Networking Proposal

Servers

Servers are computers that interact with clients, functioning by sending and receiving information over the network. There are many different types of servers, although not all of them may be useful for this application (Mitchell, 2019). Some of the most useful types of server include:

- Web Servers, which function by serving web pages to public users. This type of service can be essential for modern businesses, as websites can allow the business to target a wider audience and build legitimacy (Ward, 2019). This being said, web hosting is usually outsourced by smaller businesses due to improved support, uptime, security, and cost (Demers, n.d).
- File Servers serve and host data for other computers and servers. They work by either storing data internally as a NAS (network attached storage), or by functioning as the nexus for many external storage devices. Either way, this type of server can help with the security and reliability of business data, with a centralised, potentially backed up, storage method (Know-how, 2019).
- Database Servers host data much like a file server, differing by having the data be structured in a database rather than in a filesystem. These servers host both the data itself alongside a database management system (DBMS), accessed from client software on the workstations the business own (Thakur, n.d). This type of server can be essential for the operation of the business because of the integration with estate agent CMS software, improving productivity and centralising the operation of the business.
- Virtualisation Servers are servers designed to host virtualised sessions, splitting a physical server into many virtual servers with the ability to serve many purposes. This allows for server hardware and cabinet space to be more efficiently utilised through a process called consolidation; combining multiple different functions onto one system, provided processing power permits it, to reduce redundant hardware (Strickland. 2020).

Routers & Modems

Modems are devices that connect to the wider internet or, more specifically, an ISP (Mitchell, 2020). This differs from a router, which is designed to bridge the gap between different networks. In a home network, routers and modems are combined to facilitate the home network being connected to the wider internet (Fischer, 2020). On larger networks, they can be used to differentiate different subnets, allowing for a DMZ or a separate network for a different department. Subnets allow for a corporate network to be simplified, with many different devices falling under one IP address (Beal, n.d).

Switches

Network switches are simple devices that communicates between different devices. There are many types of networking switch, each with different connotations. Managed switches facilitate 'smart' features like SNMP (Dube, 2019), which can gather information about traffic over a switch, and QoS, which can prioritise certain traffic on the switch (Mitchell. 2019). This differs from unmanaged switches, which are simple and only connect devices connected to the switch.

Switches also differ from Hubs, which perform essentially the same function; the connection of devices through ethernet connections. The main difference is that switches are aware of where packets are supposed to be sent, sending them to the correct port using packet switching, whereas hubs send the information to every port, relying on the connected device to drop the packet. This makes hubs less secure and efficient than switches, increasing signal noise and needless data transfers (Fischer. 2020).

Access Points

An access point, whether wired or wireless, allows for devices to connect to a LAN or WLAN respectively. These access points can be useful for facilitating a BYOD policy, allowing for wired and wireless devices to connect to the network much like a static workstation or server. Wireless access points in particular can also be used to extend wireless functionality and signal strength, much like a repeater. For these reasons access points can be essential for the operation of a business, allowing for devices to connect to the company network (Mitchell, 2020).

Firewalls

While firewalls can be implemented in software, hardware firewalls can be greatly advantageous to the security and functionality of a network even while performing functionally the same thing. Hardware firewalls are dedicated pieces of hardware designed to have network traffic pass through and be filtered, greatly enhancing security based around rules that can be implemented to fit the needs of the business. Modern hardware firewalls come preinstalled with many rule sets already, allowing for simple initial configuration and lots of control for fine-tuning (Vasquez, 2019).

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