Client/Server Interface Monitoring and Management

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ABSTRACT

Accessing the internet by many users in organizations creates threat to many companies due to the frequent flow of unwanted messages. These problems also affect centers that provide internet access in a confine environment such as cyber cafe. The need to be able to monitor client who logs into the network becomes very essential. The purpose of the study is collecting of useful information from various parts of the network so that the network can be managed and controlled using the collected information. The study attempts to investigate the design of a typical cyber café time management system to help cafe administrators effectively manage clients' time and trying to examine how people that gain illegal access into network resources can be prevented. The study involves relevant respondents of the ICT Centre of ATBU, using structured questionnaire of data analysis. The result of the study showed that client/server model facilities interface monitoring enhances security. It also allows connection, fault, account and traffic monitoring. The effect of client/server model increases and enhances cyber cafe time management. The study also recommends quality network monitoring should be put in place, security/ authentication should be increased and enhanced, better timing should be put in place for remote users, data encryption should be adopted and lastly firewalls should also be critically observed .

Keywords

Client, Server, Interface, Monitoring, Management.

1. INTRODUCTION

Accessing the internet by many users in organizations creates threat to many companies due to the frequent flow of unwanted messages. These problems also affect centers that provide internet access in a confine environment such as cyber cafe. The need to be able to monitor client who logs into the network becomes very essential. The purpose of the study is collecting of useful information from various parts of the network so that the network can be managed and controlled using the collected information. The study attempts to investigate the design of a typical cyber café time management system to help cafe administrators effectively manage clients' time and trying to examine how people that gain illegal access into network resources can be prevented. The study involves relevant respondents of the ICT Centre of ATBU, using structured questionnaire of data analysis. The result of the study showed that client/server model facilities interface monitoring enhances security. It also allows connection, fault, account and traffic monitoring. The effect of client/server model increases and enhances cyber cafe time management. The study also recommends quality network monitoring should be put in place, security/ authentication should be increased and enhanced, better timing should be put in place for remote users, data

encryption should be adopted and lastly firewalls should also be critically observed .

1.1. STATEMENT OF THE PROBLEM

The cyber café as means of accessing the internet through the ISP used manual system which is mostly effective on users who browse in public centers especially ICT center of ATBU (Abubakar Tafawa Balewa University). However, those that are connected remotely sometimes are unable to be timed and controlled. This has been a source of concern and a disadvantage to the effective growth of cyber café management due the following problems: Accessing good Internet services becoming a threat to the users and to the management of the cyber café by manipulating and gaining unauthorized access into the system for their own selfish interest (Hwang & Yu, 2012; Bishop, 2002). For effective growth and management of these Cyber Cafes, the above issues need serious consideration of the cyber cafes managements (Jones, 2011).

1.2 OBJECTIVES OF THE STUDY

The main objective of this research work is to assess the client/server interface monitoring and management in ICT center of ATBU.
Specific objectives are:
To determine how client/server model affects interface monitoring;
To ascertain the benefits of using client/server models for interface monitoring; and
To identify the effect of client/server interface monitoring and management on time management/control in ICT center ATBU.

1.3 Research Questions

Does client/server model affect interface monitoring?
What are the benefits of using client/server models for interface monitoring?
Does client/server interface monitoring and management have any effect on a time management/control in ICT center?

2.0 LITERATURE REVIEW

Client/server describes the relationship between two computer programme in which one programme, the client, makes a services request from another program, which is the server, which fulfills the request (Ibrahim, 2012; Sullivan, 2006). Although the client/server idea can be used by programs within a single computer, it is a more important idea in a network (Dhillon & Ansari, 2012).

Furthermore, a client is an application or system that accesses a remote service on another computer system, known as a server, by way of a network (Bishop, 2002).. The term was first applied

to devices that were not capable of running their own stand-alone program, but could interact with remote computers via network (Dhillon & Ansari, 2012; Bishop, 2002).

2.1 Client/Server Network Configuration

To configure a client/Server network model, then first prepare the server. Install windows 2000 or windows 2003 server from the CD on the server computer and make a domain (Jelen and Russ, 2003). Create a domain by this command on the rub, "DCPROMO" Give this command once a server installed successfully. After the DCPROMO is given command, a unique domain name would be asked. All the client computers will use the same unique domain name for becoming the part of this domain (Hwang & Yu, 2012).

