

Theory

Cole Wallin – 5117843

What is the buffer overflow problem?

Only certain amounts of memory are allocated at any given time, this allocated amount is called a buffer. If a process attempts to write more data than what has been allocated to the buffer, it will overwrite the memory that comes after the bounds of the buffer.

What are the important functions of an OS Kernel?

Process management, memory management, file system, device I/O management, and protection

Identify the steps that are performed by the shell when the user executes the 'ls' command-

1. The shell creates a duplicate child process with the 'ls' command on it.
2. Execute the child process. This execution will replace child process's memory stack with the new stuff loaded from the executable.
3. Wait for the child process to be completed if necessary.

Which of the instructions should be allowed only in the privileged (kernel) mode?

- a) Disable all interrupts. ← This one.
- b) Set the time-of-the day clock. ← This one
- c) Set a timer.
- d) Read from kernel memory. ← This one
- e) Fetch an instruction from kernel memory. ← This one
- f) Read the time-of-the-day clock.
- g) Change the base-bound register values. ← This one.
- h) Turn off timer interrupt. ← This one
- i) Write to kernel memory. ← This one.
- j) Change the program counter ← This one