

FILE HISTORY

US 6,704,304

PATENT: 6,704,304

INVENTORS: GALLAGHER MAUREEN BRIGID  
SAND PAUL R

TITLE: Selective establishment of  
telecommunications connections over  
packet and circuit switched networks

APPLICATION NO: US2000588248A

FILED: 06 JUN 2000


ISSUED: 09 MAR 2004

COMPILED: 10 FEB 2021

jc831 U.S. FTO  
09/588243  
05/06/00

370	352
Class	Subclass

ISSUE CLASSIFICATION

PATENT NUMBER  
**6704304**  
  
**6704304**

U.S. **UTILITY** Patent Application

<p>123 O.I.P.E.</p> <p>SCANNED <i>GH</i> Q.A. <i>me</i></p>	<p>PATENT DATE</p> <p>MAR 09 2004</p>
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APPLICATION NO. 09/588248	CONT/PRIOR	CLASS 455 320	SUBCLASS 352	ART UNIT 2745	EXAMINER VAN DER RAO
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ANTS  
Maureen Gallagher  
Paul Sand

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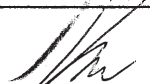
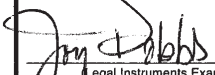
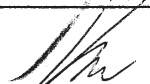
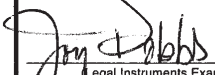
Selective establishment of telecommunications connections over packet and circuit switched networks

PTO-2040  
12/99

ISSUING CLASSIFICATION									
ORIGINAL		CROSS REFERENCE(S)							
CLASS	SUBCLASS	CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)						
330	352	330	353	401					
INTERNATIONAL CLASSIFICATION									
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☐ Continued on Issue Slip inside File Jacket

2-404 Formal Drawings (3 sheets) set 1 95.00

<input type="checkbox"/> <b>TERMINAL DISCLAIMER</b>	<b>DRAWINGS</b>			<b>CLAIMS ALLOWED</b>	
	Sheets Drwg. <div style="text-align: center;">3</div>	Figs. Drwg. <div style="text-align: center;">3</div>	Print Fig. <div style="text-align: center;">1</div>	Total Claims <div style="text-align: center;">8</div>	Print Claim for O.G. <div style="text-align: center;">1</div>
<input type="checkbox"/> The term of this patent subsequent to _____ (date) has been disclaimed.	_____ (Assistant Examiner) (Date)			<b>NOTICE OF ALLOWANCE MAILED</b>	
	<input type="checkbox"/> The term of this patent shall not extend beyond the expiration date of U.S. Patent. No. _____  _____  _____			<div style="text-align: center;">11/17/03</div> <div style="text-align: center;"><b>ISSUE FEE</b></div> <div style="text-align: right;">AL</div>	
<input type="checkbox"/> The terminal _____ months of this patent have been disclaimed.	<div style="text-align: center;">   <b>KENNETH VANDERPUYE</b>  <b>PRIMARY EXAMINER</b> </div> <div style="text-align: center;">         _____          (Primary Examiner)       </div>			<div style="text-align: center;">           (Legal Instruments Examiner)       </div>	
	<div style="text-align: center;">   <b>KENNETH VANDERPUYE</b>  <b>PRIMARY EXAMINER</b> </div> <div style="text-align: center;">         _____          (Primary Examiner)       </div>			<div style="text-align: center;">           (Legal Instruments Examiner)       </div>	

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6,704,304

**SELECTIVE ESTABLISHMENT OF TELECOMMUNICATIONS  
CONNECTIONS OVER PACKET AND CIRCUIT SWITCHED  
NETWORKS**

**Transaction History**

<b>Date</b>	<b>Transaction Description</b>
06-06-2000	Initial Exam Team nn
06-20-2000	IFW Scan & PACR Auto Security Review
08-16-2000	Application Dispatched from OIPE
08-16-2000	Correspondence Address Change
08-31-2000	Case Docketed to Examiner in GAU
09-05-2000	Workflow - Drawings Finished
09-05-2000	Workflow - Drawings Matched with File at Contractor
09-05-2000	Preliminary Amendment
10-06-2000	Case Docketed to Examiner in GAU
03-11-2002	Case Docketed to Examiner in GAU
07-29-2003	Case Docketed to Examiner in GAU
08-11-2003	Non-Final Rejection
08-13-2003	Mail Non-Final Rejection
11-06-2003	Response after Non-Final Action
11-16-2003	Date Forwarded to Examiner
11-17-2003	Mail Notice of Allowance
11-17-2003	Notice of Allowance Data Verification Completed
11-20-2003	Dispatch to Publications
11-21-2003	Workflow - File Sent to Contractor
11-21-2003	Receipt into Pubs
12-16-2003	Receipt into Pubs
01-26-2004	Issue Fee Payment Verified
01-26-2004	Issue Fee Payment Received
02-04-2004	Application Is Considered Ready for Issue
02-06-2004	Receipt into Pubs
02-19-2004	Issue Notification Mailed
03-09-2004	Recordation of Patent Grant Mailed
03-09-2004	Patent Issue Date Used in PTA Calculation

# PATENT APPLICATION



09588248

Jc831 U.S. PTO

09/588248



09/05/00

INITIALS \_\_\_\_\_

## CONTENTS

	Date Received (Incl. C. of M.) or Date Mailed	Date Received (Incl. C. of M.) or Date Mailed
1. Application <u>Pt 53</u> papers.		42. _____
2. <u>Formal Drawings.</u>	<u>9.5.00</u>	43. _____
3. <u>Re: (Smiths)</u>	<u>8-13-03</u>	44. _____
4. <u>Amtd. A</u>	<u>11/6/03</u> <u>CN</u> <u>11/3/03</u>	45. _____
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POSITION	INITIALS	ID NO.	DATE
FEE DETERMINATION	FD.		6-13-00
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FORMALITY REVIEW			
RESPONSE FORMALITY REVIEW			
	59573		8-16-00

### INDEX OF CLAIMS

✓ ..... Rejected      N ..... Non-elected  
 = ..... Allowed      I ..... Interference  
 - (Through numeral)... Canceled      A ..... Appeal  
 ÷ ..... Restricted      O ..... Objected

Claim	Final	Original	Date
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SEARCHED			
Class	Sub.	Date	Exmr.
370	351	8/6/03	16m
↓	352	↓	↓
370	353	↓	↓
	401	8/9/03	Kn
	updated search	4/16/03	16m

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	Date	Exmr.
East	8/6/03	Kn

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INTERFERENCE SEARCHED			
Class	Sub.	Date	Exmr.
370	352	4/16/03	Kn
↓	353	↓	↓
	401	↓	↓

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L Number	Hits	Search Text	DB	Time stamp
1	1404	pstn same internet and server	USPAT	2003/08/06 05:07
2	1007	pstn with internet and server	USPAT	2003/08/06 05:25
3	626	pstn with internet and gateway	USPAT	2003/08/06 05:25
4	188	pstn with internet with gateway	USPAT	2003/08/06 05:35
5	130	pstn with internet with isp	USPAT	2003/08/06 05:37
6	2	pstn with internet and vanderp\$.xp.	USPAT	2003/08/06 05:37
7	11	pstn with internet and vanderp\$.xa.	USPAT	2003/08/06 05:38
8	1805	packet adj1 switched adj1 network\$1	USPAT	2003/08/06 05:39
9	125	packet adj1 switched adj1 network\$1 same circuit adj1 switched adj1 networks	USPAT	2003/08/06 05:39

L Number	Hits	Search Text	DB	Time stamp
1	20	cac and gateway and pstn and internet	USPAT	2003/08/07 05:43
2	29	cac and pstn and internet	USPAT	2003/08/07 05:43
3	22	cac and pstn and packet adj1 network	USPAT	2003/08/07 05:43
4	12	call adj1 signalling and gateway and pstn and internet	USPAT	2003/08/07 05:43
5	123	call adj1 signaling and gateway and pstn and internet	USPAT	2003/08/07 05:45
6	1221	gateway adj1 interface	USPAT	2003/08/07 05:45
7	511745	gateway adj1 interface same packet adk1 switch	USPAT	2003/08/07 05:45
8	3	gateway adj1 interface same packet adj1 switch	USPAT	2003/08/07 05:46
9	18	gateway adj1 interface and packet adj1 switch	USPAT	2003/08/07 05:48
10	302	gateway and packet adj1 switch	USPAT	2003/08/07 05:49
11	72	gateway same packet adj1 switch	USPAT	2003/08/07 05:49
12	37	gateway with packet adj1 switch	USPAT	2003/08/07 05:51
13	2	cac adj1 server	USPAT	2003/08/07 05:52
14	62	signaling adj1 gateway	USPAT	2003/08/07 05:52



US006704304B1

(12) **United States Patent**  
**Gallagher et al.**

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(45) **Date of Patent:** **Mar. 9, 2004**

(54) **SELECTIVE ESTABLISHMENT OF  
TELECOMMUNICATIONS CONNECTIONS  
OVER PACKET AND CIRCUIT SWITCHED  
NETWORKS**

(75) Inventors: **Maureen Brigid Gallagher**, Naperville,  
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(US)

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NJ (US)

(\*) Notice: Subject to any disclaimer, the term of this  
patent is extended or adjusted under 35  
U.S.C. 154(b) by 737 days.

(21) Appl. No.: **09/588,248**

(22) Filed: **Jun. 6, 2000**

(51) Int. Cl.<sup>7</sup> ..... **H04L 12/56**

(52) U.S. Cl. .... **370/352; 370/353; 370/401**

(58) Field of Search ..... **370/351, 352,  
370/353, 401**

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

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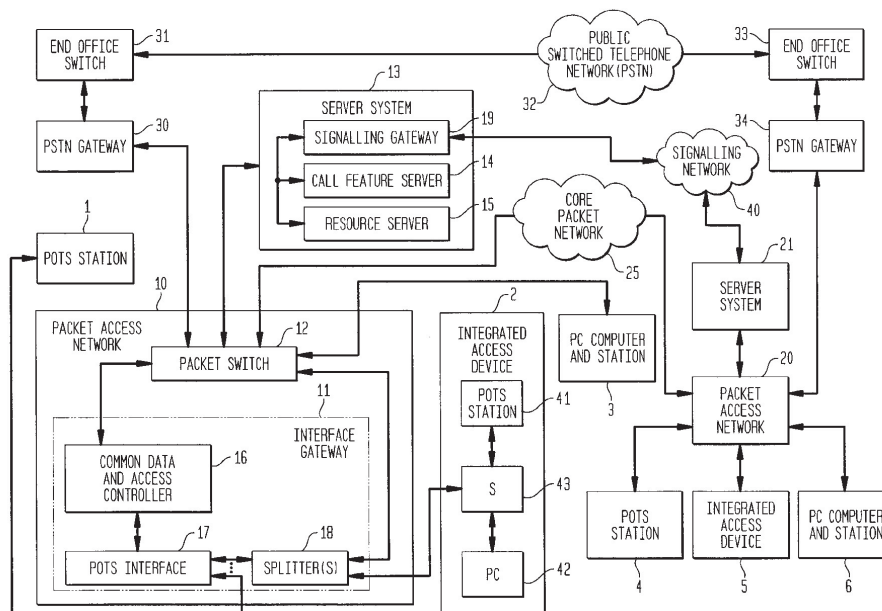
\* cited by examiner

*Primary Examiner*—Kenneth Vanderpuye

(57) **ABSTRACT**

A calling and called telecommunications station are each connected to a packet access network. The packet access network under the control of a server system, determines whether an originating call should be routed via a core packet network, such as the Internet, or a Public Switched Telephone Network (PSTN). If the expected delay of packets through the core packet network is excessive, then the call will be connected through the Public Switched Telephone Network. If, during the course of a call, the packet delay becomes excessive, and causes the quality of voice transmission to be below acceptable standards, the call is switched from the packet network to the Public Switched Telephone Network. Advantageously, as many calls as can be handled by the packet network are switched through that network, thus resulting in substantial savings to the customer. Advantageously, the embedded PSTN can be used productively to handle overflows from the core packet network. Advantageously, the quality of voice calls through the core packet network can be maintained by re-routing existing calls through the PSTN when necessary.

