Implementation of telegram bots for user management on radius servers with captive portal

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ABSTRACT

The use of the internet has become an important requirement in all fields. The internet is accessed in an educational environment, home, office, even in a coffee shop that has a sport hostpot. The development of technology as it is currently making an agreement for hotspot users becomes necessary to use these facilities for internet purposes, while general cable technology cannot be defeated by wireless technology. In this day and age the use of networks using hotspots we have encountered in various public places and users become quite free in internet access. Wireless technology provides comfort and convenience that is quite high and comfortable to use. While in a wireless hotspot, users can access the internet anywhere. To create a network that is connected to a secure internet, we can create a system using Radius Server to authorize and authenticate on the network, manage the use of each user on the network. Telegram BOT is an API (application programming interface) that allows one to integrate two different applications from applications and websites, in this case the Telegram chat application with other devices. So the telegram chat that can be done by humans (users) with this telegram BOT, then the chat bias can be replied with the program.

Keywords  
Implementation Telegram Bot, Radius Server, Using Captive Portal

1. Introduction

Internet users such as hotspot is a physical location where people can get internet access, can be through a LAN (Local Area Network) connection or A WLAN wireless local area network (Wireless Local Area Network) using a router connected to an ISP internet service provider (Internet Service Provider). (Nyquist & Hartley, 2016) Hotspots are usually found anywhere just as this case study was conducted in a boarding house.

The importance of the role of Captive Portal can be interpreted as a router machine or gateway that protects or does not allow traffic, until the user registers first into the system. Captive portal is a technique of authentication and securing data that passes from the internal network to the external network (Soepomo, 2013). The way Captive Portal p works exists when the user attempts to browse to the internet, captive portal will force users who have not been authenticated to go to the Authenticcaion web and will be given a login prompt including the tentag hotspot information that is being used. A captive portal relies heavily on a web browser for authentication. This is done by intercepting all packets, regardless of address or port, until the user opens the browser and tries to access the internet. At this time the browser is redirected to a web page that requires authentication. Usually Captive Portal is used on wireless infrastructure such as hotspot areas, but it does not rule out the possibility of being applied to wired networks. On managemant hotspot based captive portal.
By using a Radius server that is useful access control mechanism that checks and identifies (authentication) of the user or user based on the authentication mechanism by using the challenge / response method. Remote Access Dial In User Service (radius) is a UDP-based connectionless protocol that does not use a direct connection. The radius using the UDP transport layer and radius has the most important place on internet service, on the settings, authorization, and detailed user accounting whether necessary or desired (Tenggario, Raymond Powers; Luke, 2011) how Radius works it runs the AAA process (Authentication, Authorization, Accounting). The authentication process is needed to limit who is allowed to enter the remote access network and must be idealized first if you are logged in before accessing the network.

Function the main existence of bots is to facilitate human tasks, sedangkan Telegram Bot itself is the easiest modern bot to create compared to other messenger bots. Bots on this telegram have a lot of philtur ang not owned by bots on other application services, for example playing games, asking for opinions, reminders and others, which work as complete as thefiltur set.

2. Research Method

System design in research consists of several steps, such as inputs, processes, and also outputs, which are already described as in Figure 1.

![Figure 1. Research Flow](image)

A. ISP/Modem

In this study, this topology system uses ISPs to get internet access, can be through a LAN (Local Area Network) connection that is connected using UTP cables (unshielded twisted pairs) is a copper cable that is widely used in the computer and telecomucation industry as ethernet cables and telephone cables. The router is connected to the internet service provider, whose IP address (internet protocol) is 192.168.100.1.

B. Mikrotik RB 450C

Mikrotik is a software that is included in the open source system but is not free software, meaning that users must buy licensing of the facilities used (Sujalwo, 2011). Routerboard Rb450 specified 650MHz Atheros CPU, 256MB DDR RAM, 512MB NAND Storage with RouterOS level 5 in compact ino contact packaging, 5 pieces gigabit ports. As a tool to adjust the configuration of settings according to the topology image above.
In figure 2. Describe the remote view to the mikrotik server in GUI (Graphical User Interface) mode. (Gani, 2010).

Then with VPS (VIRTUAL PRIVATE SERVER) will host to the web server using virtualization technology to physically split hardware into several virtual servers that host in the same physical infrastructure.

C. Laptop (server)

This computer/laptop is the device responsible for regulating network traffic. This function makes it easier for the client computer to stay connected to the internet through a proxy server. With computer server data storage and files are automatically stored on the computer server.

D. ZTE Router

Router ZTE is hardware used to connect multiple networks, as a sender of data packets by going through the network from one device to another, which has facilities namely DHCP (Dynamic Host Configuration Protocol) and NAT. DHCP facility is a service that can distribute other IP addresses to other levels to computer devices.
By assigning a local IP to each device packet that is in the network and ensuring that the data packets are in the right place and do not get lost in a network.

3. Result and Discussion

The results of research from this writing are, conducted asus laptop, by connecting to an Access Point by logging in on the hotspot login page by using the user server contained in the Radius Server database.

By implementing authentication using Radius Server on the hotspot network, every user who has been connected to the SSID Hotspot will be directly to the Hotspot Login page, the user must enter the user and password to be able to connect on the session page in the user manager.

![Login page](image)

Figure 4. Login page

Based on the figure shows the login hotspot page by using users who have been registered on the Radius server data, but users who have used their users to log into the hotspot network cannot be used on the device simultaneously because each user has been registered on the radius database can only be used on one device only to connect to the hotspot network. (Kuswanto, 2017).

![Status page](image)

Figure 5. Status page
In figure 5 appears the main page after logging in, this page explains that users can connect and can access the internet on hotspots.

![Figure 5: Main Page After Logging In](image)

**Figure 6. Telegram Bot Script**

Bedasarkan image 6 shows the hotpot made with the Radius server has been entered a script to monitor users who have logged in and logged out.

![Figure 7: Bot Telegram](image)

**Figure 7. Bot Telegram**

In figure 7. Explained that the telegram bot will send the status of the user who is logged in through the Telegram application.

4. **Conclusion**

From this research, it can be concluded that using a telegram bot to manage a network on this radius server works well. By entering the API and chat id that has been created correctly on the script directly Bot will send notifications about the user who is logged in.
Reference


Nyquist, H., & Hartley, R. (2016). SYSTEM MONITORING STATUS STATUS OF HOTSPOTS ON MIKROTIK WITH BOT External targets in making this report is to learn the understanding of the user hotspot status monitoring system on mikrotik with Telegram bots Based on a transparent background.

