ANALYSIS AND DISTANCE ACCESS DESIGN FAR WITH VPN TECHNOLOGY IN BMT OFFICE. MENTARI EAST LAMPUNG

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Abstract

Along with the widespread use of the internet, many companies then switch to using the internet as part of their network to save costs. However, security issues are still a major factor in the reliability of a network. Virtual Private Network (VPN) is one way that can be used to create a private network and long-distance connections (remote access) with a high level of security over public networks or the Internet. The conclusions of this study are a) analysis and design of remote access with VPN technology in the Mentari East Lampung BMT Office, b) the resulting management of IP Address distribution for connections between branches using VPN, c) the creation of a VPN account management function for connection between branch BMT office. Mentari East Lampung, d) has successfully tested the VPN account login from the Client side.

Keywords: VPN, Technology VPN, Virtual Private Network.

1. INTRODUCTION

Information and communication technology today has become one thing that is very important for human life. At present, information technology, especially computer networks, is the right choice for companies, offices, government agencies and individuals to provide information and connect LANs to the internet. This can be seen from the increasing use of the internet. BMT Mentari East Lampung has the main task, among others, carrying out savings and loan activities with profit sharing/sharia principles, developing business groups and business of the Muamalah Group, a savings and loan group that is typically built by BMTs, developing networks and business networks of BMTs and real partners. tough ants so that they can boost the economic power of the Indonesian people, besides working with partners, for example, schools to facilitate the financing of tuition payments/student savings.

In carrying out the BMT administration activities in the East Lampung, Information Technology networks have been supported to support daily operational activities, in addition, some have even applied internet and intranet technology both at the central level and at the branch. Even so, the initiative of the existence of these infrastructure facilities is not similar because each agency has different backgrounds in developing its IT system. This has caused problems such as the development of infrastructure both BMT Mentari centers and branches such as the city of Metro, especially for network systems that pay less attention to the effectiveness and efficiency as well as network system configuration standards at Mentari Lampung East BMT is still not all secure. Therefore Researchers want to participate in analyzing and designing long-distance access with VPN technology on BMT. Mentari East Lampung district, considering the

Virtual Private Network (VPN) is one way that can be used to create a network that is private and distance connections (remote access) with a high level of security over public networks or the Internet.

Several studies conducted on VPN, namely, these studies are as done by Ruslianto in 2019 entitled Designing and Implementing a Virtual Private Network (VPN) Using the Sstp Protocol (Secure Socket Tunneling Protocol) Microtic at the Tanjungpura University Mipa Faculty. In this study, it discusses how to design and implement a VPN using SSTP Mikrotik at the faculty of the Tanjungpura University Mipa Faculty. The results of this study, namely the use of SSTP protocol on the proxy is a method for creating private networks in the Faculty of Mathematics and Natural Sciences University Tanjungpura passes the internet. So that users can access it without having to be on the private network. 2. The SSTP protocol that is configured on the proxy is connected to a Virtual Private Server (VPS) so that it can be accessed out of the private path. SSTP can run well depending on the conditions of the VPS.

Another second study refers to the problem raised by Hidayatulloh et al. p is in 2019 entitled Designing a Wide Area Network (WAN) with Virtual Private Network (VPN) Technology. This study discusses how to design a WAN with VPN technology. The results of this study are VPN networks that are designed to be a safe and good network because the data is running on a public network, and for users who want to access the VPN network, they will first be checked on the AAA server to ascertain the data on the server. From the test results obtained by users who use VPN access rights can do data transmission and folder sharing, but for those who do not have VPN access rights can not do this and only able to connect to the router only.

Another third study refers to the problem raised by Maryanto et al. p No 2018, entitled Method of Internet Protocol Security (IPSec) With Virtual Private Network (VPN) for Data Communications. In this study discusses how implementation VPN by using Internet Protocol Security (IPSec. Conclusion of this study: 1). Using IPSec VPN networks can be a secure and well-integrated network solution because data runs on public networks. 2). With an integrated computer network, employees can send or share data or email quickly. 3). Build a network with a Virtual Private Network (VPN) is cheap, efficient and data security is guaranteed. 4). With network security using a firewall network security system, Intrusion Prevention System (IPS), McAfee Mail gateway and McAfee Complete EndPoint Protection antivirus will be very helpful in dealing with network security problems on VPN networks.

Another fourth study refers to the problem raised by Zarkasyi et al. in 2018 entitled Implementation of Virtual Private Network (VPN) Servers Using Mikrotik Os at PT. Charisma Persada Nusantara. In this study discusses how to implement Virtual Private Network (VPN) Server By Using Mikrotik Os In PT. Charisma Persada Nusantara. The conclusion of this study is that more and more users are accessing internet services simultaneously, the performance of VPN servers will increase, VPN servers have good capability in serving data access, then in this research VPN can access the company's local network from outside the office network. forwarded to the internet network.