Furthermore, the command will install the active directory on the server, DSN and other required things. A step by step wizard will run and guide the person installing with the rest of the steps. When the active directory is properly installed on the server, restart of the server creates network users on the server computer and also name/libel the network resources like computers/printers (Hwang & Yu, 2012).

Once the installment on the server is completed successfully, then go to the client computers, install windows 2000 professional on all client computers. The next step is to make the client computers a part of the network (Jelen and Russ, 2003).

2.2 Configuration Steps

In configuration of client/server network model, some steps are involved. These steps include: choose a unique name for each client computer; choose a unique IP address for each computer; and then use the same domain name for all client PCs.

In addition, Network configuration can be implemented by right clicking the my omputer>properties>for giving the IP and address and subnet mask of the same range and class for all the computers in the network pressman (2001).

There are many different operating systems for servers, just like there are different operating systems for desktop computers (Hughes, 2005). Windows servers are (NT, 2000, 2003 etc.), Linux, Novell and NetWare are the three main network operating system competitors today (Hughes, 2005).

Consequently, network operating system (NOS) will have many in-built features. All will include file serving print serving, backup and some way to secure those resources. Some NOSs will include a web server, mail server, while other s requires these items separately (Hwang & Yu, 2012).

3.0 RESEARCH METHODOLOGY

3.1 Research Design

The study focuses on the clients/server interface monitoring and management with specific reference to ICT center ATBU. To achieve the best possible results, the study adopted a descriptive survey method of research design, whereby a questionnaire was developed and distributed to the study area in order to acquire the needed and desired information.

3.1.1 System Specification

System specification gives an overview o f the system designed requirements, process design requirements; output designed requirements as well as storage specifications.

3.1.2 System Requirement

The minimum recommendation for the computer system that is suitable to handle the work is Pentium III CPU with the following configuration:

- 14 inches color monitor
- 64MB of RAM
- 700MHZ of processor speed
- 30GB of hard disk space
- 1 parallel port
- CD/DVD ROM Drive
- UPS
- 990cx desk jet printer

3.1.3 Software Requirement

The program to be installed on the proposed system will include but not limited to window 98, 2000, Me XP Operating System, Netware etc. Microsoft visual Basic 6.0 application developer and Microsoft Office 2003, 2005, 2007 (Fatula, 2003).

3.1.4 System Design

The system will be design in such a way that it will deny unauthorized access automatically, both within operational vicinity and remote area. The system accept the data as an input, process the input data and then produces the output as the final product of the system in order to meet its objectives as well as the administrative need of the organization (Ibrahim, 2014).

3.1.5 System Design Monitoring Tools

- IP Traf: A statistics utility monitoring IP Networks.
- Ntop: A network traffic probe that shows the network usage.
- Pload: Graphical monitoring of PPP traffic.
- Nstream: is a program which analyses the streams that occur on a network
- Network and displays them to the user in form… requires GTK and gnome
- GFI network server monitor: commercial software which checks a network and serves for failures and fix them automatically, before the network users noticed it.
- NMAP: uses raw IP packages in novel ways to determine what to hosts are available on the network, and what packet filter/firewalls are in use etc.

3.1.6 Features of the Proposed System Design

- Its designed to rub on windows platform (95, 98, ME, 2000 and XP).
- Client can be controlled from the server once network system monitor is installed. This includes pause, un pause, restart, shutdown and terminate.
- Network system monitor supports more than a 100 clients and can be used in 5, 10. 15, 20, and 100 or customized versions.
- The server offers three types of logging account types to prevent unauthorized use of certain utilities (administrator, user and viewer).
- Network system monitor has a set o f automated tools that helps specify certain timed functions without interventions.

3.2 Population of the Study

The target population of the study is the ICT experts (Abubakar Tafawa-Balewa University) ATBU, as the case study area.

