



## DESIGN OF PRIVATE CLOUD STORAGE USING SECURITY METHODS IDS AND IPS

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### Abstract

*Cloud computing is a form of technological progress that has developed along with the times, this has spurred the increasing use of the internet. By using technology internet that is able to implement server a virtual, which has the aim of building a cloud computing server at the District Communications and Information Office. Padang Pariaman uses the Operating System (OS) Proxmox VE (Virtual Environment) 6.4. Cloud computing is able to provide storage services that can be used simultaneously. The results of this study produce a cloud computing server that implements a security system with the methods ids (intrusion detection system) and ips (intrusion prevention system) that are able to process data (storage), use software simultaneously in the network, and use infrastructure within the scope of this research. network cloud computing at the District Communications and Information Office. Padang Pariaman using a service model private cloud.*

**Keywords:** Cloud Computing, Proxmox, IDS, IPS

### INTRODUCTION

Based on previous research conducted by Muhammad aviv natsirudin entitled ""Analysis of Cloud Technology Utilization Computing on Thin Client Networks"" (Muhammad Aviv Natsirudin, 2011). explained by above only relates to the comparison and design of systems cloud computing, will but does not discuss the reliability of the server for the services provided [1]. Cloud computing is a computing model in which resources such as power computing, storage media (storage), network (network) and software are run as a service through network media, it can even be accessed anywhere as long as connected to the internet. In this case to be able to build a network cloud computing Simple can be done on a network local/intranet[2].

The application of cloud storage to information access services is virtual and can provide the best and sustainable service. Servers at the Communications Service and Access Informatics is currently able to provide services to users on a reciprocal basis back, but the server used is still temporarily storing data on computers client such as desktops, tablet computers, notebooks, monitors and utilization social media telegram and whatsapp. The data storage area will be full if at the Department of Communications and Informatics Kab. Padang Pariaman continues to carry out activities every day for an annual period. To overcome this, a solution that can be taken with method of deleting old data or by adding a new data storage area. Cloud storage is one way to solve this problem[3].



The results of this study produce a cloud computing server in the form of cloud storage that applies the methods. Intrusion Data System (IDS) and Intrusion Prevention System (IPS) capable of carrying out the data storage process (storage), using software concurrent in the network, as well as the use of infrastructure and hardware within the scope of the network cloud computing at the District Communications and Information Office. Padang Pariaman[4].

Computer Network is a system consisting of computers designed to be able to share resources (printers, CPUs), communicate (e-mail, instant messages), and be able to access information (web browsers). The purpose of a computer network is to achieve its goals, every part of a computer network can request and provide services. The party that requests/receives the service is called the client and the one who provides/sends the service is called the server. This design is called a client-server system, and is used in almost all computer network applications[5][6][7].

Cloud computing is a model, client server where resources such as servers, storage, network, and software can be seen as a service that can be accessed by remote users and every time. Users can enjoy various services provided by cloud computing providers, without the need to ask too much for technical assistance or support from the provider. infrastructure Cloud computing such as: servers, storage, network, and various software called "cloud[8][9][10][11].

Proxmox is a Debian-based (64 bit) virtualized Linux distribution, with KVM we can not only install Linux, but operating system we can also install the Windows, however, what makes special proxmox is the ease of installation and

web-based administration. Proxmox was developed by Proxmox Server Solutions in Austria under the Austrian Internet Foundation and released under the GPL: (General Public License), because it is an open source solution that can be customized according to needs[12][13][14].

Intrusion Prevention System (IPS) is a software or hardware that works for monitoring network traffic, detecting suspicious activity and taking early prevention of intrusion or events that can make the network run not as it should. IPS is an approach that is often used to build computer security systems, IPS combines techniques firewall and methods intrusion detection system (IDS) very well. This technology can be used to prevent attacks that will enter the local network by checking and logging all data packets and identifying packets with sensors when an attack is identified. So IPS acts like a firewall that will allow or block data packets[15].

## RESEARCH METHODS

In this study, the authors observe and approach the object directly, where the object in this study is a local government company. The author approaches by observing the problem, and searching for literature on the internet. The author also conducted direct interviews with the staff in charge of the District Communications and Information Office. Padang Pariaman about the problems that exist in Diskominfo. So that the author can formulate a problem and conduct a research.





### RESULTS AND DISCUSSION

The results of this study are server virtualization cloud computing using Proxmox Virtual Environment 6.4 and for the configuration of the security system on the network cloud using iptables on the operating system Ubuntu. The server that is built can be managed by the administrator and accessed by the client.

