Title: COMPUTER PROGRAM FOR MAINTAINING PERSISTENT FIREWALL-COMPLIANT CONNECTIONS

Abstract: As shown in Fig. 1, server computer (110) is positioned behind server firewall (120). Server firewall (120) is a conventional hardware and/or software-based firewall. As is conventional with firewall, server firewall (120) is configured to have a plurality of ports. Each port has an associated set of rules for scrutinizing data packets attempting to pass through the port. For example, a port may only let data of certain protocols through. The server firewall (120) stands between a local area network (130) and a server computer (110), and a WAN (132). The server computer subsystem (102) chooses to configure server firewall (120). A gateway firewall (122), client A firewall (124) and client B firewall (126), may all be configured differently, it may not be able to establish the same variety of persistent connection as the other firewalls, which is one reason that transport protocol conversion is performed. Gateway computer (112) includes CPU (142) and gateway software (152). Gateway computer (138) is preferably a web server with web server software supporting the HTTP protocol with keep-alive facilities. Client A (114) computer is preferably a conventional desktop or laptop personal computer. Display device (174) includes any output devices. Input devices (184) includes any input devices. Client B computer system (108) includes client B firewall (126), client B computer (116), display device (176) and input device (186). The "happy face displays at display device (174), display device (184) and in collaborative application database (160). These data packets include substantive application input data to be used by collaborative application software (150) and collaborative application database (160), and ultimately by other collaborators present on WAN (132). CPU (140) receives data from Client A computer subsystem (106). At reference numeral (190), the application data file corresponding to the happy face image is updated in collaborative application database (160).
Published:
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INTERNATIONAL SEARCH REPORT

INTERNATIONAL APPLICATION No.
PCT/US01/30488

A. CLASSIFICATION OF SUBJECT MATTER
IPC(7) : G06F 11/30, 15/16, 15/177, 15/173
US CL. : 709/200, 203, 220, 223, 225, 227-230; 713/200, 201
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED
Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
N/A

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
STN, and East Text database; TCF or TCP/IP or stateful or object adj serialization or HTTP 1.1, socket, gateway or filter or firewall or proxy

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. P</td>
<td>US 6,161,123 A (RENOUARD et al.) 12 December 2000, see col. 1, lines 46-64, col. 4, lines 23-67, col. 6, lines 26-51, 61-67, col. 8, lines 61-67, and col. 9, lines 1-17.</td>
<td>1</td>
</tr>
<tr>
<td>A. P</td>
<td>US 6,282,580 B1 (CHANG) 28 August 2001, see col. 2, lines 37-67, col. 4, lines 50-67, see col. 5, lines 8-67, see col. 6, lines 19-63.</td>
<td>1, 4, 18</td>
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</table>

Further documents are listed in the continuation of Box C. See patent family annex.

Special category of cited documents:

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