**8 Claims, 3 Drawing Sheets**



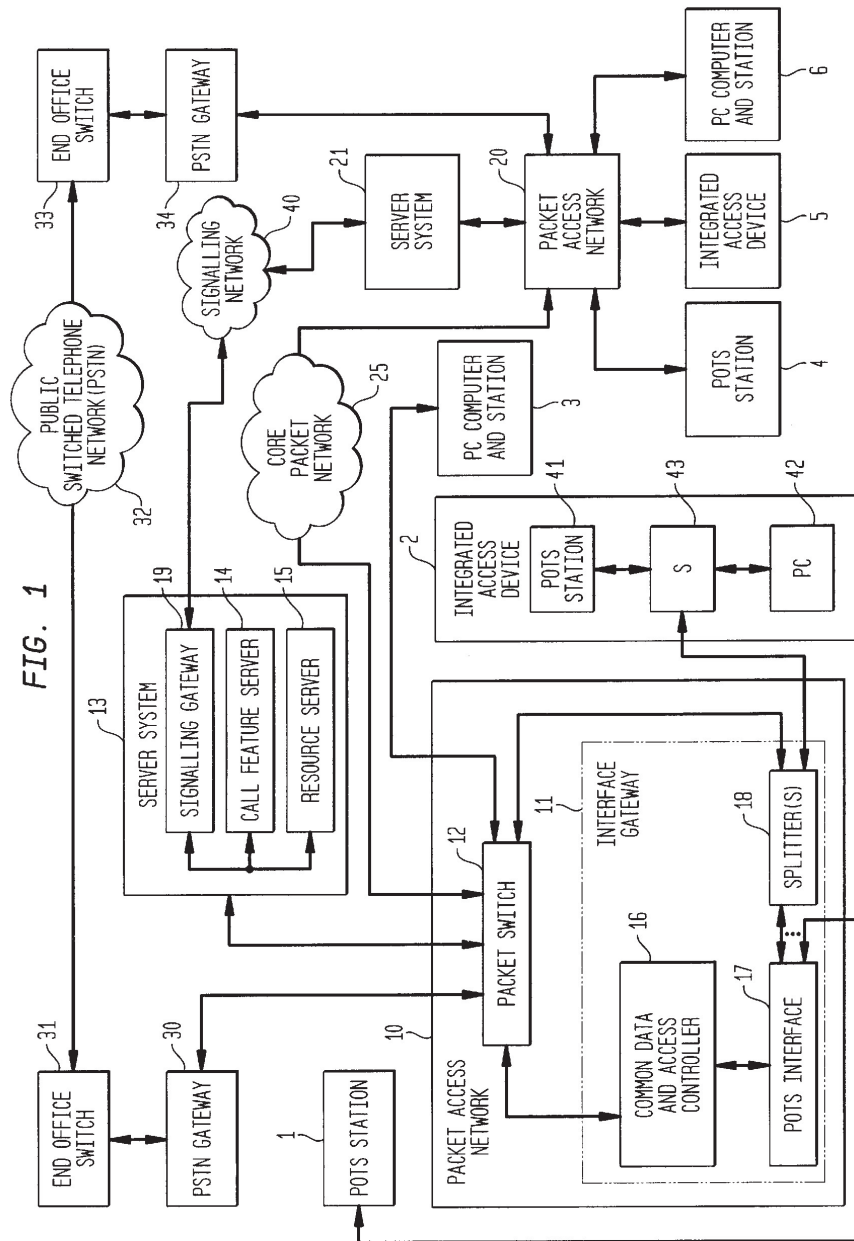


FIG. 2

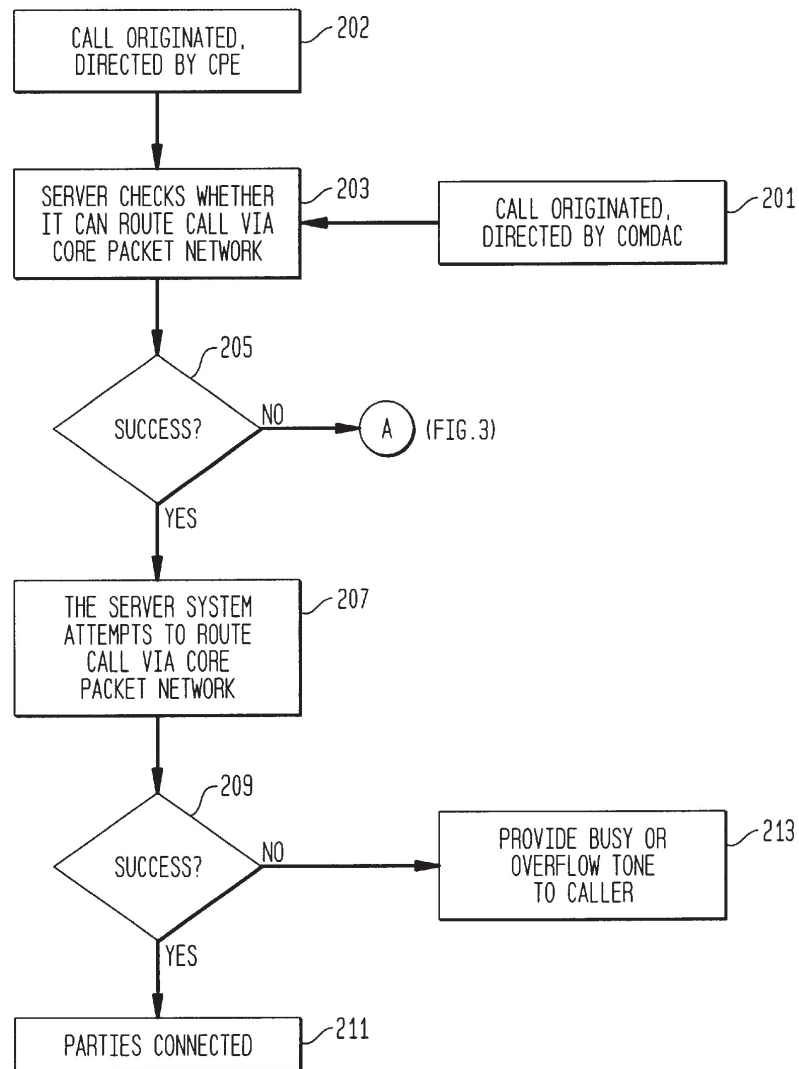
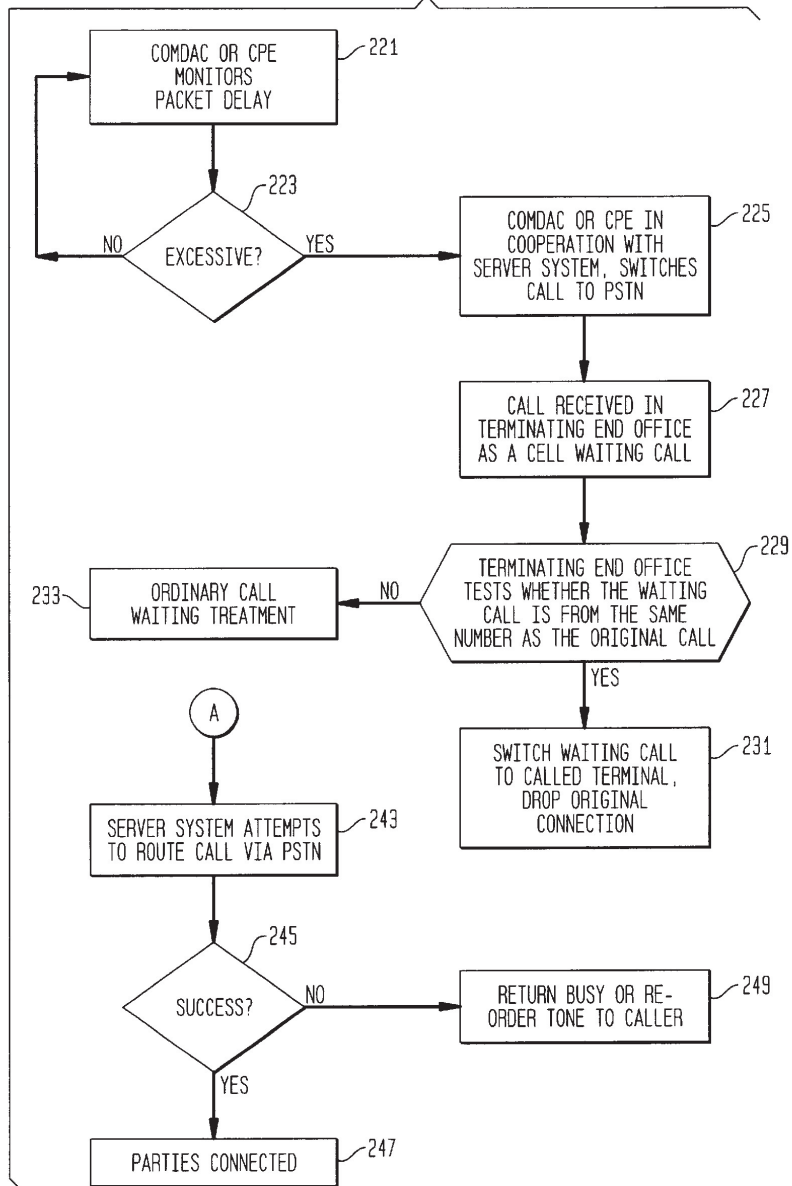


FIG. 3





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## SELECTIVE ESTABLISHMENT OF TELECOMMUNICATIONS CONNECTIONS OVER PACKET AND CIRCUIT SWITCHED NETWORKS

### TECHNICAL FIELD

This invention relates to the establishment of telecommunications connections over packetized networks and the Public Switched Telephone Network (PSTN).

### PROBLEM

During the past few years, major improvements have been made in the transmission of voice communications over packetized networks. The simple arrangement is one wherein the voice signals are converted into Pulse Code Modulation (PCM), and these PCM signals are then sent over either an Asynchronous Transfer Mode (ATM) network basically substituting a packet network directly for the Public Switched Telephone Network (PSTN), a circuit switched network. The big progress which has been made in the use of the Internet network, a network which does not use a dedicated virtual circuit, but transmits each packet independently, has caused this network to be widely available. With the use of Internet networks, substantial delay and variations in the delay are encountered when the Internet network is relatively heavily loaded. When this happens, additional calls may be blocked and/or the quality of voice transmission may be degraded, and can become unsatisfactory. At the same time, when the Internet is not overloaded, the economics of using this type of network either already favor, or are likely in the near term future to favor, the use of the Internet network over the use of the PSTN. A problem of the prior art is how to use the combined resources of the Internet and the PSTN effectively.

### SOLUTION

Applicants have analyzed this problem further and have recognized that a problem of the prior art is that when the Internet or some equivalent packet network becomes too heavily loaded, traffic should be moved to the Public Switched Telephone Network (parts of which may use ATM transmission) for new calls and, ideally, also for calls that are already in progress. The prior art does not suggest a good arrangement for performing this type of movement, and generally leaves it up to the customer premises equipment to determine which type of network connection should be established.

The above problem is solved and an advance is made over the prior art in accordance with Applicants' invention, wherein a local packet access network is used to access either a core packet network, such as the Internet, or the Public Switched Telephone Network (PSTN); the packet access network measures the delay of packets through the core packet network and the variation in the delay of these packets to the destination specified for a call; if this delay and/or the variation in the delay becomes excessive to the point that the quality of voice transmission becomes unsatisfactory, then new calls and existing calls are transferred to the Public Switched Telephone Network. Advantageously, the more economical network is used whenever the quality of voice transmission is satisfactory.

In accordance with one feature of Applicants' invention, if the call is originated from an intelligent terminal, such as a personal computer (PC), then the intelligent terminal can

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perform measurements to determine whether the delay characteristics to the destination are satisfactory or adequate quality voice transmission, and the intelligent terminal can receive information from the packet access network to specify whether a connection should originally be established using the PSTN, because the delay and variations in delay of packets to the specified destination is excessive. Advantageously, each customer can set an individual threshold of acceptable delay and acceptable variations in delay.

In accordance with Applicants' preferred embodiment, the packet access network comprises interface circuits for interfacing with local customer stations, a common data and access controller (COMDAC), and a packet switch. The COMDAC converts PCM signals generated by the interface circuits into packets, generally of the H.323 protocol used for transmitting voice over the Internet, for use by the packet switch and the packet switch accesses a core packet network, such as the Internet, directly, and accesses the PSTN via a PSTN gateway and an end office switch. The common data and access controller in Applicants' preferred embodiment, converts individual voice communications destined for the core packet network into H.323 packets, or into PCM packets for transmission to the PSTN gateway. In accordance with another feature of Applicants' invention, the COMDAC also performs routine measurements on inter-packet delay for voice communications to different destinations, for those stations not directly connected to the packet switch.

In accordance with another feature of Applicants' preferred embodiment, intelligent customer premises equipment communicates directly with the packet switch without passing through the COMDAC. Effectively, the PC performs many of the functions of the COMDAC.

