

Suitable network to implement in gaming centre computer science



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In this documentation, is going to propose a suitable network to implement in gaming centre. In order to select the right network, it is necessary to have understanding and knowledge on various types of network, to know the efficiency and reliability of the network, various types of game and requirement, network topology and architecture, ISP package selection, network component.

Follow by types of game that going to provide to the customer, by providing several example of game's requirement for making decision on different types of hardware and software to use in gaming centre. The game requirement is an important role that allows gaming centre to choose the suitable hardware for the computer in the gaming centre in order to achieve customer satisfaction.

In order to allow customer to play online and LAN games with lowest connection latency, the selection of network topology and architecture is important. Due to the gaming centre is going to implement 30 gaming computer for the customer, the right topology and architecture allow customer to play online and LAN game smoothly.

To play an online game with smooth connection, it is required to have good bandwidth of connection speed. Therefore, choosing the suitable package among other Internet Service Provider will be based on the connection speed.

To build a complete and working network for the gaming centre, the major component of network cannot be missed out, which is computer, software,

network interface device, and transmission media. Each of the components has different responsibility in order for a network to be complete.

With the help of research on Internet, the model of device and type of application is recommended base on the specification of the hardware and software. However, these hardware and software may request to change by gaming centre after or before the implementation based on their justification.

Assumption

Below is some of the assumption of the gaming centre and network that going to implement:-

The gaming centre will be providing high-end game to customer.

Customers allow playing offline, online, and LAN games in the gaming centre.

The gaming centre is capable of hosting tournament for different types of online and LAN games.

The computer specification is sufficient enough for most of the high-end game.

The connection bandwidth is capable to handle up to 35 computers in the gaming centre.

The network topology, architecture and device recommended able to achieve the terms of scalability and flexibility for the gaming centre to expanding the business in future.

Limitation

There is some of limitation of the network that may require specialist or admin with relevant knowledge to solve the problem. These limitations may require paying extra attention by admin in order to minimize the lost that cause by it.

The particular networks fail if the centralized device is encountering a problem. This may affect all computers that connected to the device.

The network congestion problem occur when huge numbers of users trying to access the server to obtain the resource from the server.

When the server is down or damage, it unable to handle and provide result of request by the customer such as starting a game.

1. 0 Chapter 11. 1 Introduction

Wendell Odom (2004, pg. 5) states that ' Network, a combination of hardware, software, and cabling, which together allow multiple computing devices to communicate with each other'.

In general, network basically means that numbers of computer being attached together in order to communicate and sharing information using cable. However, without proper configuration and supported software,

communication and sharing information activities can't perform accordingly.

Picture below shows the example of a network.

Figure 1. 1 Computer Network (<http://www.home-network-help.com/wireless-router-as-access-point.html>, n. d.)

In order to create a successful network, it should consist of several parts, which is computer, software, network interface device, and transmission medium. Without any of the important part mention above, it will not call as a network. Computer is electronic devices that allow users to perform certain task easily compare to perform manually. Software is an application that helps' computer to perform most of the task. Network interface device is referring to the device that uses to connect the computer with the internet, example modem, switch, router, and hub. Transmission medium is cable that connects the network interface device with the computer, as well as connects to the internet.

People nowadays know that advantage of network is to share resources and information in shortest time and different geographical location. It helps to evaluate the travel time from one location to another location. Moreover, network also helps increased cost efficiency, this is refer to most of the software are published are costly and required certain amount of time to install. With the help of network, they can stored or install the software on a server so that it can be used by different workstation. In the gaming centre, it allow customer to access to the game play online or LAN games with players within or outside the gaming centre.

1. 2 Type of Network1. 2. 1 Wide Area Network (WAN)

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The gaming centre will be implementing the Wide Area Network, which is a combination of multiple Local Area Networks to allow customer to play online game as well as LAN game at the same time. Example of the WAN is Internet. It combines all the LAN that connected to the internet which allows users to communicate and sharing resource within the LAN or other LAN that connected to the Internet.

