Unit 11 Assignment 2- Create and Design a network

The price of the hardware and software

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Hardware | Cost | Where got it from | Software | Cost | Where I got it from |
| Switch  D-link DGS-105 - 5-port 10/100/1000 Gigabit Switch | the cost is £19.49 | D-link DGS-105 - 5-port 10/100/1000 Gigabit Switch <http://www.ebuyer.com> | Microsoft office x3Microsoft Office Home and Business 2016 (1PC) | £119.99 each  For 3 it will costs  £359.97 | Microsoft Office Home and Business 2016  From <https://www.rad-it.co.uk/> |
| Router  ASUS RT-AC66U Wireless Cable & Fibre Router | The cost is £104.99 | This is a ASUS RT-AC66U Wireless Cable & Fibre Router and I got it from <http://www.currys.co.uk/> | Spotify  Image result for Spotify | The cost is free to use the software. | This is a service that you can use to download music and the website I got it from was [www.spotify.com](http://www.spotify.com) |
| 3x high spec computers  Dell Vostro 3250 SFF Desktop | the cost for one is £389.99 and 3 would be  £1,169.97 | The PC is a Dell Vostro 3250 SFF Desktop and the website it was from was <http://www.ebuyer.com/> | Image result for itunesITunes | The cost is free but you will have to pay for same things on the software. | This service is for downloading music and other media like films. |
| Printer  https://encrypted-tbn0.gstatic.com/shopping?q=tbn:ANd9GcQLEANdRXUa4Y3q449sGpSAynVJxHJVH7a4bEK61fcs6iefAY-Kh-ClAX8zAqTCAeAMq2DEJ1c&usqp=CAE | The cost is £56.99 | It is a Epson Workforce printer and the website is <http://www.tesco.com/> | Media player  Image result for Media player | The cost is free because it comes with windows 10 and windows 10 software costs  £99.99 for one computer. | The media player comes with windows 10. |
| 5x Ethernet cable  SANDSTROM SCAT61512 CAT6 Ethernet Cable - 15m | the cost of one £19.99  and five is £99.95 | SANDSTROM SCAT61512 CAT6 Ethernet Cable - 15m  And the website is  <http://www.currys.co.uk/> | Operating systems x3  Image result for windows 10 | the coat is £99.99 for one  and foe 3 it would cost  £299.97 | Windows 10 <https://www.microsoftstore.com> |
| 3x monitors  AOC e2070Swn 19.5" LED Monitor | The cost for one is £59.99 and for 3 is  £179.97 | The monitor is a AOC e2070Swn 19.5" LED Monitor and it come for <http://www.currys.co.uk/> | Internet security software x3  Total Protection 2017 | the cost is £24.00 for one year and I will have to buy one for the second year  £72.00 | it is McAfee  Total Protection 2017 and the website is <http://uk.mcafeestore.com/> |
| 3x keyboards  http://argos.scene7.com/is/image/Argos/9092741_R_Z001A_UC1604914?fmt=pjpg&wid=570&hei=513 | The cost for one is £5.99 and for 3 is  £17.97 | the keyboard is a Trust Classic Line Wired Keyboard and it comes for <http://www.argos.co.uk/> |  |  |  |
| 3x mice  Novatech Wired USB Optical Mouse V2 - Padless | The cost for one is £5.99 and for 3 is  £17.97 | the mice is going to be Novatech Wired USB Optical Mouse V2 – Padless and it comes from <http://www.novatech.co.uk/> |  |  |  |
| 3x HDMI  https://www.quietpc.com/images/products/qpc-hdmi-dvi-2m-large.jpg | The cost for one is £5.99 and 3 are  £17.97 | the HDMI cable is Quiet PC HDMI to DVI 2m Monitor Cable and the website is <https://www.quietpc.com> |  |  |  |

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| --- | --- |
|  | Total cost |
| Hardware | £1,685.27 |
| Software | £755.94 |
| Total of all the hardware and software | £2,441.21 |

Structure for the computer network

The networking components

Switch- The role of the switch is to get information from any component connected on the network to it then it sends the information to the appropriate place. Also the switch is connected by an Ethernet cable from the switch to the other components. And it communicates with the other network components both ways because the computer sends information to the switch and the switch sends information back.

Router- The role of the router is to send packets of data between computer networks and the router performs the directing function on the internet and a data packet sent from one router to another one by the network. Also it can send the data anywhere in the world as long as the place has a IP address. Also it connects to the other devices by using an Ethernet cable and it communicates because the router makes it able for the other components to connect to the internet.

