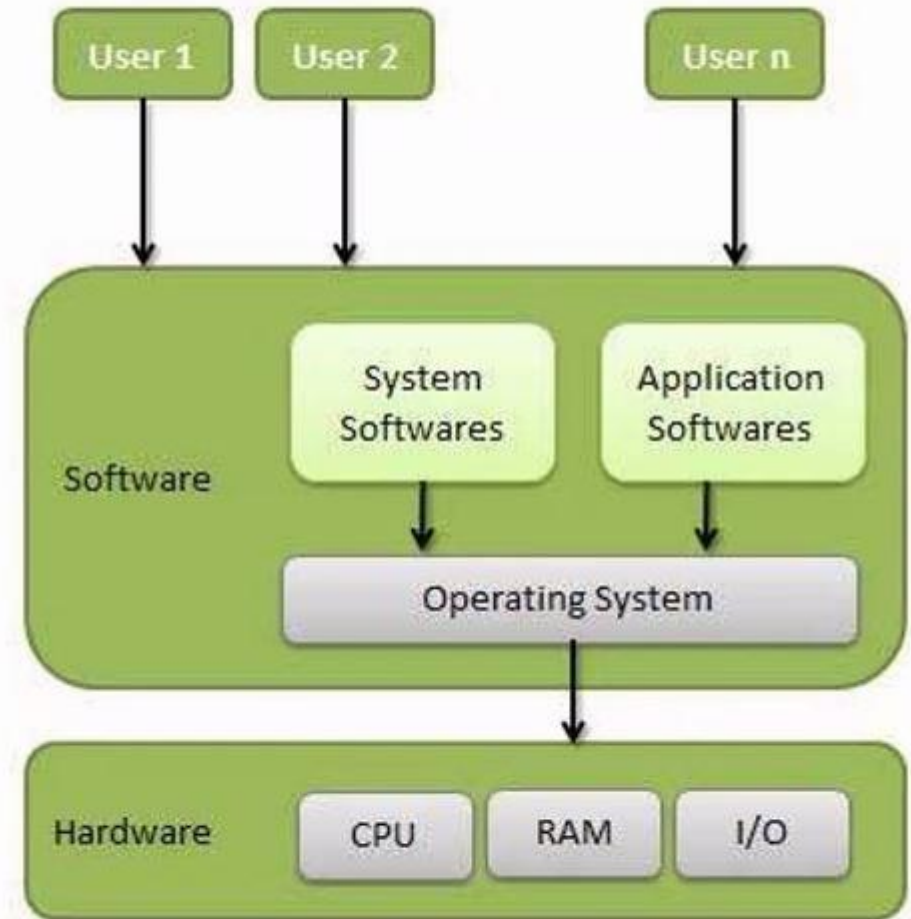


Operating System Concepts

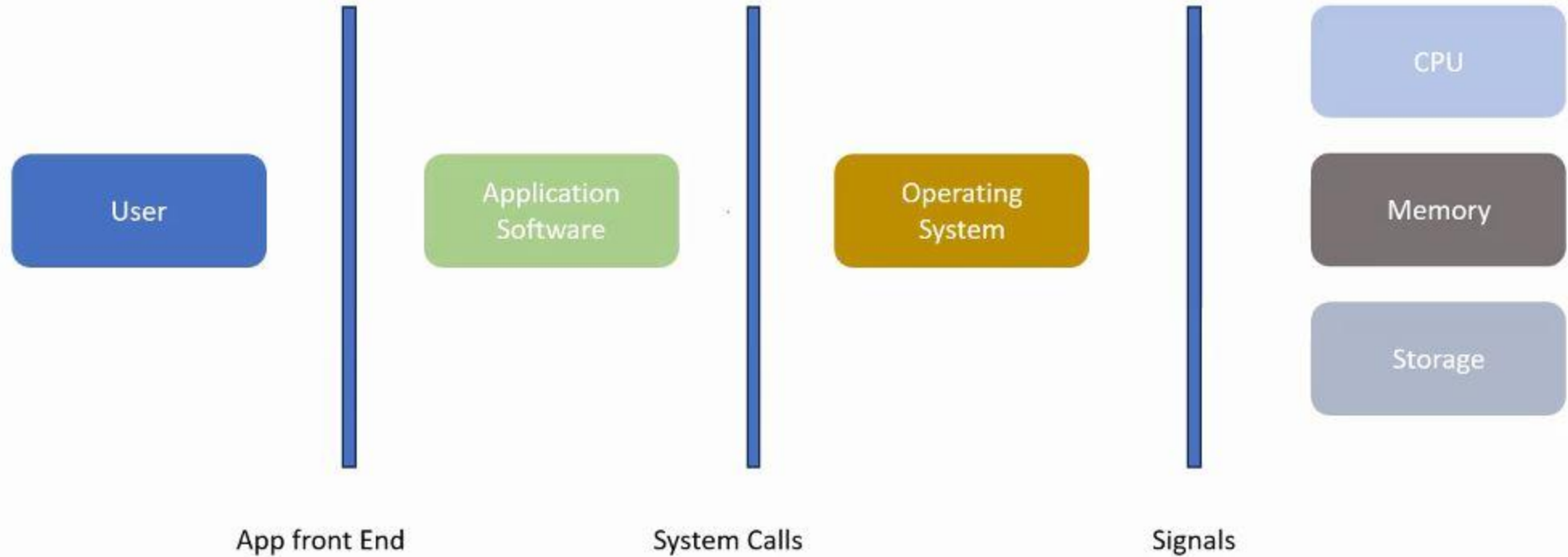
- An Operating System (OS) is an interface between a computer user and computer hardware. An operating system is a software which performs all the basic tasks like file management, memory management, process management, handling input and output, and controlling peripheral devices such as disk drives and printers.
- An operating system is software that enables applications to interact with a computer's hardware. The software that contains the core components of the operating system is called the kernel.
