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## Analysis of authentication, authorization, and accounting server

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### ABSTRACT

AAA server is having three processes Authentication, Authorization, and Accounting. AAA server is the most popular thing of the security. It helps the network to become more secure by another. Authentication means the used username and password to become an authenticator. Authorization that authenticator can use the service and so on depending on that the server is given. Accounting that they know what users do and from which website open it is listed from each user. The critical server of AAA Server is RADIUS and TACACS. The AAA server is handy for WLAN and wire.

**Keywords:** AAA, Server, TACACS, WLAN

### 1. INTRODUCTION

The important thing that helps secure wireless access is Authentication, Authorization, and accounting(AAA). AAA help network subscribers to connect by used technical aspects of three safe processes. That can enable using the open-source of a network server to implement network AAA. the IP Mobile is beneficial because it is simple. It can also be development change ease, but it has some vulnerabilities that need AAA to secure the IP mobile. The AAA is the scalability that can support the heterogeneous network, respecting server, and network that accesses AAA operation. The RADIUS has authentication information so the network access server can get the info from RADIUS. They can protect the network by many things such as TACACS+ AAA server, router, and switch. The protocols of authentication are CHAP, PAP, and MS-CHAP.

### 2. LITERATURE SURVEY

The Authentication, Authorization, and Accounting processing in many steps, end machine or device help connected to the device entry point, operations based on client and server, the security of the network, authentication elastic and pairs of attributes. The radius tunnels are too essential to provide mandatory tunnels in a virtual private network. The RADIUS is extended to support the techniques that help collect and account for the information of the end-user of the call session and store it on the accounting server. The TACACS is the protocol provided by AAA service that is used to access terminal, access control, and system controller protocol. The RADIUS and TACACS are spread extended to support enterprise network management and ISP [1]. The wireless LAN is vital because it has more security and high quality to connect to the internet. The WLAN to work correctly, need to use the AAA mechanism. The AAA mechanism allows the storage of PMK of the authenticator [2].

When need to design or create an infrastructure of authentication and mobile IP protocol: authentication between both of home network and MN, authentication between network visited, and MN and authentication between both network home and network called. The AAAF needs to appeal to the arrangement from AAAH to become the new central management of the domain. The AAAF distributes the key of entity mobile IP. When AAAH doesn't work, the s0 |ecurity system will become a week or mean vulnerable [3].

Security is an essential thing in any network. It can throw wire or wireless—the network's service to develop currently helps the web become more vigorous. AAA is the latest vital thing to increase security in a network [4].

The RADIUS is the most popular protocol used to process AAA to access the network. The AAA server's objective is: user authentication, used the set of services at the time, and afford accounting for logging of consumption [5]. The attacks have four primary classes: reconnoitering, DOS, access and viruses, worms, and Trojan horses. The authentication using username and password [6]. The network techniques that used a username and password used a single password for all users on service SSID that ease and fast to download for all users and reduce the time [7].

The RADIUS server is implemented for a public domain such as gnu radius, JRadius, open radius, free radius and ...etc. When sending the message of RADIUS, have four things: challenge, request, accept and reject [8].

### 3. AAA SERVER

The AAA server is a program that helps to access the network and do authorization, authentication, and accounting service. The AAA server is authentication that needs the user's information such as password and username, and so on. Permission that means user after authentication can access service that possible for them. Accounting means they know users what they do in the security system. All the users' active is listed if the used do unauthenticated; they can see the user from IP because IP can collect a lot of information. The AAA server supports many server types such as RADIUS, SDI, TACACS, LDAP, KERBEROS, NT server. Terminal Access Control System (TACACS) is the more server working. The AAA server first checks the user if it authenticates or no. Suppose the user is showing the can used the service. If they can't access it, they can try logging in with a username and password. When logging in AAA, they have three advantages, like making available scalability, allowing multiple system backup, and standardized sports protocols [6]. The architecture AAA server of ad hoc network proposed objective is to support mobile security and smooth access to the internet near hotspots of public WLAN. They collected and aggregated the web in the backbone. The service helps to access wireless internet [2]. In Figure1, The architected collected between infrastructure for fixed network and virtual network that need mobile clients. The fixed infrastructure in two essential things in them is the backbone network and AP of WLAN802.11 wireless.

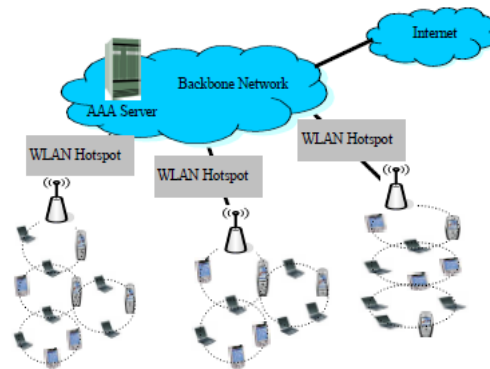


Fig. 1: Architecture design how AAA server help Hybrid ad hoc network

### 5. AUTHENTICATION PROTOCOL

In authentication, they have three protocols PAP, CHAP, and MS-CHAP. The point-to-point protocol allows two authentication methods: password authentication protocol(PAP) and the Challenge Handshake Authentication Protocol(CHAP). PAP sent request authentication and can respond plain text of username and password. The authenticator can send if it's a failure or success. CHAP is a shared password secret and sends a challenge by the authenticator. It can also respond to checksum hash by using MD5, calculates the hash by the authenticator, and sends failure or success. The password in plain text needs both ends to know it and re-blocking attack. MS-CHAP is the Microsoft version of the CHAP. The MS-CHAP can't request in the plain text of the password, and the password use hash. Also, it can change the password by the user [8].

### 6. COMPARISON BETWEEN RADIUS AND TACACS

	Radius	Tacacs
Functionality	Both authentication and authorization	AAA divorces
Protocol support	Not used ARA and NetBEUI	Support multi-protocol
Transport protocol	UDP	TCP
Accounting	All	limited
confidentiality	Password- Encrypted	Packet-Encrypted
CHAP	Unidirectional	Bidirectional

#### The problem of RADIUS

- That no determinate the failure mechanism
- Don't support secrecy all packet
- The server doesn't allow for start message
- Don't support message error
- Used IPsec is unessential
- Configured name and address of the server manually
- There are no mandatory and non-mandatory characteristics [8].

### 7. CONCLUSION

In conclusion, the AAA Server is the most important in security. It gives a high level of protection. Also, it is not allowing any user how don't register in the authenticator. The TACACS is robust than RADIUS because TACACS encrypt for all packet, but RADIUS does encrypt for the password.

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