

# Periodic Research

## Cloud Computing: A Journey for Server and own Cloud Installation in Open Source Environment

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#### Abstract

Cloud computing is the ability to utilize distributed computing environments within the internet services and gives scalable performance. Using different cloud storage devices provide outside access to storage data through various applications. Google, Microsoft, Amazon provides services in favor of cloud which is now shifted to low cost and become more adaptive. This paper provides journey of cloud from top to bottom with solutions to install own Cloud with linux and server installations. Using this problems appeared during installation can be solved.

**Keywords:** Cloud Computing, Own Cloud, Linux, Server.

#### Introduction

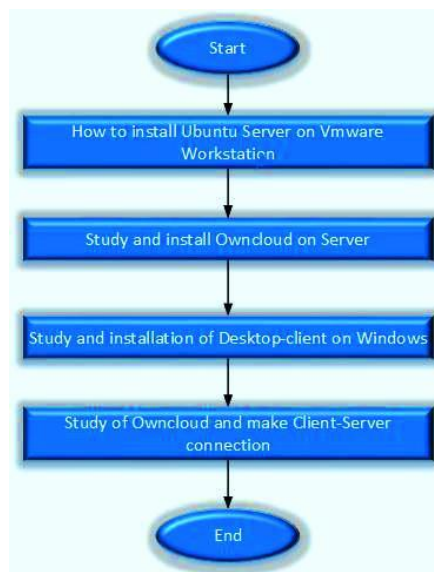
Cloud computing is a trend which provides various resources and applications as a service over internet to satisfy the various computing demands of users. It consists of Software as a Service (SaaS), Platform as a Service (PaaS) and Infrastructure as a Service (IaaS) <sup>[1]</sup>.

Cloud Computing mainly focus on virtualization. Technologies provide us way to allocate virtual clones of resources physically with memory, processor and other storage resources. Using clones, users can access single physical resource simultaneously which will increases the utilization of resources. Various softwares available for virtualization like VMware, XEN and Virtual Box.

As large amount of storage, backup and restore facility available more number of people including small and large organizations have moved to cloud which affects the confidentiality, availability and integrity of cloud resources and their services <sup>[8]</sup>.

Therefore main objective of this paper is to provide security related to integrity and availability of all types of client data stored on cloud. The rest of the paper is organized as follows: Section II describes the introduction to Ubuntu Server on VMware and its installation. Section III discusses the introduction of own Cloud and its installation on Ubuntu Server. Section IV discusses the introduction on desktop clients. Section V describes the client-server interaction

A to Z installation guide line for Own Cloud in Ubuntu:



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## Ubuntu Server

Ubuntu Server helps to use the most of infrastructure available for us. Whether we want to deploy a cloud, a cluster or number of nodes render farm, Ubuntu Server provides us the best value scale-out performance available. The server install image helps us to install Ubuntu permanently on a computer to use it as a server. It will not install a graphical user interface<sup>[2]</sup>.

There are two images available, each for a different type of computer:

### PC (Intel x86) Server Install Image

For almost all PCs. This includes most machines with Intel/AMD/etc type processors and all computers that run on Microsoft Windows, as well as on newer Apple Macintosh systems based on Intel processors.

### 64-bit PC (AMD64) Server Install Image

Choose this to take full advantage of computers based on the AMD64 or EM64T architecture (e.g., Athlon64, Opteron, EM64T Xeon, Core 2). If a non-64-bit processor made by AMD is available, or full support for 32-bit code is needed, Intel x86 images are used.

We Choose 64-bit PC (AMD64) Server Install Image.

## Vmware Workstation

Virtualizing the IT infrastructure. Virtualization enables today's computers to run multiple operating system and applications, making the infrastructure simpler and more efficient. Applications get deployed faster, performance and availability will increase and operations will become automated, resulting in IT which is easier to implement<sup>[6]</sup> and less costly to own and manage.