- The primary purposes of an Operating System are to enable applications (spftwares) to interact with a computer's hardware and to manage a system's hardware and software resources.

Operating System Definition and Basic Architecture

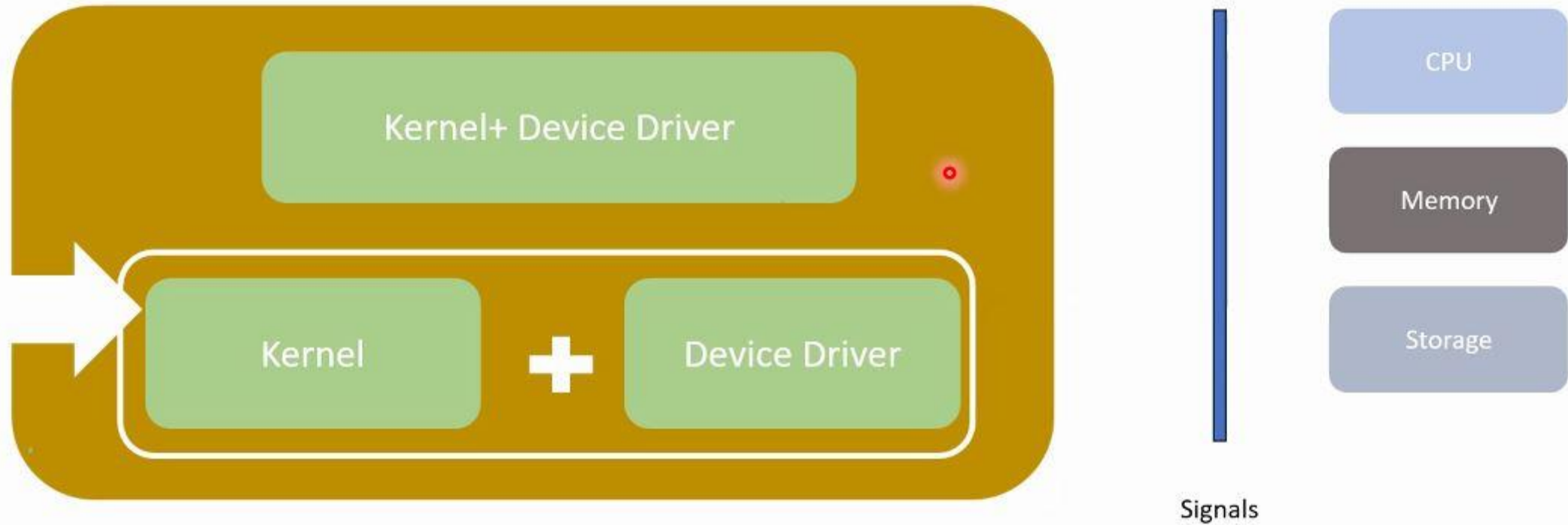
- An Operating System is the low-level software that supports a computer's basic functions, such as scheduling tasks and controlling peripherals.
- An operating system is a program that acts as an interface between the user and the computer hardware and controls the execution of all kinds of programs.
- An operating system (OS) is system software that manages computer hardware, software resources, and provides common services for computer programs.



