## The Environment

**UNIX features:**

· Complies with major standards

· Manages multiple users simultaneously

· Provides multitasking

· Delivers powerful communications capability

· Provides developer tools

· Includes an integral electronic mail facility

· Provides text preparation and printing services

stations require a relatively large amount of hard-disk storage and random-access memory (RAM) to support UNIX.

The current popularity of the C programming language also continues to keep interest in UNIX high. A Bell Laboratories researcher, Dennis Ritchie, based the C language on B, which was invented by Kenneth Thompson. Ritchie went on to rewrite UNIX in the C language, adding many utilities and programming aids along the way. Today the ties between UNIX and C remain strong, and many C programmers continue to develop applications under UNIX.

The concept of the UNIX Kernel and the UNIX Shell are fundamental to the success of the operating system. The Kernel contains the programs that directly control hardware, such as Input/Output (I/O) devices and the processor. The Shell is the command line interface to the Kernel.

The UNIX Shell interprets programmer or user commands well as choosing between foreground or background execution of tasks and I/O redirection or command chaining. The UNIX Shell acts as the user's interpreter for the Kernel.

Among the more powerful UNIX utilities are a versatile hierarchical filing system and a feature called "pipes." Using pipes, programmers can hook together several simple programs to do something more complex, thereby avoiding the need for new software development. Pipes are typically used with filters, which are commands that take their input from the standard input, perform some transformation--such as restricting the type of input (for example, only those names beginning with the character "H")--and return the result to the pipe. The pipe then redirects the output to the input of another program, thus saving the programmer time spent on design and coding functions.

**Three uses of UNIX:**

· Operating system for large, shared computers

· A single user desktop computer

· A base for multiuser turnkey applications

## Major Uses of UNIX

Timing and fate seem to be as much responsible for current UNIX popularity as anything else. Having matured during the height of the minicomputer marketing phenomenon of the mid-to late 1970s, UNIX was recognized as the only capable operating system that could run on a number of vendors' machines. This portability was also a factor in its popularity in the early 1980s, with the appearance of a new generation of microcomputers that had the processing power of earlier minicomputers. UNIX and Microsoft's XENIX derivative were the only multi-user operating systems that could readily tap these more powerful computer systems.

Each of the following implementations takes advantage of the strengths of UNIX: Digital's VAX uses its multi-user, multitasking power; engineering workstations tap its rich complement of tools; and turnkey systems rely on its software portability and machine independence.