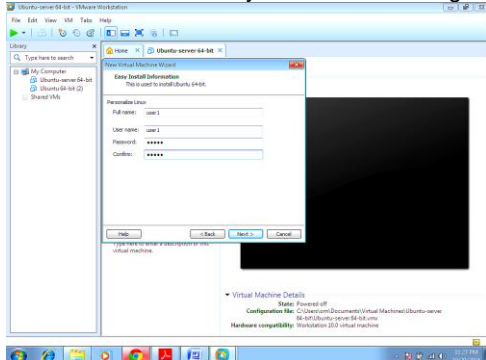


Fig 1: Username and password is set.  
After doing next:

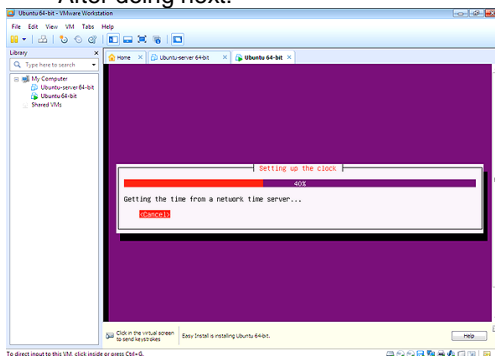


Fig 2: Installation on starts

Command Line interface appears after successful installation of ubuntu server and start working on it.

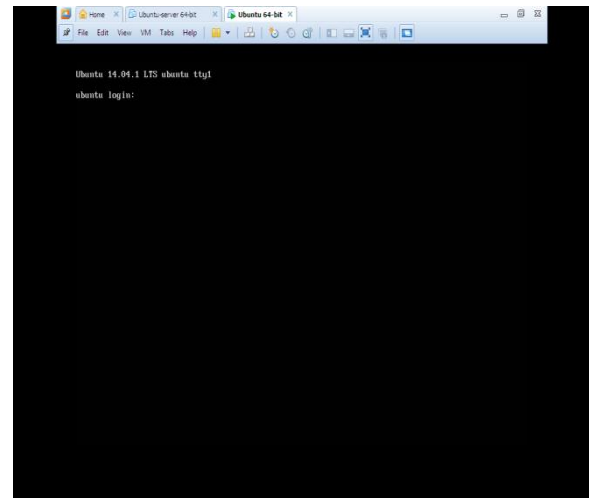


Fig 3: Valid username and password enter

Ubuntu Server edition by default does not attach with a Graphical User Interface (GUI). This makes performing server tasks difficult for people who are not comfortable working in command line environment. Installing a light weight desktop on Ubuntu Server will help us out once in a while. Some options are lightweight and some are heavy on resources and we follow Gnome as the default desktop<sup>[3]</sup>. We can install Gnome using these commands:

```
$ Sudo apt-get install xorg  
$ Sudo apt-get install gnome-system-tools  
$ Sudo apt-get install gnome-app-install  
$ Sudo apt-get install gnome-core  
$ sudo reboot -h now
```

In this figure Login page of ubuntu server with GUI will appear.

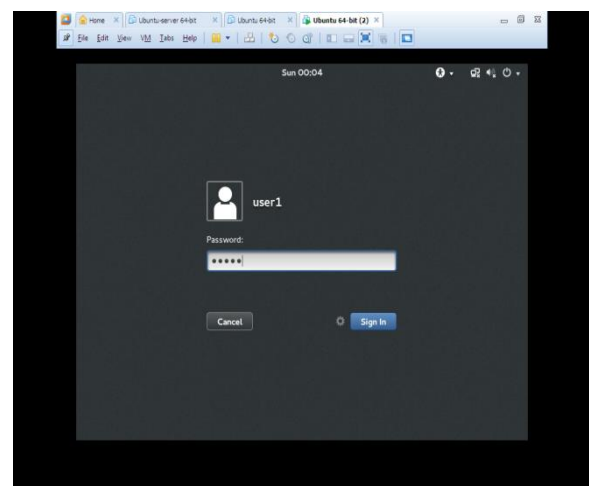


Fig 4: Login page with GUI

After rebooting the server, GUI will appear on server which is easy to use than command line.

In this figure main frame of operating system appears.

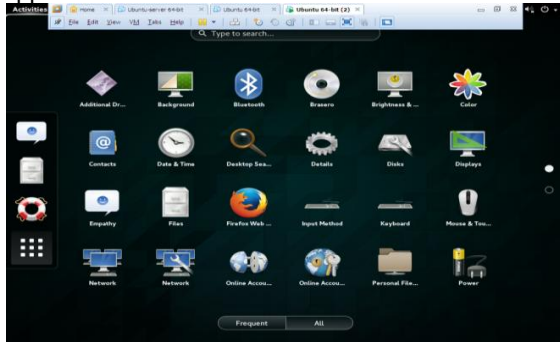


Fig 5: Mainframe of Server

## Owncloud

Owncloud permits IT to retain control of sensitive data and manage files to sync and share:

### Manage and Protect data on-premise

Using any available storage, with this complete software pack running on the servers safely in the data center, only the trusted administrators control and managed to established policies.