High spec computers- The role of the computer is to be able to use the internet and to use the programs that the operating system has the programs like Word, PowerPoint and Publisher and it connects to the internet by using an Ethernet cable and it communicates both ways by sending information to the router then the router sends information back.

Ethernet cable- The role of the Ethernet cable is to connect the other networking components together and they give the network access to the internet for the computers. Also the way it connects is by plugging the Ethernet cable to the computers then to the router to connect to the internet and this happens for the other components but is connected in a different way.

The software resources

Microsoft Office Home and Business 2016- This software gives me access to all the software programs and can store files in the cloud with OneDrive.

Spotify – This software gives me access to download music and from the software and the software has unlimited skips and a high quality audio.

ITunes- This allow you to download music but for same songs and albums you will have to pay for then allows you to store them digitally.

Media player- This software is a part of windows 10 so it is free and it lets you play music, movies and look at images.

Windows 10- This software is the operating system which has lots of programs and features and it is the most up to date operating system this means that it would be faster and easy to use.

Internet security software- This software allows your PC to be protected from virus, malware and phishing. But no security software is 100% safe.

The names and roles of the people using the network

Manager- the name of the manager is Andrew and his role is to be responsible for the shop and to be leader for all the other employees and the level of access the manager would have on the computer network would be full access. Also has username would be Andrew 1 and the password the manager is 49.#Andrew. and the IP address for computer 1 will be 193|.63|.61|.217

Network administrator- the name of the administrator is Ryan and his role of the would be to manage the network for example make sure the network components are working and doing the role right. Also to control the security of the network and the level of access so the administrator would have full access. Also has username would be Ryan 2 and the password the administrator will have is 14.>Ryan. and the IP address for computer 3 will be 193|.63|.61|.218

Shop floor person- the name of the shop floor person is Sam and his role would be to sell and to manage the stock and the level of access of the shop floor person would be the access permission to access information that are related to the job. Also has username would be Sam 3 and the password he will have is 18.^Sam. and the IP address for computer 2 will be 193|.63|.61|.219

Purpose and requirements of the network

The purpose of the network is to help with the music shop sell it music online and offline and with have the network the shop would be able to sell and download music on the internet and the network would help with stock control because they can make databases for the stock an update when more stock arrives and when it is sold and this would be easier to manage then paper based files.

Furthermore, with the network over time the shop will grow in size and make more money. Moreover, the user requirements are that customers must be able to download music and they would be able to do this because the network has multiple software’s to complete this task. Also one stuff member will have full control and monitor the network and provider any maintains needed like a hardware issues or software issues. Also the network will be secure because I am going to get an internet security software which will protect the network from any malware, phishing, viruses and hackers and the stuff will be teach on how to spot these things and to stop them.

The network will have an operating system and it will be windows 10 which has the must update programs and features and there will be different access permissions for each stuff member and the level of access they get is pick by their job role. Also the network will be configured for the uses to be able add more users, remove user already on the network, changing passwords for users, making the administrator able to change access rights for users, set login restrictions and disable users account if he has to. Also he will set up different utilities like firewalls and instant messaging and the network will have different passwords and usernames for the stuff to access it.