In accordance with Applicants' preferred embodiment, the packet switch of the access network is connected to a server system which includes a call feature server for analyzing customer dialed information and combining this data with information about the customer from a customer database in order to determine the routing of a call, routed via the core packet network. The call feature server also provides standard PSTN features (3-way calling, call forwarding, call waiting, etc.), for calls routed via the packet core network. The COMDAC communicates with the server system via the packet switch. A complex server system comprising a plurality of servers, can be used to further control a plurality of COMDAC's. For calls routed via the PSTN, the PSTN provides feature control.

The Server system of Applicants' preferred embodiment also includes a resource service, for providing such functions as dialed digit collection, digit out-pulsing, conference circuits, etc. The server system also includes a signaling gateway for communicating with other switches for PSTN calls when sending packet originated calls through the PSTN.

### BRIEF DESCRIPTION OF THE DRAWING(S)

FIG. 1 is a block diagram illustrating Applicants' preferred embodiment of the invention; and

FIGS. 2 and 3 are a flow diagram illustrating the method of Applicants' invention.

### DETAILED DESCRIPTION

FIG. 1 is a block diagram illustrating Applicants' invention. Shown are three customer stations, Plain Old Telephone Service (POTS) station 1, integrated access devices

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(IAD) 2, and personal computer (PC) station 3, all connected to an originating packet access network 10, and comparable POTS station 4, IAD 5, and PC station 6, connected to a terminating packet access network 20. The packet access network includes a POTS interface circuit 17 for converting the analog POTS signals into PCM signals, which are then connected to COMDAC 16. A cable system modem, (not shown), for serving telephone customers is connected to a cable system interface, (not shown), which is also connected to the COMDAC. IAD 2 is connected to a splitter 18, which routes signals for use by the COMDAC, and directly by the packet switch. The splitter splits, or combines broadband POTS signals from, or with, upper band packetized digital signals, the combination of the two signals being transmitted over a digital subscriber line (DSL). The upper band packetized signals are routed directly to the packet switch. The resource server 15 of server system connected to the packet switch, extracts any dialed information by the caller. The server system 19 comprises a call feature server 14 for analyzing this dialed input from the resource server 15 and combining it with customer data from the customer database and network routing information from a network routing database, to determine where the call should be terminated and how the call should be routed. This information is sent back to the packet switch 12, which causes the correct packet connection to be made through the packet switch so that the call may be properly connected. The packet switch is connected to a core packet network 25, such as the Internet, for routing packetized calls. It is the assumption of this invention that normally the packet network will be a less expensive network for routing the call. For those routes in which this is not the case, the server system will notify the COMDAC to establish a connection via the PSTN for POTS calls, and will notify the PC or Integrated Access station for calls originated by these terminals.

The packet switch 12 is connected to core packet network 25 and is also connected to PSTN gateway 30 for accessing the PSTN via end office switch 31. The PSTN gateway converts between H.323 signals generated in the COMDAC, PC or IAD, and the PCM signals for accessing the end office switch 31 and PSTN 32.

The output of the COMDAC 16 is sent via the packet switch 12 to the PSTN Gateway 30, and to the Server System 13. Distortion is minimized if the COMDAC and the Packet Switch can send PCM signals from the POTS interface 17 directly to the PSTN Gateway without converting to H.323 protocol, for reversion to PCM in the Gateway. Such signals can also be sent to the Server System 13.

The PSTN is terminated on end office switch 33 and PSTN gateway 34 which is connected to the terminating packet access network 20. The core packet network 25 is also connected to the terminating packet access network 20. Calls are then completed from the packet access network, using the services of terminating server system 21 to route the call to the correct terminating station.

If the decision to provide service from the PSTN is made prior to providing dial tone, dial tone is provided from the PSTN which also performs digit analysis. If the decision to provide service from the PSTN is made after the caller has dialed, the resource server, which has received the dialed information, forwards this dialed information to the PSTN via the packet switch and PSTN gateway.

FIGS. 2 and 3 illustrate the method of Applicants' invention. A call is originated and directed by COMDAC, (Action Block 201), or directed by the customer premises equipment (CPE), such as a PC of the customer's station or an inte-

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grated access device (IAD), (Action Block 202). The Server System checks whether the call can be routed via the packet network, (Action Block 203). This decision is based on whether the core packet network can be expected to provide packet transmission that meets the quality requirements of the network. For those cases in which the server recognizes that the packet network connection is less economical than a PSTN connection, the result of this check would also be negative. Test 205 determines whether the check of Action Block 203 was successful. If it was successful, the COMDAC or CPE, in cooperation with the server system, selects a route and attempts to route the call via the core packet network, (Action Block 207). Test 209 determines whether the attempt to route the call via the packet network was successful. If this attempt was successful, then the parties are connected, (Action Block 211). Otherwise, busy or overflow (fast busy) tone is returned to the caller, (Action Block 213).

Subsequently, the COMDAC or CPE monitors for packet delay during the conversation, (Action Block 221, FIG. 3). Test 223 determines whether this delay or the variation in this delay is excessive. If it is not excessive, then Action Block 221 is re-entered. If the delay is excessive, then the COMDAC or CPE causes the server system to switch the call to the PSTN. In order to switch the call, a second call is set up toward the terminating end office and that end office receives a waiting call, (Action Block 227). If it is determined by the terminating end office that the waiting call is from the same number as the original caller's number, (positive result of Test 229), then the incoming waiting call is switched to be connected to the called party, (Action Block 231), and the original connection is dropped. If Test 229 determines that it is not the same number, then ordinary call waiting treatment is provided, (Action Block 233). Note that the terminating party need not have call waiting service for this switch of the call to work, since the terminating end office determines the match before giving "normal call waiting treatment", (including not giving call waiting treatment to a call to a number which does not have call waiting service).

If the result of the check of whether the call can be routed via the packet network is negative, (negative result of Test 205, FIG. 2), or if the attempt to route the call via the packet network is not successful, (negative result of Test 209, FIG. 2), then the server system attempts to cause the call to be routed via the PSTN, (Action Block 243). Test 245 determines whether this attempt is successful. If the attempt is successful, the two parties are connected, (Action Block 247). If the attempt is not successful, then busy or re-order tone is returned to the caller, (Action Block 249).

The above is one preferred embodiment of Applicants' invention. Other embodiments will be apparent to those of ordinary skill in the art based on this description. The invention is limited only by the attached Claims.

We claim:

1. In a telecommunications network, comprising a core packet network and a circuit public switched telephone network (PSTN), apparatus for establishing a telecommunications connection comprising:

- a packet access network connectable to a plurality of customer telephone stations; and
- a server system;
- said packet access network comprising an interface gateway and a packet switch;
- said packet switch for accessing said PSTN and said core packet network;

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said interface gateway comprising circuits for converting signals from said plurality of customer telephone stations to packets for switching by said packet switch; said saver system for controlling connections through said packet switch.

2. The apparatus of claim 1 wherein said interface gateway further comprises:

means for measuring delays of packet connections between said packet access network and another packet access network.

3. The apparatus of claim 1, wherein said server system comprises means for determining whether a call should be routed over said PSTN or said core packet network.

4. The apparatus of claim 3, wherein said interface gateway further comprises means for measuring delays of packet connections between said packet access network and another packet access network:

wherein said means for determining is responsive to said means for measuring; and

wherein a new call is routed over said PSTN if, based on said measured delays, an expected delay for said new call is excessive.

5. The apparatus of claim 3, wherein said interface gateway further comprises means for measuring delays of packet connections between said packet access network and another packet access network:

wherein said means for determining is responsive to said means for measuring; and

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further comprising means for re-routing an existing call over said PSTN if said means for measuring measures an excessive delay on an existing call routed via said core packet network.

6. The apparatus of claim 5, wherein said means for re-routing an existing call comprises means for establishing an additional connection over said PSTN:

further comprising means for recognizing in a terminating system that said additional connection is from a same originating number as an original connection to a common terminating number; and

means responsive to said recognizing for establishing said additional connection and dropping said original connection.

7. The apparatus of claim 1, wherein said server system comprises a call feature server for controlling connections through said packet switch in response to signals from said customer telephone stations.

8. The apparatus of claim 1, wherein said interface gateway further comprises means for measuring delays of packet connections between said packet access network and another packet access network:

customer premises equipment (CPE) for generating and receiving packets; and

wherein said CPE is connected directly to said packet switch.

\* \* \* \* \*



Bib Data Sheet


**UNITED STATES DEPARTMENT OF COMMERCE  
Patent and Trademark Office**

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<b>SERIAL NUMBER</b> 09/588,248	<b>FILING DATE</b> 06/06/2000 <b>RULE</b> -	<b>CLASS</b> 455	<b>GROUP ART UNIT</b> 2745	<b>ATTORNEY DOCKET NO.</b> 1-22	
<b>APPLICANTS</b> Maureen Brigid Gallagher, Naperville, IL ; Paul R. Sand, Woodridge, IL ; <b>** CONTINUING DATA *****</b> <i>N/A</i> <b>** FOREIGN APPLICATIONS *****</b> <i>N/A</i> <b>IF REQUIRED, FOREIGN FILING LICENSE GRANTED</b> <b>** 08/16/2000</b>					
Foreign Priority claimed <input type="checkbox"/> yes <input checked="" type="checkbox"/> no 35 USC 119 (a-d) conditions <input type="checkbox"/> yes <input checked="" type="checkbox"/> no <input type="checkbox"/> Met after met Allowance Verified and Acknowledged <i>[Signature]</i> Examiner's Signature Initials		<b>STATE OR COUNTRY</b> IL	<b>SHEETS DRAWING</b> 3	<b>TOTAL CLAIMS</b> 8	<b>INDEPENDENT CLAIMS</b> 1
<b>ADDRESS</b> Werner Ulrich 434 Maple Street Glen Ellyn, IL 60137					
<b>TITLE</b> Selective establishment of telecommunications connections over packet and circuit switched networks					
<b>FILING FEE RECEIVED</b> 690	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:				
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PATENT APPLICATION SERIAL NO. \_\_\_\_\_

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FEE RECORD SHEET

06/14/2000 TRADE1 00000021 122325 09588248

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PTO-1556  
(5/87)

\*U.S. GPO: 1999-459-082/19144



06-07-00  
IN THE UNITED STATES  
PATENT AND TRADEMARK OFFICE

Jc831 U.S. PTO  
09/588248  
06/06/00

PATENT APPLICATION

M.B. Gallagher  
P.R. Sand

Case 1-22

Title Selective Establishment of  
Telecommunications Connections Over Packet  
and Circuit Switched Networks  
ASSISTANT COMMISSIONER FOR PATENTS  
WASHINGTON, D. C. 20231

"Express Mail" mailing label number EK505512606US  
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W. Ulrich  
(Printed name of person mailing paper or fee)  
W. Ulrich  
(Signature of person mailing paper or fee)

SIR:

Enclosed are the following papers relating to the above-named application for patent:

- ☒ 3 sheet(s) of drawing(s) ( ☐ formal ) ( ☒ informal )  
☒ Assignment(s) and 1 copy of Cover Sheet  
☒ Specification  
☒ Declaration and Power of Attorney  
☐ Information Disclosure Statement  
☐ Other:

CLAIMS AS FILED				
	NO. FILED	NO. EXTRA	RATE	CALCULATIONS
Total Claims	8 - 20 =	—	x \$18	—
Independent Claims	1 - 3 =	—	x \$78	—
Multiple Dependent Claim(s), if applicable			+\$260 =	—
Basic Fee				\$690
			TOTAL FEE:	\$690

Please file the application and charge Lucent Technologies Deposit Account No. 12-2325 the amount of \$ 690, to cover the filing fee. Duplicate copies of this letter are enclosed. In the event of non-payment or improper payment of a required fee, the Commissioner is authorized to charge or to credit Deposit Account No. 12-2325 as required to correct the error.

