An Approach to Private Cloud Using LAMP and EyeOS

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ABSTRACT

Cloud computing is a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (*e.g.*, networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction.

EyeOS is free Cloud Computing Operating System software which let you access all your necessary files, folders, office, calendar, contacts and much more anywhere in the world. You can use it personally on your computer or you can use it for collaborative work and share data to your company, firm, clients and colleagues for more innovative ideas and better brain storming. You can host eyeOS on your server and make your own Cloud system to access your data anywhere you want to. All you need to do is login into your eyeOS server with a normal Internet Browser, and you have access to your personal desktop, with your applications, documents, music, movies... just like you left it.eyeOS lets you upload your files and work with them no matter where you are. It contains applications like Word Processor, Address Book, PDF reader, FTP Client ,Internal Messaging ,and many more developed by the community.

Keywords: Cloud Computing, EyeOS, Ubuntu 10.04 LTS

Introduction

Today in this modern era the cloud computing is an excellent recreation for building and running applications, where you access applications over the as utilities, rather than as pieces of software running on your desktop or in the server room.

This model is already quite common for consumer apps like email and photo sharing, and for certain business applications like customer relationship management (CRM)[8].

Main characteristics of cloud computing:

- **On-demand self-service**—A consumer can unilaterally provision computing capabilities, such as server time and network storage, as needed automatically without requiring human interaction with each service's provider[5].
- **Broad network access**—Capabilities are available over the network and accessed through standard mechanisms that promote use by client platforms (*e.g.*, mobile phones, laptops, and PDAs).
- **Resource pooling**—The provider's computing resources are pooled to serve multiple consumers using a multi-tenant model, with different physical and virtual resources dynamically assigned and reassigned according to consumer demand.[1] A sense of location independence exists because the customer generally has no control over or knowledge of the provided resources' exact location but may be able to specify location at a higher level of abstraction (*e.g.*, country, state, or data center). Examples of resources include storage, processing, memory, network bandwidth, and virtual machines.
- **Rapid elasticity**—Capabilities can be rapidly and elastically provisioned, in some cases automatically, to quickly scale out and rapidly released to quickly scale in. [2]To the consumer, the capabilities available for provisioning often appear unlimited and can be purchased in any quantity at any time.

- **Measured service**—Cloud systems automatically control and optimize resource use by leveraging a metering capability appropriate to the type of service (*e.g.*, storage, processing, bandwidth, and active user accounts).[3] The provider and consumer can monitor, control, and report resource usage, thus providing transparency of the utilized service.

Types of cloud computing :-

SaaS

- It provides all the functions of a sophisticated traditional application to many customers and often thousands of users, but through a Web browser, not a "locally-installed" application.

Highest-profile examples are Salesforce.com, Google's Gmail and Apps, instant messaging from AOL, Yahoo and Google, and VoIP from Vonage and Skype[3].

PaaS

- Delivers virtualized servers on which customers can run existing applications or develop new ones without having to worry about maintaining the operating systems, server hardware and load balancing .

Well known providers would include Microsoft's Azure, Salesforce's Force.com, Google Maps, ADP Payroll processing, and US Postal Service offerings [6].

IaaS

- Cloud Computing provides grids or clusters or virtualized servers, networks, storage and systems software, usually (but not always) in a multitenant architecture.

Vendors would include Amazon.com (Elastic Compute Cloud [EC2] and Simple Storage), IBM and other traditional IT vendors [4].

Deployment models:

- **Public cloud** applications, storage, and other resources are made available to the general public by a service provider. These services are free or offered on a pay-per-use model.
- **Community cloud** shares infrastructure between several organizations from a specific community with common concerns (security, compliance, jurisdiction, etc.), whether managed internally or by a third-party and hosted internally or externally [11].
- **Hybrid cloud** is a composition of two or more clouds (private, community or public) that remain unique entities but are bound together, offering the benefits of multiple deployment models.
- **Private cloud** is cloud infrastructure operated solely for a single organization, whether managed internally or by a third-party and hosted internally or externally[15].

  Therefore we have chosen a private cloud Eyeos in which we use the concept of cloud computing and whole working related to cloud security and databases.