3.3 Sample and Sampling Technique

$$n = \frac{N}{(1 + Ne^2)}$$

Where **n** = Sample Size

N = Population = 260 The sample size was calculated by using Yamane's formula for sample size: and the sampling technique is stratified sampling technique. To arrive at the sample size is:

e = Error Margin = 5% (0.05)

1 = Constant

   Therefore

$$n = \frac{260}{(1 + 260 * 0.05^2)}$$

$$n = \frac{260}{1 + 260 * 0.0025}$$

$$n = \frac{260}{1 + 0.65}$$

$$n = \frac{260}{1.65}$$

$$n = 158 \text{ people}$$

Stratification:

ICT Staff

$$= \frac{43}{260} * 158 = 26$$

Accounting Students

$$= \frac{51}{260} * 158 = 31$$

Banking & Finance Students

$$= \frac{43}{260} * 158 = 26$$

Business Management Students

$$= \frac{61}{260} * 158 = 37$$

Information Technology Students

$$= \frac{62}{260} * 158 = \underline{38}$$

Total=   158 People

3.4 Source of Data

Both primary and secondary sources of data have been used in the study. Primary source of data is the questionnaire. While the secondary sources of data includes: journals, ATBU, textbooks, and relevant.

3.5 Method of Data Collection

The method of data collection adopted for the study is through direct administration of the questionnaire to the respondents of which likert scale methods of questionnaire is used with the following interpretations:

Strongly Agree (SA); Agree (A); Undecided (U); Disagree (D); and Strongly Disagree (SD).

Points:

SA =5	**A=4**	**U=3**
D=2	**SD=1**	

3.6 Method of Data Analysis.

The collected data were analyzed and presented using descriptive Statistics (Mean and Standard deviations).

3.7 Data Analysis And Presentation

In this section, the data is analyzed and presented in a tabular form. The table is title as Table 4.0.

Table 4.0 Descriptive statistics of questionnaire items

N	Questionnaire item	N	SD	D	U	SA	A	Mean	STD
1	Client/server model facilitates interface monitoring.	150	29 (19.3%)	16 (10.7%)	4 (2.7%)	36 (24.0%)	65 (43.3%)	3.61	1.579
2	Client/server model doesn't facilitate interface monitoring.	150	25 (16.7%)	47 (31.3%)	8 (5.3%)	28 (28.0%)	42 (28.0%)	3.10	1.514
3	TCP/IP protocol makes the implementation of a client/server interface monitoring and mangt easy.	150	7 (4.7%)	19 (12.7%)	20 (13.3%)	40 (26.7%)	64 (42.7%)	3.90	1.279
4	Client/server model enhance security in network,	150	5 (3.3%)	18 (12.0%)	12 (8.0%)	35 (23.3%)	80 (53.3%)	4.11	1.214
5	Configuration and maintenance file and print sharing throughout the network is more easily managed than peer to peer network.	150	9 (6.0%)	10 (6.7%)	23 (15.3%)	32 (21.3%)	76 (50.7%)	4.04	1.210
6	Cyber/server model facilitates cyber café time management.	150	6 (4.0%)	20 (13.3%)	13 (8.7%)	40 (26.7%)	71 (47.3%)	4.00	1.291
7	Client/server network model allows connection, fault account and traffic monitoring.	150	12 (8.0%)	16 (10.7)	18 (12.0%)	42 (28.0%)	61 (40.7%)	3.83	1.289
8	client/server mod el have provided effective time management and control in ATBU ICTC.	150	13 (8.7%)	16 (10.7)	15 (10.0%)	49 (32.7%)	85 (56.7%)	3.81	1.289
9	Client/server interface monitoring allows remote monitoring and security control.	150	12 (8.0%)	10 (6.7%)	11 (7.3%)	32 (21.3%)	85 (56.7%)	4.12	1.274

(Field Survey, 2015)

3.8 RESEARCH QUESTIONS (RQ)

RQ1: How client/server model affects interface monitoring?

Table 4.0 above shows that questionnaire items 1, 2 and 4 answered the above research Question. Item 1 answered the research question with 67.3% of the respondents agreed that client/server model facilitate interface monitoring. Item 2 f answered the research question with the highest response of 48.0% of the respondents rejecting that client/server monitoring do not facilitate interface monitoring. Finally, item 4 shows that 76.6% of the respondents believe that client/server network model enhance security in networks.

