Implementation of Cloud for College

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ABSTRACT

Cloud Storage is an attractive concept in IT field since it allows the resources to be provisioned according to the user needs. It provides services on virtual machines whereby the user can share resources, software and other devices on demand. Cloud services are supported both by Proprietary and Open Source Systems. The project idea is about to provide cloud storage to store and upload the data for the teachers as study material, Assignments and other stuff. These drives also allow to the principal and Examination cell authorities to upload the current notices for student. The designed cloud storage (Drive) is used within Intranet by using LAN connection and also by using Wi-Fi. The Drive facilitates staff with a separate and limited space to store and upload data with its own access privileges. The platform used to implement the idea is Ubuntu-12.04. There are three necessary packages required to set up cloud in ubuntu.

Keywords: Cloud Computing, Cloud Storage, OpenStack, Open Source, Intranet.

I. INTRODUCTION

Cloud computing is a computing environment, where resources such as computing power, storage, network and software are abstracted and provided as services on the internet in a remotely accessible fashion [5]. Billing models for these services are generally similar to the ones adopted for public utilities. On-demand availability, ease of provisioning, dynamic and virtually infinite scalability is some of the key attributes of cloud computing [1]. The main aim of cloud computing is providing services. It provides various types of services, some of the important services are SaaS, PaaS and IaaS. A. Software as a service (SaaS): It is a model of Software deployment whereby according to the demand of the customer a provider provides licensed application for the specified time. B. Platform as a service (PaaS): Generates all facilities required to support the complete cycle of construction and delivery of web-based applications wholly available in Internet with built in services so there is no need of downloading software or special installations by developers. C. Infrastructure as a Service (IaaS): It provides resources, such as servers, connections, storage and other necessary tools to construct an application design according to the need of organizations, making it quick, easy and economically viable. Cloud computing is mainly classified into three types based on the deployment model: Public cloud, Private cloud and Hybrid cloud. If the services are provided over the internet then it is public cloud or external cloud and if it is provided within an organization through intranet then it is named as private cloud or internal cloud and Hybrid cloud is an internal/external cloud which allows a public cloud to interact with the clients but keep their data secured within a private cloud. In this work we propose and discuss the design and Implementation of cloud service in college. We have seen implementation of cloud on larger scales in companies like Amazon etc, but not for college level. We are going to design a cloud setup for institution like college where request patterns and infrastructure are quite different from commercial settings. The college can benefit significantly from private cloud infrastructure to service its various branches, research, and teaching requirements.

II. METHODS AND MATERIAL

A. Existing System

The existing IT ecosystems has undergone structural changes, where IT infrastructures and resources are being increasingly provided as standardized and virtualized cloud services via the Internet (Karabek,

Kleinert & Pohl 2011). The emergence of a phenomenon known as Cloud Computing represents a fundamental change in the way IT services are invented, developed, deployed,scaled, updated, maintained and paid for (Marston et al. 2010). Therefore, this study builds up the literature review on related domains such as Current ES deployment, Conceptualization of Cloud ES, Advantages and Challenges of Cloud ES Adoption.

B. Proposed System

Student Software Library is an idea to provide students access to softwares without worrying about the software to be installed in the local machine.

. The basic purposes are as given below:

Help students to access softwares incase the software on the local machine is uninstalled or it get corrupt.

Provide access to students to store the data after accessing the software over the cloud.

1. **Methodology and Analysis**

2. **Citrix XenServer**

Citrix XenServer is an industry and value leading open source virtualization platform for managing cloud, server and desktop virtual infrastructures. Organizations of any size can install XenServer in less than ten minutes to virtualize even the most demanding workloads and automate management processes – increasing IT flexibility and agility and lowering costs. With a rich set of management and automation capabilities, a simple and affordable pricing model and optimizations for virtual desktop and cloud computing, XenServer is designed to optimize private datacenters and clouds today and in the future.

XenServer is based on the Xen Project™ hypervisor. The Xen Project hypervisor is a bare metal virtualization paltform used by XenServer to deliver near native application performance for x86 workloads in an Intel and AMD environment.

