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Distances wired Relation for different connected of Server-Computer to Client Computers Packet sizes relation for different Distances wired connected of Server-Computer to Client Computers

KamaranHamaAli.A.Faraj¹, Nashih Mohamad Najeb²,

Bahar Saderuldeen Nooor uldeen³, Sara Adnan Anwar⁴

¹Department of Computer, College of Science, University of Suilamani, Sulamani, IRAQ.
¹Department of Computer, College of Science, Cihan University- Sulaimanyia, IRAQ.
²Department of Computer, College of Science, University of Polytechnic, Sulamani, IRAQ.
^{3&4}Department of Computer, College of Science, University of Kirkuk, IRAQ-KGI
¹<u>kamaranfaraj@yahoo.com</u>, ²<u>nasihbarzingi@yahoo.com</u>, ³<u>bahar.noor88@gmail.com</u>³,
⁴<u>s.capative@yahoo.com</u>

ABSTRACT:

Performance Analysis of static website over computer networks with utilized of Unshielded Twisted Pair (UTP) in distances variety which located to the first layer of TCP/IP and called physical layer. investigates of paper is physical layer components (only cable distance) for network Quality of Service (QoS) in private Network (PRN) and Public network (PUT), idea for this paper stems from the fact that computer networks have become more and more popular over the last decade. Internet over networks has a great role to speed up all business and make life much easier, faster; more organize and cheaper Test the performance of the LANs PRN and Dialup PUN. Determinate best response time in PRN will be found out with different cable distance; furthermore the public network PUN will be tested by the distance of cities. Background information on computer networks in general and on Private and Public Networks in particular is provided. The LAN design provided is by no means the only possible way of implementing a Local Area Network. Nevertheless the far-off from the Head-quarter is connected by public network landline telephone. The private and public networks utilized in reason of solving traffic/bottle neck problem. Performance by response time is an important factor and hot topic in the world of computer communication and networking. The constant size of static website installed on Server-side, also connected in different length of cable UTP to clients in order to test and discover lowest response time.

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پوخته

شيكردندومى كاركردنى وييسايتى نەگۆر بەسەر تۆرى كۆمپيوتەر ئەگەڵ بەكار ھينراوى utp ئە جۆرى مەودا كەكەوتە بۆ يەكەم چينى tcp ئاى پى و چينى جەستەى بەناوى . بەم جۆرە utp يەك پيكەاتەى چينى جەستەييە . تويْژينەوە ئە دەكۆئىتەوە پيكھاتەى چينى جەستەييە (تەنھا مەوداى كيّبل) بۆ چۆنيەتى تۆرى خزمت گوزارى qos ئە تۆرى تاييەت حقى و تۆرى گشتى put بيرۆكە بۆ ئەمە قەدى پەرە ئە راستيەوە كە تۆرى كۆمپيوتەر زياتر و زياتر بەناوبانگ بوون بەسەر دواين دە سال ئەنترنيّت به سەر تۆرى رۆليكى مەزنى ھەيە تا ھەمود بازرگانى خيرا بكات و ژيان زۆر ئاسانتر بكات خيراتر زياتر ريك دەخات و ھەرزانتر بە سەر تۆرى رۆليكى مەزنى ھەيە تا ھەموو بازرگانى خيرا بكات و ژيان زۆر ئاسانتر بكات خيراتر زياتر ريك دەخات و ھەرزانتر دىدارى كراو باشترين كاتى ولأم ئە prn دەزانيّت ئەگەل مەوداى كيبلى جياواز سەرەراى ئەوەش يارى وشەى تۆرى گشتى تاقى دەكريتەوە ئەلايەن مەوداى شار زانيارى ئەسەر تاييەت تۆرى كۆمپيوتەر بە گشتى بە تاييەتى دەستەبەر دەكريّت دارشتنى تۆرى كۆمپوتەر دەستەبەرى كرد بە ھيچ شيوەيەك ريگا تەنھا گونجاوەكەى جيبە جى كردنى تۆرى روبەرى ناوچەييە سەرەراى ئەوەشەكە ئە دەور ئەقرى بەسەرداى شار زانيارى ئەسەر تاييەت تۆرى كۆمپيوتەر بە گشتى بە تاييەتى دەستەبەر دەكريّت دارشتنى تۆرى دەمكىيتەودە ئەلايەن مەوداى شار زانيارى ئەسەر تايەت تۆرى كۆمپيوتەر بە گشتى بە تايەتى دەستەبەر دەكريّت دارشتنى تۆرى ئە دووە ئە چارەكەى سەرۆكەرە بە دەبەسترينەرە ئە لايەن تەئەلغونى لاندئىنەي بورى يۇرى روبەرى ناوچەييە سەرەراى ئەوەشەكە ئە دووە ئە چارەكەى سەرۆكەرە بە دەبەسترينەوە ئە لايەن تەئەلەنوى بەتتى گەرمە ئە جىھانى پەيوەندى كۆمپيوتەرو پەيوەندى ئەرەبەستىت قەرەباي نەگۆرى ويبسايتى نەگۆر داى مزراند ئەسەر لاى سىرىغەر ھەروەھا ئە بەستيەرە ئە دريژى جياوازى كىبلى بىلەرەر بو خزمەتە ھەرەباي نەگۆرى ويبسايتى نەگۆر داى مزراند ئەسەر لاى سىرغەر ھەروەھا ئە بەستيەرە ئە دريژى جياوازى كىبل مىبا

