Network infrastructure and the servers used for tesco

Government

TESCO is a UK based online grocery store, which boasts of being the largest retailer of grocery items in terms of global sales, on the World Wide Web. Since its inception in 1919, the company has gone a long way to meet thegoalsthat had been set by founder Jack Cohen. Starting off as a single stall of goods, now the company is spread throughout the world through the internet, and with the trend of online shopping on the rise. With big competitors such as EBay and Wal-Mart, TECO had to expand its business by meeting customer needs in minimal costs. Customer needs and demands poured in via internet through various channels.

Customer order processing was improved dramatically by the use of the BizTalk Server. Customer needs specifically increased after November 2005, when the company started TESCO Direct, to start delivering non-foodproducts. Network Wireless LANTechnologyTESCO has been using Wireless LAN Technology They use all wireless network components like routers, Wavelink networking kit and network components. Wireless network has different short comings and these days' wireless products are inexpensive and ubiquitous but at the same time wireless network has many problems and someone can easily configure security setting and start using setup.

Securing wireless setup is an important concern. TESCO took important steps to make their network wireless with highest security. To make wireless network work for a longer period they used IEEE 802. 15. 4 standard. The IEEE 802. 15. 4 and Zigbee have a wide range of applications, including industrial control and personalhealthcare, computer peripherals (Jawad, 2008). The role of policy development and cryptography techniques plus

public key infrastructure (PKI), secure remote access, wireless, and virtual private networks (VPNs), Harden network devices, operating systems, spoofing and hijacking.

Problem TESCO faced with wireless network are: It slowed down Internet performance, anyone can view files on computers and spread dangerous software, he or she can monitor the Web sites visit, read e-mail and instant messages , he can send spam or perform illegal activities with connection. A threat to the secure data on computers comes from both inside and outside users. It may be intended or it may be unintentional and accidental. There are also passive and active threats. Passive threats are those where only secure information is released without affecting the system (Computer Security, 1998).

In case of active threats, information and system both are affected (Computer Security, 1998) and this is mostly intentional. Threats could be from hackers who masquerade for accessing secure data or spreading virus. Insider attacks could come from the loss of confidential secure data by authorized users where as outsider attacks are intentional site invasion or data access by illegitimate users. Creation of trap doors that allow unauthorized person to access information. Virus attacks that may damage important data, files and hardware.

Exhaustion attacks to access passwords or any other encrypt data. Other accidental failures including hazards to equipment and systems. For e. g. , power failures, rain/snow/air storm, earthquakes etc. Solutions that TESCO employed: Following techniques were used to secure wireless network: 64-bit WEP was used, WPA PSK, VPA 2, never broadcast SSID, enable WPA

encryption instead of WEP, and MAC filtering was used to control unauthorized access, disable remote administration, and make sure to reduce transmitter power. All the above method makes network more secure and safer.

WEP is the best solution than anything else but if TESCO also used WPA2 to change encryption once in a month so that wireless would remain secure, never connect unprotected wireless network on computer systems. Encryption is to encode the information into an unreadable format using specific mathematical key. In this way message cannot be read in the hands of unauthorized persons. Only authorized person having the same matching key can decrypt and read the message. TCP was designed for wired networks initially where the packet error rates were far less than what we encounter on the wireless links.

The main assumption which TCP makes is that the main reason for packet loss is network congestion. Wireless losses makes TCP to think that congestion has occurred and thus the initiation of congestion control mechanism occurs, resulting into poor performance. Network Topology If there are multiple computers being used in an institution, they have to operate through a proper network. This network enables each computer to function to its maximum. Data that is transferred across the network is done via a hardware called the media (" Network Topologies", 2008). Network topology is the way the physical wiring of the network is done.

The three network topologies that are mainly employed in companies are, 1. Bus – in this a terminator is used for both ends of the network, a barrel connector may be used for extension. 2. Star – a central hub controls all the

network communications, around which all the other hubs revolve. This can be done around 100 meters from the central hub. 3. Ring – this arrangement is in the form of a ring, which requires a data token for permission forcommunicationof computers. The TESCO company comprises a variety of departments, which are essential for running a smooth networking system.

This enables prevention from fraud, especially, which is feared by many companies. If there is occurrence offailureof any program, there should be an alternative access which reduces chances of productivity being reduced. If the star topology is employed in the company, maximum gains can be achieved, by one hub providing communication to all other hubs linked. The star topology provides expandability and matters can be dealt with ease using this method. The functionality of the star topology depends on the number of hubs attached, which usually are 24 in number (Hallberg, 2005).

There is a great advantage to the star typology, that if only ten ports are attached to the hub, then two hubs can be joined on further requirement of ports. This is because if there are ten ports then only ten devices can be attached for continuous access. This prevents the shutting down of the entire network in case of a mishap. There is a range of cables that can be used in the star typology, among which the fiber cables are of significance. According to Kozel, Art and Armas, Ruben, (2005) " Fiber cabling is used to enhance performance over short distances as well. " This cabling involves speedy actions independent of the distances.

It will prove cost effective and efficient to employ the star topology in the organization, to achieve the networking goal set. Server These needs were to be met by using Microsoft BizTalk Server 2006 and Microsoft SQL Server

2005. For data, fixed and mobile telecommunications, TESCO signed up a deal with Cables & Wireless, to get connected to all chains around the world, under a single IP network. Reference List Online Grocery shop & Delivery Service. Retrieved from http://www. tesco. com/ Wavelink case studies. http://www. wavelink. com/success/cs_files/tesco. aspx TESCO API. http://www. techfortesco. com/forum/index. php