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Waite et al.

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[54] **SECURE SYSTEM FOR ACTIVATING PERSONAL COMPUTER SOFTWARE AT REMOTE LOCATIONS**

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[51] Int. Cl.⁵ **H04L 9/32**

[52] U.S. Cl. **380/4; 380/25; 380/49**

[58] Field of Search **350/53, 4, 23, 25, 49, 350/50; 371/37.7; 364/246.9, 286.4-286.6, 949.81**

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[57] **ABSTRACT**

A process and system for activating various programs are provided in a personal computer. The computer is initially provided with a portion of a main program. A data link is established between the personal computer and a registration computer. By providing the registration computer with various information, a potential licensee can register to utilize the program. Once the registration process is complete, a tamperproof overlay program is constructed at the registration computer and transferred to the personal computer. The tamperproof overlay includes critical portions of the main program, without which the main program would not operate and also contains licensee identification and license control data.

13 Claims, 3 Drawing Sheets

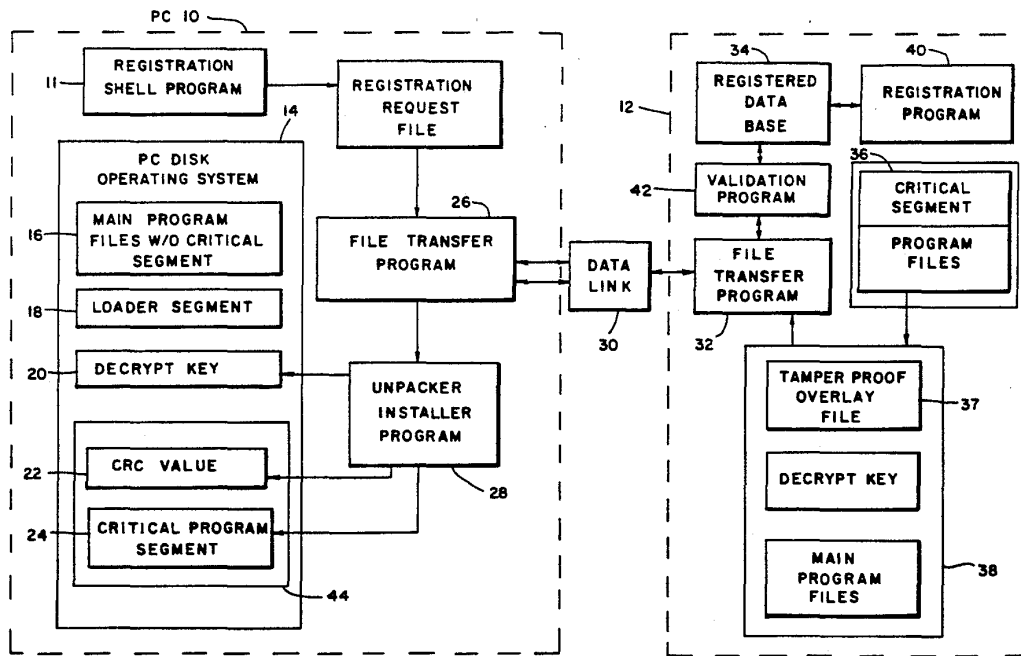


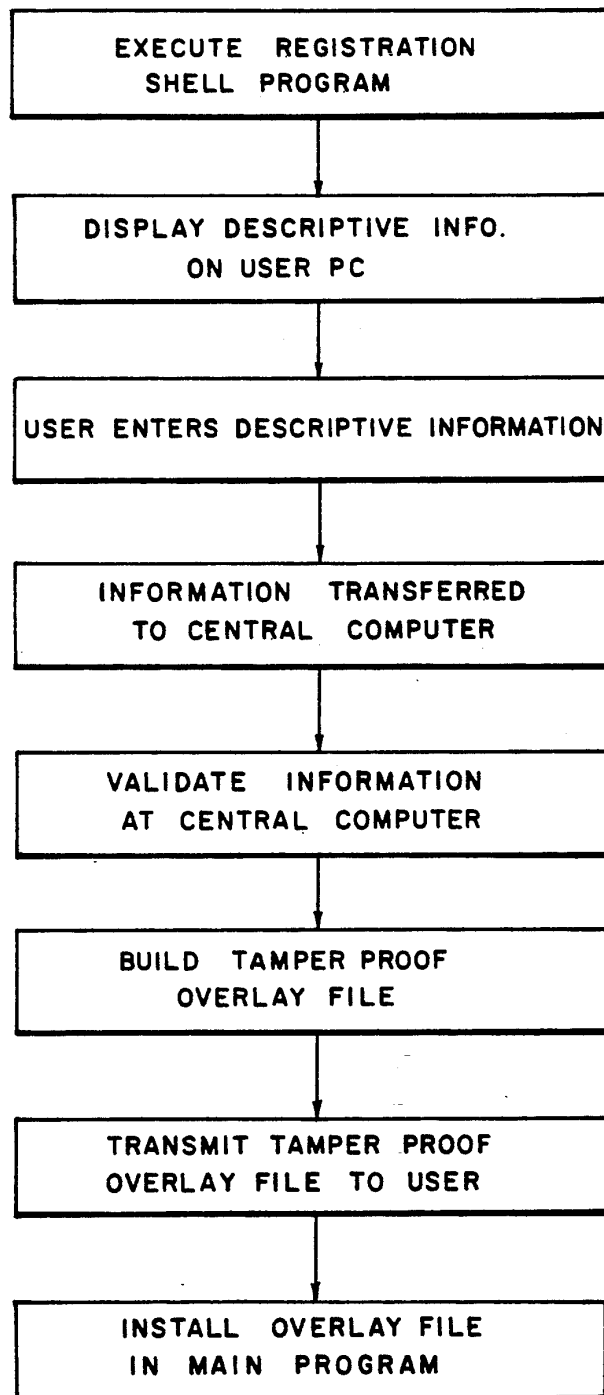
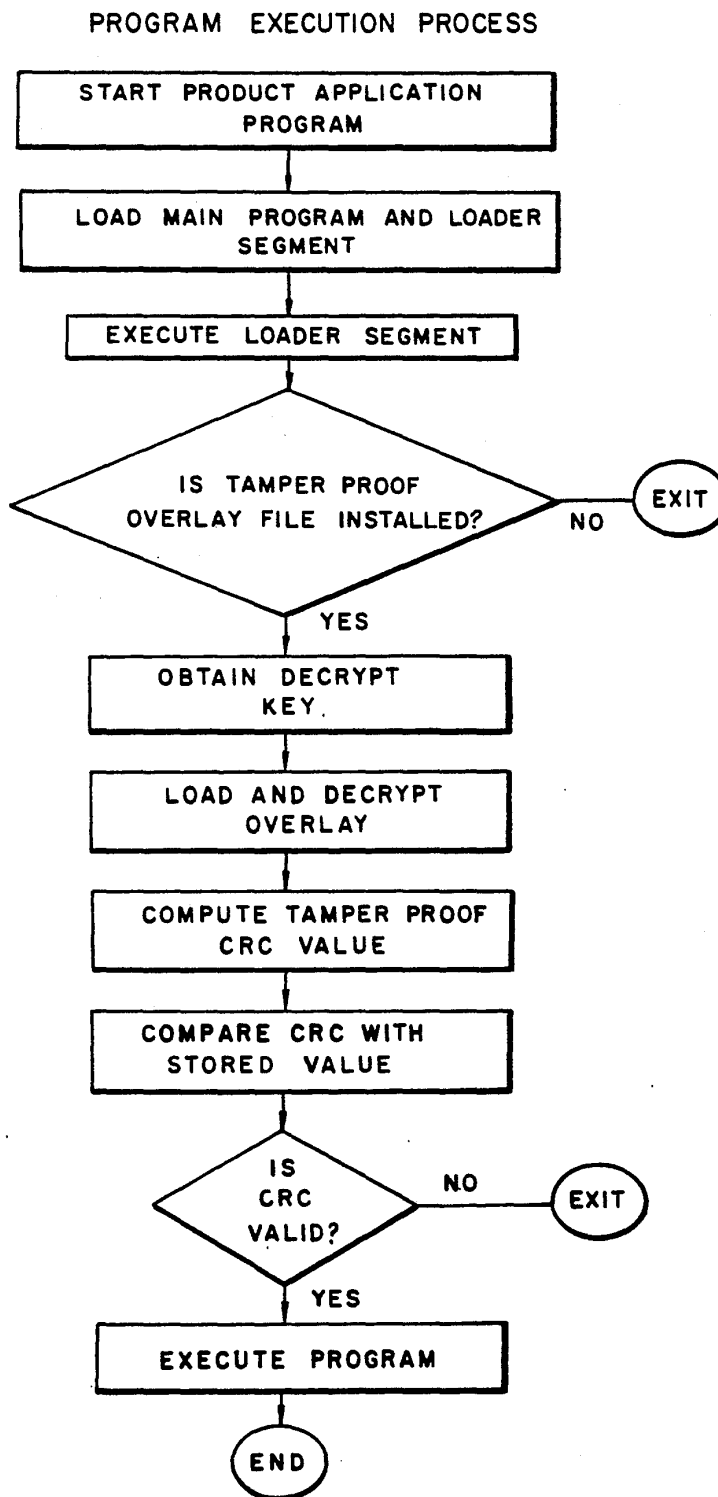
FIG. 1.**REGISTRATION PROCESS**

FIG. 2.



