and consequent service reply for the request would be obtained.

Nayot Poolsappasit, et.al [4] proposes a risk management framework using Bayesian networks that enable a system administrator to quantify the chances of network compromise at various levels. In this paper, they show how to use this information to develop a security mitigation and management plan. In contrast to other similar models, this risk model lends itself to dynamic analysis during the deployed phase of the network. A multi objective optimization platform provides the administrator with all trade-off information required to make decisions in a resource constrained

environment. Further they propose an alternative method of security risk assessment that they call Bayesian Attack Graphs (BAGs). In particular, they adapt the notion of Bayesian belief networks so as to encode the contribution of different security conditions during system compromise. His model incorporates the usual cause consequence relationships between different network states (as in attack graphs and attack trees) and, in addition, takes into account the likelihoods of exploiting such relationships

5. CONCLUSION AND FUTURE WORK

NICE utilizes the attack graph model to conduct attack detection and prediction. The proposed solution investigates how to use the programmability of software switches based solutions to improve the detection accuracy and defeat victim exploitation phases of collaborative attacks. NICE only investigates the network IDS approach to counter zombie explorative attacks. In order to improve the detection accuracy, host-based IDS solutions are needed to be incorporated and to cover the whole spectrum of IDS in the cloud system. This should be investigated in the future work. Additionally, as indicated in the paper, we will investigate the scalability of the proposed NICE solution by investigating the decentralized network control and attack analysis model based on current study.

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