There are many concepts that are intact in the topic of Eyeos private cloud. It includes the concept of cloud computing and eyeos. So to understand the whole concept firstly we have to understand the two very important words. When you Google the meaning of Cloud Computing you will find the definition that it is the service in which you are provide hardware and software sharing within the network. Cloud computing entrusts remote services with a user's data, software and computation. Eyeos is aeyeOS is an open source web desktop following the cloud computing concept[9]. It is mainly written in PHP, XML, and JavaScript. It acts as a platform for web applications written using the eyeOS Toolkit. It includes a Desktop environment with 67 applications and system utilities. The idea behind eyeOS is that the whole system lives in the web browser. The client must have only a web browser to work with eyeOS and all its applications, including Office and PIM ones. This applies to for both modern and obsolete PC's An Open Source Platform designed to hold a wide variety of Web Applications. This thing will broaden up your working domain. Normally whenever you are working on any project then you have to carry up whole your documents and the data either in an external drive or you have to carry the whole system. But with the help of this technology of Eyeos private cloud you don't have to do this whole stuff. You can share your data and after reaching to your destination you can access that data freely without any problem. The word 'private' is especially used to make the data more secure. Whenever you are sharing your data then you have to take care about its security. If the data is not secure then any outsider can also access it and make any wrong use. So to avoid such problems private clouding is introduced in which you have the option that with whom you want to share the data or information. It also provides you

with encryption and other formats with password protection.

Installation of EyeOS

Before doing any task you have to make the platform. In same way you have to install EyeOS into the system so that the data or the information is made available for the purpose of utilization [10]. There are few very easy steps to install the EyeOS.

- There is the basic need of two software: Ubuntu and EyeOS Installation files. Before starting the process of installation you need to take a backup of the data or files that are already saved into your system as the whole system is going to be overwritten [7].
- You have a choice to boot from either the CD or with the help of USB device. You have to follow the basic steps of installation of Ubuntu[7].
- After the installation of Ubuntu open Terminalfrom Applications > Accessories. You have to type 'sudosu'. Type the admin or root password there.
- Now install the Web server : aptitude install apache 2
- Install PHP5 server and the Apache PHP5 module : aptitude install php5 libapache2-mod-php5.
- For Email client install PHP SQLite module : aptitude install PHP5-sqlite.
- For the use of IMAP email services with the email client : aptitude install php5-imap[13].
- Now restart Apache.

These were the configurations done in Ubuntu. Now you have to install EyeOS. After successful installation of EyeOS you have to go to the web access applications like Mozilla Firefox which is by default installed in the system and type there: http://localhost/eyeOS. Set all the things out there with the same password which you used in the root or admin account. Now type these commands into the terminal:

1.chmod 755 /var/www/eyeOS/

2.chmod 755 /var/www/eyeOS/installer/

3.ifconfig

Now to access EyeOS just find out your IP address and from there you can directly access your systems data whenever you want to access it through the web applications.

Advantages of EyeOS:

At some time if you have to move away from your place or you have to leave your local computer or if it just crashes, without losing data or time you can just log in to your eyeOS from another place and continue working.

There are number of advantages of EyeOS out of which few are mentions here :

- Worldwide availability: It is available through internet and just require browser. Either Internet Explorer of Mozila Firefox are by default installed in each system. A browser with java support is more than enough[12].
- Dynamic content and design: Interface can be customized according to theneeds, windows are floating so that they can be repositioned.
- Remote storage facility: Through the file browser you can store files over the internet and edit them as you want. It fetches the instructions through the eye mail

Applications:

EyeOS private cloud has numerous applications. If all the technical people start using it then it will be an additional boon to their work as they need not to worry about other things like system crash or electric failure or any other such problem.[14]

- EyeOS provides system for the users where they work with eyeOS and all its applications, including Office and PIM ones.
- EyeOS provides a toolkit to create new applications easily. EyeOS can provide schools and universities with a full web platform where students, teachers and parents will have a personal yet collaborative desktop to work and, communicate between themselves and get organized inside and outside the school
- With a private server, eyeOS can provide city councils, public library networks, free Internet points and other public environments the perfect system for their users to have a web place to work and communicate with the network managers, registering once and using it from every point.

Conclusion:

Cloud computing acts as an excellent recreation for better & brighter future of the IT industry. As Wiseman says that after accessing the cloud computing the computer or IT industry is more multi fashioned than women's fashion. EyeOS is a development framework for creating RIAs quickly and easily. It has been fully developed using open technology and widely accepted standards, such as PHP, MySQL, javascript, qooxdoo, log4php, phpunit, OpenOffice and others, allowing the system to work on a common web server without any modification, and any standard browser, without needing to install additional plugins. Smaller laptops will start to become dumb terminals as all processing and the fun stuff is done by the EyeOS server.

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