Operating System Definition and Basic Architecture



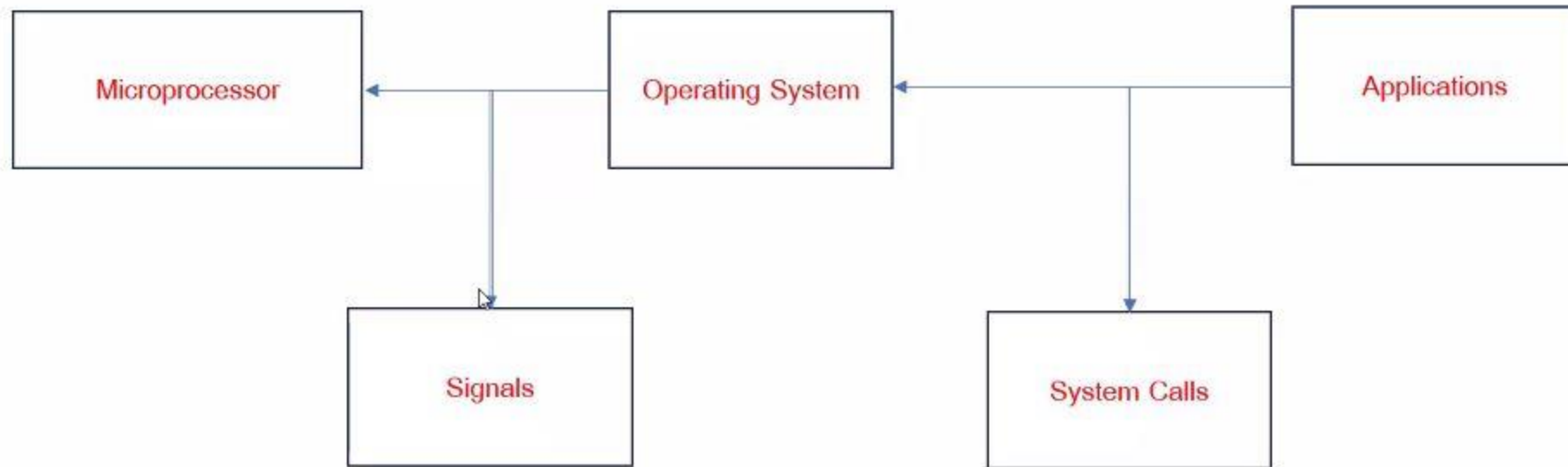
Operating System Definition and Basic Architecture



Operating System Components and Services

- Process Management
- Main Memory Management
- File System Management
- I/O System Management
- Storage Management
- Networking
- Security System
- Kernel
- Command Interpreter
- System Calls
- Signals

Operating System Components and Services



Process Management (Scheduling)

A program in running state is called a process. A process is program or a fraction of a program that is loaded in main memory. A process needs certain resources including CPU time, Memory, Files, and I/O devices to accomplish its task. The process management component manages the multiple processes running simultaneously on the Operating System.

Process Management is responsible for the following activities:-

- Create, load, execute, suspend, resume, and terminate processes.
- Switch system among multiple processes in main memory.
- Provides communication mechanisms so that processes can communicate with each others
- Provides synchronization mechanisms to control concurrent access to shared data to keep shared data consistent.
- Allocate/de-allocate resources properly to prevent or avoid deadlock situation.

A process is a program in execution. It consists of the followings:

- Executable program
 - Program's data
 - Stack and stack pointer
 - Program counter and other CPU registers
 - Details of opened files
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