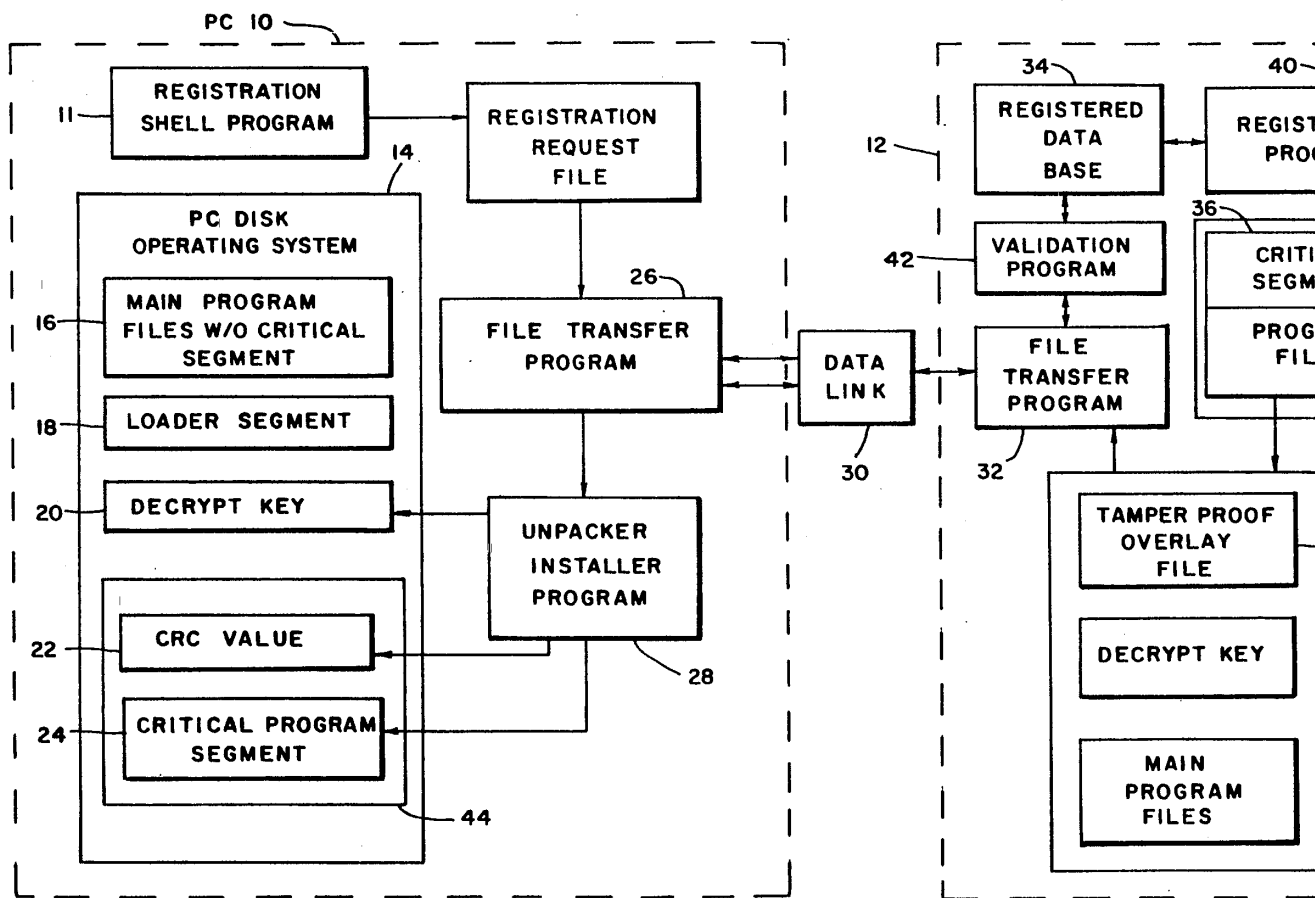


FIG. 3.

