

1 Limited Direct Execution

Vocabulary

1. Time Sharing

- Is a mechanism used by an OS to share a resource
- Allows an entity to use the resource for a little while, and then a little while by another, and so forth

Example

CPU

2. Limited Direct Execution

- Is synonymous to **baby proofing**
- **Limited** Means there will be a limit to what a processor can and cannot do
- **Direct Execution** Means that the processor will run directly on the CPU

3. User Mode

- Is a processor mode where code that runs is restricted in what it can do

4. Kernel Mode

- Is a processor mode where code that runs can do what it likes, including privileged operations

Example

Privileged operations include

1. I/O requests
2. Executing all types of restricted instructions

5. System Call

- Is a programmatic way in which a computer program requests a privileged service from the kernel of the operating system

6. Trap

- Is a type of synchronous interrupt caused by an exceptional condition that
- Exceptional condition include:

- Breakpoint
- Division by zero
- Invalid memory access
- System Call
- Usually results in a processor switching to kernel mode

7. **Return-from-Trap**

- Is an instruction that
 - Restores saved registers from kernel stack
 - Switches the processor back to **user mode**

8. **Trap Table**

- Is an instruction that
 - Restores saved registers from kernel stack
 - Switches the processor back to **user mode**

9. **Trap Handlers**

10. **System-call Number**

11. **Timer Interrupt**