المستخلص

تحليل أداء موقع الكتروني ثابت عبر الشبكات مع الاستفادة من التمديدات نوع (UTP) في مجموعة متنوعة من المسافات التي تقع في الطبقة الأولى من TCP / IP، وتدعى الطبقة المادية. هذا البحث يدرس تأثير مسافة الكابل على جودة شبكة الخدمة (QoS) في الشبكة الخاصة (PRN) والشبكة العامة (PUT)، الفكرة تنبع من حقيقة أن شبكات الكمبيوتر السلكية أصبحت أكثر شعبية على مدى العقد الماضي. وبذلك قد حصلنا على أفضل زمن للاستجابة لمختلف المسافات؛ علاوة على ذلك سيتم اختبار الشبكة العامة لمسافات شاسعة تصل الى الشبكة بين المدن.

1. Introduction:

The society we live in relies heavily on communication. Data needs to be shared fast and reliably amongst groups of people that require the latest information almost as soon as it is generated.

Computers are faster and more sophisticated every day, and they are the perfect medium to maintain people in touch. This is the reason for the existence of computer networks (Judson Miers). A computer network consists of a number of computers joined together for the purpose of communicating and sharing resources. Networks can consist of anything from a small number of computers in an office building to thousands of computers throughout the world (Everett Murdock). There are three main types of computer networks: LAN, Metropolitan Area Network (MAN) and Wide Area Network (WAN) (John McNamara). Each of these categories of network has its own rules, which apply to topology or layout, media used (Christopher Dabyal), and protocols needed for optimum performance. In our paper we are concerned with LANs-private network and MAN-public network in particular. Both private and public network is shown in Figure (1). Since our main objective is to advise on the LAN requirements of a prototype real-life business. We aim at producing an informed report on the LAN needs of that business. In order to do this, the network designer must understand how computers communicate. The paper starts with the background used for this research. Then, a brief description of the system performance as well as the trial that took place, subsequently adjscussion of the survey results is present. Finally, the paper finished with a summary and conclusions.



Figure 1: both Private and Public Networks

2. Background

Network or Networking of computers has an important role in nowadays society; from past until now there are lots of modifications occurred in Computer networks and create new computer networks generation. Each generation has improved the computer networks performance (Alexander Gutfraind, Lauren Meyers and Ilya Safro). Thus, the performance and computer generation have a direct relation between them. Increasing of performance is a hot top in networking science and technology. Since researchers make an effort to enhance the network performance, the modifications create new generation. Thus, each modification in performance network is creating new generation; for example Two decades ago, few people had access to a network. Now, computer communication has become an essential part of our infrastructure. Networking computer are everywhere and used in Government, Education, Commerce, military (Faraj. Kamaran). The popularity of computer network is returned to several aspects; time, space, distance, better quality of service (QoS), Speed, power, real time activity[6] and etc. the networked houses or offices the make smarter house or smarter office.Due to design network with effective and efficient to proven designs for maximizing QoS in complex networksmust end with several important criteria (Tim Szigeti, Christina Hattingh, Kenneth Briley). An operational perspective is the ability of the network to service an application effectively, without affecting its performance and functionality (Vikrant Kaulgud). The most important criteria are performance, reliability and security. The performance criteria are mostly considerate for evaluation in our proposed system for testing and evaluation:

Performance

Performance can be measured in many ways, including transit time and response time. Transit time is the amount of time required for a message to travel from one device to another. Response time is the elapsed time between an inquiry and a response. The response time is the elapsed time between end of enquiry and the beginning of the response. The figure (2) Show the performance by response time by elapsed time between end enquiry and the beginning of the response.



Figure 2: performance by response time by elapsed time between end enquiry and the beginning of the response

But, in our proposed system will find out the requesting time transfer and starting file transfer. Figure (3) shows the performance by requesting time by elapsed time between end requesting file transfer and starting file transfer.



Figure 3: requesting time by elapsed time between end requesting files Transfer and starting files transfer.

The performance of a network depends on a number of factors, including the number of users, the type of transmission medium, the capabilities of the connected hardware, and the efficiency of software (B.Forouzan,S.Fergan).

Measurement techniques and tools

The performance measurements could be done by a tool is commonly used for example Ping is very commonly used tool for network. Availability and round-trip delay are measured by Ping and used for our process system in order to test all performance aspect.Ping is the name of a software utility originally written by Mike Muuss (W. Stevens. Keiven, Fall) . Ping measurement notifies the time needs it takes a "packet" of data to travel from client computer to a server on the Internet and return. When occurred delayed responses in Internet applications - this is possible due to a higher than preferred ping. For example packet loss, lower is better when it comes to ping. , it is a very good suggestion to use echo request and echo reply messages to check if the remote host is reachable or not, that is, there is a network connection from the local host to the remote host.The ping command is a very easy way to confirm that your computer connection is active and run a ping test to ensure connectivity. In order to receive a four-line return and a synopsis explaining how much data was transferred from the remote domains and how quickly. If you receive time-outs or slow returns, power cycles a modem and router as a first trouble-shooting step. There is some important information about ping. This information is very important for verify time in millisecond:

1) Go to Start. 2) Click on Run. 3) Type COMMAND and click OK.