Figure 1. 2 WAN (http://wally.cs.iupui.edu/n241_06/files/webMag/index.html, n. d)

The reason of having WAN for the gaming centre is due to the wide coverage of the network. The only resource needed for the gaming centre to implement is LAN that can access to the Internet, then it is automatically becomes part of the WAN.

2. 0 Chapter 22. 1 Computer Game

Mark Stanfield and Thomas Connolly (2008, pg. 25) states that ' The definition of computer games combines the more comprehensive concept of " game" with the use of computer. The ' game' concept represents a structured or semi-structured activity with goal that players try to achieve and set of rules governing its operation.'

Base on the definition, game is referring to a well planned structure that consists of objective for anyone that plays it. However, player is required to understand and obey the rules and regulation of the specific in order to achieve the objective and gain achievement. Meanwhile, computer game is

mean by the game can only be played using electronic devices which is computer.

That the beginning of computer games, there is only offline game available and it required lesser disk space compare to computer games nowadays. Until today, there is plenty type of computer game on the market, such as online games, offline games, LAN games which is local area network games, and every type of computer games had been classified into different categories, for example RPG, FPS, RTS and many more. Offline games is referring to any games that can play by single player and unable to connect through the network and play with other players that playing the same game. An online game is referring to any type of game that can play using Internet and play or compete against other player. Lastly, LAN games is referring to any types of game that can played with other players within the certain area whereby user's computer is connected to a same network. However, there are many games that can allow single player as well as multiplayer.

Every game had its own requirement in order for player to play the games without any foreseen problem, the requirement divided into different categories, such as type operating system, processor, and type of graphic card, numbers GB of RAM, hard disk space, and also DirectX version. However, there is minimum requirement and recommended requirement which allow player to know that the specific game is suitable to play on their computer or not. Minimum requirement is to allow users to run and play the game in a normal performance and loading speed. As for recommended

requirement, users able to run and play the game smoother in terms of performance and higher loading speed.

As a LAN gaming centre, it is necessary to have various type of games provided to customer according to their favourite, and to satisfied the customer, there is certain level of knowing the games requirement and specification so that the centre able to choose the right hardware and software for the computer in the centre. By taking some example of the games requirement, it should be able to help in choosing the proper gadget for the computer.

2. 2 Types of Game

The game chosen to review the game requirement and use it as a reference for selecting the suitable hardware and software for the computer, Starcraft II, Warcraft 3, Counter-Strike: Source, Sudden Attack SEA, and Devil May Cry 4. The example of game chosen included online games, offline games, and LAN games. Online game example for this documentation is Sudden Attack SEA, which is first person shooting game and can only be played while connected with internet. Offline game is Devil May Cry 4 which is role playing game only for single player. Lastly LAN game, the example of game chosen is Starcraft 2 and Warcraft 3, a real time strategy game, and Counter-Strike: Source is a first person shooting game. These three games can be played with other player while connected to the network. However, it can be consider as offline, online game as well, due to these game are able to play with single player or connected to internet and play with or compete against other player.

2. 3 Games Requirement

Figure 2. 1 Sudden attack SEA (online) (<http://www.gx.com.sg/Blog/Blog.aspx?id=7ab57b16-fa13-4f2a-a937-0fb14368fec3>, n. d)

System

Minimum Requirement

Recommended Requirement

CPU

Intel Pentium 4 1. 8GHz or above

AMD Athlon XP2100 or above

Intel Core 2 Duo or above

AMD Athlon 64 X2 or above

Memory

1GB or above

2GB or above (Win Vista/7)

2GB or above

4GB or above (Win Vista/7)

Video Card

128MB or above

256MB or above

Microsoft DirectX 9. 0c compatible Graphic Card

Operating System

Windows 2000/XP/Vista/7

DirectX

Microsoft DirectX 9. 0c or above

Hard Disk Space

3GB free space after game installation

Table 2. 1 Sudden Attack requirement (http://suddenattack.asiasoftsea.net/04-download/04-download_01_01.aspx, n. d)

