MANAJEMEN JARINGAN DAN KEAMANAN MENGGUNAKAN UTM SOPHOS XG FIREWALL HOME EDITION

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JAKARTA
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ABSTRAK

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Judul	:	Manajemen Jaringan Dan Keamanan Menggunakan UTM Sophos XG *Firewall Home Edition*

Keamanan jaringan dan manajemen pengguna merupakan salah satu faktor penting yang harus ditanggulangi oleh seorang administrator jaringan guna melindungi jaringan dari varian serangan yang semakin berkembang dan menerapkan sebuah kebijakan agar aktivitas pengguna dapat berjalan dengan baik dan terlindungi. *Unified Threat Management* (UTM) merupakan sebuah evolusi *Firewall* menjadi sebuah produk keamanan yang terintegrasi, yang memiliki kemampuan di antaranya *Intrusion Prevention System*, *Application and Web Control* serta *Reporting* yang ditujukan untuk manajemen dan melindungi jaringan usaha kecil atau menengah dengan pemanfaatan penerapan yang mudah. Sophos merupakan salah satu vendor UTM yang menyediakan produk versi non komersial yang dilabeli dengan *Home Edition* dengan limitasi jumlah pengguna. Sophos XG *Firewall Home Edition* merupakan *software* UTM dengan fitur lengkap dari Sophos yang tersedia tanpa biaya untuk jaringan rumah yang meliputi *anti-malware, Application and Web Control, IPS, Traffic Shaping,* VPN dan *Reporting and Monitoring*. Sophos memberikan proteksi keamanan jaringan dengan IPS untuk melakukan filtering traffic. Sedangkan dengan memanfaatkan fitur *application and web control*, Sophos dapat memberikan kontrol terhadap pengguna dalam mengakses internet dari jaringan perusahaan. Dengan adanya fitur *reporting* semua aktivitas dan serangan yang ada tercatat dan dapat dijadikan sebagai landasan dalam membuat kebijakan.

Kata kunci:
Manajemen *user, Unified Threat Management, Intrusion Prevention System, Application and Web Control, Reporting.*

ABSTRACT

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Title	:	*Network and Security Management Using UTM Sophos XG Firewall Home Edition*

Network security and user management is one of the important factors that must be addressed by a network administrator in order to protect the network from increasing variants of attacks and implement a policy so that user activities can run properly and are protected. Unified Threat Management (UTM) is an evolution of a Firewall into an integrated security product, which has capabilities including Intrusion Prevention System (IPS), Application and Web Control and reporting aimed at managing and protecting Small or Medium Business networks with easy deployment. Sophos is one of the UTM vendors that provides non-commercial versions of products that are labeled with Home Edition with a limited number of users. Sophos XG Firewall Home Edition is a full-featured UTM software from Sophos that is available free of charge for home networks which include Anti-Malware, Application and Web Control, IPS, Traffic Shaping, Virtual Private Network and Reporting. Sophos provides network security protection with IPS which filters traffic. Meanwhile, by utilizing the application and web control, Sophos can provide control over users accessing the internet from the company network. Last, with the reporting feature, all existing activities and attacks are logged and can be used as a basis for policy making.

Key words:
Management user, Unified Threat Management, Intrusion Prevention System, Application and Web Control, Reporting.

KATA PENGANTAR

Puji syukur kita panjatkan atas ke hadirat Allah SWT yang telah melimpahkan rahmat dan karunia-Nya kepada kita semua sehingga kita dapat menjalankan aktivitas dan menyelesaikan salah satu tugas dalam menempuh jenjang pendidikan yaitu membuat karya tulis ilmiah ini.

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Network and Security Management Using UTM Sophos XG Firewall Home Edition

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ABSTRACT

Network security and user management are critical factors that a network administrator must address to protect the network from increment variants of attacks and implement a policy so that user activities can run properly and are saved. Unified Threat Management (UTM) is an evolution of a Firewall into an integrated security product, which has capabilities including Intrusion Prevention System (IPS), Application, and Web Control and reporting aimed at managing and protecting Small or Medium Business networks with easy deployment Sophos is one of the UTM vendors that provide non-commercial versions of products that are labeled with Home Edition with a limited number of users. Sophos XG Firewall Home Edition is a full-featured UTM software from Sophos that is available free of charge for home networks which includes Anti-Malware, Application and Web Control, IPS, Traffic Shaping, Virtual Private Network, and Reporting. Sophos provides network security protection with IPS which filters traffic. Meanwhile, by utilizing the application and web control, Sophos can provide control over users accessing the internet from the company network. Last, with the reporting feature, all existing activities and attacks are logged and can be used as a basis for policy-making.

