

Volume 1: The Basic Kernel

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Highlights

- Named as one of Top 10 Books of 1996 by Unix Review Magazine
- Compares UNIX, Windows 3.x, DOS, and Mach treatments of fundamental functions.
- Extensively describes fundamental kernel functions (e.g. bootstrap, memory allocation, and x86 specifics) as well as newer concepts such as dynamic configuration, role-based security, and threads.

About Basic Kernel Source Code Secrets

The "heart" of an operating system is the basic kernel. Like a human heart, the basic kernel provides a complex operating system a fundamental means to distribute resources to all other subsystems in order for them to function independently. Without the basic kernel, no other portion of the operating system can "live". Among these most fundamental of functions are:

- Dynamic Configuration
- Bootstrap/Kernel Program Loading
- Memory Allocation/Management
- Process Credentials and Privileges
- Machine Dependent Elements (X86)
- System Call/Interrupt/Exception Handling
- Context Switching
- Thread Creation and Destruction
- Process Multiplexing
- Files and File Descriptors
- UNIX and BSD API's

In addition to its historical origins, the modularity (italic) and scalability (italic) of the complete kernel is discussed and how its future evolution impacts:

- clustering
- security
- extensibility
- performance

About the Authors

William F. Jolitz and Lynne Greer Jolitz have been principals in a number of Silicon Valley start-ups and have written over 40 feature articles on operating system and network design for major computer magazines, including an unprecedented 17-part serialization of the 386BSD project for Dr. Dobbs' Journal. William was one of the original architects of Berkeley UNIX. Lynne has been involved in the 386BSD project since its inception and has worked with technical operating system and data center issues for over thirty years.