PL

My chosen design

Network design

Stock room

The lines are Ethernet cables

Network administrator office

R

C2

P

Tills

Manger office

C1

Small room for classes

C3

S

C3 = computer 3

C2 = computer 2

PL = phone line

On way

Two way

C1 = computer 1

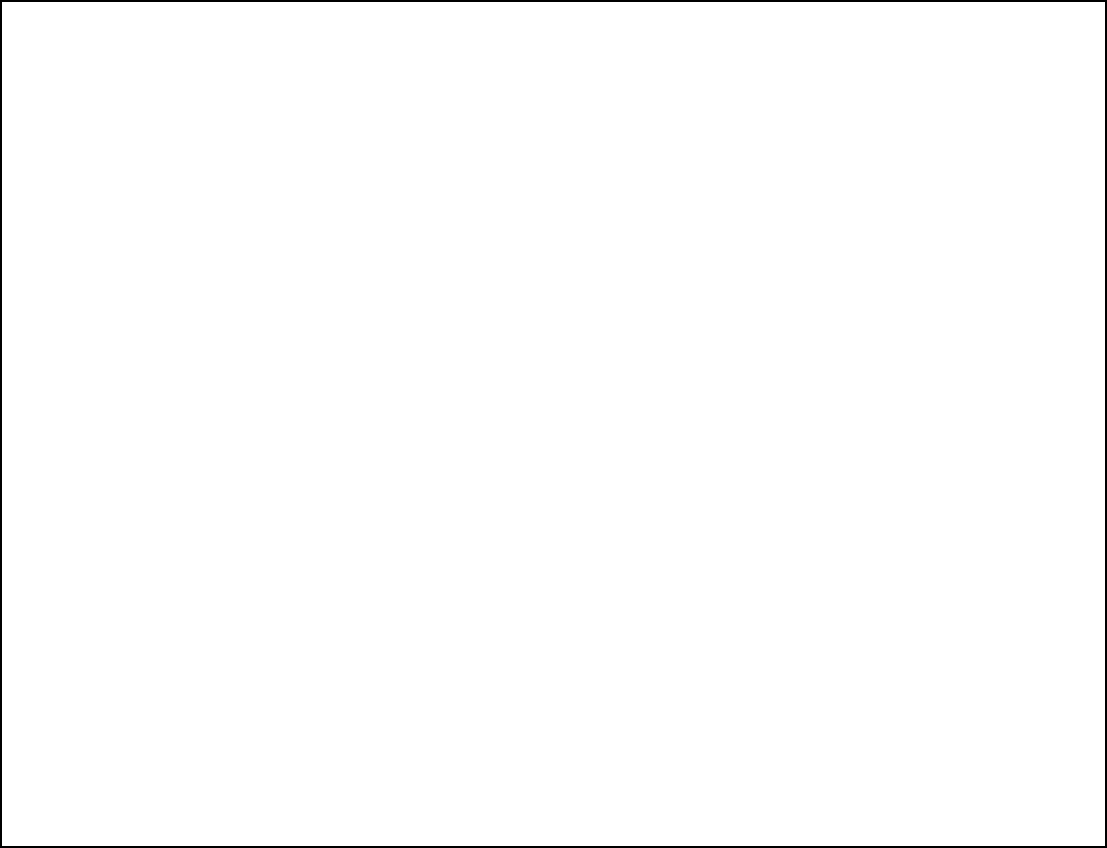
P = printer

R = router

S = switch

Test plan

|  |  |  |
| --- | --- | --- |
| Test | What the test does | Result I think is going to happen and what the real results are |
| Testing computer 1 | Testing the computer would be testing the hardware and the software like testing the hard drive or if it is connected to the network and see if it will turn on. | What I think- I think the computer is going to work and with all the software to.  Real result- |
| Testing computer 2 | Testing the computer would be testing the hardware and the software like testing the hard drive or if it is connected to the network and see if it will turn on. | What I think- I think the computer is going to work and with all the software to.  Real result- |
| Testing computer 3 | Testing the computer would be testing the hardware and the software like testing the hard drive or if it is connected to the network and see if it will turn on. | What I think- I think the computer is going to work and with all the software to.  Real result- |
| Testing the router | The test on the router would be testing if it Is connected to the switch and if it is giving the other systems an internet connection. | What I think- I think the router is go to work as normal.  Real result- |
| Testing the switch | The tests on the switch would be testing that it is transferring the information to the other systems. | What I think- I think the switch is going to work as normal.  Real result- |
| Testing the printer | The tests on the printer would be see if it will print the documents and to test this on all 3 computers. | What I think- I think the printer will print the data as normal.  Real result- |
| Testing monitor 1 | The tests will be testing that the monitor will display all the programs on the screen and if it will turn on. | What I think- I think the monitor will work as normal.  Real result- |
| Testing monitor 2 | The tests will be testing that the monitor will display all the programs on the screen and if it will turn on. | What I think- I think the monitor will work as normal.  Real result- |
| Testing monitor 3 | The tests will be testing that the monitor will display all the programs on the screen and if it will turn on. | What I think- I think the monitor will work as normal.  Real result- |
| Testing mice 1 | This test will be testing if the mice works when it is plugged in and if the mice will work right when it is plugged in. | What I think- the mice is going to work as normal.  Real result- |
| Testing mice 2 | This test will be testing if the mice works when it is plugged in and if the mice will work right when it is plugged in. | What I think- the mice are going to work as normal.  Real result- |
| Testing mice 3 | This test will be testing if the mice works when it is plugged in and if the mice will work right when it is plugged in. | What I think- the mice are going to work as normal.  Real result- |
| Testing HDMI 1 | This test will make me see if the HDMI cable works right and displays the right quality. | What I think- I think the HDMI cable will work as normal putting out a good image  Real result- |
| Testing HDMI 2 | This test will make me see if the HDMI cable works right and displays the right quality. | What I think- I think the HDMI cable will work as normal putting out a good image  Real result- |
| Testing HDMI 3 | This test will make me see if the HDMI cable works right and displays the right quality. | What I think- I think the HDMI cable will work as normal putting out a good image  Real result- |
| Testing the keyboard 1 | This test will show me that the keyboard works when plugged in and that there is no delay when tipping. | What I think- I think the keyboards will work as normal and tip right.  Real result- |
| Testing the keyboard 2 | This test will show me that the keyboard works when plugged in and that there is no delay when tipping. | What I think- I think the keyboards will work as normal and tip right.  Real result- |
| Testing the keyboard 3 | This test will show me that the keyboard works when plugged in and that there is no delay when tipping. | What I think- I think the keyboards will work as normal and tip right.  Real result- |
| Testing Ethernet cable 1 | The test on the Ethernet cable will make me see if the computers are connecting to the internet when the cable is plugged in. | What I think- I think the cables will work and connect the PCs to the internet.  Real result- |
