

Lab One

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1 PROBLEM ONE

1.1 WHAT ARE THE ADVANTAGES AND DISADVANTAGES OF USING THE SAME SYSTEM CALL INTERFACE FOR MANIPULATING BOTH FILES AND DEVICES?

The advantages of using the same system call interface for manipulating both files and devices include making it less costly and simpler to introduce new devices to the system because the kernel can use the same system calls. In this case the kernel treats devices the same way as it handles files. This approach only requires the programmer to create and maintain one API for both the file structure and device structure. The disadvantages of this approach include limiting the function of some devices. Writing system calls to work for files and all devices requires the system calls to be fairly generic. This could cause information loss in files or limit the performance or functionality of devices in the system. If performance is very critical or very vital information is being worked with it may be beneficial to separate the system calls for files and devices if resources allow it.

2 PROBLEM TWO

2.1 WOULD IT BE POSSIBLE FOR THE USER TO DEVELOP A NEW COMMAND INTERPRETER USING THE SYSTEM CALL INTERFACE PROVIDED BY THE OPERATING SYSTEM? HOW?

Yes it could be possible for the user to develop a new command interpreter using the system call interface provided by the operating system. It should be because the system call interface allows the user to manage and create processes. The command interpreter is also able to dictate the communication methods in the system such as pipes or files. These functions could all be accessible by a program on the user level of the system by existing system calls. The system calls provide access to the kernel's functionality without the user having to do work on or modify the kernel at all.