1. **Why XenServer?**

2. **Multi-Server Management**

XenCenter provides all the virtual machine management, monitoring and general administration, and general administration functions in a single interface. Administrators can easily manage hundreds of virtual machines from a centralized, highly available

management console that installs on any Windows® desktop. The resilient distributed management architecture in XenServer distributes server management data across the servers in a resource pool to ensure that there is no single point of management failure.

3. **Role Based Administration**

Role-based administration improves security and enables delegated access, control, and usage of XenServer pools by maintaining a tiered access structure with varying levels of permissions.

4. **Performance Alerting And Reporting**

Receive immediate notification with historical reporting of VM performance to enable the rapid identification and diagnosis of fault or failure in the virtual infrastructure.

5. **Live Vm Migration**

XenMotion™ eliminates the need for planned downtime by enabling active virtual machines to be moved to a new host with no application outages or downtime.

Live Storage Migration

Move live running virtual machines and their associated virtual disk image within and across resource pools leveraging local and shared storage. This enables users to move a VM and its virtual disk image from a development to production environment, move between tiers of storage when a VM is limited by storage capacity, and perform maintenance and upgrades with zero downtime.

6. **Host Failure Protection**

Deliver high availability by automatically restarting virtual machines if a failure occurs at the VM, hypervisor or server level. Link aggregation bonds network interfaces for network redundancy and increased throughput.

7. **Host Power Management**

Take advantage of embedded hardware features to lower datacenter electricity consumption by dynamically consolidating VMs on fewer systems and

then powering off underutilized servers as demand for services fluctuates.

8. Memory Overcommit

Reduce costs and improve application performance and protection by sharing unused server memory between VMs on the host server.

9. Heterogeneous Resource Pools

Enables resource pools to contain servers with different processor types, and support full XenMotion, high availability, and shared storage functionality.

10. Site Recovery

Provides site-to-site disaster recovery planning and services for virtual environments. Site recovery is easy to set up, fast to recover, and has the ability to frequently test to ensure disaster recovery plans remain valid.

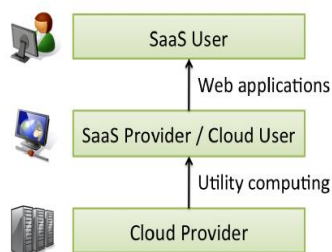## III. RESULTS AND DISCUSSION

Implementation and Design

Figure 1. Implementation & Design

College consists of various department like information technology, computer, mechanical, automobile, etc. Each department has different computer labs .Each branch requires different software, platforms which are purchased by the college which needs to be installed on every computer of different labs according to the requirement. Thus by setting up the cloud there will be no need of doing so .All the software need to be installed only once which will be stored on cloud server. The designed cloud storage (Drive) is used within Intranet by using LAN connection.
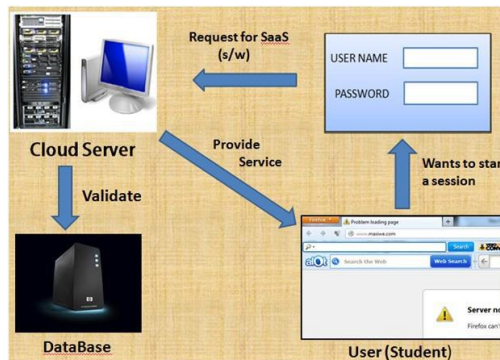

Figure 2. Working of Cloud Infrastructure after setup

For example the above figure shows that whenever a student request for a particular software or platform he has to login using his/her id Allocated to him/her. If he/her is a valid user then the request is forwarded to the Cloud server .The cloud server with the help of database server validates the user and provides services.

The Proposed Sytem has been achieved by using the above discussed techniques of image and text analysis. These techniques will categorize the text and image input of the user as abusive or non-abusive. Thus, by blocking the bullying content, the Cyberbullying attacks can be curbed to a large extent. This will also safeguard the users of the online social networking webistes from life threatening situations and abusive offenders. Other than just text and image analysis, sound and video analysis can be carried out in future. It can also be deployed on apps and can be trained to detect abusive videos in future.

IV. CONCLUSION

In this paper, a new and powerful infrastructure for building College Cloud is introduced which is capable of serving the user request for Infrastructure and Platform services. Services include launching different flavours of images, instances and services etc. The future work can be the implementation of Software as a Service with the help of XenServer.

V. REFERENCES

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