Chapter 6

Hardware and Software

In addition to model development and program design, this model has to be installed in the actual system. Hardware and operating system compatible to this model should be considered. They are proposed as follows:

6.1 Hardware

6.1.1 Network Architecture

This company has multiple service centers located in distinct areas and they have already owned telephones to communicate with one another. Hence, it is easy to select network system based on telephone system. **Star topology** is a proposed network architecture for this model.

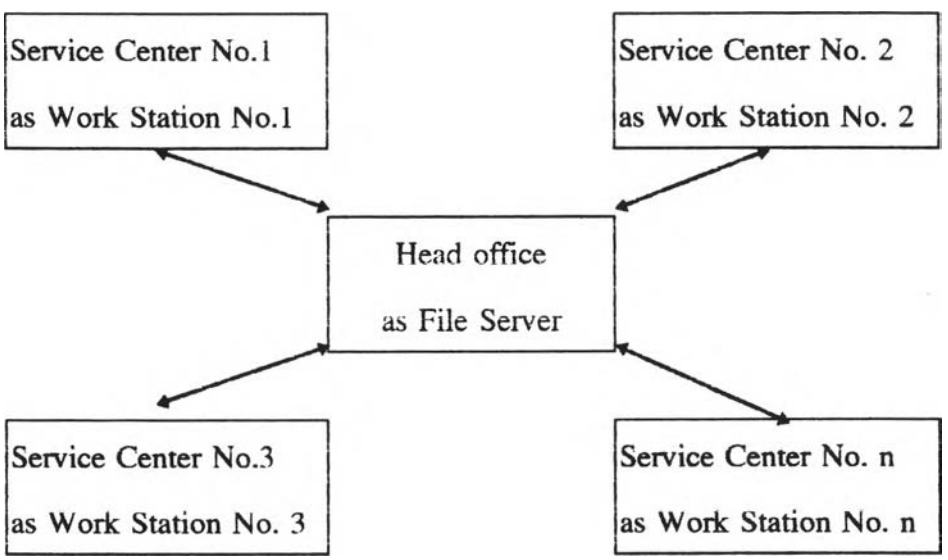

Figure 6-1 : Star topology

This topology is suitable to this company because it has many advantages. First, all data generated are transmitted to file server at head office. File server acts as center to collect all job data from work stations at service centers Management can monitor the data at any time as they want and can assign arrival customer requirement through this channel. In case that a customer contact at head office or any service center working at its full capacity, the new job can be allocated to an available service center based on all service data collected at file server. Second, if this company want to add new service center , they can easily install new work stations without restructuring existing system. In case the operation at any work station has failed. The operation of the rest work stations will have no effect resulted from one failure work station. Last, management can assign priority to all service centers. This is benefit to management to allocate incoming job to operate at optimum workload level of all service centers

6.1.2 Connection between file server and work stations

The computers at service centers will be equipped with **Gateway interface board** and installed software of proposed operating system. These computer will be connected with a **asynchronous modem** which has the minimum speed of 14.4 bps. The modem will connect workstations and file server through telephone line.

6.1.3 Hardware specifications

Another important part of hardware system is computer at head office acted as file server and at service center performed as work station. Their specifications, if possible, should be as modern as possible. However, this company, or any other companies, must firstly continue using their existing hardware. So, it is more suitable to propose minimum specifications for each item:

	File Server	Work Station
1. Microprocessor	Pentium	80486
2. RAM	8MB	2MB
3. LAN card	16 bit	16 bit
4. Monitor	VGA	VGA
5. Hard disk	1 GB	850 MB

Table 6-1 : Minimum hardware specifications

1. Microprocessor

At file server. it should be Pentium because it do processing of all service centers. Not only the processing of this Job Allocation Plan model but also the other processing of other department transaction can share this file server. At work station. it should be 80486 in minimum because this model works on window software.

2. RAM

At file server. the minimum specifications should be 8 MB because it will increase the speed of processing. At work station. it should be 2MB because this software program written for this model require this minimum specifications.

3. LAN card

If possible. 32 bit is preferable. Nevertheless. 16 bit is acceptable.

4. Monitor

At present time. most monitor used is VGA. Thus. this hardware is not a problem to consider.

5. Hard disk

At file server. it must contain data not only from this model but also from other processing . So. it should be minimum at 1GB. At work station. it contains data of that work station. If the processing of any work station is not much. Only 850 MB should be enough.

6.2 Software

There are many brands of software in the market. Each of them has different advantages and disadvantages. However, the selected software system should serve the requirement of existing three service centers and can serve the operation of the new future service centers. It should be compatible to different hardware system. Finally price and after sale service should also meet requirement of the company.

6.3 Operating mode

Although the number of transactions at this time is rather low, the trend of the service activities has increased dramatically. The initial phase of the system may be **Batch Processing.** But when the system changes into maturity phase. **On Line-Real time** is a suitable mode for this company.

In on line-real time mode, the work stations are connected directly to the file server. Transactions are input as they occur and an inquiry from a work station receives an immediate response. This mode is justified to keep all data always update.