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PC Server:

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Introduction

A server is a simple PC running software which centrally manages different computing tasks and provides the outcomes to the participating computers or devices in the network. This model is also called a client-server network. A server must consist of the following minimum capabilities:

1. Computing hardware
2. Operating System
3. Server Software
4. Means of connection between devices

1. Computing Hardware

A PC server needs at least the same type of hardware we use in our personal computers. In other words, any personal computer desktop or laptop has sufficient hardware capabilities to become a PC server.

2. Operating System

The operating system being used must have networking support. There is a large array of operating systems being used today such as Windows Server family, Linux based servers like Ubuntu, CentOS, Debian, FreeBSD and more. For our project realization it would be easy to use one of the existing laptop devices as a PC server.

Note: the operating system needs to be installed on a blank PC. However our group members possess laptop computers with a Windows client version already installed. In this case, it would seem appropriate to install a hypervisor and load a server operating system onto the hypervisor software. Below is a short description of this software.

2.1 Hypervisor

Hypervisor is a program which creates a software layer on top of the existing operating system. This layer shares the same hardware resources of the host machine. The hypervisor program makes broad possibilities to install additional operating

systems on top of the host operating system. Two of the most used freeware hypervisor programs are VMware Workstation Player and Virtual Box.

2.2 Ubuntu server

For our project we might want to install an Ubuntu server 16.04 LTS on one of the host machines. This freeware versatile server has an active desktop interface with all the Linux tools and capabilities. Taking into account our knowledge of Linux, it would be best to choose a Linux-based operating system with an interface for the added convenience.

3. Server Software

A PC server might be running various server software simultaneously or each PC server is dedicated to a different task. It is the type of work needed that determines which software is necessary. Server software is usually used for the following purposes:

- Web server: this server insures that a client PC is provided with the right information (text, images, videos …) while browsing a web page.
- Mail server: a mail server organizes all incoming emails and forwards them to the required destination.

4. Means of connection between devices

A PC server needs wired or wireless means to establish a connection with other servers or client devices in the network. For our project it would be convenient to use wireless connection with the client devices, preferably via IEEE 802.11ac standards which uses 5 GHz frequencies. These frequencies are the most stable at the moment which is due to lack of interference with the mostly used 2.4 GHz frequencies.

REFERENCES

(n.d.). Retrieved March 7, 2018, from Cirris Systems: https://www.cirris.com/learning-center/product-articles/software/119-introduction-to-servers

Canonical Ltd. (n.d.). *Ubuntu*. Retrieved March 7, 2018, from https://www.ubuntu.com/server

Shaw, K. (2017, December 19). *Network World*. Retrieved March 7, 2018, from https://www.networkworld.com/article/3243262/virtualization/what-is-a-hypervisor.html

VirtualBox. (n.d.). *VirtualBox*. Retrieved March 7, 2018, from https://www.virtualbox.org/wiki/Downloads

VirtualBox. (n.d.). *VirtualBox*. Retrieved March 7, 2018, from https://www.virtualbox.org/manual/ch01.html

VMware, Inc. (n.d.). *Vmware*. Retrieved March 7, 2018, from https://my.vmware.com/en/web/vmware/free#desktop_end_user_computing/vmware_workstation_player/14_0

Wi-Fi Alliance. (n.d.). *Wi-Fi*. Retrieved March 7, 2018, from https://www.wi-fi.org/discover-wi-fi/wi-fi-certified-ac