**Security Technology Tools**

**ITM437 Information Security and Technology**

**Professor: Dr. Abbas Yousefi**

**By Odiscious Dozier**

**Trident University**

**Case 02**

INTRODUCTION

Your paper should address the following questions and issues that are related to the topic above.

* Types of firewalls based on their processing modes.
* The kinds of firewalls used in your organization or home.

BODY

Five processing modes of firewalls

PACKET FILTERING

Packet filtering firewalls are among the most basic of firewalls and typically a first step in taking measures to protect users within the firewall from information security threats, attacks. These firewalls only allow packets of data, which are traveling through the internet, to pass through a network interface provided they meet the firewall policy. The most commonly used criteria are, source and destination address, source and destination port, and protocol. There are two types of packet filtering firewalls, stateless and stateful filtering (Sharma, 2010).

Stateless filtering, as its name implies, is a type of filtering where the firewall does not retain the information of the previously passed packets of data. Each packet is examined individually and the decision to allow it to pass or deny access is performed on a case by case basis (Sharma, 2010).

Stateful filtering, as its name implies, is a type of filtering where the firewall retains the information of the previously passed packets of data. This type of filtering is also known as, Dynamic packet filtering or smart firewalls (Sharma, 2010).

A packet filtering router has several advantages. An entire network can be protected by a single, strategically placed packet filter router. If there are no other routers connected to the network, the network security can be significantly enhanced by doing packet filtering on this individual router. Simplicity of use and ease of access are other advantages packet filtering provides; for example, packet filtering doesn’t require user knowledge or cooperation and it’s widely available on many routers (Chapman et al., 1995).

APPLICATION GATEWAYS (PROXY SERVERS)

Layer seven of the OSI (Open System Interconnection) model is the application layer. Application/proxy firewalls operate at this level and the device(s) the firewall is installed on act on behalf of the client (*proxy*) for requested services.

The proxy server receives the particular request from the client and then connects to the host machine for that site, which thinks the request came from the proxy server, and retrieves the data sending it back to the proxy server. The proxy server then examines the address and port information to ensure the validity of the transaction. Additionally, it runs proxy applications to view common types of data (like HTTP for web-pages, FTP, SMTP or POP3for email, etc.) before it is allowed through the firewall” (Dowler, 2007).

There are several advantages of having an application firewall. Because application/proxy firewalls act as an intermediary between the internet and the client, they provide an additional layer of protection against cybercrimes like port scans and application attacks. Additionally, ports can be patched quickly in the event a security breach is discovered (Blair et al., 2009).

CIRCUIT GATEWAYS

Layer five of the OSI (Open System Interconnection) model is the session layer. Circuit-level gateways operate at this level. These gateways are considered host based and reside on individual clients and servers inside the network.

MAC LAYER FIREWALLS

HYBRID FIREWALL

CONCLUSION

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