4) Once the DOS prompt comes up type the following:

- ping 192.168.0.1 [enter]
- ping 63.72.108.225 [enter]
- ping sbluniv.ac.uk [enter]

All Steps Complete. And all information are shown as below about ping in table (1)

Table 1: describes all ping information and applications that used for designing proposed system.

Ping information	Description
Sent/received:	Total number of packets sent and received
Packet loss (%):	Packet loss in percentage.
Min resp. time:	Minimum response time in milliseconds.
Max resp. time:	Maximum response time in milliseconds.
Average resp. time:	Average response time in milliseconds.

In order to find network latency statistics, the activity must be performed on a connected and worked network. The purpose is to measure and evaluate network latency over time, and during different periods of the day to capture a representative sample of typical network activity. This will be able to by analysing the return delay from a distant computer with the ping command. Return delay times, measured in milliseconds, will be summarized by computing the average latency (mean) and the range (maximum and minimum) of the delay times. The ping is a useful for any network activity or finds out the best performance, also can be used to calculate the round-trip delay to the remote host. Ping software is working as open source, which has resulted in the software that supports almost every OS.

Ping is the measurement of time taken for information to travel from one point to another over a network. For example, Speed of information traveling from client computer to a server or information traveling from any client in an office block to a server (down load a website by any client). A 'ping' estimates around trip time using interval timing responses and will generally give a result that's measured in 'milliseconds'.

Tests and Evaluation

As mentioned in the previews section namely Measurement techniques and tools the Ping is the measurement of time taken for information to travel from one point to another over a network. The results of ping test shows in Figure (4) by command prompt for block office between server and client.

Ping between two computers in an (LAN), one of them is server with the IP first computer is a server 192.168.1.1, and the other are clients with IP second computer is a client 192.168.1.2.



Figure 4: the test result of block office LAN in ping by prompt command

Figure (5) show the ping result by command prompt for block office client and headquarter server, which are far from each other by1.5 miles and connected by landline phone.



Figure 5: the test result of block office client and headquarter server (MAN) in ping by prompt command.

The differences between two results ping test show that there are a comparison in both results cases of PUN and PRN. The result of private network is better than the public network. Distance between client and server is a factor of the result ping test. In general, the response time of the private network is better than the public network. The private network (LAN) is very limited up to hundred meters, but the Metropolitan Area Network (MAN) distance is one mile and half. The results show that private network-LAN is less than the public network-MAN in the fixed distance of hundred meters. Finally all information are shown as below about ping reply (ms) for private and public network in table (2).

Private Network-LAN		public Network-MAN	
ping reply (ms)	amount	ping reply (ms)	
reply one	2	reply one	24
reply two	1	reply two	2
reply three	1	reply three	4
reply four	1	reply four	4

Table 2: describes all ping reply for private and public network.

The table evaluation test show there are a big different between private Network-LAN (PNL) and Public Network-MAN (PNM). In PNL the distance between client and server is hundred meters but the distance between client and server approximately thousand and fife hundred meters. The time response of PNL is much better then PNM.Figure (6) show the ping result for PNL with distancehundred meters, PLM with distance 1.5 miles and connected by landline phone.



Figure 6: show the ping result for PNL with distance hundred meters, PLM with distance 1.5 miles and connected by landline phone. Table 2 show the PNL and PLMresults which are same in send, received and lost.

Private Network-LAN		Private Network-MAN	
ping statics packets		ping statics packets	
send	4	send	4
recieved	4	recieved	4
lost	0	lost	0

Table 2: show the PNL and PLM results which are same in send, received and lost

Finally table (3) show the approximate round trip in (ms) for PNL and PNM. The approximate results between them are very clear and show that the PNL much faster due to the distance. The results of test for round trip from minimum to maximumare affected by the distance and number of users. The higher number of users make the approximate round trip is higher, also longer distance make the approximate round trip is higher.

Table 4. Show the approximate round trip in (ms) for PNL and PNM

Approximate round trip (ms)		Approximate round trip (ms)	
minumum	0	minumum	2
maximum	2	maximum	24
average	0	average	8

Figure (7) show the ping result for round trip by minimum to maximum for PNL and PLM.



Figure 7 shows the ping result for round trip by minimum to maximum for PNL and PLM

Conclusions:

Since new adjustment is introduced in the modern communication, for example LAN and MAN. The ping is software that free to measure reply time, lost packet and round trip. Round trip and reply time have a direct relation to number of users.Distance and number of users are two important factors that affect the result test of round trip (Minimum and maximum) and ping reply.The evaluation is achieved for a limited number of computers in LAN, but the unlimited numbers of users for MAN by landline modem for widows server and clients. The accurate test result found that numbers of users and distance are affected by using of ping.

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