### Integrate with Existing IT Systems and Policies

Such as user directories, governance workflows, authentication systems, intrusion detection, storage management, monitoring and logging.

### Extend

Functionality easily by a comprehensive set of APIs to customize system capabilities, provide with unique service requirements, and adapt changing user needs.

It provide other end users with clean, instinctive access to the documents which they need to get the job done using desktop systems, laptops, tablets and smart phones [7].

Before installing ownCloud its requirements must be completed by installing following softwares:

Press Ctrl+Alt+T to get Terminal screen on Desktop

```
$ sudo apt-get install apache2  
$ sudo apt-get install php5  
$ sudo apt-get install php5-mysql  
$ sudo apt-get install php5-gd php5-json php5-curl php5-intl php5-mcrypt php5-imagick  
$ sudo apt-get install mysql-server  
Mysql-server is installed to store data on it.
```

Take particular note of your MySQL password, as the user name root and the password you select will be necessary later on in the ownCloud installation.

Press oK

In this figure enter valid password for the admin



Fig 6: Password for mysql

```
$ sudo wget https://download.ownCloud.org/  
community/ownCloud-7.0.0.tar.bz2
```

```
$ sudo tar -xvf ownCloud-7.0.0.tar.bz2-C /var/  
www/html
```

```
$ sudo chown www-data:www-data -R  
/var/www/html/ownCloud/
```

Login to mysql

```
$ mysql -u root -p
```

Enter Password:

In this figure user starts working on mysql.

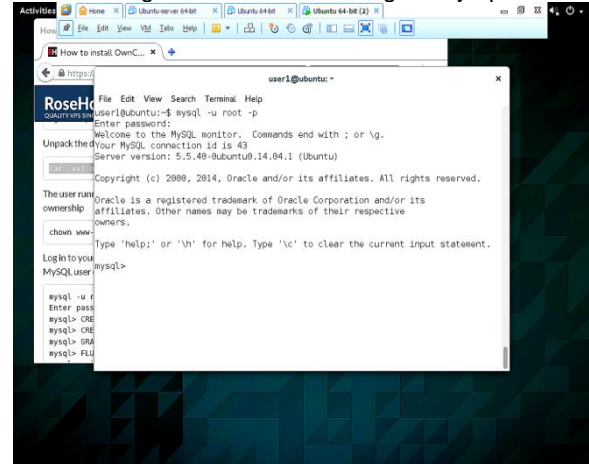


Fig 7: Mysql page open

```
mysql > CREATE USER 'Username'@'localhost'  
IDENTIFIED BY 'mysql-password';  
mysql> CREATE DATABASE databasename;  
mysql> GRANT ALL ON databasename.* TO  
'username'@'localhost';  
mysql> FLUSH PRIVILEGES;  
mysql> EXIT  
$ sudo reboot
```

Open browser and type `http://domain - name/OwnCloud` [4]

Domain-name can be found by using following command:

```
$ ifconfig
```

In this figure IPAddress of operating system will appear

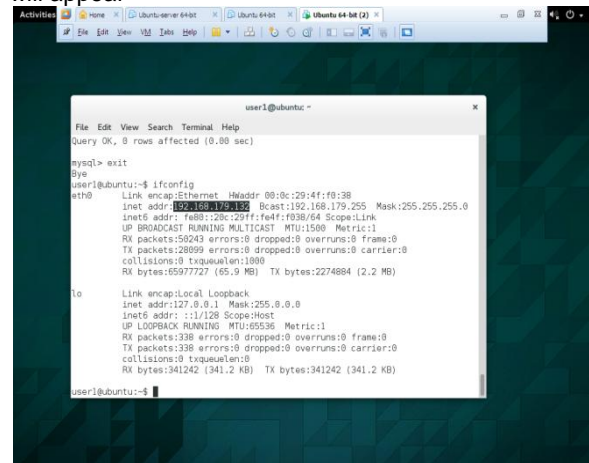
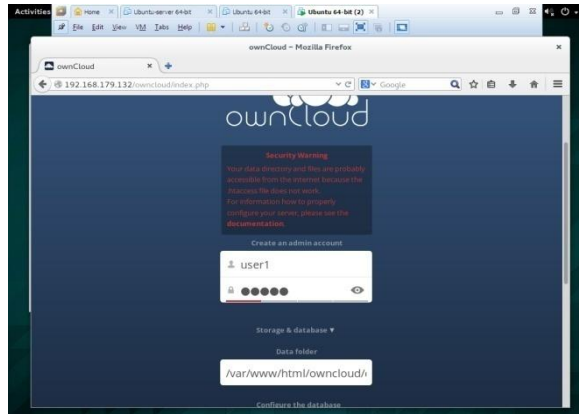