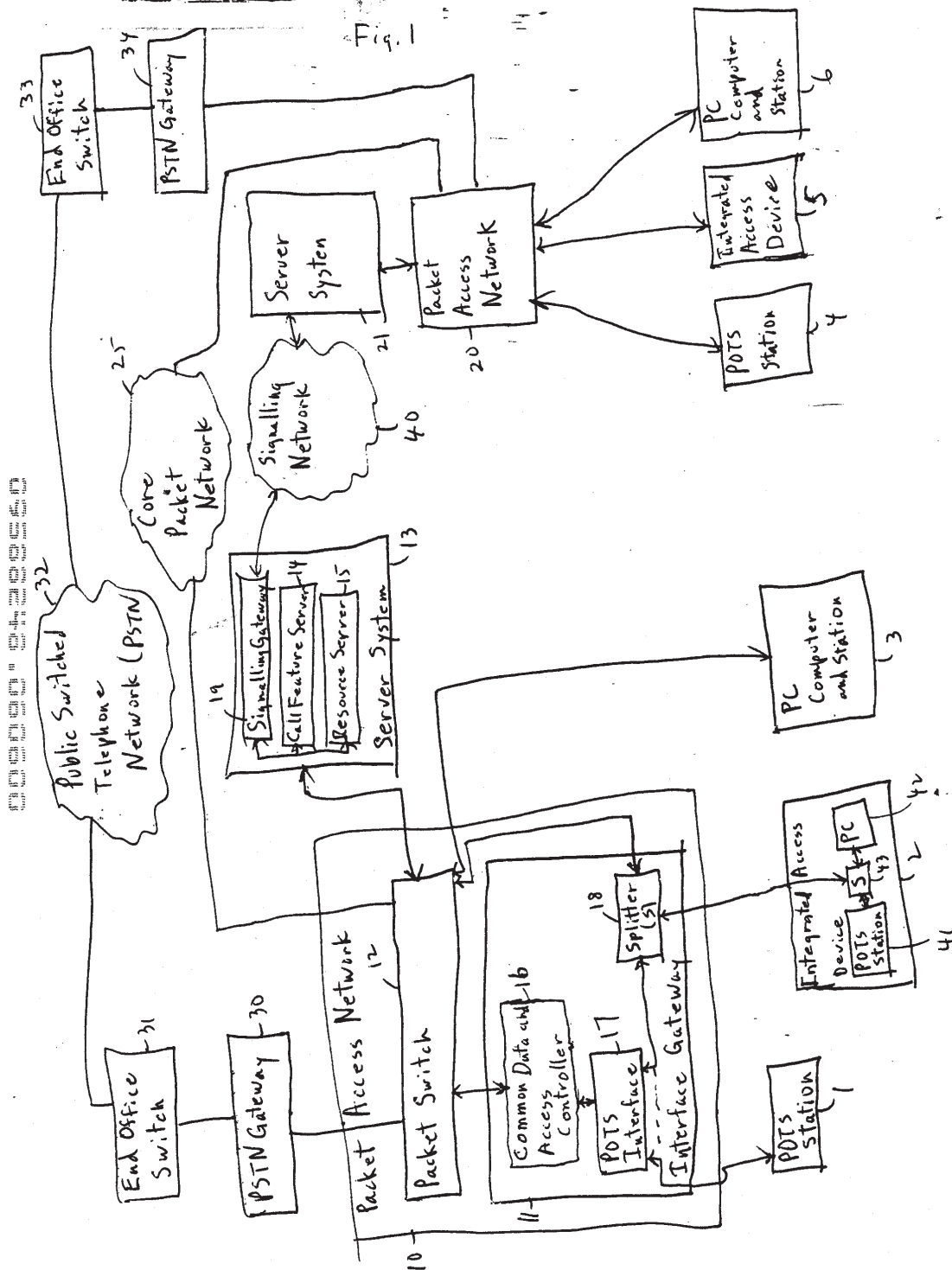
Please address all correspondence to Werner Ulrich, 434 Maple Street, Glen Ellyn, IL 60137-3826.  
Telephone calls should be made to me at  
(630) 469 0487.

Respectfully,

Werner Ulrich  
Attorney for Applicant(s), Reg. No. 30810

Date: June 6, 2000  
Werner Ulrich  
434 Maple Street  
Glen Ellyn, IL 60137-3826

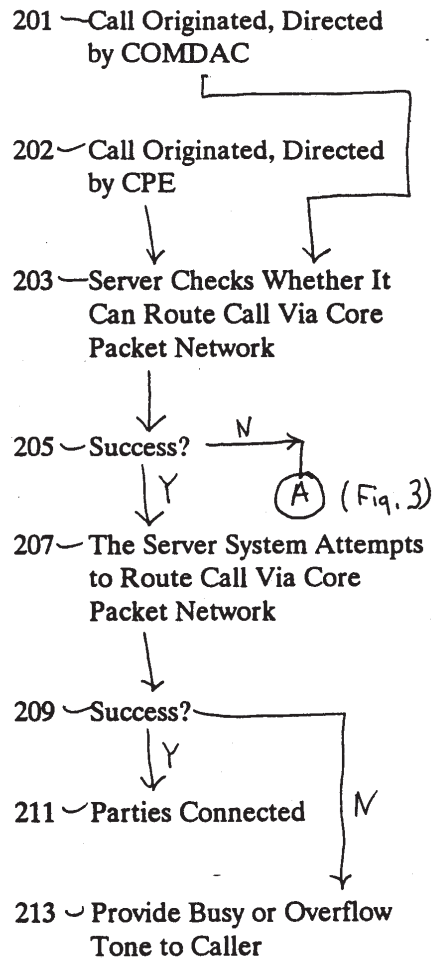
Fig. 1



M. Gallagher - 1 - 22

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Figure 2



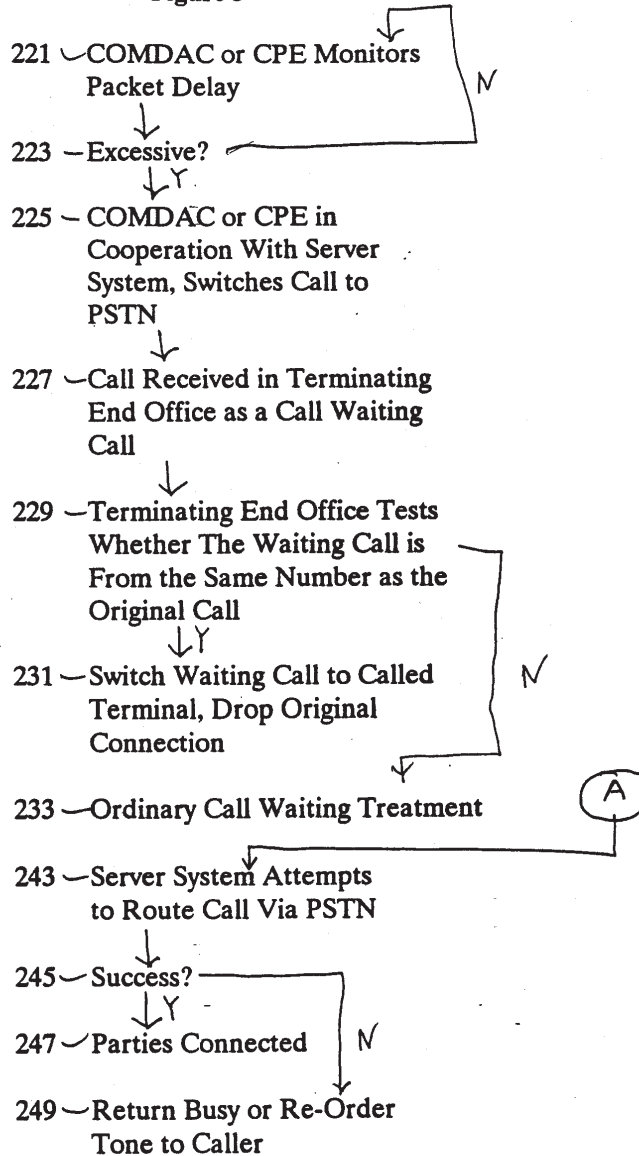


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M. Gallagher - 1 - 22

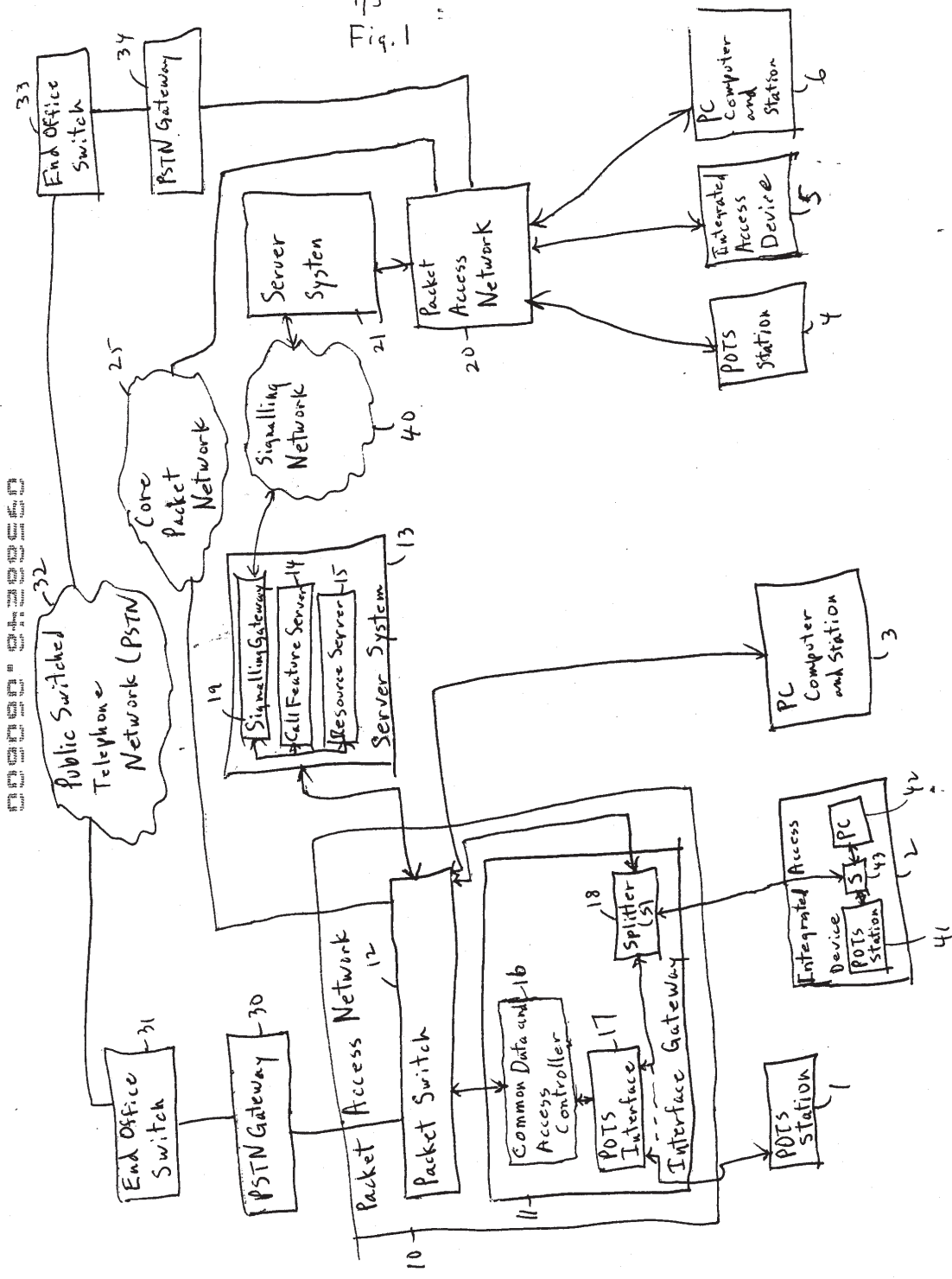
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Figure 3



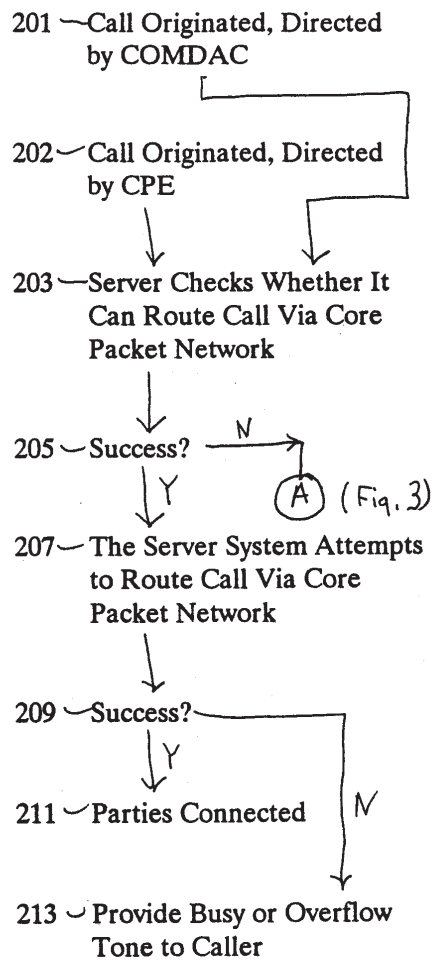
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Fig. 1