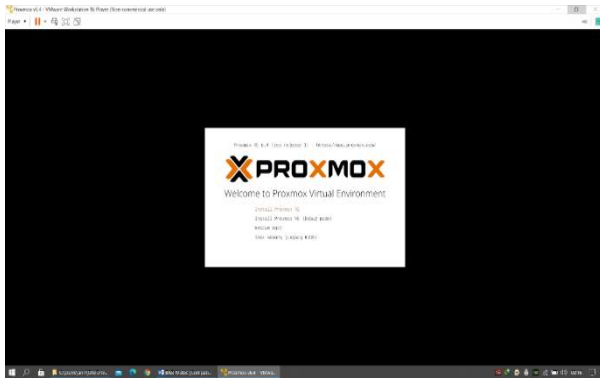


Figure 1. Proxmox

Proses The next process is monitoring Proxmox through the browser. Browser used in this research is Google Chrome. Protocol used i.e. HTTPS. HTTPS (Hypertext Transfer Protocol Secure) is a version of the protocol secure from HTTP overlaid with SSL (Secure Sockets Layer). With HTTPS protocol enables client and data communication web server encrypted.

To monitor Proxmox on the browser, you can do this by: enter the protocol address that has been obtained after the installation process, namely <https://192.168.72.129:8006>. Then enter *username* and *thepassword*

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appropriatethat was created during installation.

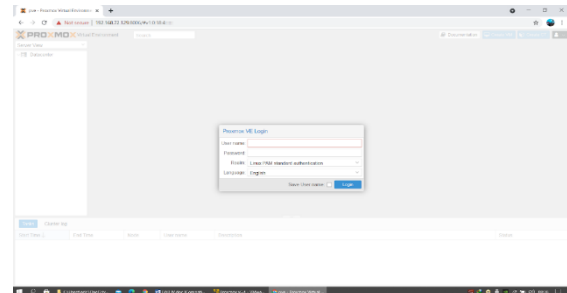


Figure 2. Proxy Login

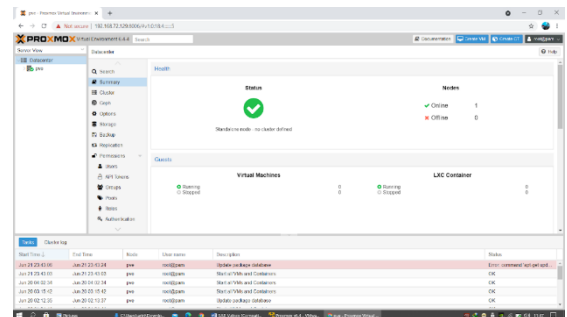


Figure 3. Initial Screen Proxmox on Browser

At this stage IPTables will be installed and configured on Linux Ubuntu 16.04 LTS virtually on VMware Workstation 16. The installation process starts with updating and upgrading the Kernel on the operating system, installing supporting packages, and configuring IPTables rules. Install IPTables by running this command in terminal :

```
# sudo apt-get install iptables-persistent -y
```

After viewing the conditions and configuring IPTables, then enter the rules or rules to be managed. First of all make sure that for all data packet INPUT by default is ACCEPT, this can be done with command:



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```
# iptables -P INPUT ACCEPT
```

Then to block all data packets INPUT, by default you can use:

```
# iptables -P INPUT DROP
```

To open a interface particular, the parameters used are -i :

```
# iptables -A INPUT -i eth32 -j ACCEPT
```

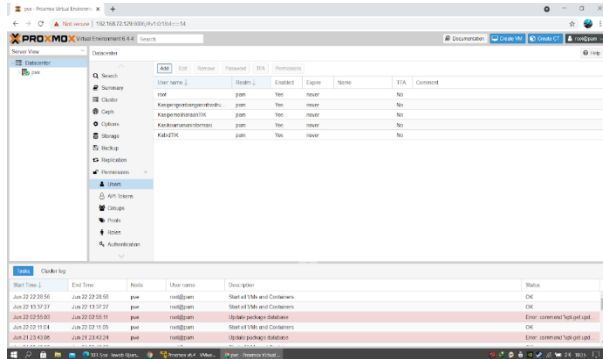


Figure 4. User Access Setting

### Test Result

Results of the tests that have been carried out can be seen in the results table the following system tests :

Table 1. Testing Results Cloud Computing Server

No	Access Rights Client	Port	Login	
			Successfully	Failed
1.	Head of Tik	8006	✓	-
2.	Head of Network Infrastructure Development	8006	✓	-
3.	Head of Maintenance Tik	8006	✓	-
4.	Head of Information Security	8006	✓	-

### CONCLUSION

Virtualization using Proxmox VE 6.4 can be done virtually using VMware Workstation 16 as the console prompt and

configured in the browser as cloud computing. The storage service can only be accessed by running a Virtual machine on the server and configured to be a storage to be shared with fellow service users. This is built in the form of virtualization with a model private cloud so that to access the server requires LAN network access (Local Area Network). Snort IDS is a software to detect intruders and is able to analyze traffic real-time, it can detect various types of attacks. The feature Snort can be a help to system and network administrators, which can warn us of potentially dangerous intruders. This server is IP-Safe to prevent attacks port scanning carried out by attackers on cloud computing servers by activating the feature firewall and configuring it with iptables

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