Fig 8: IPAddress of host

In this figure create admin username and password



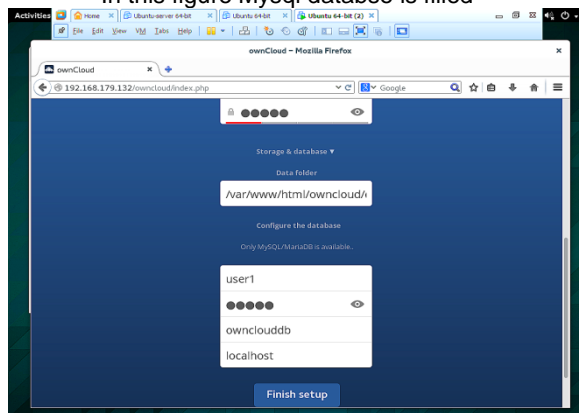
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**Fig 9: Admin account created**

In mysql database and password which was created will be used here.

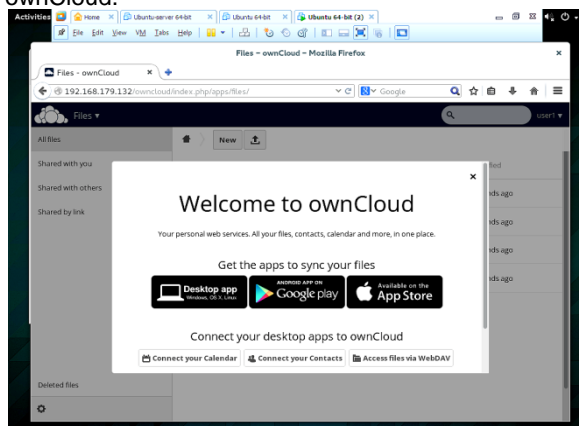
In this figure Mysql database is filled



**Fig 10: Database filled**

Click on Finish setup.

This figure shows the front page of ownCloud.



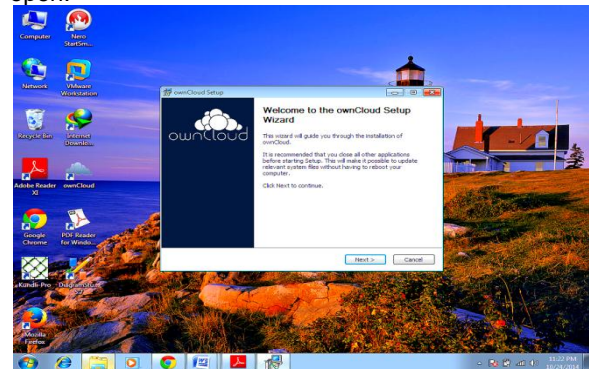
**Fig 11: Front page of ownCloud Windows-Desktop-Client of OwnCloud**

The ownCloud desktop client for Windows is provided as a Nullsoft Scriptable Install System (NSIS) setup file for machine-wide installation<sup>[9]</sup>. For synchronizing files with desktop computer ownCloud client is useful. The ownCloud Desktop Client enables you to connect to your private ownCloud Server which helps to create folders in the home directory, and the contents of those folders will be synced with the ownCloud server. If any changes are made in files on

one computer, it will flow in others using these desktop sync clients. It will help us to have latest files where ever we are.

