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Nextcloud 2 Terabyte LAN Network-Based Server By Using the Ubuntu LTS 16.04

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ARTICLE INFO	ABSTRACT
	Technology Developmenare currently experiencing significant changes from age to age. And the need to store a data is changed, and each user's data storage require large storage capacity. At reasonable costs, as well as more structured management systematization. So on this research platform in use that is nextcloud, Where the private cloud concept designer can only add users and storage. And in accessing nextcloud based Local Area Network (LAN), the designer to take advantage of to change the IP DNS server into a domain that the user or more designers nextcloud easy access to the internet.

1. Introduction

Technology Development is currently experiencing significant changes. This affects the development in data storage over time. One is cloud computing (cloud computing), which is a combination of technology utilization computers connected by a network [1] [2]. Each data storage usermemiliki requiring large storage capacity, and with a relatively affordable cost. Because it is the utilization of nextcloud platform is in need for storing data and this nextcloud are Private Cloud, only users authorized by the designer who can access the nextcloud already made by design. With the method (IAAS) Infrastructure as a Service sourced computing power includes servers, network, storage on-demand [3].

And in accessing nextcloud already designed. The designer makes the DNS Server method to allow a user or designer to access a nextcloud that are ready to be used. In a previous study. [4] Researchers previously designed magnitude nextcloud 1TB storage as well as in testing the data upload a amounted to only 300MB, 500MB and 1024MB with 3 client simultaneously. In a study that Designer has been developed. Designers add storage to 2 TB, as well as in testing done gradually uploaded to produce 11 clients and 500 Gb. In order to know the speed obtained in the uploaded data and long upload. Purpose of research this is to design a project been created to be accessible through a LAN network with a domain that has been created in the dns server.

2. Research methods

In the method of making nextcloud, before we install and configure nextcloud, the designer must first change from DHCP WIFIportable be static. Having already changed, a new designer can install Ubuntu LTS 16:04 in VMWAREWorkstation. Then clicking and configuring installnextcloud so nextcloud already a program. IPnextcloud which is the default in the install, converted to the domain by using the DNS server. Where the DNS server create a new virtual server in VMWAREWorkstation by installing ubuntu server first 16:04. Then in configuration and IP input from nextcloud earlier to the DNS server, and then change into becoming a domain.

A. Materials and specifications are used:

In designing a nextcloud with LAN-based, materials or specification used in the manufacture of nextcloud among others:
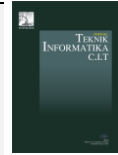
Table 1.
Hardware specifications

Operating system	Linux Ubuntu LTS 16:04
processor	Intel® Core i5® 7957U 3:00 GHz
memory	10 GB DDR4
HDD	2TB
Graphic	Radeon GX 560
Network	Static and WIFI Portable

Table 2,
Software specifications

No.	Software	Function	Spsesifikasi
1	Ubuntu	server	16:04 LTS
2	Nextcloud	storing data	version 17.0.0, PHP 7.3, CloudStorage, Apache2
3	DNS	IPdiubah to Domain	

B. *System Flow Diagram*

The diagram below explains how the stages in the process of installation and configuration nextcloud program and DNS Server. And step change nextcloud IP into a domain.
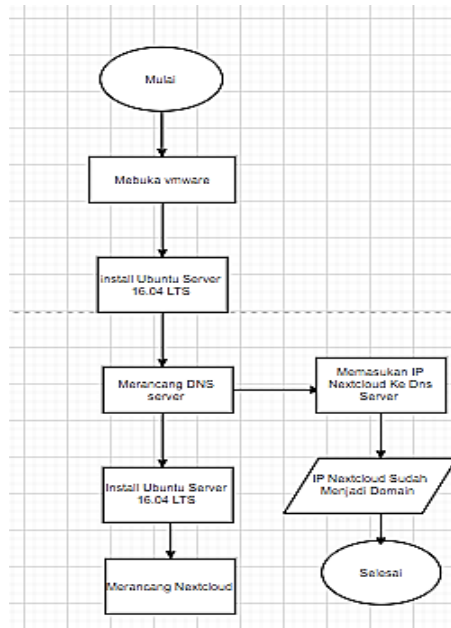

Fig 1. The flowchart system

Table 3.
IP address and DNS servers used

Device name	DNS server	Nextcloud
IP addresses	192.168.1.2	192.168.1.70
DNS address	192.168.1.2	192.168.1.2
Gateway	192.168.1.1	192.168.1.1

C.   **LAN Network Topology Scheme**

Network topology scheme under this, a staple in distributing a data to be stored, by the user or designer. User or designer must first sign into the network LAN to access the internet nextcloudke.
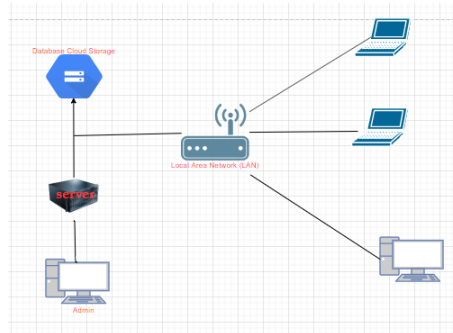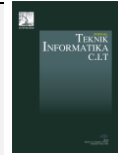
Fig 2. Design a network topology LAN

1)   Nextcloud configuration:

Sudo apt update and upgrade apt systemctl Start apache2 install apache2 apache2 apt systemctl enable install MariaDB-server mysql_secure_installation

