Title: METHODS AND APPARATUS FOR PROVIDING A "QUALITY OF SERVICE" NETWORK PARALLEL TO AN EXISTING ETHERNET NETWORK USING EXISTING CATEGORY FIVE CABLE

Abstract: A combination LAN and PBX system utilizes the unassigned pair of wires in Category 5 cable to provide a "parallel network" for a PBX over existing ETHERNET cable. The PBX network is unaffected by ETHERNET traffic even though it is carried via the same cable. The apparatus includes a PBX hub (10) and a plurality of phone modules. The PBX hub couples to the customer’s ETHERNET hub (22) and has a plurality of slots for receiving "gateway modules". The gateway modules include modules for coupling the PBX hub to POTS lines (34), T1 lines (36), xDSL modems (38), cable modems (40), etc. Each phone module has two RJ-45 jacks and an RJ-11 jack. The RJ-45 jacks enable the phone module to be coupled to an ETHERNET LAN at a point where some other device is coupled to the LAN without interrupting the connection of the other device. The RJ-11 jack couples an ordinary single line phone (via the red and green conductors of the RJ-11 jack) to the unidentified pair of the Category-5 cable. According to a preferred embodiment, the phone modules include a circuit for detecting a failure of the parallel network (e.g. a power failure) and for automatically coupling the single line phone (42, 44, 46, 48, 50) to the POTS line (34) carried by the Category-5 wire. Traffic on the PBX network is packetized in frames which have a variable payload length and one or more fields for maintaining QOS.
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER
IPC(7) : Ho4L 12/48 ; Ho4N 7/15 ; Ho4B 7/212
US CL : 570/352 ; 368/15 ; 370/442
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)
U.S. : 570/352 ; 368/15 ; 370/442

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

Electronic database consulted during the international search (name of database and, where practicable, search terms used)

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>Y</td>
<td>US 5,982,767 A (MCINTOSH et al.) 09 NOVEMBER 1999, ALL</td>
<td>1, 2, 4, 5, 6, 9, 11, 12, 13, 17, 18</td>
</tr>
<tr>
<td>Y</td>
<td>US 5,565,910 A (ROWSE et al.) 15 OCTOBER 1996, ALL</td>
<td>1, 2, 5, 4, 5</td>
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<tr>
<td>Y, P</td>
<td>US 6,266,340 B1 (PICKETT et al.) 24 JULY 2001, ALL</td>
<td>1, 2, 4, 5, 6, 9, 11, 12, 13, 17</td>
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☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

Date of the actual completion of the international search: 24 AUGUST 2001
Date of mailing of the international search report: 25 JAN 2002

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