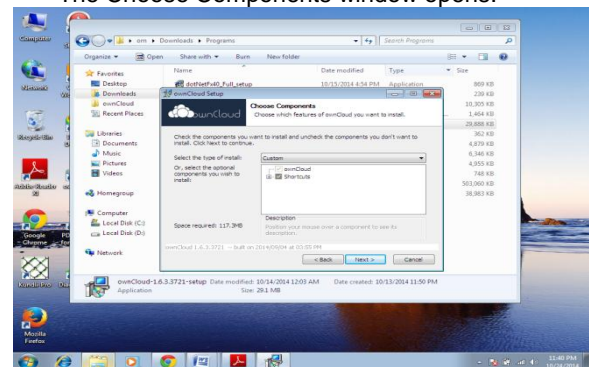
1. Click 'Run' in the dialog box to begin the installation.
2. Click 'Yes' to continue with the software installation

In this figure the ownCloud Setup Wizard window open.



**Fig 12: OwnCloud wizard open**

3. Click 'Next' to continue.  
The Choose Components window opens.

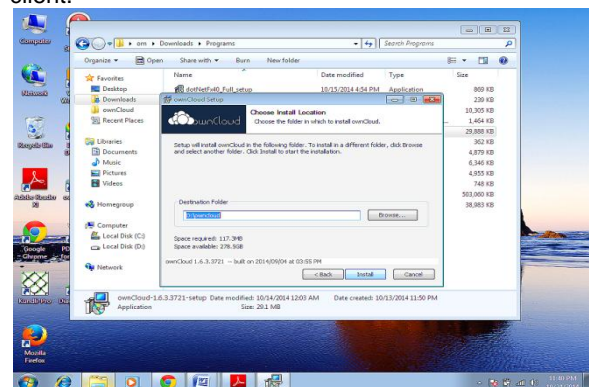


**Fig 13: Component chosen**

All relevant components for your platform are selected by default. However, you can choose to exclude different components from the installation.

4. Click Next to continue.  
The Choose Install Location window opens.
5. Verify the destination folder for the Desktop Client installation and then click Install.

In this figure valid location is set for desktop-client.



**Fig 14: Valid location is set  
The Installing window will open.**

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In this figure installation of desktop-client starts.

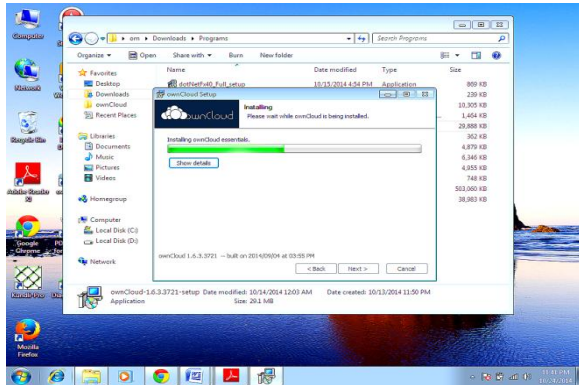


Fig 15: Installation starts.

6. Once the installation completes, click 'Next' to continue.

In this figure The Setup Wizard Completion window opens.

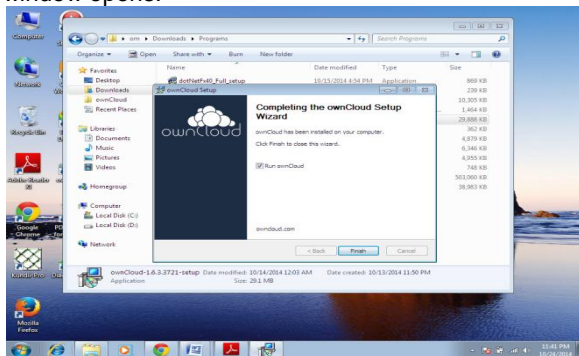


Fig 17: Finish installation

7. Click 'Finish' to complete the installation.

After the installation completes, go to Setting Up the OwnCloud Desktop Client.

## Client-Server Connection

Cloud computing is a term firstly to abstract the uses of a client-server model after the single term, as oppose to uses like servers of file, web server, database and application server also, with this it contracts the architecture of server in itself, for topology, location and hardware.

Organizing cloud-based servers with data and applications usually allows making remote connections to move content from your enterprise network or desktop to the virtual instance of your server. If you are deeply involved in cloud computing, using these three methods help to connect your servers:

## Connecting through a VPN

The first, and most direct, way is to use a built-in virtual private network (VPN). This establishes a VPN between your desktop PC and the cloud network. After setting up a VPN connection and setting up file sharing on a cloud-based server, map a network drive using your server's IP address. This method is useful for transferring the file quickly and to make small routine compromises in your server's file system.