| Testing Ethernet cable 2 | The test on the Ethernet cable will make me see if the computers are connecting to the internet when the cable is plugged in. | What I think- I think the cables will work and connect the PCs to the internet.  Real result- |
| Testing Ethernet cable 3 | The test on the Ethernet cable will make me see if the computers are connecting to the internet when the cable is plugged in. | What I think- I think the cables will work and connect the PCs to the internet.  Real result |
| Testing Ethernet cable 4 | The test on the Ethernet cable will make me see if the computers are connecting to the internet when the cable is plugged in. | What I think- I think the cables will work and connect the PCs to the internet.  Real result- |
| Testing Ethernet cable 5 | The test on the Ethernet cable will make me see if the computers are connecting to the internet when the cable is plugged in. | What I think- I think the cables will work and connect the PCs to the internet.  Real result- |
| Testing Microsoft office 1 | The test that I will do are to see if all the programs on Microsoft office work like Word, PowerPoint and Publisher. | What I think- I think the software Microsoft office will run good.  Real result- |
| Testing Microsoft office 2 | The test that I will do are to see if all the programs on Microsoft office work like Word, PowerPoint and Publisher. | What I think- I think the software Microsoft office will run good.  Real result- |
| Testing Microsoft office 3 | The test that I will do are to see if all the programs on Microsoft office work like Word, PowerPoint and Publisher. | What I think- I think the software Microsoft office will run good.  Real result- |
| Testing Spotify 1 | The test will show if Spotify work like if the downloading of music on the site. | What I think- I think Spotify will work as normal.  Real result- |
| Testing Spotify 2 | The test will show if Spotify work like if the downloading of music on the site. | What I think- I think Spotify will work as normal.  Real result- |
| Testing Spotify 3 | The test will show if Spotify work like if the downloading of music on the site. | What I think- I think Spotify will work as normal.  Real result- |
| Testing ITunes 1 | The test will show me if ITunes works like the downloading of the content and that it has works. | What I think- I think iTunes will run good on the PCs.  Real result- |
| Testing ITunes 2 | The test will show me if ITunes works like the downloading of the content and that it has works. | What I think- I think iTunes will run good on the PCs.  Real result- |
| Testing ITunes 3 | The test will show me if ITunes works like the downloading of the content and that it has works. | What I think- I think iTunes will run good on the PCs.  Real result- |
| Testing Media player 1 | The test on the media player will be able to see if it works on the windows program and to see if it loads up. | What I think- I think the media player will run good on windows 10.  Real result- |
| Testing Media player 2 | The test on the media player will be able to see if it works on the windows program and to see if it loads up. | What I think- I think the media player will run good on windows 10.  Real result- |
| Testing Media player 3 | The test on the media player will be able to see if it works on the windows program and to see if it loads up. | What I think- I think the media player will run good on windows 10.  Real result- |
| Testing the Internet security software 1 | The test on the internet security software will see if the security software stops all forms of internet attacks. | What I think- I think the security software will run good and stop threats good to.  Real result- |
| Testing the Internet security software 2 | The test on the internet security software will see if the security software stops all forms of internet attacks. | What I think- I think the security software will run good and stop threats good to.  Real result- |
| Testing the Internet security software 3 | The test on the internet security software will see if the security software stops all forms of internet attacks. | What I think- I think the security software will run good and stop threats good to.  Real result- |
| Testing Operating systems 1 | The testing of widows 10 would be to see if the system works right and has no problems. | What I think- I think the operating system will run good on all the PCs.  Real result- |
| Testing Operating systems 2 | The testing of widows 10 would be to see if the system works right and has no problems. | What I think- I think the operating system will run good on all the PCs.  Real result- |
| Testing Operating systems 3 | The testing of widows 10 would be to see if the system works right and has no problems. | What I think- I think the operating system will run good on all the PCs.  Real result- |