Based on the results of research on failover that has been described above, further research is carried out with the title Analysis and Design of Remote Access with VPN Technology at the BMT Office. Mentari, East Lampung. The problem formulation of this research is how to analyze and design Remote Access with VPN Technology at the BMT Office. Mentari East Lampung, while the aim to be achieved is to implement VPN technology at the BMT office. Mentari, East Lampung. The research method used is the PPDIOO method (Prepare, Plan, Design, Implement, Operate and Optimize), the analysis method to the development of a computer

network installation that defines continuously the service life cycle needed for Networking development, with stages like Figure 1.
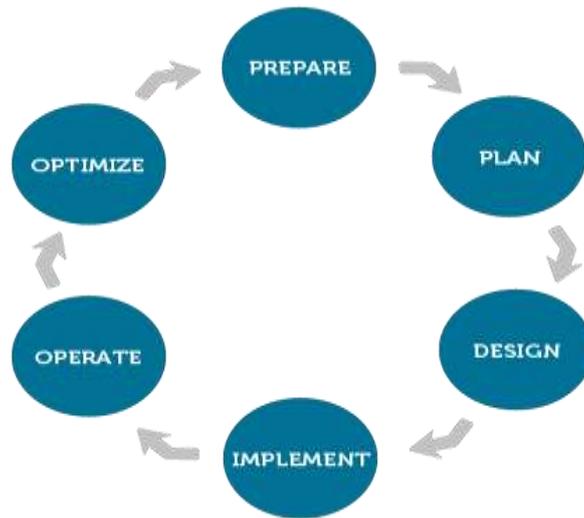

Figure 1. PPDIOO Method

In the initial stages of preparation wherein this stage there are several things that are done, namely making a plot that explains the stages in the device.
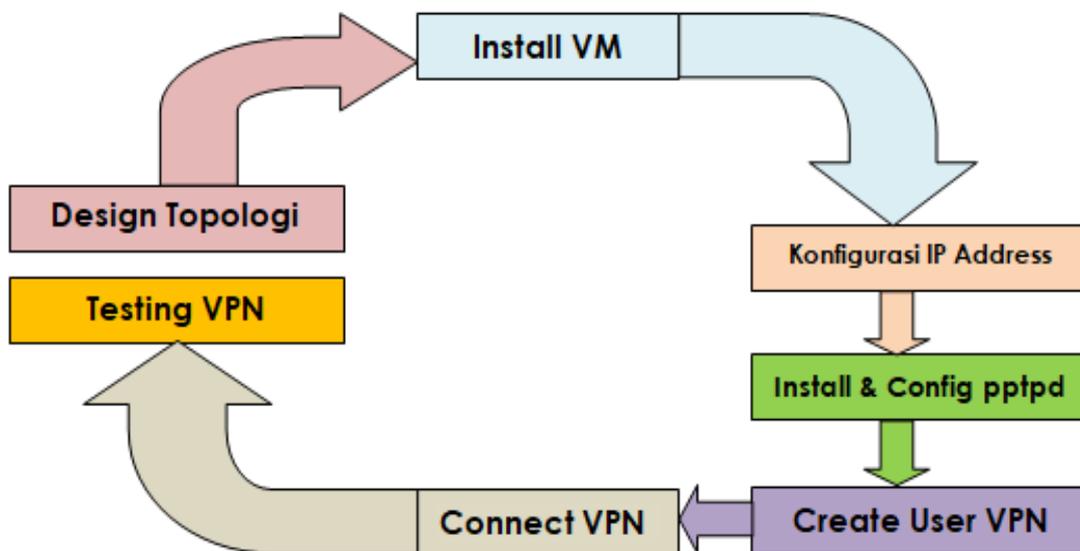
Figure 2 . Research flow