SECURE SYSTEM FOR ACTIVATING PERSONAL COMPUTER SOFTWARE AT REMOTE LOCATIONS

BACKGROUND OF THE INVENTION

Generally speaking, most users of personal computers or similar devices obtain additional computer software to run on their devices by purchasing this software in various retail outlets or by obtaining this additional software through the mail. In both situations, a "shrink-wrap" material encases the software product and a license agreement is implied by the removal of the shrink wrap material in an endeavor to protect the licensor of the product from unauthorized copying and use of the product by the licensee/purchaser. This method of doing business has proved to be inadequate for both the licensee and the licensor. For example, the licensee is not given an opportunity to initially operate the software program to determine whether this program would suit the licensee's needs. Additionally, from the licensor's point of view, identification of the licensee and a means of controlling or monitoring the use of the program by the licensee are not provided by this technique.

Consequently, a method and system for allowing a potential purchaser/licensee to test a software program prior to purchasing the product is needed. Furthermore, a method and system in which the licensor is afforded protection as well as more precisely monitoring the licensees is warranted.

BRIEF DESCRIPTION OF THE INVENTION

The present invention is directed to a method and a system for permitting personal computer software programs or other types of programs to be distributed in an inactive condition. Subsequently, based upon various criteria, the program will be made active due to a particular transaction between the purchaser/licensee and the seller/licensor. Although the relationship between the seller and the purchaser need not be a licensor/licensee agreement, for the purposes of the present invention, we will refer to the seller as the licensor and the purchaser as the licensee or user. Once the licensee agrees to the terms of the particular transaction, licensee identification data is provided to a registration computer. The registration computer records the transaction and provides certain essential segments to the licensed program. These segments are both tamper-proof and unique to the identified licensee. Based upon this exchange of information, the computer program that was inactive becomes operational.

Generally speaking, the inactive or unusable software programs are first distributed to potential licensees by physically conveying copies of a master on magnetic media, or by electronic transfer. Additionally, these programs may be broadcast as electromagnetic information, or they may have been included as firmware or hardware logic in the personal computer at the time of manufacture. These programs contain all of the segments of a particular program code except for a critical segment of an operational control loop without which the program process is incapable of sustained operation. Additionally, special program modules called a loader segment and a registration shell are distributed with the inactive software program. Once all of the appropriate information is relayed to the registration database computer, the essential segments of the particular program

are transferred or transmitted as a tamperproof overlay file to the registration shell and installed on the personal computer. Subsequently, the loader segment will activate the main program by providing the essential segment each time the main program is loaded for execution.

Security features are included to prevent execution of the main program files with counterfeit, altered, or unauthorized essential segments. Security features are also included to ensure that all copies of the activated program will include unique licensee identification data, thereby allowing unauthorized copies to be traced to the original licensee.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. I is a flow diagram of the registration process according to the present invention;

FIG. II is a flow diagram of the program execution process according to the present invention; and

FIG. III is a block diagram of a typical personal computer and central computer according to the teachings of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

The purpose of the present invention is to allow a licensor to maintain accountability of its programs in a manner much more efficient than presently being utilized. Additionally, a second purpose of the present invention is to allow a licensee or user to test a particular program before it is purchased or licensed. Therefore, it is contemplated that the teachings of the present invention are considered to be comprehensive and that any software program could be used.

Initially, a particular program which does not contain a critical or essential segment is provided in a personal computer or other device on a magnetic disc, firmware, hardware, or other means. However, in the case of small or extremely valuable programs, the essential segment may be the entire main program. Additionally, a registration shell program is also included with the particular program. However, due to the exclusion of the critical segment, the program would not operate without the implementation of the proper registration process. As shown in FIGS. I and III, this registration process is initiated utilizing a registration shell program 11 in the personal computer (PC) 10 as well as a registration program 40 provided in a registration computer 12. Although it is contemplated that the registration shell program would be distributed along with the product application program, this need not be the case. A registration system program is provided in the registration computer 12 and is accessible to the registration shell program 11 by an electronic data link 30. The electronic data link may be a local area network, a telephone modem link, or any other type. However, it should be noted that in a second embodiment, the registration shell and the registration system programs could be on the same medium, but separate from the product application program. In this instance, the transportable media containing the registration shell and the registration systems program are personally transported to the personal computer 10 of the user by a licensed installer, and no electronic data link is needed.

The registration shell program is executed when the user first attempts to execute the product application program provided in the main program file 16 of the PC

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