Alternative design

PL

Small room for classes

Manger office

The lines are Ethernet cables

R

S

Stock room

Tills

C3

C2

P

C1

How the network will be set up and configured

The network will be set up configured which is by using the hardware to connect to each other like the router which connects to the switch which gives internet to all the hardware devices connected to the switch. Also all three of the computers which are connected both ways which means that information can be sent to the computer and information can sent back to the switch from the computer and the switch is connected to the computer by an Ethernet cable.

Also the switch is connecting to the printer one way which means switch sends information from the computers to the printer but the printer does not send information back and the printer is connected to the switch by an Ethernet cable. Also the router is connected to a phone line which is where the internet comes from and allow messages to be sent over a large area and the router can be connected wirelessly which means you can send messages to country’s all over the world.

Also the computers on the network are configured IP addresses and each computer have its own IP addresses and the IP addresses for computer 1 is 193|.63|.61|.217 and the IP addresses for computer 2 is 193|.63|.61|.219 and the IP addresses for computer 3 is 193|.63|.61|.218.

Also all the computers have different users with different access permissions like Andrew who is the store manager who has full access and the administrator which is Ryan who also has full access and both of these people have full access. This is because the manger has to run the store so he would have to monitor the pay of stuff and the amount of stock they have. Also the administrator he needs to be able to help with software problems from people with different access permissions and he would be the only one who would fix hardware problems.

Furthermore, the shop floor person who is Sam and he would only have access to files and information which he is allowed to use to carry out has job because if he has access to all of the files he may delete files without know what they are or change the configure of the network as well. Also the stuff members have their own passwords and usernames which allow them to access the information on the network which there are allowed to access.

Justification

Justify the final design decisions

My final design fulfils the purpose and user requirements because the network designs does have all the hardware components and they are all connected to each other by Ethernet which would allow for a strong network speed. Also the network stability which would help when downloading the music because it will not take very long to download and it will not stop because the network does not disconnect.

Also all the hardware is in the right places to make the network easier to monitor and maintain because the administrator has easy access to the main network components and I have picked the right quality and the components should last a long time and to work good without too many problems. Moreover, the software that I have picked should be right for the network because the operating system is windows 10 which has the must up to date operating system so it will have all the old features and programs from other operating systems and it has new features and programs which will help with the network and the store.

Also Spotify and ITunes will help with the store when try to sell music and people can try music on these websites then they can buy a physical copy or a digital one and you can sell music on these websites as well. Also the network design will fulfil the purpose because the network is design in a very professional way which would the selling of the music because the customers will feel that the shop would be trusted and reliable. Also the network has all the right hardware and software components to get up and running and the right components and it has the right hardware, software and employees for the network to stay up and running for a long time.

The impact of the network constraints

One of the network constraints in my opinion is the cost of the hardware and software components because the network costing so much it would be a long time starting out before the shop would be make a profit but with the high costing components the network would be more reliable and I do not think it would impact the network itself.

Also one other network constraint is how many rooms there are which limits the amount of shop floor space this would not impact the network itself but it would just limit the amount of stock on the shelfs and limit the amount of customers who can go in to the shop at one time but the shop may grow over time.

Furthermore, another impact of the network would be the price of the components and this would be a constraint because when it is time to buy the components some items would have change price then I would not have the right amount of money. Also this would be a constraint because I would not be able to build the network with the components that I wanted and I would have to search and find new ones.

One other constraint would be when the components are being delivered might be damages which slow down the building of the network or if we do not know the item is damage until the network is done which would mean I would have to order a new one or pay for the damaged one to be repaired or they send your item to the wrong address which would slow down the making of the network.

Why the alternative design was rejected

One reason for rejecting the alternative design was because the design did not have a network administrator office and not have one of these would have made it hard to work on the PCs that needed to be repaired and to control network. Also with an office the customers cannot see this going on which would be a good thing because then it would make it hard for thieves to take hardware.

Also have all the hardware component in the mangers office would make it harder for him to work because of all the hardware in the room and the network administrator have to be in there all the time would be hard for both people to do their jobs. Also the design that I have chosen has a bigger shop floor area for the stuff and customers to move an around and for more stock to be put in the area and the lay out of the rooms benefit there use but the alternative design would have the mangers office next to the door which customers can see in inside so it would make it harder for the manger to get on with his work.