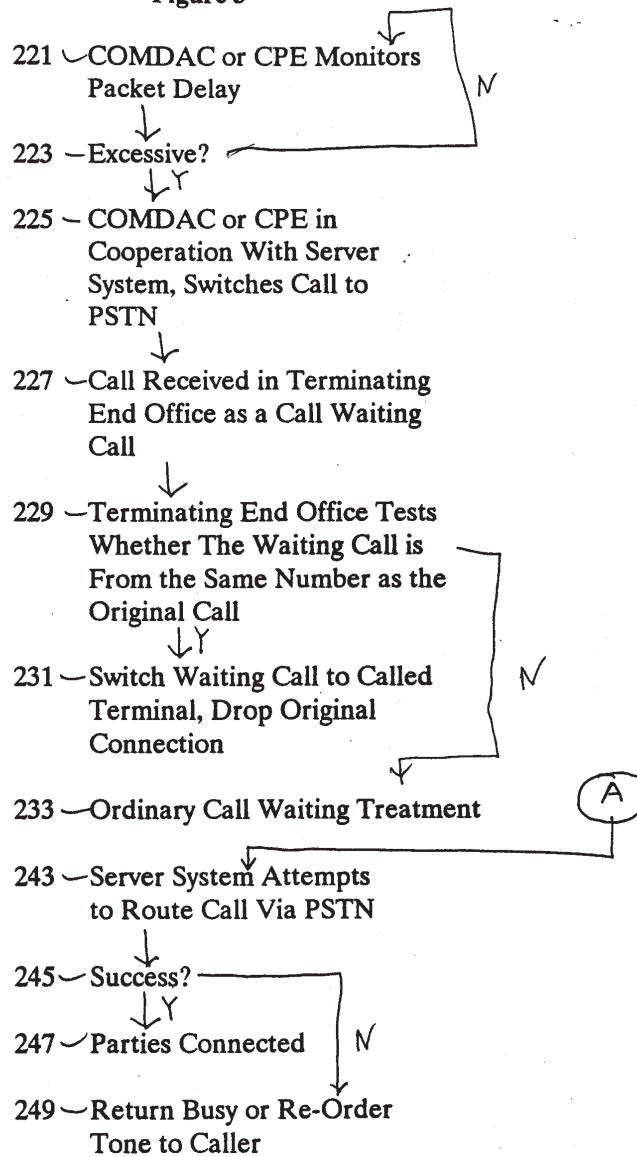
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Figure 2



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Figure 3



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# Application Assignment Record

According to the application transmittal letter, an assignment recording ownership was filed with this application; however, a copy of this record was not located in the original file history record obtained from the United States Patent and Trademark Office. Upon your request, we will attempt to obtain the assignment documents from the Assignment Recordation Branch of the United States Patent and Trademark Office or from a related application case (if applicable). Please note that additional charges will apply for this service.



M. Gallagher - 1 - 22

**Title:**                    **Selective Establishment of Telecommunications  
Connections Over Packet and Circuit Switched Networks**

**Technical Field:**

This invention relates to the establishment of telecommunications connections over packetized networks and the Public Switched Telephone Network (PSTN).

**Problem:**

During the past few years, major improvements have been made in the transmission of voice communications over packetized networks. The simple arrangement is one wherein the voice signals are converted into Pulse Code Modulation (PCM), and these PCM signals are then sent over either an Asynchronous Transfer Mode (ATM) network basically substituting a packet network directly for the Public Switched Telephone Network (PSTN), a circuit switched network. The big progress which has been made in the use of the Internet network, a network which does not use a dedicated virtual circuit, but transmits each packet independently, has caused this network to be widely available. With the use of Internet networks, substantial delay and variations in the delay are encountered when the Internet network is relatively heavily loaded. When this happens, additional calls may be blocked and/or the quality

- 1 -

2

of voice transmission may be degraded, and can become unsatisfactory. At the same time, when the Internet is not overloaded, the economics of using this type of network either already favor, or are likely in the near term future to favor, the use of the Internet network over the use of the PSTN. A problem of the prior art is how to use the combined resources of the Internet and the PSTN effectively.

**Solution:**

Applicants have analyzed this problem further and have recognized that a problem of the prior art is that when the Internet or some equivalent packet network becomes too heavily loaded, traffic should be moved to the Public Switched Telephone Network (parts of which may use ATM transmission) for new calls and, ideally, also for calls that are already in progress. The prior art does not suggest a good arrangement for performing this type of movement, and generally leaves it up to the customer premises equipment to determine which type of network connection should be established.

The above problem is solved and an advance is made over the prior art in accordance with Applicants' invention, wherein a local packet access network is used to access either a core packet network, such as the Internet, or the Public Switched Telephone Network (PSTN); the packet access network measures the delay of packets

through the core packet network and the variation in the delay of these packets to the destination specified for a call; if this delay and/or the variation in the delay becomes excessive to the point that the quality of voice transmission becomes unsatisfactory, then new calls and existing calls are transferred to the Public Switched Telephone Network. Advantageously, the more economical network is used whenever the quality of voice transmission is satisfactory.

In accordance with one feature of Applicants' invention, if the call is originated from an intelligent terminal, such as a personal computer (PC), then the intelligent terminal can perform measurements to determine whether the delay characteristics to the destination are satisfactory or adequate quality voice transmission, and the intelligent terminal can receive information from the packet access network to specify whether a connection should originally be established using the PSTN, because the delay and variations in delay of packets to the specified destination is excessive. Advantageously, each customer can set an individual threshold of acceptable delay and acceptable variations in delay.

In accordance with Applicants' preferred embodiment, the packet access network comprises interface circuits for interfacing with local customer stations, a common data and access controller (COMDAC), and a packet switch. The COMDAC



converts PCM signals generated by the interface circuits into packets, generally of the H.323 protocol used for transmitting voice over the Internet, for use by the packet switch and the packet switch accesses a core packet network 25, such as the Internet, directly, and accesses the PSTN 32 via a PSTN gateway and an end office switch. The common data and access controller in Applicants' preferred embodiment, converts individual voice communications destined for the core packet network into H.323 packets, or into PCM packets for transmission to the PSTN gateway. In accordance with another feature of Applicants' invention, the COMDAC also performs routine measurements on inter-packet delay for voice communications to different destinations, for those stations not directly connected to the packet switch.

In accordance with another feature of Applicants' preferred embodiment, intelligent customer premises equipment communicates directly with the packet switch without passing through the COMDAC. Effectively, the PC performs many of the functions of the COMDAC.

In accordance with Applicants' preferred embodiment, the packet switch of the access network is connected to a server system which includes a call feature server for analyzing customer dialed information and combining this data with information about the customer from a customer database in order to determine the routing of a call,

routed via the core packet network. The call feature server also provides standard PSTN features (3-way calling, call forwarding, call waiting, etc.), for calls routed via the packet core network. The COMDAC communicates with the server system via the packet switch. A complex server system comprising a plurality of servers, can be used to further control a plurality of COMDAC's. For calls routed via the PSTN, the PSTN provides feature control.

The Server system of Applicants' preferred embodiment also includes a resource service, for providing such functions as dialed digit collection, digit out-pulsing, conference circuits, etc. The server system also includes a signaling gateway for communicating with other switches for PSTN calls when sending packet originated calls through the PSTN.

**Brief Description of the Drawing(s):**

Figure 1 is a block diagram illustrating Applicants' preferred embodiment of the invention; and

Figures 2 and 3 are a flow diagram illustrating the method of Applicants' invention.

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**Detailed Description:**

Figure 1 is a block diagram illustrating Applicants' invention. Shown are three customer stations, Plain Old Telephone Service (POTS) station 1, integrated access devices (IAD) 2, and personal computer (PC) station 3, all connected to an originating packet access network 10, and comparable POTS station 4, IAD 5, and PC station 6, connected to a terminating packet access network 20. The packet access network includes a POTS interface circuit 17 for converting the analog POTS signals into PCM signals, which are then connected to COMDAC 16. A cable system modem, (not shown), for serving telephone customers is connected to a cable system interface, (not shown), which is also connected to the COMDAC. IAD 2 is connected to a splitter 18, which routes signals for use by the COMDAC, and directly by the packet switch. The splitter splits, or combines broadband POTS signals from, or with, upper band packetized digital signals, the combination of the two signals being transmitted over a digital subscriber line (DSL). The upper band packetized signals are routed directly to the packet switch. The resource server 15 of server system connected to the packet switch, extracts any dialed information by the caller. The server system 19 comprises a call feature server 14 for analyzing this dialed input from the resource server 15 and combining it with customer data from the customer database and

network routing information from a network routing database, to determine where the call should be terminated and how the call should be routed. This information is sent back to the packet switch 12, which causes the correct packet connection to be made through the packet switch so that the call may be properly connected. The packet switch is connected to a core packet network 25, such as the Internet, for routing packetized calls. It is the assumption of this invention that normally the packet network will be a less expensive network for routing the call. For those routes in which this is not the case, the server system will notify the COMDAC to establish a connection via the PSTN for POTS calls, and will notify the PC or Integrated Access station for calls originated by these terminals.

The packet switch 12 is connected to core packet network 25 and is also connected to PSTN gateway 30 for accessing the PSTN via end office switch 31. The PSTN gateway converts between H.323 signals generated in the COMDAC, PC or IAD, and the PCM signals for accessing the end office switch 31 and PSTN 32.

The output of the COMDAC 16 is sent via the packet switch 12 to the PSTN Gateway 30, and to the Server System 13. Distortion is minimized if the COMDAC and the Packet Switch can send PCM signals from the POTS interface 17 directly to the PSTN Gateway without converting to H.323 protocol, for reconversion to PCM in

the Gateway. Such signals can also be sent to the Server System 13.

The PSTN is terminated on end office switch 33 and PSTN gateway 34 which is connected to the terminating packet access network 20. The core packet network 25 is also connected to the terminating packet access network 20. Calls are then completed from the packet access network, using the services of terminating server system 21 to route the call to the correct terminating station.

If the decision to provide service from the PSTN is made prior to providing dial tone, dial tone is provided from the PSTN which also performs digit analysis. If the decision to provide service from the PSTN is made after the caller has dialed, the resource server, which has received the dialed information, forwards this dialed information to the PSTN via the packet switch and PSTN gateway.

Figures 2 and 3 illustrate the method of Applicants' invention. A call is originated and directed by COMDAC, (Action Block 201), or directed by the customer premises equipment (CPE), such as a PC of the customer's station or an integrated access device (IAD), (Action Block 202). The Server System checks whether the call can be routed via the packet network, (Action Block 203). This decision is based on whether the core packet network can be expected to provide packet transmission that meets the quality requirements of the network. For those cases in which the server

recognizes that the packet network connection is less economical than a PSTN connection, the result of this check would also be negative. Test 205 determines whether the check of Action Block 203 was successful. If it was successful, the COMDAC or CPE, in cooperation with the server system, selects a route and attempts to route the call via the core packet network, (Action Block 207). Test 209 determines whether the attempt to route the call via the packet network was successful. If this attempt was successful, then the parties are connected, (Action Block 211). Otherwise, busy or overflow (fast busy) tone is returned to the caller, (Action Block 213).

Subsequently, the COMDAC or CPE monitors for packet delay during the conversation, (Action Block 221, Figure 3). Test 223 determines whether this delay or the variation in this delay is excessive. If it is not excessive, then Action Block 221 is re-entered. If the delay is excessive, then the COMDAC or CPE causes the server system to switch the call to the PSTN. In order to switch the call, a second call is set up toward the terminating end office and that end office receives a waiting call, (Action Block 227). If it is determined by the terminating end office that the waiting call is from the same number as the original caller's number, (positive result of Test 229), then the incoming waiting call is switched to be connected to the called party,

(Action Block 231), and the original connection is dropped. If Test 229 determines that it is not the same number, then ordinary call waiting treatment is provided, (Action Block 233). Note that the terminating party need not have call waiting service for this switch of the call to work, since the terminating end office determines the match before giving "normal call waiting treatment", (including not giving call waiting treatment to a call to a number which does not have call waiting service).

If the result of the check of whether the call can be routed via the packet network is negative, (negative result of Test 205, Fig. 2), or if the attempt to route the call via the packet network is not successful, (negative result of Test 209, Fig. 2), then the server system attempts to cause the call to be routed via the PSTN, (Action Block 243). Test 245 determines whether this attempt is successful. If the attempt is successful, the two parties are connected, (Action Block 247). If the attempt is not successful, then busy or re-order tone is returned to the caller, (Action Block 249).

The above is one preferred embodiment of Applicants' invention. Other embodiments will be apparent to those of ordinary skill in the art based on this description. The invention is limited only by the attached Claims.

We claim:

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*no claim:*  
~~Claims:~~

*Sub M*  
1.

In a telecommunications network, comprising a core packet network and a circuit public switched telephone network (PSTN), apparatus for establishing a telecommunications connection comprising:

a packet access network connectable to a plurality of customer telephone stations; and

a server system;

said packet access network comprising an interface gateway and a packet switch;

said packet switch for accessing said PSTN and said core packet network;

said interface circuits for converting signals from said plurality of customer stations to packets for switching by said packet switch;

said server system for controlling connections through said packet switch.