Apt install libapache2-mod-php-mysql php apt install PhpMyAdmin mysql -u root -p CREATE DATABASE Nextcloud; Nextcloud CREATE USER IDENTIFIED BY 'richard'; GRANT USAGE ON *. * TO Nextcloud @ localhost IDENTIFIED BY 'richard'; GRANT ALL ON Nextcloud privileges. * TO Nextcloud @ localhost ; FLUSH PRIVILEGES; quit;

Apt install php-gd php-json php-mysql php-curl php-mbstring php-intl Apt install php-xml php-zip wgetHttps://download.nextcloud.com/server/releases/neXtcloUd-17.0.1.tar.bz2 ls -al-17:00 nextcloud tar -xvf cd ls -al nextcloud / ls -al Mv ./* / var / www / html / ls -al Mv ./.htaccess / var / www / html mv ./.user.ini / var / www / html Cd / var / www / html / ls -al-Data chown -R www: www-data ./* chown -R www-data: www-data .htaccess

Chown -R www-data: www-data .user.ini

2)   DNS server configuration:

Apt-get install bind9 apt-get update
Apt-get   upgrade
Nano / etc / network / interfaces / nano / etc / bind / named.conf.local /
Nano / etc / bind / named.conf.options nano / etc / bind / named.conf.resolv
Systemctl restart bind9 Nano / etc / bind / 1
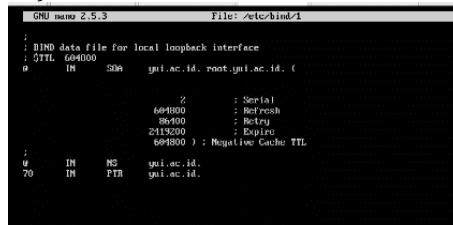Nano / etc / bind / a reboot

D.   Domain Name System (DNS)

Fig 2. Change the IP into a domain

This image is a use in changing an IP into a domain, In the DNS server.

E.   *Domain Ping nextcloud that has changed*

Fig 3. Ping Nextcloud domain that is already registered

Picture below is evidence nextcloud IP has been turned into the Domain Name System (DNS) and managed terkoneksikan and already can use his domain to do a search on Google Nextcloud.

F.   *Login to see Nextcloud*

Fig 4. Menu login to enter the main menu

Login menu display that can be seen in Figure 4. Where the user or designer to access Nextcloud must be connected in the Local Area Network (LAN) and domain to be adjusted in searchNextcloud shortly.

3.   Results and Discussion

In the method of making nextcloud, before we are to intsal and configuring nextcloud, the designer must first revamp of the portable wifi dhcp be static. Having already changed, a new designer can install Ubuntu LTS 16:04 in vmware workstation. Then installing and configuring nextcloud so nextcloud already a program. IP nextcloud which is the default in the install. Amended to the domain by using the DNS server. Where dns server create a new virtual server in vmware workstation by installing ubuntu server first 16:04. Then in configuration, and is included ip of nextcloud earlier to the dns server, and then change into becoming a domain.

A.   Parameter Testing
Throughput
throughputis the actual bandwidth measured at a specific time on the network size. Throughput testing on a variable parameter that is devoted to the network performance in terms of speed of delivery of the package is done with sending and utilizing existing bandwidth.

B.   Scenario Testing
Scenario testing is done in stages by using 11 user with magnitude storage duration of 500 GB.Serta sending data every data uploaded gradually and speed in sending a data.

C.   Test result

Table 1,
Test result

No.	user	Large Data Upload	old upload	Average bandwitch
1	Richard	21.1 GB	29 minutes	263.50 Kbps
2	11	21.5 GB	31 minutes	250.41 Kbps
3	Admin	23.2 GB	36 minutes	255.32 Kbps
4	bb	17.1 GB	17 Minutes	245.36 Kbps
5	JJ	46.5 GB	65 Minutes	222.97 Kbps
6	ll	46.1 GB	60 Minutes	235.70 Kbps
7	Yui	14.6 GB	13 Minutes	224.83 Kbps
8	ff	17.4 GB	19 Minutes	233.90 Kbps
9	Ha ha	18.3 GB	22 Minutes	224.15 Kbps
10	cc	22.4 GB	32 Minutes	264.04 Kbps
11	Ronaldo	18.6 GB	20 minutes	236.05 Kbps

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From the above table may be seen 11 the user is sent a data simultaneously. Old as well as uploading a different data. And bandwitch generated in the data uploaded a Different.

Fig 5. User List and Storage already filled

The results of these tests can be seen from Figure 5. 11 Users is already registered as a user, and users who already entered the desired data can be seen in the Figure above.

4. Conclusion

Based on the design manufacture nextcloud circuit-based network LAN is created by perancag, designer saw the outline obtained from the draft that has been carried out, among others:

a. Domain Name System (DNS). In making the DNS server, the operating system is needed is a 16:04 LTS ubuntu server. DNS acts as a modifier where IP into a domain as the server is installed inside the Virtual Machine (VM) as a VMware virtual computer and also dns server as well as a connector for a Local Area Network (LAN).

b. Nextcloud is as a storage medium, where the designer can set up a storage that will be distributed to the user or users who want to join into the dirancangolehperancang nextcloud.

c. Without a DNS server to mensinkronisai nextcloud, nextcloud still in search to Google or Mozilla, but still in the form of IP and less elegant to use a search on google.

d. In Nextcloud Testing Based Local Area Network (LAN). We can see that the in storing the data does not need to wear a flash but only using nextcloud we can save it as a data storage capacity that is fairly large.

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