Figure 2. 2 Devil May Cry 4 (offline) (<http://cineclubecovilha.com/torrent/torrent/Devil-May-Cry-4-DVDDL-Full-PC-Gamedaa/2905/0.html>, n. d)

System

Minimum Requirement

Recommended Requirement

CPU

Intel Pentium 4 processor or better

Intel Core 2 Duo processor or better

Memory

512MB

1GB

Video Card

NVIDIA GeForce 6600 series or better

NVIDIA GeForce 8600 series or better

Operating System

Windows XP service pack 2

Window Vista

Hard Disk Space

8GB

Drive

DVD-ROM Drive

Table 2. 2 Devil May Cry 4 requirement (<http://devilmaycry.org/243/devil-may-cry-4-pc-system-requirements.html>, n. d)

Figure 2. 3 Starcraft II (LAN/Online/Offline) (<http://www.keys4.me/starcraft-2-ii-wings-of-liberty-eu-cd-key-pc.html>, n. d)

For Windows OS

System

Minimum Requirement

Recommended Requirement

Operating System

Window XP/Vista/7 (latest service pack)

Window Vista/7

CPU

2. 6GHz Pentium IV or equivalent AMD Athlon processor

Dual Core 2. 4GHz processor

Graphic Card

128MB PCIe NVIDIA GeForce 6600 GT or ATI Radeon 9800 PRO or better

512MB NVIDIA GeForce 8800 GTX or ATI Radeon HD 3870 or better

RAM

1GB (1. 5GB for Window Vista/7)

2GB

Hard Disk Space

12GB

Others (hardware)

Keyboard/mouse, Internet Connection

Resolution

Minimum 1024? 720 display resolution

DirectX

DirectX 9. 0c

Table 2. 3 Starcraft II: Wings of Liberty requirement (for Windows) (http://us.blizzard.com/support/article.xml?articleId=26242&locale=en_US, n. d)

For Mac

System

Minimum Requirement

Recommended Requirement

Operating System

Mac OS X 10. 5. 8, 10. 6. 2 or newer

Mac OS X 10. 6. 5 or newer

CPU

Intel Processor

Intel Core 2 Duo processor

Graphic Card

NVIDIA GeForce 8600 GT or ATI Radeon X1600 or better

NVIDIA GeForce 9600M GT or ATI Radeon HD 4670 or better

RAM

2GB

4GB

Hard Disk Space

12GB

Others (hardware)

Keyboard/mouse, Internet Connection

Resolution

Minimum 1024? 720 display resolution

Table 2. 4 Starcraft II: Wings of Liberty requirement (for Mac) (http://us.blizzard.com/support/article.xml?articleId=26242&locale=en_US, n. d)

Figure 2. 4 Counter-Strike: Source (LAN/Online/Offline) (<http://www.moddb.com/games/counter-strike-source>, n. d)

For Windows

System

Minimum Requirement

Recommended Requirement

CPU

1. 7GHz processor

Pentium 4 processor (3. 0GHz or better)

RAM

512MB

1GB

Graphic Card

DirectX 8. 1 level graphic card (Requires support for SSE)

DirectX 9 level graphic card

Operating System

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Windows 7 (32/64-bit) / Vista / XP

DirectX

DirectX 8. 1 or above

DirectX 9 or above

Table 2. 5 Counter-Strike: Source requirement (for Windows) (<http://store.steampowered.com/app/240>, n. d)

For Mac

System

Minimum Requirement

Operating System

OS X version Leopard 10. 5. 8

Snow Leopard 10. 6. 3

RAM

1GB

Graphic Card

NVIDIA GeForce 8 or higher

ATI X1600 or higher

Intel HD 3000

Others (hardware)

Mouse, Keyboard, Internet Connection

Table 2. 6 Counter-Strike: Source requirement (for Mac) (<http://store.steampowered.com/app/240>, n. d)

Based on the example of game requirement shown above, it clearly shows that different game have its own minimum and recommended requirement in order to play the game smoothly. Games requirement are usually based on previous version of graphic card or processor that already in the market to allow more player to play the games with their current computer. It also shows that different year of published the game may affected the requirement directly. With the example given for different games requirement, it helps the gaming centre to choose the right hardware for the gaming computer.