## Connecting via remote desktop client

If we want to use server directly, second

method is prefer. To run a remote desktop connection windows virtual server is to be enabled. If we are using a Linux virtual server, then run an SSH client. Using one of the way, set up the service on virtual server to receive these connections, and make sure that the port (3389 for RDC) is to be open for everyone.

## Connecting through FTP

The third method is to use the file transfer protocol (FTP). Here, service on virtual server must be set up and make sure that both ports 20 and 21 are seen by its outside IP address. Afterwards, FTP client can either be load up on your local desktop or run the FTP command from the server directly and can be connected through an Internet resource in order to copy files. This is the best method for huge transfer of files [5].

Here we prefer FTP connection method which helps to connect to server. To connect to the particular server there is need to set up an account in ownCloud client.

1. Specify the URL to your Server. Address is t same as used in the browser.
2. Username and password is entered. To log in to the web interface same credentials are used.

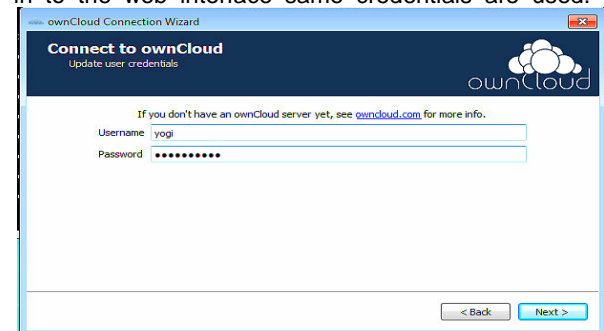


Fig 18: Login id and password for ownCloud client

3. Choose the folder with which you want the ownCloud Client to synchronize the contents of your ownCloud account. By default, this is a folder called ownCloud. This folder is created in the home directory.

Selecting the files in the local folder on the client are synchronized to the ownCloud server. Desktop-client helps in adding, editing and updating all files and folders, which enables to synchronize with particular server.

**n this figure particular client add file in the account**

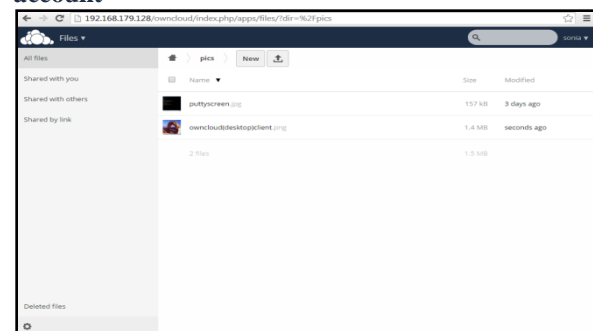


Fig 19: Adding file from client

After adding a file from client, we can download it from server.

In this figure particular file can be fetched from server.

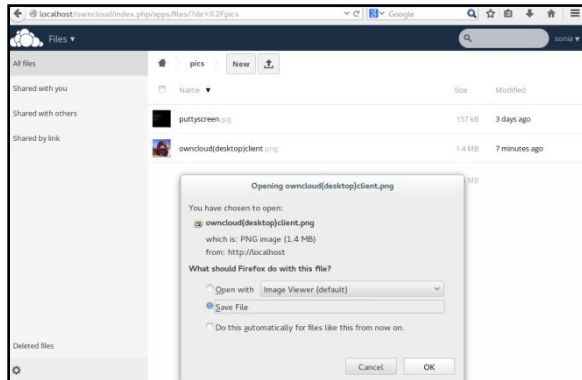


Fig 20: Data fetch from server

## Conclusion

In recent years, use of cloud computing has begun to expand in whole world. It has enlarged over the years. Cloud computing is the best opportunity for enterprises to save costs and requirements for computing. However, threats in security are a major disturbance for enterprises. This is the main reason that cloud computing customers must examine all cloud computing providers when they go for cloud computing services. So, this paper provides the initial steps towards cloud environment.

The purpose of this paper is to give introductory steps towards initializing the cloud environment and basic idea about tool with their

installation procedure. The main aim of this paper is to make new user familiar with the tool and technology used in cloud environment with solutions if any error occur while installing.

## References

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