

Chapter 1

INTRODUCTION TO PTS

1.1 The Philips Terminal System

The Philips Terminal Systems are a range of computer systems designed to meet the specialised requirements of banks and other financial institutions. The terminal devices from which the system takes its name allow the bank cashiers (or tellers) to perform their duties with a great degree of flexibility and a minimum of effort, under the control of the Application program in the computer. This degree of flexibility for the operator is achieved without making the programmer's job more difficult.

PTS computers normally operate in individual bank branches, where no specialised knowledge of the system is available. Consequently, the traditional role of the system operator does not exist for these machines. The only operating required is to load the application when the bank staff arrive in the morning (a simple matter of pressing two switches) and to ensure that such things as ribbons and paper in the printers are in a satisfactory condition.

Once an application program has been developed for a bank, it can easily be configured for any branch of that bank, no matter how large or small the branch or how many terminals it has. If required, individual terminal devices may be shared between terminals to give even greater flexibility.

PTS computers in the bank's branches may be connected by data communication lines, either to each other or to a mainframe computer. These connections allow the bank to maintain centralised records of all accounts in each branch.

1.2 Hardware

The complete installation in a branch is controlled by the Terminal Computer, a small but powerful general purpose mini-computer. The terminal devices controlled by this terminal computer are used in two different ways, as Front Office Terminals or as Back Office Terminals.

Front office terminals are those used by the cashiers to perform such tasks as customer enquiries and cash transactions.

Back office terminals are those used to produce information used internally by the bank, such as account listings.

Non-terminal devices such as disk drives and magnetic tape equipment are also available. These devices allow a PTS terminal computer to work either fully independently (maintaining its own files), or to store information for transmission to other computers (for example a mainframe) over data communication lines.

1.3 Software

PTS computers are used in two very different environments. Most commonly, they are found in individual bank branches maintaining records of the accounts in those branches. However, the application programs controlling the sequence of events at the operators' terminals are developed in the more specialised environment of a computer department. As the development software is not required to be present in every branch of the bank, two different operating systems have been developed for use on PTS, one for production and one for development.

1.3.1 Production

The operating system used in the production environment is TOSS, the Terminal Operating System Software. The basis of this operating system is the TOSS Monitor, the controlling program generated independently for each application. The Monitor is responsible for scheduling the tasks that control the sequence of events at each terminal and for maintaining the integrity of the system.

1.3.2 Development

The operating system used in the development environment is DOS-PTS, the Disk Operating System. Under this system, application programs may be written, usually in a dedicated language called CREDIT, translated (compiled) and linked to form an executable program. (Testing of application programs is carried out using the production operating system, TOSS.)

1.4 Setting Up a PTS Application System

Any PTS application program is designed around the functions the cashiers (tellers) have to perform, although other functions are of course necessary for the branch's back office. The choice of equipment in a terminal will be determined by the functions that terminal has to carry out, and will be the same for all cashiers performing the same functions in all branches of the bank.

For example, a cashier handling cash accounts processes only small amounts of information in each transaction. This information is nearly always numeric, so the terminal required for this type of operation need contain only a small display, a keyboard with only numeric and 'control' keys (normally referred to as function keys) and a printer to record details of the transaction.

A cashier handling savings accounts processes similar quantities and types of information, but the printed record of the transaction often involves recording the details in a passbook. Thus, the printer for this type of terminal must be capable of printing on an inserted passbook.

However, in the back office much larger quantities of information are processed, and much of this information is alphanumeric. Larger screens and keyboards are therefore required, together with printers capable of producing extensive reports.

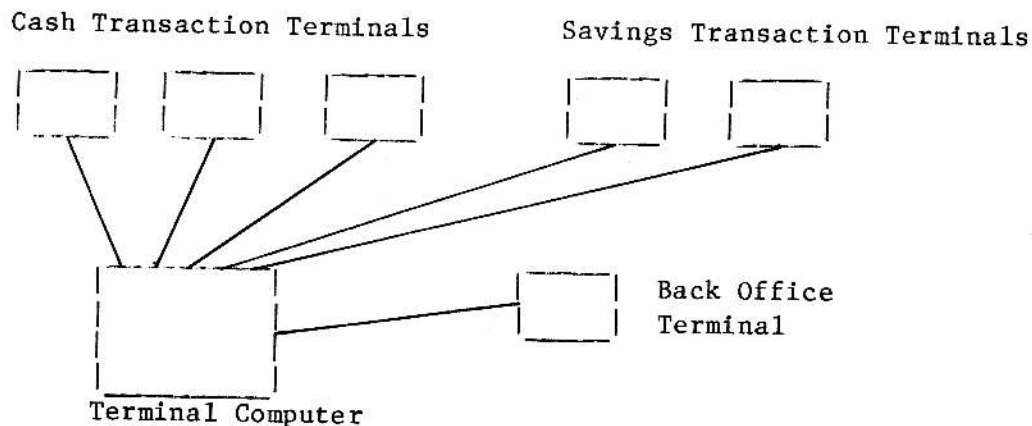


Fig. 1.1 Example Terminal Configuration

Note that the two front office terminal types would probably have the same physical configuration, as the printers available for front office terminals are capable of printing on different types of inserted document. However, as the two types of terminal perform different functions, the system considers them to be different terminal types.

These three different types of terminal would form standard configurations (or Terminal Classes), and this concept is one of the keys to the PTS system. The application software is designed to handle each cashier function via terminals of the appropriate terminal class. The number of terminals which may be included in any particular branch

does not have to be taken into account in any way by the application programmer.

To control and coordinate the activities of the various terminals, a controlling program (the TOSS Monitor) is generated to match the terminal classes defined for the bank's application system. This Monitor will contain only the system software actually required by the application program. Any parts of the system software which are not required (for example for handling devices not included in the application program) are not included in the Monitor, thus reducing its size. Within the Monitor, a 'Task Definition' is established for each terminal class.

Finally, the Monitor and application program must be configured for each branch. This involves setting up a 'task' in the Monitor for each terminal that exists in the branch. Each task is generated from one of the task definitions included in the Monitor when it was generated. Any number of terminals from any terminal class may be configured, and each will have its own task.

Any terminal device may be configured in more than one terminal. It may even be included in terminals of different terminal classes. Thus, in a lightly loaded branch, for example, a passbook printer may be shared between two cashiers. In a small branch, a general purpose printer may be shared between the front and back offices.

The way the terminals in an individual branch are configured is specified in a data file known as the Configuration Data file. This file contains details of the numbers of terminals in each terminal class and the devices to be included in each terminal.

As consequences of this flexible approach, the programmer need not be concerned about the physical hardware configurations in the various branches, and the end-user (the cashier) can perform any of the defined functions without having to worry about whether the relevant hardware is connected to his terminal.