Overview of user/kernel switch

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⇒ When an OS boots it loads in the kernel mode.

⇒ In kernel mode the OS sets up all the interrupts vectors and initializes all the devices.

⇒ Then it starts first process and switch to user mode.

⇒ In user mode, it runs all the background system.

⇒ Then it runs the user shell.

⇒ Whenever an interrupt is raised, user program switch to kernel mode.

⇒ Interrupts can only be handled in kernel mode.

⇒ Interrupt vectors could only be initialized in kernel mode.

⇒ Programs switch to user mode to request OS services (system calls)

⇒ When interrupt returns, program switch to user mode.

⇒ Most of the CPU time is spent in user mode.

⇒ There is an overhead in switching from user to kernal and vice versa.

Q) How does the HW know if code is to run in user mode or kernel mode.

X-86 protection mechanism. Ring levels.