

Operating System Assignment - 1

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1 Module - 2

1.1 OS Kernel Flih

In several operating systems -, interrupt handlers are divided into two parts: the First-Level Interrupt Handler (FLIH) and the Second-Level Interrupt Handlers (SLIH). FLIHs are also known as hard interrupt handlers or fast interrupt handlers, and SLIHs are also known as slow/soft interrupt handlers, Deferred Procedure Call.

Interrupts are handled by FLIH in an Operating System. A FLIH implements at minimum platform-specific interrupt handling similarly to interrupt routines. In response to an interrupt, there is a context switch, and the code for the interrupt is loaded and executed. The job of a FLIH is to quickly service the interrupt, or to record platform-specific critical information which is only available at the time of the interrupt, and schedule the execution of a SLIH for further long-lived interrupt handling.

1.2 Role of dispatcher in an OS

A dispatcher is a special program which comes into play after the scheduler. When the scheduler completes its job of selecting a process, it is the dispatcher which takes that process to the desired state/queue. The dispatcher is the module that gives a process control over the CPU after it has been selected by the short-term scheduler

Once the scheduler has selected a process from the queue, the dispatcher comes into the picture, and it is the dispatcher who takes that process from the ready queue and moves it into the running state. Therefore, the scheduler gives the dispatcher an ordered list of processes which the dispatcher moves to the CPU over time.

Example – There are 4 processes in the ready queue, P1, P2, P3, P4; Their arrival times are t_0 , t_1 , t_2 , t_3 respectively. A First in First out (FIFO) scheduling algorithm is used. Because P1 arrived first, the scheduler will decide it is the first process that should be executed, and the dispatcher will remove P1 from the ready queue and give it to the CPU. The scheduler will then determine P2 to be the next process that should be executed, so when the dispatcher returns to the queue for a new process, it will take P2 and give it to the CPU. This continues in the same way for P3, and then P4.

2 Module - 5

2.1 How is management of secondary storage performed ?

Primary memory has limited storage capacity and is volatile. Secondary memory overcomes this limitation by providing permanent storage of data and in bulk quantity. Secondary memory is also termed external memory and refers to the various storage media on which a computer can store data and programs.

The main activity that is performed in secondary storage management is disk scheduling. Most modern computer systems use disks as the primary on-line storage of information, of both programs and data. Most programs, like compilers, assemblers, sort routines, editors, formatters, and so on, are stored on the disk until loaded into memory, and then use the disk as both the source and destination of their processing. Hence the proper management of disk storage is of central importance

to a computer system. Free space management , Storage allocation , Disk scheduling is all possible due to storage management.

2.2 How is co-ordination done for a distributed file system

The Distributed File System (DFS) functions provide the ability to logically group shares on multiple servers and to transparently link shares into a single hierarchical namespace. DFS organizes shared resources on a network in a treelike structure. DFS supports stand-alone DFS namespaces, those with one host server, and domain-based namespaces that have multiple host servers and high availability.

The DFS topology data for domain-based namespaces is stored in Active Directory. The data includes the DFS root, DFS links, and DFS targets. Each DFS tree structure has one or more root targets. The root target is a host server that runs the DFS service. A DFS tree structure can contain one or more DFS links. Each DFS link points to one or more shared folders on the network. You can add, modify and delete DFS links from a DFS namespace. When you remove the last target associated with a DFS link, DFS deletes the DFS link in the DFS namespace.

A DFS link can point to one or more shared folders; the folders are called targets. When users access a DFS link, the DFS server selects a set of targets based on a client's site information. The client accesses the first available target in the set. This helps to distribute client requests across the possible targets and can provide continued accessibility for users even when some servers fail.