2. The apparatus of Claim 1, wherein said interface gateway further comprises:

means for measuring delays of packet connections between said packet access network and another packet access network.

3. The apparatus of Claim 1, wherein said server system comprises means for determining whether a call should be routed over said PSTN or said core packet network.
4. The apparatus of Claim 3, wherein said means for determining is responsive to said means for measuring;
- wherein a new call is routed over said PSTN if, based on said measured delays, an expected delay for said new call is excessive.
5. The apparatus of Claim 3, wherein said means for determining is responsive to said means for measuring;
- further comprising means for re-routing an existing call over said PSTN if said means for measuring measures an excessive delay on an existing call routed via said core packet network.
6. The apparatus of Claim 5, wherein said means for re-routing an existing call comprises means for establishing an additional connection over said PSTN, and means for recognizing in a terminating system that said additional connection

Accepted  
M. Gallagher

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- 13 -

### Abstract

A calling and called telecommunications station are each connected to a packet access network. The packet access network under the control of a server system, determines whether an originating call should be routed via a core packet network, such as the Internet, or a Public Switched Telephone Network (PSTN). If the expected delay of packets through the core packet network is excessive, then the call will be connected through the Public Switched Telephone Network. If, during the course of a call, the packet delay becomes excessive, and causes the quality of voice transmission to be below acceptable standards, the call is switched from the packet network to the Public Switched Telephone Network. Advantageously, as many calls as can be handled by the packet network are switched through that network, thus resulting in substantial savings to the customer. Advantageously, the embedded PSTN can be used productively to handle overflows from the core packet network. Advantageously, the quality of voice calls through the core packet network can be maintained by re-routing existing calls through the PSTN when necessary.

IN THE UNITED STATES  
PATENT AND TRADEMARK OFFICE

Declaration and Power of Attorney

As the below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and joint inventor of the subject matter which is claimed and for which a patent is sought on the invention entitled, **SELECTIVE ESTABLISHMENT OF TELECOMMUNICATIONS CONNECTIONS OVER PACKET AND CIRCUIT SWITCHED NETWORKS**, the specification of which is attached hereto.

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by an amendment, if any, specifically referred to in this oath or declaration.

I acknowledge the duty to disclose all information known to me which is material to patentability as defined in Title 37, Code of Federal Regulations, 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

None

I hereby claim the benefit under Title 35, United States Code, 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, 112, I acknowledge the duty to disclose all information known to me to be material to

patentability as defined in Title 37, Code of Federal Regulations, 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application:

None

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

I hereby appoint the following attorney(s) with full power of substitution and revocation, to prosecute said application, to make alterations and amendments therein, to receive the patent, and to transact all business in the Patent and Trademark Office connected therewith:

Thomas J. Bean	(Reg. No. 44528)
Lester H. Birnbaum	(Reg. No. 25830)
Richard J. Botos	(Reg. No. 32016)
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Kenneth M. Brown	(Reg. No. 37590)
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Charles L. Warren	(Reg. No. 27407)
Jeffrey M. Weinick	(Reg. No. 36304)
Eli Weiss	(Reg. No. 17765)

I hereby appoint the attorney(s) on ATTACHMENT A as associate attorney(s) in the aforementioned application, with full power solely to prosecute said application, to make alterations and amendments therein, to receive the patent, and to transact all business in the Patent and Trademark Office connected with the prosecution of said application. No other powers are granted to such associate attorney(s) and such associate attorney(s) are specifically denied any power of substitution or revocation.

Full name of 1st joint inventor

Signature: Maureen Brigid Gallagher  
Maureen Brigid Gallagher

Date: June 6, 2000

Residence: Naperville, DuPage County, Illinois

Citizenship: United States of America.

Post Office Address: 1220 Catalpa Lane  
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000000-01200000



Signature:

Date:

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Glen Ellyn, Illinois 60137**

122glhghr.dec

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Document Date - 2000-08-16

Document Title - USPTO Communication Re: Change of Address

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Serial No. 09/588,248



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2732  
#2

Patent Application

Inventor(s) M.B. Gallagher et al.

Case 1-22

Serial No. 09/588,248

Group Art Unit

Filing Date 6/6/00

Examiner

Title Selective Establishment of Telecommunications Connections  
over Packet and Circuit Switched Networks

ASSISTANT COMMISSIONER FOR PATENTS

WASHINGTON, D. C. 20231

SIR:

Please make of record the attached formal drawing (3 sheets) in the  
above-identified application.

Respectfully,

M.B. Gallagher et al.

By

Werner Ulrich  
Werner Ulrich, Attorney  
Reg. No. 30810

Date: Aug 29, 2000

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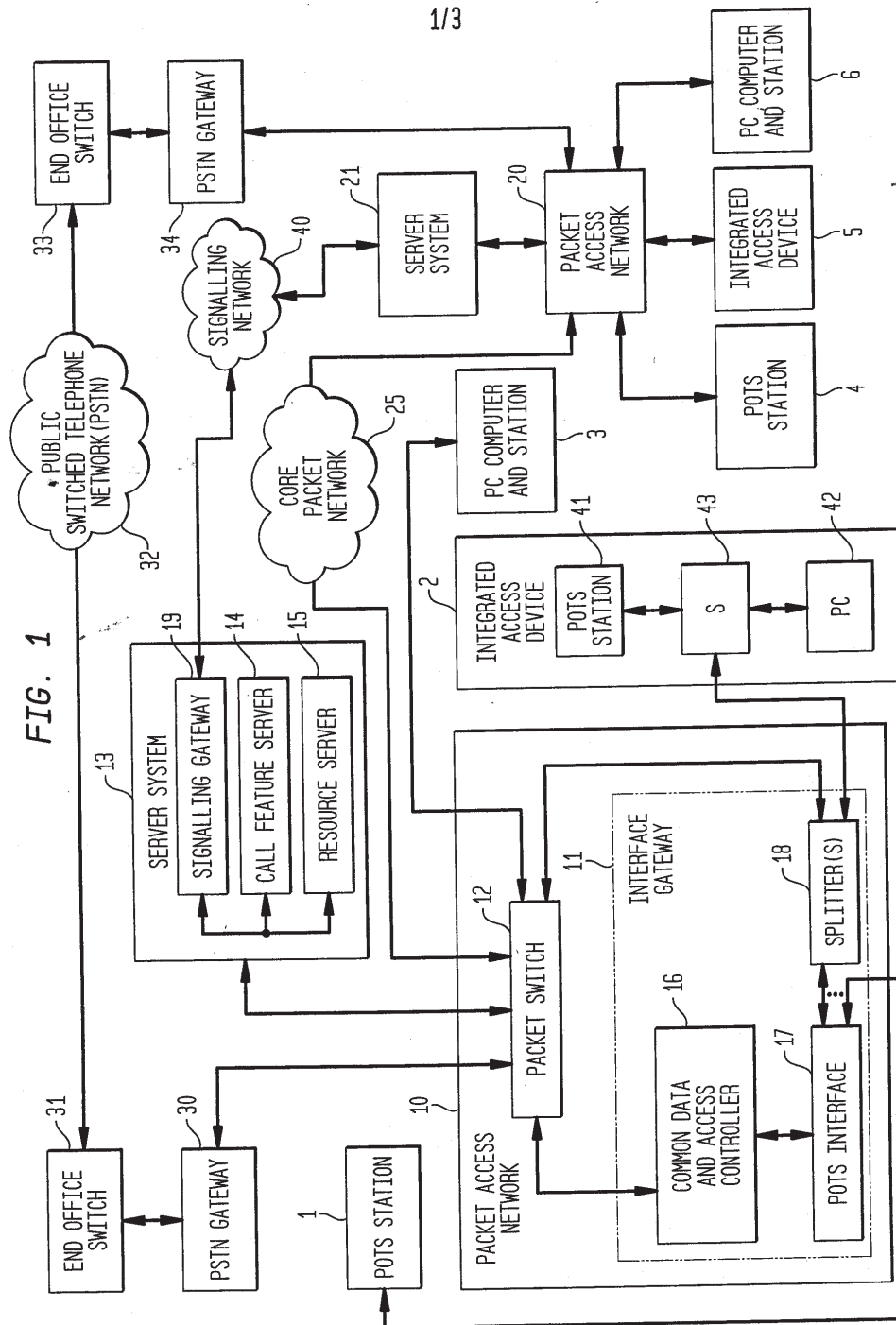


FIG. 2

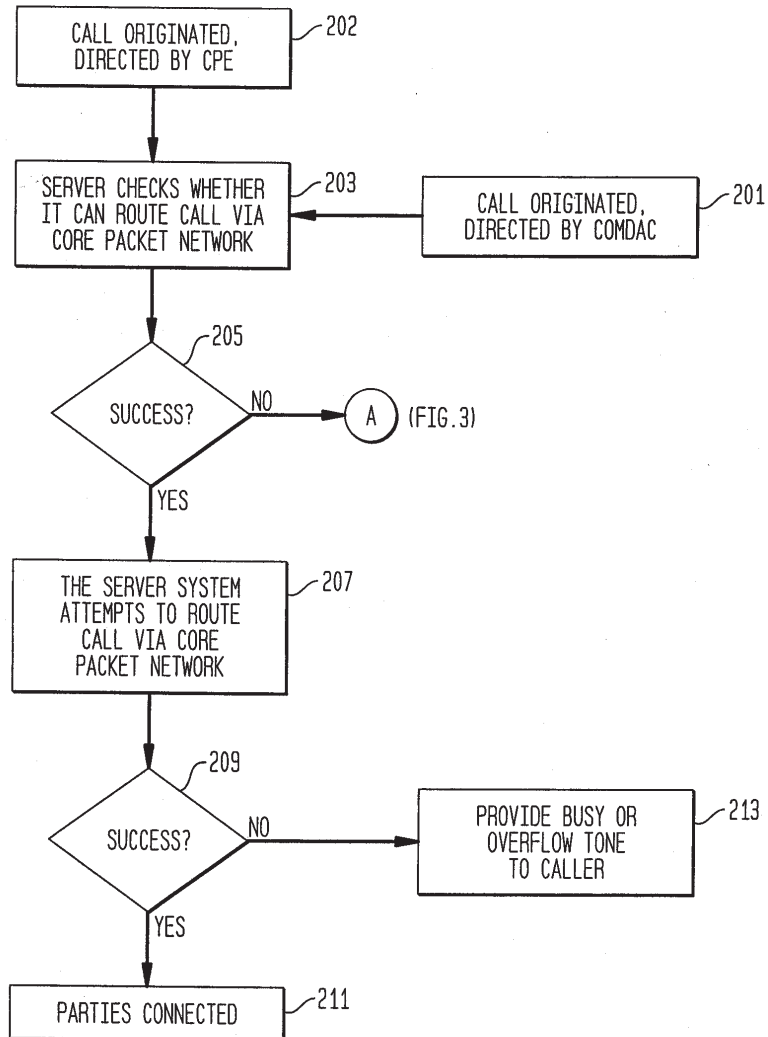
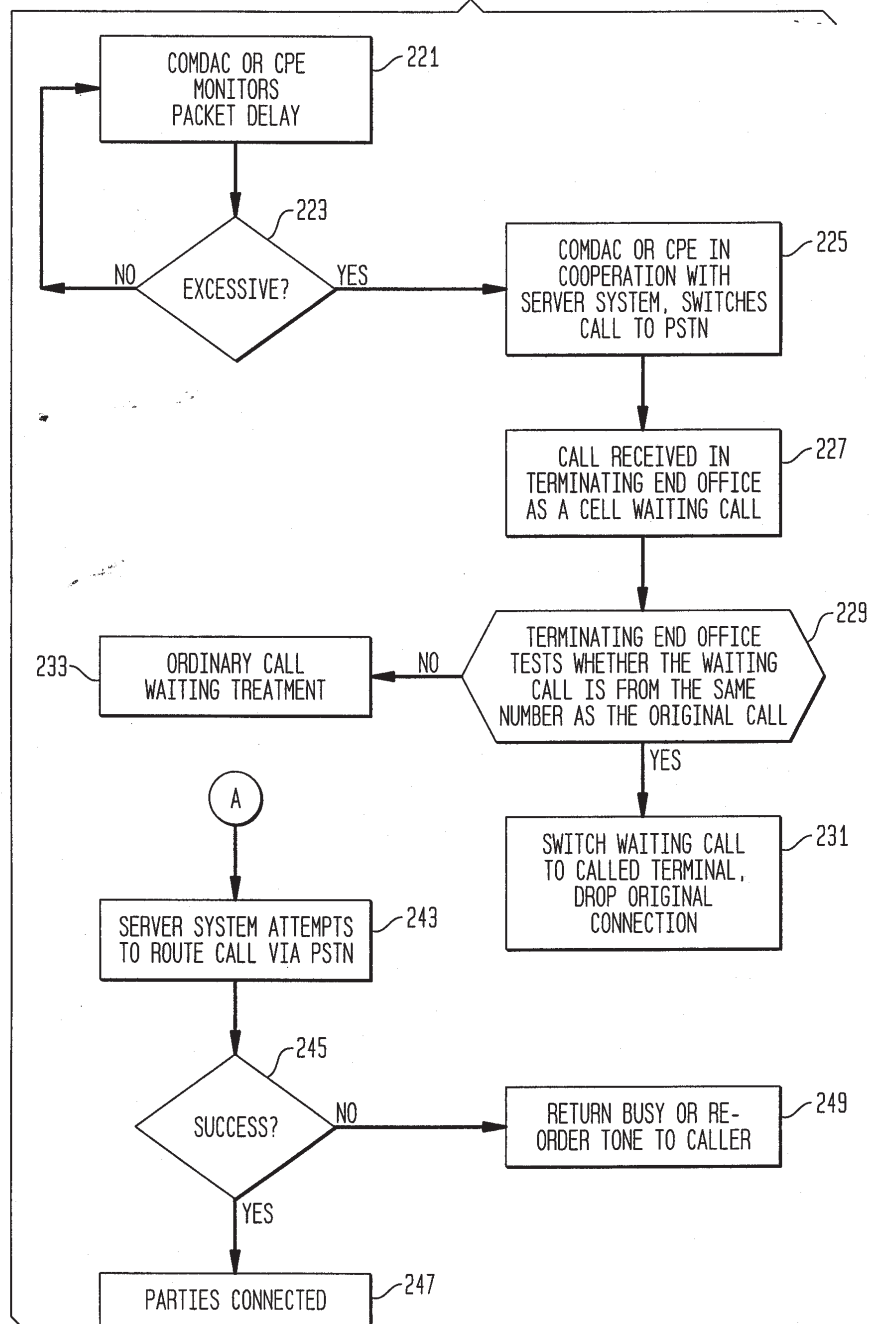


