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United States Patent [19]

Aziz

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[54] **METHOD AND APPARATUS FOR SECURE REMOTE AUTHENTICATION IN A PUBLIC NETWORK**

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[73] Assignee: **Sun Microsystems, Inc.**, Mountain View, Calif.

[21] Appl. No.: **253,802**

[22] Filed: **Jun. 3, 1994**

[51] **Int. Cl.**[6] **H04L 9/00**

[52] **U.S. Cl.** **380/25**; 380/21

[58] **Field of Search** 380/4, 21, 25, 380/49, 50; 340/825.34

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Attorney, Agent, or Firm—Irell & Manella LLP

[57] **ABSTRACT**

A client workstation provides a login address as an anonymous ftp (file transfer protocol) request, and a password as a user's e-mail address. A destination server compares the user's e-mail address provided as a password to a list of authorized users' addresses. If the user's e-mail address is located on the list of authorized users' addresses maintained by the destination server, the destination server generates a random number (X), and encrypts the random number in an ASCII representation using encryption techniques provided by the Internet Privacy Enhanced Mail (PEM) procedures. The encrypted random number is stored in a file as the user's anonymous directory. The server further establishes the encrypted random number as one-time password for the user. The client workstation initiates an ftp request to obtain the encrypted PEM random number as a file transfer (ftp) request from the destination server. The destination server then sends the PEM encrypted password random number, as an ftp file, over the Internet to the client workstation. The client workstation decrypts the PEM encrypted file utilizing the user's private RSA key, in accordance with established PEM decryption techniques. The client workstation then provides the destination server with the decrypted random number password, which is sent in the clear over the Internet, to login to the destination server. Upon receipt of the decrypted random number password, the destination server permits the user to login to the anonymous directory, thereby completing the user authentication procedure and accomplishing login.