3. 0 Chapter 3

3. 1 Topology

The topology choose to implement in the gaming centre is star topology. Star topology is one of the most common topology that used in current days. In star topology, every device is connected to a centralized device such as switch, router, or hub via Ethernet cable. This topology arrangement creates a point-to-point network connection between two devices and overall gives the appearance of a star.

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The reason of implementing the star topology in the gaming centre is the level of flexibility and expandability is high. Multiple star can combine as a hierarchical star and connectivity of the network on one particular computer will not affected other computer that connected to the same network unless the whole centralized device or main cable connected with the modem or router is damaged.

Figure 3. 1 Star Topology (http://tjliu.myweb.hinet.net/COA_CH_12.htm, n. d)

3. 2 Architecture

The architecture that suggested implementing in the gaming centre would be client-server architecture. Client-server architecture is referring multiple user computer connect and interact with one or multiple server that connected within same network. This architecture allows multiple users to submit request at the same time, and the server able to react to the request and provide result to user requested accordingly. Server are usually powerful machine due to the workload is heavy and need to be complete within short period of time.

The reason of implementing client-server architecture to the gaming centre is due to the resource will be kept in the server that connected to the same network with the user's computer. If the gaming centre decides to expand and add more computers to the network, it would be very easy to configure and it won't affect other client's connection with the server.

Figure 3. 2 Client-server (<http://www.javaworld.com/javaworld/jw-10-2001/jw-1019-jxta.html>, n. d)

3. 3 Internet Service Provider

ISP is the companies that provide Internet service to the people by subscribe various packages that give various amount of Mbps and services to the customer. Some ISP also provides modem/router for subscribing their package. The ISP that suggested is TM. Currently TM is promoting high speed broadband called Unifi, these package allow customer to enjoy the speed from minimum 5Mbps up to 20Mbps. For the gaming centre, the BIZ 10 package is sufficient enough for gaming. Below shows some of the key features of the BIZ 10 package:-

Download and upload up to 10Mbps

1 fixed IP

Unlimited usage

2 online guard plus

2 ishield plus

3. 4 Component of Network

In earlier part of documentation, it states that a complete network consists of 4 major components. The components are, computer, software, network interface device, and transmission medium. If lacking either one of the components, a network will not complete.

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3. 4. 1 Computer

Computers, a component that responsible on dealing with the user and connection, to setup, configure and maintain the network. Gaming centre's main objective is to provide good service in terms of game playing satisfaction for customer to gain profit. In customer view, they usually hope to play game without any connection latency problem, or display lagging problem during the game. And also external hardware such as keyboard, mouse, and headphone also must be in good quality to satisfy the customer. In order to achieve the objective, choosing the right hardware for the computer would be important. Due to the computer hardware is updating model and performance frequently, there is impossible for a gaming centre to get a set of latest hardware for computer in the gaming centre, because it is costly. In this case, the computer that installed in the gaming centre would be a customize computer, which means the CPU itself is installed based on buyer's need. Therefore, the computer specification for the gaming centre is shown on table below.

System Component

Device model

Operating system

Windows 7 Ultimate 32-bit

CPU

Intel Core i5 650 @ 3. 20GHz

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RAM

4GB

Graphic Card

ATI Radeon HD 5670

DirectX

DirectX 11

Table 3. 1 Computer Specification

In order for gaming centre to keep the important data and information such as finance report or employee's profile. It is highly recommended to implement server in the gaming centre. Server also allows gaming centre to store the games that going to play by the customer. Customer able to play any games that already installed in the server of the gaming centre, by choosing and click on the games shortcut inside the computer, customer are able to play the game freely.

The model of server recommended to implement in gaming centre is Dell PowerEdge R515 2U Rack Server. It is suitable for storing database, application, email and others file. This model of server consists up to 25TB of internal storage space. And is easy to manage with the help of dell management console, and interactive LCD screen and other features to allow administrator to monitor and maintain the server frequently.