FIG. 3



OK



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/588,248	06/06/2000	Maureen Brigid Gallagher	1-22	8061

7590 08/13/2003  
Werner Ulrich  
434 Maple Street  
Glen Ellyn, IL 60137

EXAMINER

VANDERPUYE, KENNETH N

ART UNIT PAPER NUMBER

2661

DATE MAILED: 08/13/2003

3

Please find below and/or attached an Office communication concerning this application or proceeding.

OK



<b>Office Action Summary</b>	<b>Application No.</b> 09/588,248	<b>Applicant(s)</b> GALLAGHER ET AL.	
	<b>Examiner</b> Kenneth N Vanderpuye	<b>Art Unit</b> 2661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 September 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s) ____.   |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____. | 6) <input type="checkbox"/> Other:  |

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C.

112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "said interface circuits" in line 11. There is insufficient antecedent basis for this limitation in the claim.

***Allowable Subject Matter***

Claims 1-8 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth N Vanderpuye whose telephone number is 703-308-7828. The examiner can normally be reached on M-F(7:30-5:00) Second Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doug Olms can be reached on 703-305-4703. The

Application/Control Number: 09/588,248  
Art Unit: 2661

Page 3

fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.



KENNETH VANDERPUYE  
PRIMARY EXAMINER

KNV  
August 7, 2003

<b>Notice of References Cited</b>	Application/Control No. 09/588,248	Applicant(s)/Patent Under Reexamination GALLAGHER ET AL.	
	Examiner Kenneth N Vanderpuye	Art Unit 2661	Page 1 of 1

#### U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-5,691,985	11-1997	Lorenz et al.	370/401
	B	US-5,392,402	02-1995	Robock, II	395/200
	C	US-6,539,077	03-2003	Ranalli	379/67.1
	D	US-6,603,760	08-2003	Smyk	370/352
	E	US-6,064,653	05-2000	Farris	370/237
	F	US-6,282,192	08-2001	Murphy et al.	370/352
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

#### FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

#### NON-PATENT DOCUMENTS

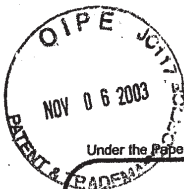
*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	<i>1/10/03</i>

\*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)  
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

U.S. Patent and Trademark Office  
PTO-892 (Rev. 01-2001)

Notice of References Cited

Part of Paper No. 3



2661

PTO/SB/21 (08-00)

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

<b>TRANSMITTAL FORM</b> (to be used for all correspondence after initial filing)	Application Number	09/588,248	
	Filing Date	June 6, 2000	
	First Named Inventor	M.B. Gallagher	
	Group Art Unit	2661	
	Examiner Name	K.N. Vanderpyke	
Total Number of Pages in This Submission	5	Attorney Docket Number	1-22

ENCLOSURES (check all that apply)		
<input type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached <input checked="" type="checkbox"/> Amendment / Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s)  <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Response to Missing Parts/Incomplete Application <input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Assignment Papers (for an Application) <input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) _____	<input type="checkbox"/> After Allowance Communication to Group <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to Group (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input checked="" type="checkbox"/> Other Enclosure(s) (please identify below): Return Receipt Postcard
Remarks		

NOV 10 2003

Technology Center 2600

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT	
Firm or Individual name	Werner Ulrich
Signature	Werner Ulrich
Date	11/3/03

CERTIFICATE OF MAILING	
I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, Washington, DC 20231 on this date: 11/3/03	
Typed or printed name	Werner Ulrich
Signature	Werner Ulrich
Date	11/3/03

Burden Hour Statement: This form is estimated to take 0.2 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

A

Ser. No. 09/588,248



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT APPLICATION

Inventors: M. B. Gallagher et al.

Case: 1-22

Serial No.: 09/588,248

Filing Date: June 6, 2000

Group Art Unit: 2661

Examiner: K. N. Vanderpuye

Title: Selected Establishment Of Telecommunications Connections Over Packet And  
Circuit Switched Networks

COMMISSIONER FOR PATENTS  
P.O. BOX 1450  
ALEXANDRIA, VA 22313-1450

Sir:

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AMENDMENT

Responsive to an Office Action dated August 13, 2003, please amend the  
application as follows.

In the claims:

A

AMENDMENT TO THE CLAIMSIn the Claims: ✓

On page 11, delete "Claims:" and substitute the following: --We claim:--.

CLAIM 1 (currently amended):

1. In a telecommunications network, comprising a core packet network and a circuit public switched telephone network (PSTN), apparatus for establishing a telecommunications connection comprising:
- a packet access network connectable to a plurality of customer telephone stations;
  - and
  - a server system;
- said packet access network comprising an interface gateway and a packet switch;
- said packet switch for accessing said PSTN and said core packet network;
- said interface gateway comprising circuits for converting signals from said plurality of customer telephone stations to packets for switching by said packet switch;
- said server system for controlling connections through said packet switch.

CLAIM 2 (original):

2. The apparatus of Claim 1 wherein said interface gateway further comprises:
- means for measuring delays of packet connections between said packet access network and another packet access network.

CLAIM 3 (original):

3. The apparatus of Claim 1, wherein said server system comprises means for determining whether a call should be routed over said PSTN or said core packet network.

CLAIM 4 (currently amended):

4. The apparatus of Claim 3, wherein said interface gateway further comprises
- means for measuring delays of packet connections between said packet access network and another packet access network;

wherein said means for determining is responsive to said means for measuring;

and

wherein a new call is routed over said PSTN if, based on said measured delays, an expected delay for said new call is excessive.

CLAIM 5 (currently amended):

5. The apparatus of Claim 3, wherein said interface gateway further comprises means for measuring delays of packet connections between said packet access network and another packet access network;

wherein said means for determining is responsive to said means for measuring;  
and

further comprising means for re-routing an existing call over said PSTN if said means for measuring measures an excessive delay on an existing call routed via said core packet network.

CLAIM 6 (currently amended)

6. The apparatus of Claim 5, wherein said means for re-routing an existing call comprises means for establishing an additional connection over said PSTN, and;

further comprising means for recognizing in a terminating system that said additional connection is from a same originating number as an original connection to a common terminating number; and

means responsive to said recognizing for establishing said additional connection and dropping said original connection.

CLAIM 7 (original):

7. The apparatus of Claim 1, wherein said server system comprises a call feature server for controlling connections through said packet switch in response to signals from said customer telephone stations.

CLAIM 8 (currently amended):

8. The apparatus of Claim 1, ~~further comprising;~~ wherein said interface gateway further comprises means for measuring delays of packet connections between said packet access network and another packet access network;

customer premises equipment (CPE) for generating and receiving packets; and  
wherein said CPE is connected directly to said packet switch.

Al  
Cont.

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REMARKS

In an Office Action dated August 13, 2003, the Examiner rejected claims 1-8 under 35 U.S.C. 112, second paragraph. The Examiner indicated that claim 1 recites the limitation "said interface circuits" in line 11 and that there is insufficient antecedent basis for this limitation in the claim. Applicants are amending claim 1 to substitute the words "said interface gateway comprising circuits" for the words "said interface circuits".

Applicants also noted that claims 4 and 5 both dependent from claims 3 and 1 recite "said means for measuring". However, the means for measuring are only defined in claim 2. Applicants are therefore amending claims 4 and 5 to further recite "wherein said interface gateway further comprises means for measuring delays of packet connections between said packet access network and another packet access network". This defines the means for measuring of claims 4 and 5.


\*In addition, Applicants have amended Claims 6 and 8 by making minor editing changes.

Accordingly, Applicants respectfully submit that the grounds for the Examiner's rejection under 35 U.S.C. 112, second paragraph, have been overcome in this amendment.

The Examiner stated that "Claims 1-8 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office Action." Accordingly, Applicants respectfully request that the Examiner hold the application, including claims 1-8 as amended, allowable and pass the application to issue.

If the Examiner feels that a telephone or fax contact would help to advance the prosecution of this application, the Examiner is invited to call or fax Applicants' attorney at 630 469-3575.

Respectfully submitted  
M. B. Gallagher et al.

  
by Werner Ulrich  
Attorney for Applicants  
Reg. No. 30810

November 3, 2003

A

Notice of Allowability	Application No.	Applicant(s)	
	Examiner	Art Unit	
	09/588,248	GALLAGHER ET AL.	
	Kenneth N Vanderpuye	2661	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**  
All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Amendment filed 11-6-00.  
2. ☒ The allowed claim(s) is/are 1-8.  
3. ☒ The drawings filed on 9-5-00 are accepted by the Examiner.  
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
    a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:  
        1. ☐ Certified copies of the priority documents have been received.  
        2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
        3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).  
    \* Certified copies not received: \_\_\_\_\_.  
5. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
    (a) ☐ The translation of the foreign language provisional application has been received.  
6. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE**

7. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.  
8. ☐ CORRECTED DRAWINGS must be submitted.  
    (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached  
        1) ☐ hereto or 2) ☐ to Paper No. \_\_\_\_\_.  
    (b) ☐ including changes required by the proposed drawing correction filed \_\_\_\_\_, which has been approved by the Examiner.  
    (c) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No. \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet.

9. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1 <input type="checkbox"/> Notice of References Cited (PTO-892)	2 <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3 <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	4 <input type="checkbox"/> Interview Summary (PTO-413), Paper No. _____
5 <input type="checkbox"/> Information Disclosure Statements (PTO-1449), Paper No. _____	6 <input type="checkbox"/> Examiner's Amendment/Comment
7 <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material	8 <input type="checkbox"/> Examiner's Statement of Reasons for Allowance
	9 <input type="checkbox"/> Other

**KENNETH VANDERPUYE**  
PRIMARY EXAMINER



## UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
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## NOTICE OF ALLOWANCE AND FEE(S) DUE

7590  
Werner Ulrich  
434 Maple Street  
Glen Ellyn, IL 60137

11/17/2003

EXAMINER

VANDERPUE, KENNETH N

ART UNIT

PAPER NUMBER

2661

DATE MAILED: 11/17/2003

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/588,248	06/06/2000	Maureen Brigid Gallagher	1-22	8061

TITLE OF INVENTION: SELECTIVE ESTABLISHMENT OF TELECOMMUNICATIONS CONNECTIONS OVER PACKET AND CIRCUIT SWITCHED NETWORKS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1330	\$0	\$1330	02/17/2004

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. **PROSECUTION ON THE MERITS IS CLOSED.** THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN **THREE MONTHS** FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. **THIS STATUTORY PERIOD CANNOT BE EXTENDED.** SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE REFLECTS A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE APPLIED IN THIS APPLICATION. THE PTOL-85B (OR AN EQUIVALENT) MUST BE RETURNED WITHIN THIS PERIOD EVEN IF NO FEE IS DUE OR THE APPLICATION WILL BE REGARDED AS ABANDONED.