Starts from preparing and designing the VPN layout/topology concept. For this research, it takes one PC Server with the operating system (OS) ubuntu live server 14.04. If you prepare and design a network layout has been completed, it can be continued with the application of analysis to the devices connected to the VPN PC Server.
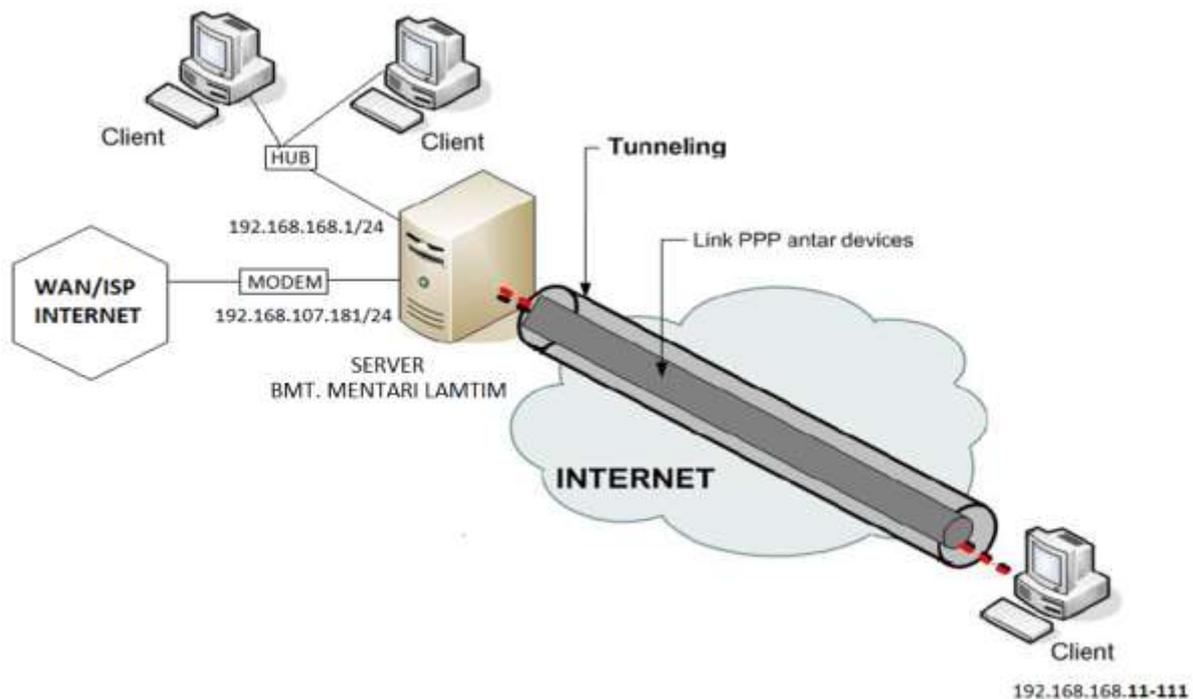
Figure 3. VPN Server Network Topology at BMT Mentari East Lampung

The VPN network topology at BMT East Lampung in Figure 3 uses IP Distribution (DHCP Server) from Ubuntu Linux BMT PC Server when client Connect with VPN. In the design of figure 3. above there are hardware devices such as: 1 PC (OS Linux Ubuntu 14.04), Hub, Modem, Client. The design that has been created is implemented using the prepared hardware.

2. DISCUSSION
2.1 Analysis of Data Needs and Network System Needs
From data collection that has been done by observation and interview process with the Leader. BMT Mentari East Lampung and IT tissue are, the obtained data in the form of data resources, network topology as well as data related inputs BMT network Mentari East Lampung. While the analysis of system requirements is obtained from the interview process with the IT Mentari Branch BMT Network and obtained network system specifications that will be implemented into the VPN server, while the functional requirements needed include:

a) VPN The Mentari East Lampung BMT Network must be able to facilitate users to provide facilities safe communication.
b) Managing The creation of a VPN account that is enabled for connections between central units and branch units.

2.2 Implementation
To start implementing VPN as a remote access communication media between central units and branches at BMT Mentari, East Lampung, starting with installing the Ubuntu Server 14.04 operating system and point to point applications. The stages in implementing a VPN on the Mentari BMT network are:

1) Installing *OS Linux Ubuntu 14.04*
For the installation of this Ubuntu OS installed on the BMT Mentari VPN East PC PC Server. The first display that appears when installing Ubuntu Linux 14.04. Press ENTER to continue the installation process.

Figure 4. Initial display of Ubuntu Server 14.04 installation

2) Installation and Configuration of Point to Point Applications
Installation and Configuration of the Point to Point application is done on the Ubuntu terminal. As for the steps, namely:

Figure 5. Application installation point-to-point commands

Then open the pptpd.conf file to enter the Private/ LAN IP that will be distributed to BMT branch units.

Figure 6. The command opens the pptpd.conf file

Distribution Management IP Address for connections between buildings using a VPN.

Figure 7. Config Scope IP for VPN

Then open the pptpd-options file, to add Google DNS.

