Network Model: Dreamz Inc.

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**Hardware and Software Components for Dreamz Inc.**

The Expansion of LAN requires the various categories of network hardware peripherals and software components to configure the peripheral as per the given specification to support the specific requirement of data communication within the LAN and WAN. It is also considered here that the LAN user access the WAN to connect with regional, branch and head office resources for the business functionalities of Dreamz Inc. The list of hardware and software components is as follows.

**Hardware for LAN**

* Bridge: Source Routing Bridges are used to connect two LANs of different departments such as Human Resource Department, to Engineering Department and Vice Versa, Human Resource Department to Information Technology Department and Vice Versa, Engineering Department to Information Technology Department and Vice Versa.
* Switch: A multi-station intelligent switch is used with each department such as Human Resource, Engineering and Information Technology to distribute the traffic of network with each node or workstation of the individual department. The switch taken to be connected with bridge with one end and all the ports of switch of individual department are taken to connect with the workstations by following the star network topology (Cooper, 2016).
* Server: The server system such as LAN, File, DHCP, Proxy etc are taken with given configuration to setup the LAN under the individual offices. The server configuration must be with Processor – Intel Xenon, HDD – 1 T.B, RAM – 8 GB to smooth handling of client services.
* Ethernet Card: Each workstation PC is installed with 100 Mbps Ethernet Card (Network Interface Card) to connect with LAN channel interface with switch port (Rainoff, 2016).
* UPS: Uninterrupted power supply for each device, servers and workstations computers for constant functioning.

**Software for LAN**

* Operating System: The servers of LANs are configured and installed with Red hat Enterprise Linux Operating system. Each workstation of newly formed LAN must have configured and installed operating system such as Windows 7 or Windows 8 to operate the system. Windows 7 or Windows 8 is being installed on each workstation of individual offices of the Dreamz Inc.
* TCP/IP Protocol Suite: Each Workstation and servers is configured with networking protocol suite like TCP/IP protocol to make the workstation to communicate the information in LAN. A client version protocol suite is being installed on each individual system of newly formed LAN.
* Web Browser: A web browser such as Google Chrome or Mozilla Firefox is being installed on each workstation of individual department. This web browser enables the user to access the LAN server resources like web applications, electronic messaging application etc.
* MS- Office 2010: Each workstation of individual office is being installed with Ms-Office application suite to facilitate the word processing, calculation work, and presentation work for the users and employee of the Dreamz Inc.
* SNMP: Simple Network Management Protocol to remote setup and configuration of network equipments and devices of offices.

**Hardware and Software Components for WAN**

Wide Area Network for Dreamz Inc. is taken with the interface of Public Network such as Internet. An ISP based Connection for WAN is suitable for each offices of Dreamz Inc. Virtual Private Network is being configured to secure the data and information that are being transmitted among the users of one office to others offices for the Dreamz Inc.

**Hardware for WAN**

* Router: A routing device of network which forwards the packets from LANs of offices of Dreamz Inc. to WAN link with defined destination address. This device is configured and installed on each end link of LAN of the individual office.
* Firewall: A network hardware device which is required to be configured and placed with each router to filer the traffic incoming from WAN link and also outgoing from LAN of individual office to WAN link. This device secures the LAN from unauthorized access of LAN resources of the Dreamz Inc.
* Connectors: This hardware equipments are used to connect the cables with male and female ports or sockets of network devices such as router, firewall etc (Jones, 2008).

**Software for WAN**

* VPN Software: A bundle of Virtual Private network software suit that creates the secured end to end security of information between LANs of different Offices.

The Detroit Branch LAN must be configured with the hardware devices that supports the 100 Mbps data are or higher. In this respect the Detroit branch office LAN hardware devices are selected with following advanced configuration.

* Router: Cisco 2621XM is used with this branch WAN link to handle the heavy load like 100 Mbps data at a time.
* Switch: Cisco 2960 with 25 ports has the serial and Fast Ethernet interface to handle 100 Mbps and more data rate. This switch is taken to be configured with this branch.

**Connection Media Specification**

The media are selected with defined specification for the LANs and server connectivity with following specification

* T.P Cat 7: used to connect LAN switch with Server Ethernet Card.
* T.P Cat 6 : Used to connect each workstation system with switch
* Serial Cable : Used to connect router with server of individual office LAN
* WAN: Specified by ISP.

**References**

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