Figure 3. 3 Dell PowerEdge R515 2U Rack Server

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Processors

AMD Opteron™ 4100 series processors

Memory

Up to 128GB (8 DIMM slots) 1GB/ 2GB/ 4GB/ 8GB

Up to 1333MHz

Operating System

Microsoft® Windows® Small Business Server 2011

Microsoft® Windows® Small Business Server 2008

Microsoft® Windows Server® 2008 SP2, x86/x64 (x64 includes Hyper-V™)

Microsoft® Windows Server® 2008 SP2 R2, x64 (includes Hyper-V™ v2)

Microsoft® Windows® HPC Server 2008

Novell® SUSE® Linux® Enterprise Server

Red Hat® Enterprise Linux®

Virtualization Options:

Citrix® XenServer™

VMware® vSphere™ 4.1 (including VMware ESX® 4.1 or VMware ESXi™ 4.1)

Storage Option

Hot-plug Hard Drive Options:

2. 5? SAS SSD, SATA SSD, SAS (10K)

3. 5? SAS (15K), nearline SAS (7. 2K), SATA (7. 2K)

Maximum Internal Storage:

Up to 8TB1-24. 6TB1 (depending on chassis)

Embedded Network Controller

One Dual-Port Broadcom 5716 Gigabit NIC (total of two 1x GB ports)

Drive Bays

Hot-Swap options available:

Up to eight or twelve 3. 5? SAS or SATA, or 2. 5? SAS or SSD drives

Slots

3 PCIe G2 slot + 1 storage slot:

One x8 slot

Two x4 slots

One x4 Storage slot

Power

Redundant 750W hot-plug power supplies

Availability

Hot-plug hard drives, Hot-plug redundant power, ECC memory, and Quad-pack LED diagnostic (12HDD chassis) or interactive LCD (8HDD chassis)

Graphic

Maxtrox G200eW w/8MB

Chassis

8 HDD Chassis

3. 40 H x 17. 19 W x 24. 09 D (in)

86. 4 H x 436. 6 W x 610. 2 D (mm)

12 HDD Chassis

3. 42 H x 17. 53 W x 26. 17 D (in)

86. 7 H x 445. 2 W x 664. 6 D (mm)

Management

Dell™ OpenManage™

BMC, IPMI 2. 0 compliant

Lifecycle Controller enabled via optional: iDRAC6 Express, or iDRAC6

Enterprise and vFlash

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Unified Server Configurator

Table 3. 2 Server Specification (<http://www.dell.com/us/en/enterprise/servers/poweredge-r515/pd.aspx?refid=poweredge-r515&s=biz&cs=555>, n. d)

3. 4. 2 Software

The software that recommended implementing into the gaming centre is Windows 7 Ultimate 32-bit installed in every computer inside the gaming centre due to user friendly. For the server, it is recommended to install Windows small business server 2008. This particular operating system support internet connectivity, internal Web sites, remote access, file and printer sharing, backup and restore to secure all the resource that installed in the server.

For securing the computer in the gaming centre from virus attack and hacking, the antivirus also required to install. The KasperSky anti-virus 2011 is the latest and suitable to protect the computer in gaming centre.

In order to maintain and configure the network easily, the Cisco routers are integrated with Cisco IOS which is an all-in-one network operating system that allow user maintain the network using Cisco IOS Command Line Interface (CLI). With the help of Cisco IOS, administrators can configure, monitor and troubleshoot the system easily.

Last but not least, all the games software or client need to installed into the server to allow customer to access. The reason of installing all games client

is to save time on install and maintain. When a games encounter a problem, <https://assignbuster.com/suitable-network-to-implement-in-gaming-centre-computer-science/>

admin can solve it on the server side compare to install in each pc, admin have to solve the same problem over and over again when problem encounter.

