THE DESIGN OF THE UNIX OPERATING SYSTEM

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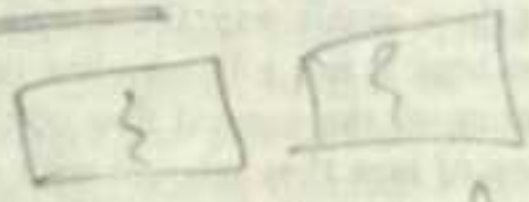
No concept of Multi-threading in Unix.



PREFACE

The UNIX system was first described in a 1974 paper in the Communications of the ACM [Thompson 74] by Ken Thompson and Dennis Ritchie. Since that time, it has become increasingly widespread and popular throughout the computer industry where more and more vendors are offering support for it on their machines. It is especially popular in universities where it is frequently used for operating systems research and case studies.

Many books and papers have described parts of the system, among them, two special issues of the Bell System Technical Journal in 1978 [BSTJ 78] and 1984 [BLTJ 84]. Many books describe the user level interface, particularly how to use electronic mail, how to prepare documents, or how to use the command interpreter called the shell; some books such as *The UNIX Programming Environment* [Kernighan 84] and *Advanced UNIX Programming* [Rochkind 85] describe the programming interface. This book describes the internal algorithms and structures that form the basis of the operating system (called the kernel) and their relationship to the programmer interface. It is thus applicable to several environments. First, it can be used as a textbook for an operating systems course at either the advanced undergraduate or first-year graduate level. It is most beneficial to reference the system source code when using the book, but the book can be read independently, too. Second, system programmers can use the book as a reference to gain better understanding of how the kernel works and to compare algorithms used in the UNIX system to algorithms used in other operating systems.