Figure 8. The command opens the pptpd-options file
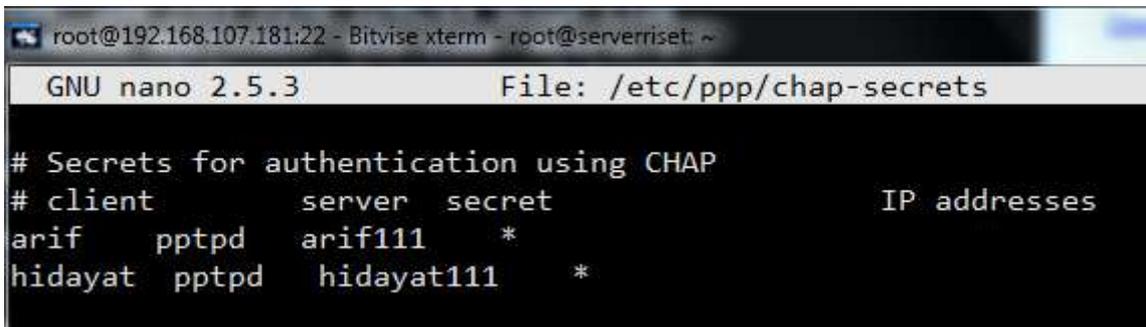
Add the DNS Server so that when clientconnect with VPN, the client will get this DNS / client can connect to the internet.

Figure 9. Add DNS Server

Managing the creation of a VPN account that is enabled for connections between branch units and BMT Mentari units in East Lampung.

Figure10. Add VPN Account

## 3. TESTING

The last stage in network design is doing testing. This test is done to test and find out whether the VPN network system running well and correctly as expected. Please note Branch / Client units can log in with VPN account authentication.

Figure10. Login Account VPN on PC Client

Successful client authentication, the client can log in any room and in any building according to network segmentation and the link used by BMT Mentari, East Lampung.
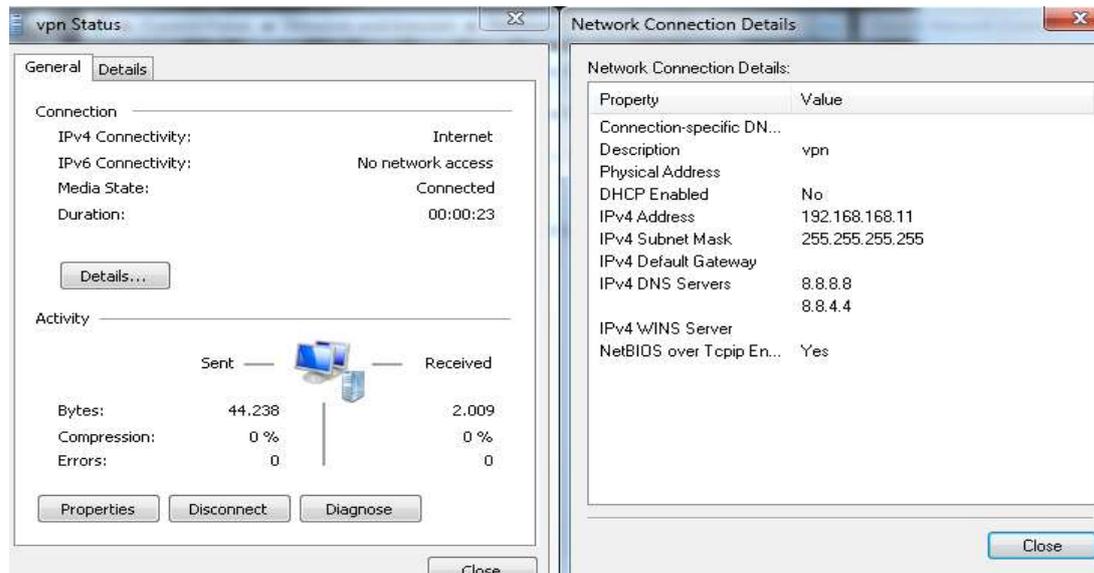
Figure11. PC Client Success Connected Using VPN Technology

Proof of design and configuration ppp0 address → VPN BMT MENTARI on Computer Ubuntu Server 14.04. Cek using command on terminal #ifconfig

Figure12. Display ppp0

3. CONCLUSION

Based on the discussion, it can be concluded things as follows:
1. Produced Analysis And Design Remote Access VPN Technology With BMT Mentari In East Lampung.
2. The result of Distribution Management is IP Address for connections between buildings using VPN and the resulting Management The creation of a VPN account that is enabled for connections between buildings and between rooms BMT Mentari East Lampung.
3. In addition to this, a wide-scale alternative network solution today can use a more economical and appropriate VPN. VPN technology can provide security in data communication over the Internet network and is an efficient and economical solution compared to other large-scale network technologies.
4. The selection of the right VPN product will make the network reliable and can be used to the maximum, by not causing a significant decline in performance. Management policies and network system monitoring are also factors that influence VPN system reliability and security. By choosing the right alternative strategy, this VPN solution can help achieve the goals of BMT Mentari in East Lampung.

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