

OPERATION OF A SYSTEM

BACKGROUND

The invention relates to operation of a system such as a computer.

In systems such as computers, an operating environment is defined in which software may be run. Conventionally, an operating environment may be provided by an operating system, such as the Windows® operating system by Microsoft Corporation. An operating system may be software that controls execution of programs and that provides certain support services such as scheduling, input/output control, compilation, data management, and other services.

When a system starts up, a startup routine such as a basic input/output system (BIOS) routine performs certain tasks to boot the system. Near the end of the startup process, the operating system typically is booted. Because of the various services that an operating system typically provides, the time needed to boot and load the operating system may be relatively long. When a user wants to access information stored in a system, the system is turned on (if originally off) and the operating system is loaded so that the appropriate application program or programs may be started to view or update the information. For example, the information may include a calendar or some other list. To access such information, a calendar or other information management application program is run. Having to wait for the operating system to boot and the application to start after a system is turned on delays access to the desired information.

A need thus exists for a technique and apparatus that provides quicker access to desired information and features of a system.

SUMMARY

In general, according to one embodiment, a method of operating a system includes receiving an indication of whether to provide a predefined operating environment in the system and running a routine outside the predefined operating environment if the predefined operating environment is not to be provided. Under control of the routine, requests to access information contained in a storage medium in the system may be received.

Other features and embodiments will become apparent from the following description and from the claims.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a block diagram of an embodiment of a system.

FIG. 2 is a flow diagram of actions performed by various routines or layers in the system of FIG. 1 according to one embodiment.

FIG. 3 illustrates data stored in a non-volatile memory in the system of FIG. 1.

FIG. 4 illustrates software and firmware layers in the system of FIG. 1.

DETAILED DESCRIPTION

In the following description, numerous details are set forth to provide an understanding of the present invention. However, it is to be understood by those skilled in the art that the present invention may be practiced without these details and that numerous variations or modifications from the described embodiments may be possible.

In some embodiments, a system includes a full-feature operating environment (that is provided by an operating

system) and an alternative operating environment that may provide a reduced set of features. The system is able to enter into the alternative operating environment more quickly than to the full-feature operating environment. In this description, the alternative operating environment is referred to as a "Quicknote" environment. The operating system that provides the full-feature operating environment may be a Windows® operating system (e.g., Windows® 95, 98, or NT), a Unix operating system, or other operating systems. In further embodiments, additional operating environments may be provided in the system.

Services provided by the full-feature operating system may include one or more of the following: management of program execution, scheduling, input/output control, compilation, data management, and other services. The Quicknote environment may support a reduced set of features, e.g., providing access to predetermined information or features in the system. According to embodiments of the invention, the system can enter the Quicknote environment more quickly than it can the full-feature operating environment from a system off state. By entering the Quicknote environment, a user may quickly access certain information and features, such as calendar information, address lists, notes, electronic mail, and the like.

In further embodiments, the Quicknote environment may provide access to such features as communication components in the system to enable communication with devices outside the system. Such communication components may include a modem or a wireless communication chip to enable communication over a wired or wireless channel.

Entering the Quicknote environment to access information and features may be particularly advantageous when the user is in a hurry since the user can quickly turn on a system, access the desired information or feature without having to load the full-feature operating system, and exit the system. Later, when the user has more time, the user may boot the full-feature operating system.

According to some embodiments, the system may have several off states: a powered off state (in which power to the system is cut off) and some type of low power state such as a sleep state, suspend state, or soft off state. In some of the low power states, the context of the system may be saved to the hard disk drive or other non-volatile storage medium before the system is powered off. From the powered off state, a startup routine, such as a basic input/output system (BIOS) routine, restarts the system by performing a cold boot sequence which may include initialization of system devices, saving system configuration information, and allocating system resources. From a low power state in which system context has been saved in some non-volatile storage medium, the BIOS routine may resume operation of the system from the saved system context information.

As examples, the off states may include states defined under the Advanced Configuration and Power Interface (ACPI) Specification, Revision 1.0, dated Dec. 22, 1996. Example off states as defined by the ACPI specification include a mechanical off state (in which power is cut off from components in the system), a soft off state, and several sleep states. In some of the defined sleep states, system context is lost. To resume from one of these states to a working state, a BIOS routine restores some settings from a non-volatile storage medium and control is passed to the operating system, which may resume executing from an address location stored before the system entered the sleep state. Other off states may include those defined by the Advanced Power Management (APM) BIOS Interface Specification, Version 2.1, dated February 1996.