Application of Web Server Based Network Monitoring System Using Cacti And The Dude Server at Cokroaminoto University Server Palopo

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Abstract. This study aims to create a network monitoring system that can make it easier for network administrators to check the existing network conditions. This research was conducted in the student information system server room of the University of Cokroaminoto Palopo. This type of research is Research and Development (R&D) which develops existing systems by adding a monitoring system so that data traffic can be handled properly and quickly and records every data traffic that passes on the existing network. This system makes it easier for network administrators where The dude server as a network monitoring application displays existing network conditions into network maps. If the device on the network is in normal condition, the device will be green, while if it is off, it will be red so that it is easy to monitor and provide notification if the network is unstable or disconnected with telegram bot media as a notification quickly so that the network administrator will immediately know if there is a problem on the network. Combined with the cacti application as an application that can record data flows and display it in graph form, it makes it easier for network administrators to troubleshoot and report problems on the network

1. Introduction

Communication and information technology based on human needs is currently driving the rapid advancement of means of communication and information. This progress has led to the development of various communication and information network facilities. Computers are one of the fastest growing communication tools and information managers. By using a computer network that can connect one computer to another, making computers a reliable means of communication and information sophistication today. One form of computer network development is the Internet [1]. The ease of communication and information facilities provided by the Internet makes Internet implementation a leading tool in every institution [2]. Network monitoring in an internet network is very necessary so that the computer network can be controlled and continue to work optimally. An example of Internet implementation in educational institutions is at Cokroaminoto Palopo University.

Currently, the network connectivity and network infrastructure at Cokroaminoto Palopo University have been very well established. Every building and room are connected to each other so that data communication can be formed to facilitate the work of lecturers and University staff. With good

infrastructure, it is also necessary to monitor the network so that data traffic is maintained where currently the network monitoring system has not been implemented at the University of Cokroaminoto Palopo. Therefore, by implementing a network monitoring system, it is hoped that it can support the existing network infrastructure and make the network more stable and monitorable.

2. Experimental Method

This type of research was Research and Development (R&D). This study aims to optimize the network by adding a network monitoring system so that the Research and Development (R&D) method is an appropriate method for perfecting existing products. This research has been conducted on the student information system (SIM) server room at Cokroaminoto Palopo University in Palopo City, South Sulawesi Province. The research was started from January to May 2020. From the first week to the fourth week of January the researchers made observations at the research site. In February the researchers collected the data needed to create the proposed system. In the first to the fourth week of March the researchers tested the proposed system. Until the month of May the researcher made a final research report.

3. Result and Discussion

The results of this study were obtained from the research location of the server room of the Cokroaminoto Palopo University. The research has been conducted to implement a network monitoring system using the dude server and cacti tools. With this monitoring system, the network can be monitored in real time and the system provides notification if there is a connection failure on the data line. By implementing cacti, each data traffic will be recorded per second and displayed in graph form so that if there is an issue of unstable network, the network administrator can check via cacti graph. The dude himself monitors by displaying a network map and can provide notifications automatically via a telegram account so that network administrators can easily troubleshoot the network.

3.1. Monitoring dengan the dude server

The dude server is an application that functions as a network monitoring system on proxy devices [3]. Dude Server can be downloaded on the official Mikrotik page. Adjust the Dude Server version with the router architecture and router version. Because the router at the research location has a "tile" architecture, the authors download the Dude Server with the same architecture. Then download the Dude Server Client as an application to access the Dude Server.

One of the most important functions in a network monitoring system is notification or notification quickly when a network connection is interrupted [4]. Dude server supports many notification methods on the network but the most efficient is the excute on server method, namely by sending notifications to the telegram group. . To display a notification on telegram, a configuration must be done on the dude server via the dude client [5,6]. Meanwhile, to monitor traffic from MikroTik, the Cacti application is used..

3.2. Pembahasan

With a network monitoring system based on the dude server, the network will be monitored in the form of network maps. If there is a connection that is disconnected, the color of the device on the network maps will initially turn green to red, which means the device is in a down condition. As shown below.