3. 3. 3 Transmission Media

The transmission media used for the gaming centre is Unshielded Twisted Pair (UTP) and wireless. UTP is the most commonly used media for connecting from device to device in various type of network. It consists of eight individual copper wires and each of the wires are covered by an insulating material and twisted around each other.

Upon searching for information regarding UTP (CICSO, 2004) has shown various category of UTP cable.

Category 1 - Used for telephone communications. Not suitable for transmitting data.

Category 2 - Capable of transmitting data at speeds up to 4 megabits per second (Mbps).

Category 3 - Used in 10BASE-T networks. Can transmit data at speeds up to 10 Mbps.

Category 4 - Used in Token Ring networks. Can transmit data at speeds up to 16 Mbps.

Category 5 - Can transmit data at speeds up to 100 Mbps.

Category 5e - Used in networks running at speeds up to 1000 Mbps (1 gigabit per second [Gbps]).

Category 6 - Typically, Category 6 cable consists of four pairs of 24 American Wire Gauge (AWG) copper wires. Currently the fastest standard for UTP.

The reason of having UTP to be implement in the gaming centre is due to the cost for the cable is cheap compare to other type of cables and is easier to install as well. It also can support multiple signals travelling through the same cable.

Figure 3. 3 Unshielded Twisted Pair cable (<http://www.tech-faq.com/utp.html>, n. d)

3. 4. 4 Network Interface Device

For network interface device, is the component that act as the middle man in terms of business, it is connected with the user's computer, and also Internet to handle data transferring, such as modem, router, switch, hub, and bridges. The device that implement in the gaming centre is modem, router, and switches. Each three device have different usage, modem, allow users to gain access to the internet which usually provided by the Internet Service Provider company upon subscribe the package. Router, to allow more than two users to connected and access to the internet, it also allow users to form a LAN. Switches, allow multiple users to communicate and sharing resource within the network.

The router that recommended implementing in the gaming centre is Cisco 2951 Series Integrated Router. This model of routers has the feature shown below:-

3 integrated 10/100/1000 Ethernet ports with 1 port capable of RJ-45 or SFP connectivity

2 service module slots

4 Enhanced High-Speed WAN Interface Card slots

3 onboard digital signal processor (DSP) slots

1 internal service module slot for application services

Fully integrated power distribution to modules supporting 802.3af Power over Ethernet (PoE) and Cisco Enhanced PoE

Security

Onboard hardware acceleration for VPN encryption

Secure collaborative communications with Group Encrypted Transport VPN, Dynamic Multipoint VPN, or Enhanced Easy VPN

Integrated threat control using Cisco IOS Firewall, Cisco IOS Zone-Based Firewall, Cisco IOS IPS, and Cisco IOS Content Filtering

Identity management using authentication, authorization, and accounting (AAA), and public key infrastructure

Voice

High-density packet voice DSP module, optimized for voice and video support

Standards-certified VoiceXML browser services

Cisco Unified Border Element capabilities

Cisco Unity Express voicemail support.

Support for Cisco Communications Manager Express and Survivable Remote Site Telephony

Figure 3. 4 Cisco 2951 Series Integrated Router ([http://www. datavox. net/Products&Services/cisco-2951-router. htm](http://www.datavox.net/Products&Services/cisco-2951-router.htm), n, d)

For switches, one of the most famous and reliable brand is Cisco. Therefore, the model choose to implement in gaming centre will be ESW-520-48P-K9.

This particular model of switch contains 48 ports which mean that it capable to handle 48 devices at a time and it have 4 expansion ports: 2 10/100/1000BAST-T and 2 SFP slot.

Figure 3. 5 ESW-520-48P-K9 ([http://www. telephonyware. com/telephonyware/products/cisco-esw-520-48p-k9. html](http://www.telephonyware.com/telephonyware/products/cisco-esw-520-48p-k9.html), n. d)

4. 0 Floor Plan

Figure 4. 1 Floor Plan

5. 0 Network Diagram6. 0 Appendix6. 1 Practical 1Task A

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List the different types of Unshielded Twisted Pair (UTP) cables commonly found and state the common uses for each. (12 marks)

Category 1 - Used for telephone communications. Not suitable for transmitting data.

