is the server for the routine. The server provides remote execution facilities with authentication based on user names and passwords. listens for service requests at the port indicated in the ‘‘exec’’ service specification; see When a service request is received the following protocol is initiated: The server reads characters from the socket up to a NUL byte. The resultant string is interpreted as an number, base 10. If the number received in step 1 is non-zero, it is interpreted as the port number of a secondary stream to be used for the A second connection is then created to the specified port on the client’s machine. A NUL terminated user name of at most 16 characters is retrieved on the initial socket. A NUL terminated, unencrypted password of at most 16 characters is retrieved on the initial socket. A NUL terminated command to be passed to a shell is retrieved on the initial socket. The length of the command is limited by the upper bound on the size of the system’s argument list. then validates the user as is done at login time and, if the authentication was successful, changes to the user’s home directory, and establishes the user and group protections of the user. If any of these steps fail the connection is aborted with a diagnostic message returned. A NUL byte is returned on the initial socket and the command line is passed to the normal login shell of the user. The shell inherits the network connections established by Except for the last one listed below, all diagnostic messages are returned on the initial socket, after which any network connections are closed. An error is indicated by a leading byte with a value of 1 (0 is returned in step 7 above upon successful completion of all the steps prior to the command execution). The name is longer than 16 characters. The password is longer than 16 characters. The command line passed exceeds the size of the argument list (as configured into the system). No password file entry for the user name existed. The wrong was password supplied. The command to the home directory failed. A by the server failed. The user’s login shell could not be started. This message is returned on the connection associated with the and is not preceded by a flag byte. Indicating ‘‘Login incorrect’’ as opposed to ‘‘Password incorrect’’ is a security breach which allows people to probe a system for users with null passwords. A facility to allow all data and password exchanges to be encrypted should be present. The command appeared in