20 Claims, 4 Drawing Sheets

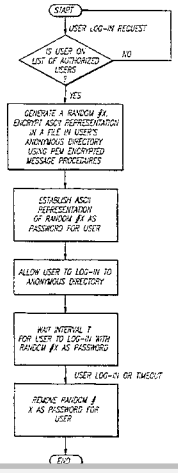

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FIG. 1

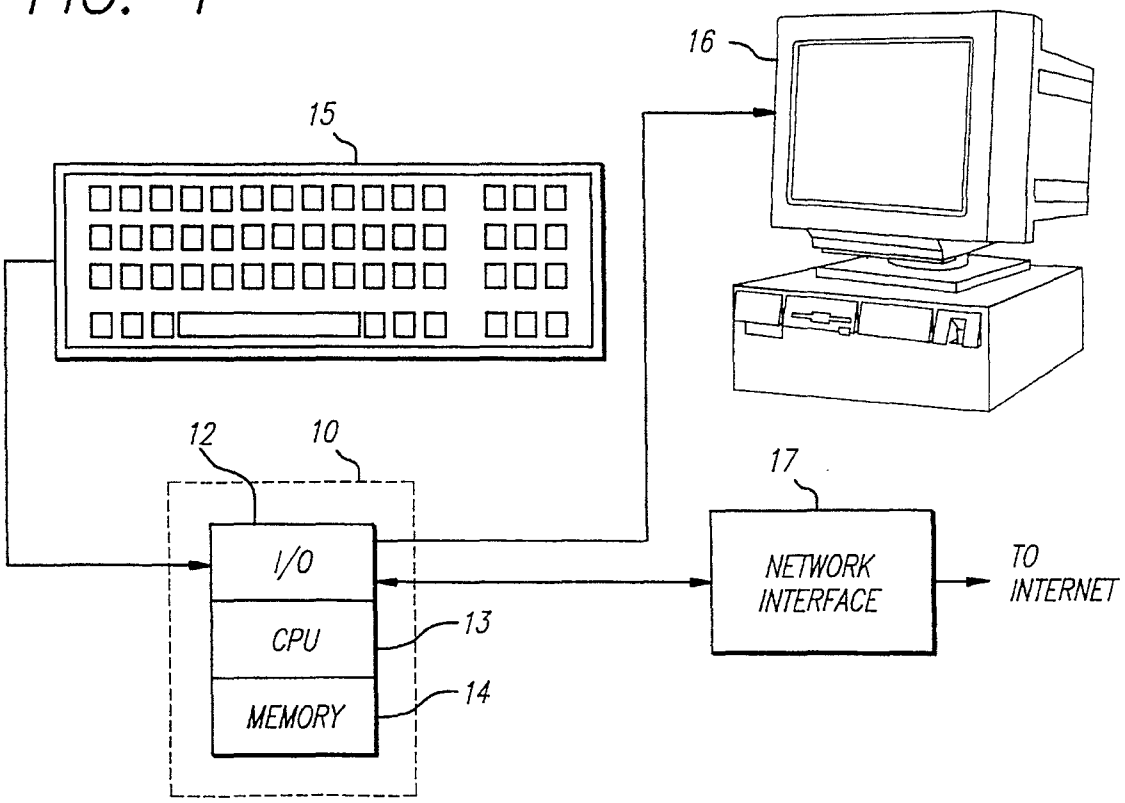


FIG. 2