Category 2 - Capable of transmitting data at speeds up to 4 megabits per second (Mbps).

Category 3 - Used in 10BASE-T networks. Can transmit data at speeds up to 10 Mbps.

Category 4 - Used in Token Ring networks. Can transmit data at speeds up to 16 Mbps.

Category 5 - Can transmit data at speeds up to 100 Mbps.

Category 5e - Used in networks running at speeds up to 1000 Mbps (1 gigabit per second [Gbps]).

Category 6 - Category 6 cable consists of four pairs of 24 American Wire Gauge (AWG) copper wires. Currently the fastest standard for UTP.

Task B

Identify the components and tools necessary to wire Ethernet cables using the chosen UTP cable. (4 marks)

RJ-45 connector

Crimping tool (AMP modular plug hand tool)

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Cable tester

UTP cable

Task C

For each of the component and tool identified in part (b), describe and illustrate using diagrams where applicable the purpose of each and differentiate the various categories or classifications should they exist. (20 marks)

UTP cable

Figure 6. 1 UTP cable (<http://www.tech-faq.com/utp.html>, n. d)

-Common type of cable that used to connect between computer and network device in most of the network nowadays.

RJ-45 connector

Figure 6. 2 RJ-45 connector (<http://www.or.com.my/products/cable/accessories/>, n. d)

-To connect between RJ-45 interface network device and computer.

Crimping tool (AMP modular plug hand tool)

Figure 6. 3 AMP modular plug hand tool (http://www.laikeet.com/catalog/product_reviews_new-amp-tyco-2-231652-0-modular-plug-hand-tool-crimper.html, n. d)

-A multipurpose tool that can use for stripping the wires jacket and cut the wires into specific length and crimping RJ-45 connector to sealed the wires of UTP in correct place within the jack

Cable tester

Figure 6. 4 Cable tester (<http://networkcable-tester.com/2011/01/14/cable-tester-2/>, n. d)

- To perform a test on the cable when successfully crimped.

Task D

Using separate diagrams, illustrate the different two wire color-code standards for implementing of UTP Ethernet cables. (16 marks)

Figure 6. 5 color-code standard (<http://www.controlcable.com/custom.asp?c=61084321>, n. d)

Table 6. 2 Wiring Standards (<http://www.controlcable.com/custom.asp?c=61084321>, n. d)

Pin #

T568A

T568B

1

White/Green

White/Orange

2

Green

Orange

3

White/Orange

White/Green

4

Blue

Blue

5

White/Blue

White/Blue

6

Orange

Green

7

White/Brown

White/Brown

8

Brown

Brown

Task E

Using separate diagrams, illustrate how the straight-thru and crossover Ethernet cables are implemented for one (1) of the color-code standard mentioned in (d).

(16 marks)

Figure 6. 6 T568B color-code standard straight-thru and crossover

([https://www.brucetambling.com/wiki/Studio1100: Cat_5_crossover](https://www.brucetambling.com/wiki/Studio1100:Cat_5_crossover), n. d)

Task F

Describe the steps to setup an Ethernet cable using the chosen UTP cable. For the steps given include any relevant picture or diagram where possible, to illustrate the steps. (32 marks)

Step 1

Measure the distance between computer and the network device, and leave few inches longer than length measured in order to make room for plugging in the connector.

Step 2

Insert the end of the UTP cable into the stripping hope of the multipurpose tool approximately one inch, then gently press down to cut thru the plastic insulator around the inner cabling without cutting the wires inside.

Step 3

Arrange all the 8 color wires according to T568A or T568B standard and check again when is arranged accordingly.

Step 4

After arrange the colored cables, insert the colored cables accordingly into the port of RJ-45 connector. Check whether all the colored cable been inserted to every single port and still in the correct arrangement.

Step 5

By using the multipurpose tool, put in the RJ-45 connector with colored cables inserted correctly and crimp it

Step 6

Finally, use cable tester to examine the crimped UTP cable is working properly.