Questions and Answers on Operating Systems

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Purpose of this Q and A type document

The purpose of this list is to check and enhance the *understanding* of operating systems from an application programming point of view.

Chapter 1. Operating Systems Overview

1. There are reactive, transformative and interactive systems. To which category do operating systems usually belong? Given a mission critical applications (e.g. nuclear power plant control) - would you go for a reactive system? Why or why not?

Chapter 2. Linux

Security

1. Some people claim that Linux is less susceptible to viruses and trojans as e.g. windows versions. Is there some truth behind this statement or is it just folklore? Give social and technical reasons for or against it.

   ### Tip

   Think about barriers between users, the numbers of machines used etc.

Chapter 3. Computer Organization

Events

1. Explain the concepts of polling vs. interrupts. Which does perform better? Under what circumstances would you decide to use interrupts?

Performance

1. Compare programmed I/O with Direct Memory Access (DMA) with respect to performance.

System Architecture

1. Draw a diagram of a small computers architecture with memory bus, I/O controller and Graphics bus. Why are there several bus systems involved?
2. Explain the concept of bootstrapping an operating system. Use the PC BIOS to explain how it works.

Application Design

1. You are supposed to write an application for a hand-held device. It turns out that this device does not sport a memory management unit (MMU). What are the consequences for your application?