**SYSTEM COMPONENTS**

Not all systems have same structure but many modern operating systems share same goal of supporting the following types of system components.

1. **Process Management**

Operating System manage many kinds of activities ranging from user programs to system programs like printer, name server, file server etc. each of these activities is encapsulated in process. A process includes complete execution context (code, data, PC, registers, O.S. resources in use, etc.).

**Activities**

1. Creation and deletion of user and system processes.
2. Mechanism for process communication.
3. Mechanism for deadlock handling.
4. Suspending and resuming processes.
5. Providing mechanisms for process synchronization.
6. **Main Memory Management**

Primary memory or main memory is a large array of words or bytes. Main memory provides storage that can be accessed directly by CPU. This is to say for a program to be executed, it must be in main memory.

**Activities**

1. Keep track of which part of memory are currently being used and by whom.
2. Decide which process are loaded into memory when memory space became available.
3. Allocate and deallocate memory space as needed.
4. **File Management**

A file is a collection of related info defined by its creator. Computer can store files on disk (secondary storage) which provide long term storage. Some examples of storage media are magnetic tape, magnetic disk etc.

**Activities**

1. Creation and deletion of files.
2. Creation and deletion of directories.
3. Mapping of files into secondary storage (disk).
4. Backup of files on stable storage media.
5. Supporting primitive for manipulation files and directories.
6. **Secondary Storage**

Instruction’s and data placed in primary storage or cache. Because main memory is too small to accommodate all data and programs. Secondary storage consists of tapes, disks, and other media designed to hold info that will be accessed in primary storage. Each location in storage has an address, the set of all addresses available to a program is called address space.

**Activities**

1. Managing free space available on secondary storage device.
2. Allocation of storage space when new files have to be written.
3. Scheduling request for memory access.
4. **Networking**

Distribution system is collection of processor that do not share memory, peripheral devices, or a clock. The processors communicate with one another through communication line called network. The communication network design must consider routing and connection strategies, problems of contention and security.

1. **Protection System**

If computer system has multiple users and allows concurrent execution of multiple processes, then various processes must be protected from one another’s activities. Protection refers to mechanism for controlling access of programs, processors or users to resources defined by computer systems.

1. **Command Interpreter System**

Commands are given to operating system by control statements. When a new job is started in a batch system, or when a user logs on to a time shared system, a program that leads and interprets control statements is executed automatically. This program is called control card interpreter on command line interpreter, which is often known as shell.

Function of this is to get and execute next user specified command. It is an interface of operating system with user.

1. **Input/ Output System Management**

The purpose of operating system is to hide the peculiarities of specific hardware devices from users.

Example: UNIX, peculiarities of I/O devices are hidden from the bulk of operating system itself by I/O subsystem.

I/O subsystem consists of:

1. General device driver interface.
2. Memory management component that includes buffering, catching and spooling.
3. Drivers for specific hardware devices.