RQ2: What are the benefits of using client/server models for interface monitoring?

Table 4.0 above also shows that questionnaire items 3, 5 and 6 answered the RQ2, Where item 3 shows that 69.4% of the respondents accepted that the use of TCP/IP protocol makes implementation of a client/server interface monitoring and management enhances security of networks. Item 5 stated that

72.0% of the respondents hold the view that configuration and maintenance file and print sharing throughout the network is more easily manage than peer to peer network. This helps in ensuring security in the network. Finally item 6 shows that 74% of the respondents accepted the view that client/server monitoring facilitates, café time management and control user access to information guard against security threats.

RQ3: Does client/server interface monitoring and management have any effect on a time management/control in ICT center?

Tables 4.0 above depict that items 7, 8 and 9 answered RQ3. Where item 7 revealed that 69.4% of the respondents accepted that client/server network model allows connection monitoring fault account and traffic monitoring. So also item 8 shows that 89.4% of the respondents accepted that client/server network model have provided effective time management and control in ATBU ICT center. Finally, item 9 shows that 78.0% of the respondents believed that client/server network model allows remote monitoring and security control.

3.9 SUMMARY OF FINDINGS

The research findings indicate that:

i) Client/Server model facilitate interface monitoring;
ii) Client/server network model enhance security in networks;
iii) TCP/IP protocol makes implementation of a client/server interface monitoring and management easy and by so doing enhance security of networks;
iv) Client/server monitoring facilitates café time management and control user access to information and guard against security threats;
v) The use of TCP/IP protocol makes implementation of a client/server interface monitoring and management easy and by so doing enhance security of networks;
vi) Client/server monitoring facilitates café time management and control user access to information and guard against security threats;
vii) Client/server network model allows connection monitoring fault account and traffic monitoring;
viii) Client/server network model have provided effective time management and control in ATBU ICT center; and
ix) Client/server network model allows remote monitoring and security control.

4.0 CONCLUSION & RECOMMENDATION

4.1 Conclusion

The importance of client/server monitoring can hardly be estimated as its affects almost every aspects of network and time management in cyber café. This is because, the Internet and its abundant resources have been a source of information to individuals around the globe. Various network monitoring techniques are being undertaken at different levels of application with a view to ensure proper management of time and to monitor interface that may occur between clients and servers of a given café. To this end, the main objective of this research work is to examine how people that gain illegal access into network resources can be prevented through proper network monitoring and optimization in line with profitability and performance.

Client/server interface monitoring model is an extremely important aspect of network monitoring client/server. In a network, the client/server model provides a convenient way to interconnect programs that are distributed efficiently across different locations. Relating to the Internet, your web browser is a client program that request services from a web server in another computer somewhere on the Internet.

The study was able to find out that client/server interface monitoring and management has a significant impact in the study area. The findings indicate clearly that client/server model facilitate monitoring.

In the final analysis, It can therefore be concluded that client/server model ensures network security and positively affects network monitoring and time management as it ensure a proper interface monitoring between clients and servers.

4.2 Recommendations

The recommendations are given under the following factors:

i) Quality network monitoring: café administrators should consider these task: connection monitoring, traffic monitoring, performance monitoring, fault monitoring and account monitoring as it provide better techniques to monitor illegal access into the network.
ii) Security/Authentication: security management guarantees the security of handling administrative work. Meanwhile security management ensures better prevention of illegal network break-ins. This is another critical area that requires more concentration for better prevention of illegal users.
iii) Better timing: cyber café as a means of accessing the internet through the ISP should not rely only on manual timing system for it is effective mostly on users who browse in public centers. Therefore users who are connected remotely should be properly monitored and controlled priority.
iv) Data encryption: data encryption involves the use of some meaningless symbols to ensure data security in the network. It involves the combination of some alphabets, numbers and other signs in making passwords and user name that would be difficult for hackers to break into the computer network. This is critical for effective monitoring management.
v) Firewall: involves hardware and software solutions for effective network monitoring and management.

5.0 ACKNOWLEDGEMENT

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