Lab 1 - Operating Systems

Kyle Courounis

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1. An advantage of using the same system call interface for manipulating files and devices is efficiency. For instance, a USB storage device is a perfect example of a device where it would be efficient to use the same system call, as it is an external file system. However, with other devices, using the same interface may lead to problems with context. If the device does not share similarities with the file system, it may severely limit what the device is capable of. This is why there are so many generic drivers (this is always fun to look at in Device Manager on Windows) that can be used in multiple contexts.

2. Yes, building a command interpreter on top of the already existing system call interface is possible. Many of these interpreters already have built-in functions for accepting user input, and you can hook into those to add functionality. Many interpreters like Bash and PowerShell already have abstractions that allow you to prompt the user for input, so this would be an easy way to add commands.