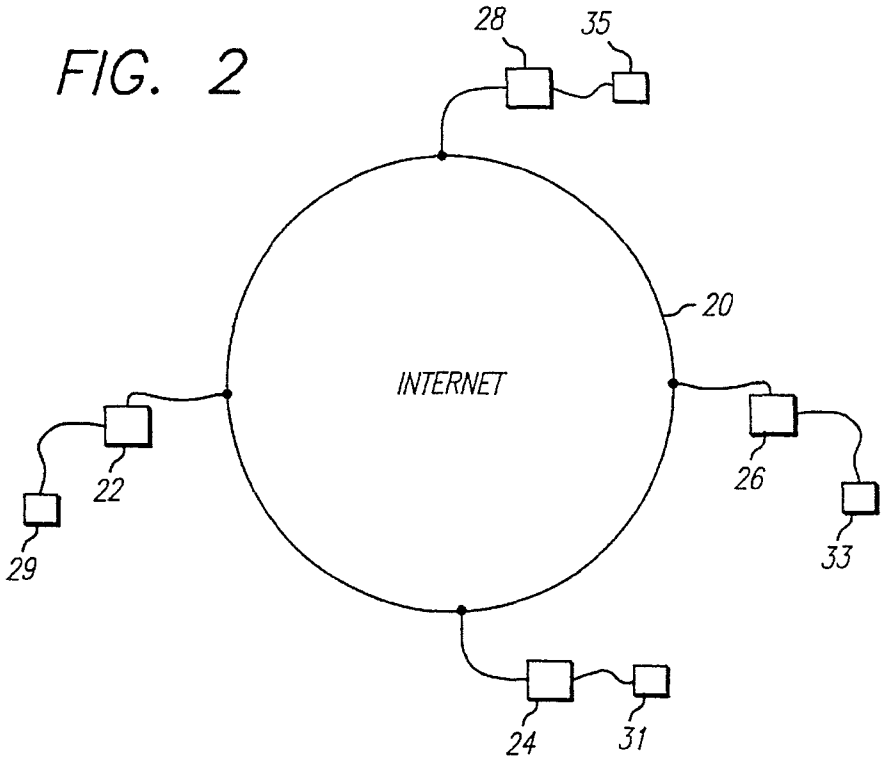


FIG. 3

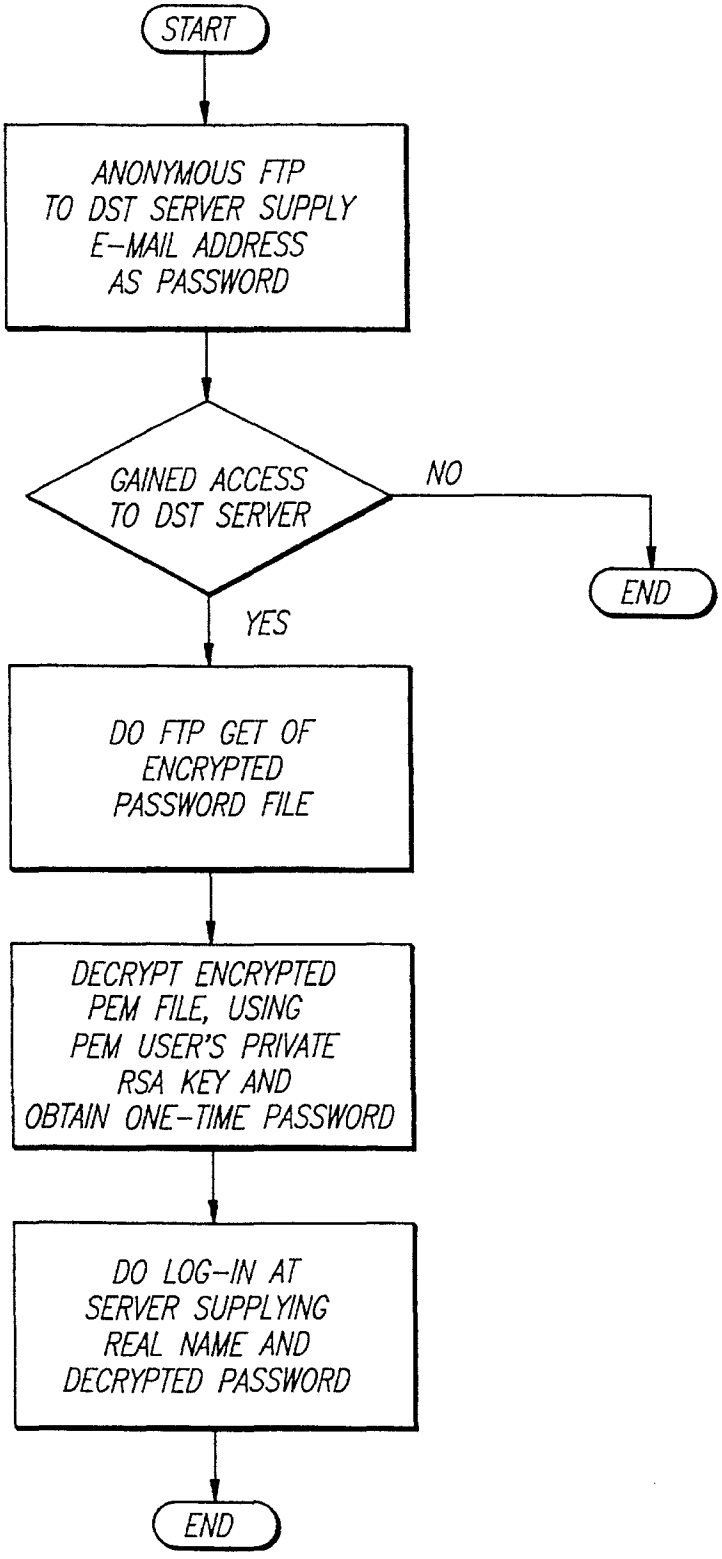
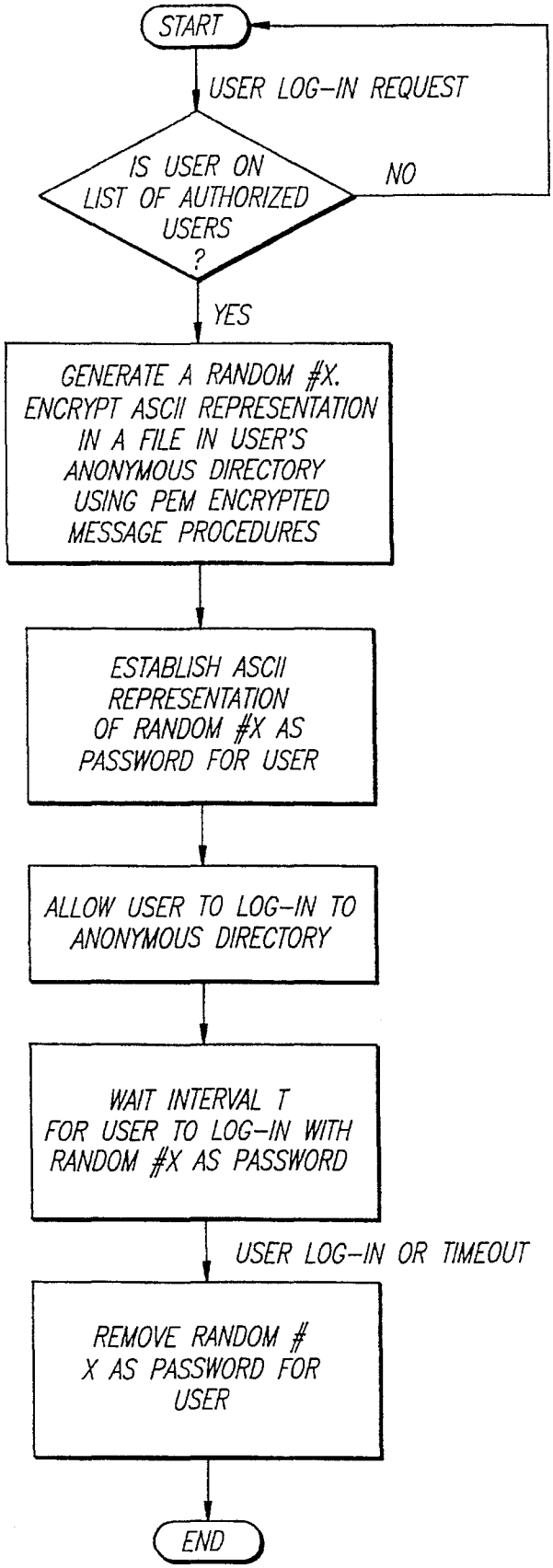


FIG. 4



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