

<<UNIX操作系统>>

图书基本信息

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内容概要

《UNIX操作系统：依据UNIX内核服务的开发指南（英文版）》是一个源代码操作系统，广泛应用于企业级行业应用领域以及嵌入式设备中。

《UNIX操作系统：依据UNIX内核服务的开发指南（英文版）》全面地、系统地介绍了UNIX操作系统的开发和管理原则、内核服务、shell、计算机联网和应用。

内容包括五个部分：背景以及如何开始、文本编辑器、UNIX的内核服务、UNIX的命令解释以及编程和UNIX的网络连接。

《UNIX操作系统：依据UNIX内核服务的开发指南（英文版）》可作为高等院校计算机专业研究生和高年级本科生的教学参考书，也可供程序设计员参考。

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章节摘录

版权页：插图：When the demand paging handler is invoked during the fork system call, the kernel increments the region reference field of shared regions for the child process. For each of private regions of the child process, the kernel allocates a new region table entry and page table. The kernel then examines each entry in page table of the parent process. If a page is valid, the kernel increments the reference process number in its frame table entry, indicating the number of processes that share the page via different regions rather than through the shared region in order to let the parent and child processes go in different ways after the execve system call. Similarly, if the page exists on the swap space, it increments the reference field of the swap table entry for this page. Now the page can be referenced through both regions, which share the page until one of the parent or child processes writes to it. Then the kernel copies the page so that each region has a private version. To do this, the kernel turns on the copy-on-write bit for each page table entry in private regions of the parent and child processes during the fork system call. If either process writes the page, it causes a protection page fault that invokes the protection handler. Now we can see that the copy-on-write bit in a page table entry is designed to separate a child process creation from its physical memory allocation. In this way, via protection page fault, the memory allocation can postpone until it is needed. The protection page fault can be caused in two situations. One is when a process references a valid page but its permission bits do not allow the process access, and the other is when a process tries to write a page whose copy-on-write bit is set by the fork system call. The kernel has to check first whether or not permission is denied in order to make a decision about what to do next, to signal an error message or to invoke the protection handler. If the latter, the protection handler is invoked. When the protection handler is invoked, the kernel searches for the appropriate region and page table entry, and locks the region so that the page cannot be swapped out while the protection handler operates on it. If the page is shared with other processes, the kernel allocates a new frame and copies the contents of the old page to it; the other processes still reference the old page. After copying the page and updating the page table entry with the new frame number, the kernel decrements the process reference number of the old frame table entry.

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编辑推荐

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本书由刘玉坤、岳勇、郭立炜编著。

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