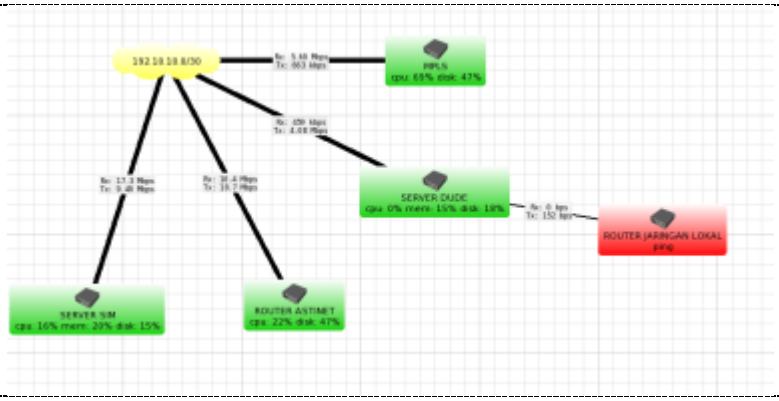

Figure 1. Network Maps display when the device is down

When the device experiences an unstable network condition, where the connection is unstable or the network condition is down, where the connection is not there at all, the system will automatically send notifications via telegram so that the network administrator can find out quickly if there is a problem on the network. As shown below.

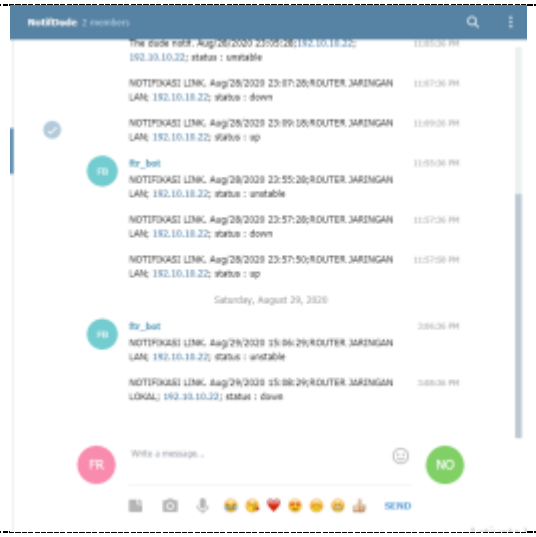

Figure 2. Device notifications on telegram

Based on picture above, the telegram automatically sends a notification according to the condition of the device on the network maps. The up and down conditions on this connection are recorded in real time on the cacti as shown below

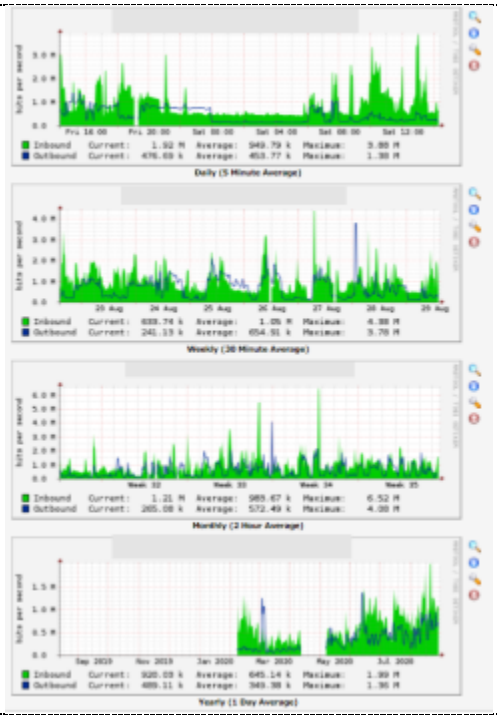

Figure 3. *Graph Cacti*

The graph on this cacti makes it easier for network administrators to make reports and troubleshoot networks that are experiencing unstable network conditions because by looking at the cacti graph, network administrators can see the bandwidth traffic record that passes per few minutes.

4. Conclusion

The network that runs in the Cokroaminoto Palopo University server room does not have a monitoring system so the authors apply the dude server and cacti tools as a network monitoring application that makes it easier for network administrators to maintain network stability in the Cokroaminoto Palopo University server room. With the dude server, connection stability can be monitored easily with a network map display and by providing notifications via telegram bots if there is a problem on the network. Cacti records the traffic bandwidth that passes in real time and provides a view of the data flow on the network with a graph display, making it easier for network administrators to check the quality of the network in the server room of the Cokroaminoto Palopo University.

5. References

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