1. Introduction

The security factor of the internet network is one of the most critical problems that must be faced. New threats emerge every day, viruses and malicious attacks are becoming very complex making network security protection an extreme challenge. Apart from security threats, an administrator also has to deal with user management issues, user activity reports, and network slowdowns caused by variations in user activity that usually have nothing to do with their actual work, such as instant messaging, and social networking, and others.

Based on journal entitled Approach to Ship's It and Ot Systems Cybersecurity Improvement, following the requirements of the International Maritime Organization, namely a cyber threat management plan and the need to improve the cybersecurity of IT systems by using an easy implementation, for device use and maintenance, the use of Unified Threat Management (UTM) is one solution to these

problems. The main purpose of the Unified Threat Management (UTM) tool is to protect a small or medium business network. UTM can be physical hardware, software, or even cloud services. By design, UTM combines several security features and is formed to help protect computer networks from various security threats. Risks to overall security can include malware and cyber-targeted attacks on some part of the network communication structure [1].

Unified Threat Management (UTM) is an evolution from a traditional firewall into an integrated security product, which can perform several security features in one device such as a firewall, Intrusion Prevention System, Anti Virus Gateway, Gateway Anti Spam, Virtual Private Network, Load Balancing, Content Filtering, Data Leakage Prevention, and reporting tools [2]. With UTM technology, an administrator can perform integrated attack prevention and centralized user management to provide convenience in the configuration, feasibility, and reporting process.

Based to a journal entitled Implementation of Management and Network Security Using Endian UTM Firewall, which resulted from Endian's open-source UTM can improve network security by using proxies to filter content and block intra-zone ports meanwhile Intrusion Prevention System can not block the attacks because of the limitations of signature snort [2]. Another study entitled Evaluation of Firewall Open-Source Software discusses the comparison of features of several open-source firewalls, namely pfSense, IPCop, and Zentyal, which shows that the three open-source firewalls can only detect the Intrusion Detection System [3].

Quoted from the official Sophos website, Sophos is one of the UTM vendors that provide non-commercial versions of products labeled as the home edition with a limited number of users. Sophos XG Firewall Home Edition is the full version software of the Sophos XG firewall, available at no cost to home users. Fulled protection features for home networks, including anti-malware, web and URL security, application control, IPS, Traffic Shaping, VPN, reporting, and monitoring [4].

Based on the explanation above, the researcher hopes that this research can provide information and descriptions to network administrators about the technology of UTM Sophos Home Edition, which can provide protection, convenience, and effectiveness in user management and reporting.

2. Methodology

Regarding the problems described above, the testing method to be carried out is as bellows:

a. The first stage is to test the web filtering feature by blocking social media categories based on the templates available in the Sophos database. Then perform access to the Facebook, Twitter, and Instagram websites from the client browser.
b. The second stage is to test the application control feature by blocking the category of remote access applications that require access to the internet based on the templates available in the Sophos database. Then the test was carried out running the Anydesk and Ultraviewer applications.
c. The third stage is to test the IPS feature. The attack will perform in two ways. First is scanning the port using the NMAP application from the client to the webserver to grab the information about the available port on the targeted server. The second one is to perform XSS attacks using the Acunetix application from the client to the web server.
d. Following the research objectives of UTM Sophos is expected to be able to provide reports to administrators about user traffic and attacks filtered by UTM Sophos. In this section, the researcher will display the template reports by UTM Sophos and export as PDF documents.

This research was conducted using VMware workstation with the following topology:

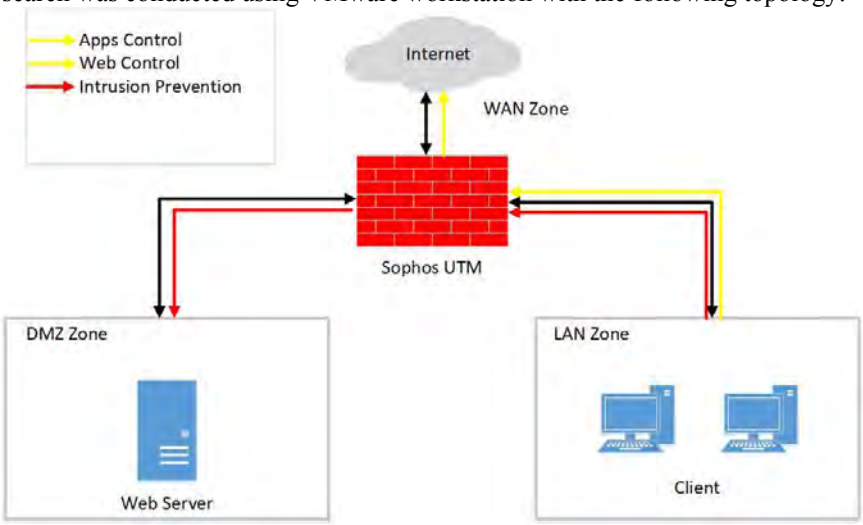

Fig. 1 Network Topology

3. Result

Based on the tests carried out, the results are the same as the initial objectives of the study as described in the following table:

TABLE 1
TEST RESULT

No	Tested Features	Result
1	Web Filter	Facebook, Instagram, and Twitter as websites categorized under social networking are blocked as expected
2	Application Control	Anydesk and Ultraviewer as applications categorized under remote access are blocked as expected
3	Intrusion Prevention System	IPS detects and block both attach method performed
4	Reporting	Reports are presented in the default dashboard and exported as pdf document

With the web filter feature on Sophos XG Firewall, HTTP and HTTPS traffic from the client to the internet will be inspected. If the user accesses the URL or website containing the social networking category according to the policy set, Sophos will block the request and notify the user. In this scenario Facebook, Instagram and Twitter website blocked by Sophos XG Firewall.

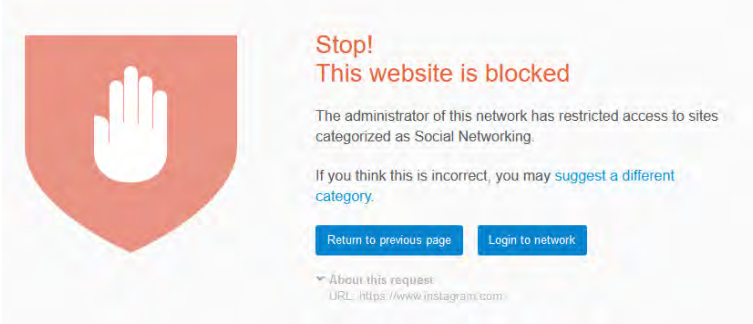

Fig. 2 Website Blocked

With the application filtering feature, any application traffic that requires internet access, in this case passing through the Sophos inspection as a filtering gateway, will be treated according to the policy setup. In this test, Anydesk and Ultraviewer applications are categorized into the category of remote access applications blocked by Sophos XG Firewall.

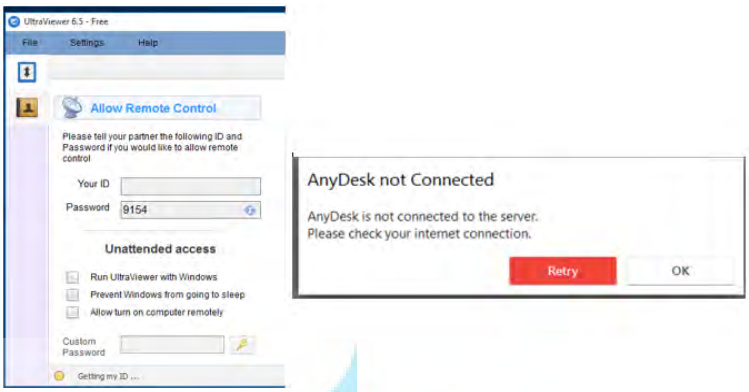

Fig. 3 Application Blocked

The intrusion Prevention System will inspect the traffic and compare with the signature set and the predetermined policy. In this scenario, the inspection is carried out for traffic from the client (LAN) to the web server (DMZ). Every matched traffic Sophos will block or monitor-only according to the policy setup. In this case Sophos will block port and web scanning traffic from LAN to DMZ segment.

Fig. 3 IPS Blocked

Every traffic going through Sophos will be recorded and then presented as a template report regardless the traffic is legitimate or not. Sophos reported total bandwidth usage, bandwidth usage per IP/user, frequently accessed website and application, and incident attack. With this visibility, the administrator realizes the actual activities on their network so that they can analyze and determine policy setup for further action to produce a regulation of internet access. Reports presented on Sophos can be exported to several documents such as CSV, HTML, and PDF. In this scenario, the report is exported to a PDF document.

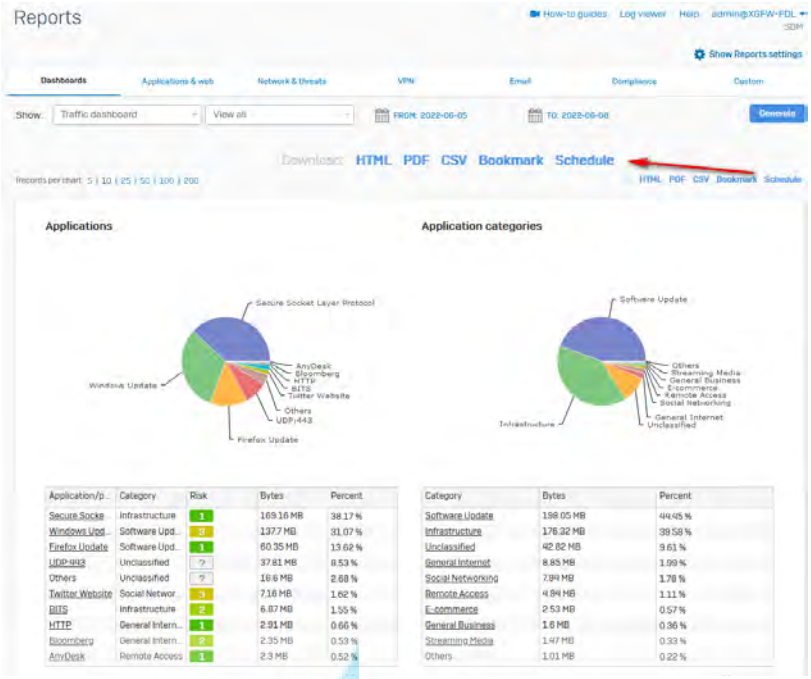

Fig. 3 Report and Export

4. Conclusion

In this research, a UTM has built that functions as network security and management using Sophos XG Firewall Home Edition. Sophos Home Edition is a non-commercial version with full version of the software from Sophos like several open-source UTM vendors such as Zentyal, pfSense, and IPcop. In the tests performed Sophos XG Firewall was able to detect 2 type attack methods tested using IPS, Sophos was also proven to be able to manage website and application access from users in carrying out internet activities. And every activity and incident that occurs will be recorded and presented in the form of reporting.

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KERTAS KERJA

Ringkasan

Keamanan Jaringan dan manajemen pengguna merupakan faktor penting yang harus diperhatikan untuk kelancaran sebuah perusahaan yang menggunakan teknologi informasi dan internet dalam menunjang keberlangsungan pekerjaan. Beberapa perusahaan dengan skala kecil masih memiliki keterbatasan anggaran biaya untuk memenuhi kebutuhan tersebut, sehingga memilih untuk tidak memprioritaskan kebutuhan tersebut.

Unified Threat Management atau bisa disingkat UTM merupakan sebuah evolusi dari *firewall* tradisional menjadi produk keamanan yang terintegrasi, yang memiliki kemampuan untuk melakukan beberapa fitur keamanan dalam satu perangkat seperti *firewall, Intrusion Prevention System, Anti Virus Gateway, Gateway Anti Spam, Virtual Private Network, Load Balancing, Content Filtering, Prevention Data Leakage* dan *Reporting.* Salah satu vendor UTM dengan nama Sophos menyediakan sebuah solusi UTM tanpa lisensi dengan batasan jumlah pengguna yang dikenal dengan nama Sophos XG *Firewall Home Edition*.

Dengan menggunakan Sophos XG Firewall, administrator dapat melindungi perimeter jaringan menggunakan fitur *Intrusion Prevention System* dengan cara melakukan *scanning traffic* dan memblokir *anomaly traffic* berdasarkan *signature*. Dalam pembatasan akses dan manajemen *user* Sophos juga menyediakan fitur URL *filtering* yang berfungsi untuk memberikan batasan *website* yang dapat diakses dan Apps Filter yang berfungsi untuk memberikan batasan terhadap aplikasi yang dapat digunakan pengguna dalam mengakses internet, serta juga dilengkapi dengan fitur *reporting* untuk memberikan laporan terhadap aktivitas *traffic* yang terjadi pada sebuah *environment*.