## HOW TO REPLY TO THIS NOTICE:

## I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status is changed, pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above and notify the United States Patent and Trademark Office of the change in status, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check the box below and enclose the PUBLICATION FEE and 1/2 the ISSUE FEE shown above.

☐ Applicant claims SMALL ENTITY status.  
See 37 CFR 1.27.

II. PART B - FEE(S) TRANSMITTAL should be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). Even if the fee(s) have already been paid, Part B - Fee(s) Transmittal should be completed and returned. If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

**IMPORTANT REMINDER:** Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

Page 1 of 4

PTOL-85 (Rev. 10/03) Approved for use through 04/30/2004.

## PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: **Mail**

**Mail Stop ISSUE FEE**  
**Commissioner for Patents**  
**P.O. Box 1450**  
**Alexandria, Virginia 22313-1450**  
**or Fax (703) 746-4000**

**INSTRUCTIONS:** This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 4 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Legibly mark-up with any corrections or use Block 1)

7590

11/17/2003

Werner Ulrich  
 434 Maple Street  
 Glen Ellyn, IL 60137

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

**Certificate of Mailing or Transmission**

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/588,248	06/06/2000	Maureen Brigid Gallagher	1-22	8061

TITLE OF INVENTION: SELECTIVE ESTABLISHMENT OF TELECOMMUNICATIONS CONNECTIONS OVER PACKET AND CIRCUIT SWITCHED NETWORKS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1330	\$0	\$1330	02/17/2004

EXAMINER	ART UNIT	CLASS-SUBCLASS
VANDERPUEY, KENNETH N	2661	370-352000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.563).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.  
☐ "Fee Address" indication (or "Fee-Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1	_____
2	_____
3	_____

## 3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. Inclusion of assignee data is only appropriate when an assignment has been previously submitted to the USPTO or is being submitted under separate cover. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY AND STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent); ☐ individual ☐ corporation or other private group entity ☐ government

4a. The following fee(s) are enclosed:

- ☐ Issue Fee  
☐ Publication Fee  
☐ Advance Order - # of Copies \_\_\_\_\_

4b. Payment of Fee(s):

- ☐ A check in the amount of the fee(s) is enclosed.  
☐ Payment by credit card. Form PTO-2038 is attached.  
☐ The Director is hereby authorized by charge the required fee(s), or credit any overpayment, to Deposit Account Number \_\_\_\_\_ (enclose an extra copy of this form).

Director for Patents is requested to apply the Issue Fee and Publication Fee (if any) or to re-apply any previously paid issue fee to the application identified above.

(Authorized Signature)

(Date)

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant, a registered attorney or agent, or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

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PTOL-85 (Rev. 10/03) Approved for use through 04/30/2004.

OMB 0651-0033

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www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/588,248	06/06/2000	Maureen Brigid Gallagher	1-22	8061
7590		11/17/2003		
Werner Ulrich 434 Maple Street Glen Ellyn, IL 60137				
EXAMINER VANDERPUYE, KENNETH N				
ART UNIT		PAPER NUMBER		
2661				

DATE MAILED: 11/17/2003

## Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 737 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 737 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) system (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (703) 305-1383. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at (703) 305-8283.



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/588,248	06/06/2000	Maureen Brigit Gallagher	1-22	8061
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EXAMINER VANDERPUE, KENNETH N				
ART UNIT		PAPER NUMBER		
2661				

DATE MAILED: 11/17/2003

## Notice of Fee Increase on October 1, 2003

If a reply to a "Notice of Allowance and Fee(s) Due" is filed in the Office on or after October 1, 2003, then the amount due will be higher than that set forth in the "Notice of Allowance and Fee(s) Due" since there will be an increase in fees effective on October 1, 2003. See Revision of Patent Fees for Fiscal Year 2004; Final Rule, 68 Fed. Reg. 41532, 41533, 41534 (July 14, 2003).

The current fee schedule is accessible from (<http://www.uspto.gov/main/howtofees.htm>).

If the fee paid is the amount shown on the "Notice of Allowance and Fee(s) Due" but not the correct amount in view of the fee increase, a "Notice of Pay Balance of Issue Fee" will be mailed to applicant. In order to avoid processing delays associated with mailing of a "Notice of Pay Balance of Issue Fee," if the response to the Notice of Allowance is to be filed on or after October 1, 2003 (or mailed with a certificate of mailing on or after October 1, 2003), the issue fee paid should be the fee that is required at the time the fee is paid. If the issue fee was previously paid, and the response to the "Notice of Allowance and Fee(s) Due" includes a request to apply a previously-paid issue fee to the issue fee now due, then the difference between the issue fee amount at the time the response is filed and the previously-paid issue fee should be paid. See Manual of Patent Examining Procedure, Section 1308.01 (Eighth Edition, August 2001).

Effective October 1, 2003, 37 CFR 1.18 is amended by revising paragraphs (a) through (c) to read as set forth below.

Section 1.18 Patent post allowance (including issue) fees.

- (a) Issue fee for issuing each original or reissue patent, except a design or plant patent:
- By a small entity (Sec. 1.27(a))..... \$665.00
  - By other than a small entity..... \$1,330.00
- (b) Issue fee for issuing a design patent:
- By a small entity (Sec. 1.27(a))..... \$240.00
  - By other than a small entity..... \$480.00
- (c) Issue fee for issuing a plant patent:
- By a small entity (Sec. 1.27(a))..... \$320.00
  - By other than a small entity..... \$640.00

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## PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**  
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 4 should be completed where appropriate. Further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Legibly mark-up with any corrections or use Block 1)

7590 11/17/2003  
 Werner Ulrich  
 434 Maple Street  
 Glen Ellyn, IL 60137

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

## Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO, on the date indicated below.

Patty Siebler (Depositor's name)  
Patty Siebler (Signature)  
1-21-04 (Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/588,248	06/06/2000	Maureen Brigid Gallagher	1-22	8061

TITLE OF INVENTION: SELECTIVE ESTABLISHMENT OF TELECOMMUNICATIONS CONNECTIONS OVER PACKET AND CIRCUIT SWITCHED NETWORKS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1330	\$0	\$1330	02/17/2004

EXAMINER	ART UNIT	CLASS-SUBCLASS
VANDERPUE, KENNETH N	2661	370-352000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☒ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. Inclusion of assignee data is only appropriate when an assignment has been previously submitted to the USPTO or is being submitted under separate cover. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY AND STATE OR COUNTRY)

LUCENT TECHNOLOGIES INC.  
 MURRAY HILL, NJ 07974  
 STATE OF DELAWARE

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ individual ☒ corporation or other private group entity ☐ government

4a. The following fee(s) are enclosed:

☐ Issue Fee

☐ Publication Fee

☒ Advance Order - # of Copies 1

4b. Payment of Fee(s):

☐ A check in the amount of the fee(s) is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

☒ The Director is hereby authorized by charge the required fee(s), or credit any overpayment, to Deposit Account Number 12-2325 (enclose an extra copy of this form).

Director for Patents is requested to apply the Issue Fee and Publication Fee (if any) or to re-apply any previously paid issue fee to the application identified above.

(Authorized Signature)

(Date)

Patty Siebler 1-21-04  
 NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant, a registered attorney or agent, or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

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01/29/2004 AMONDAF2 00000099 122325 09588248  
 01 FC:1501 1330.00 DR  
 02 FC:8001 3.00 DR

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# File History Content Report

The following content is missing from the original file history record obtained from the United States Patent and Trademark Office. No additional information is available.

Document Date - 2004-03-09

Document Title - USPTO Grant



# PATENT APPLICATION FEE DETERMINATION RECORD

Effective December 29, 1999

Application or Docket Number

09/588248

## CLAIMS AS FILED - PART I

(Column 1) (Column 2)

FOR	NUMBER FILED	NUMBER EXTRA
BASIC FEE		
TOTAL CLAIMS	8 minus 20=	*
INDEPENDENT CLAIMS	1 minus 3=	*
MULTIPLE DEPENDENT CLAIM PRESENT		

\* If the difference in column 1 is less than zero, enter "0" in column 2

SMALL ENTITY  
TYPE ☒

OR OTHER THAN  
SMALL ENTITY

RATE	FEE	OR	RATE	FEE
	345.00	OR		690.00
X\$ 9=		OR	X\$18=	
X39=		OR	X78=	
+130=		OR	+260=	
TOTAL		OR	TOTAL	690

## CLAIMS AS AMENDED - PART II

(Column 1) (Column 2) (Column 3)

AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
11/12/03				
Total	* 8	Minus	** 20	=
Independent	* 1	Minus	*** 3	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				

SMALL ENTITY

OR OTHER THAN  
SMALL ENTITY

RATE	ADDI- TIONAL FEE	OR	RATE	ADDI- TIONAL FEE
X\$ 9=		OR	X\$18=	
X39=		OR	X78=	
+130=		OR	+260=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

(Column 1) (Column 2) (Column 3)

AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				

RATE	ADDI- TIONAL FEE	OR	RATE	ADDI- TIONAL FEE
X\$ 9=		OR	X\$18=	
X39=		OR	X78=	
+130=		OR	+260=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

(Column 1) (Column 2) (Column 3)

AMENDMENT C	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				

RATE	ADDI- TIONAL FEE	OR	RATE	ADDI- TIONAL FEE
X\$ 9=		OR	X\$18=	
X39=		OR	X78=	
+130=		OR	+260=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

\* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

\*\* If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20."

\*\*\*If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3."

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

## Derwent Innovation

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### Derwent Innovation Patent Export, 2021-02-10 01:37:04 +0000

Search results for: PNS=(US6704304);

Collections searched: DWPI; ARIPO grant; Argentina UM; Argentina app; Armenia grant; Australia UM; Australia app; Australia grant; Austria UM; Austria app; Austria grant; Belarus UM; Belarus grant; Belgium app; Belgium grant; Brazil UM; Brazil app; Brazil grant; Bulgaria UM; Bulgaria app; Bulgaria grant; Canada app; Canada grant; China, Mainland UM; China, Mainland app; China, Mainland grant; Colombia app; Costa Rica UM; Costa Rica app; Croatia UM; Croatia app; Croatia grant; Cuba app; Cuba grant; Czech Republic UM; Czech Republic app; Czech Republic grant; Czechoslovakia grant; Denmark UM; Denmark app; Denmark grant; Estonia UM; Estonia app; Estonia grant; Eurasian (EAPO) grant; Europe (EP) app; Europe (EP) grant; Finland app; Finland grant; France app; France grant; Georgia grant; German Democratic Republic app; German Democratic Republic grant; Germany UM; Germany app; Germany grant; Greece app; Greece grant; Gulf Cooperation Council grant; Hong Kong UM; Hong Kong app; Hong Kong grant; Hungary grant; Iceland grant; India app; India grant; Indonesia UM; Indonesia app; Ireland UM; Ireland app; Ireland grant; Israel grant; Italy grant; Italy grant; Italy grant; Italy grant; Japan UM; Japan app; Japan grant; Korea UM; Korea app; Korea grant; Latvia grant; Lithuania grant; Luxembourg app; Luxembourg grant; Malaysia grant; Mexico app; Mexico grant; Moldova UM; Moldova grant; Monaco grant; Mongolia UM; Mongolia grant; Morocco app; Morocco grant; Netherlands app; Netherlands grant; New Zealand grant; Norway app; Norway grant; OAPI grant; PCT (WO) app; Philippines app; Philippines grant; Poland UM; Poland grant; Portugal UM; Portugal app; Portugal grant; Romania UM; Romania app; Romania granted; Russia UM; Russia app; Russia grant; Serbia UM; Serbia app; Serbia grant; Singapore app; Singapore grant; Slovakia UM; Slovakia app; Slovakia grant; Slovenia UM; Slovenia grant; South Africa app; Spain UM; Spain app; Spain grant; Sweden app; Sweden grant; Switzerland app; Switzerland grant; Taiwan UM; Taiwan appl; Taiwan grant; Thailand grant; Tunisia app; Turkey UM; Turkey app; UK app; UK grant; USSR grant; Ukraine UM; Ukraine grant; United States app; United States grant; Uruguay app; Vietnam app; Vietnam grant; Other

#### Table of Contents

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1. US6704304B1 Selective establishment of telecommunications connections over packet and circuit switched networks
-

**Family 1/1****1 record(s) per family**

**Record 1/1** US6704304B1 Selective establishment of telecommunications connections over packet and circuit switched networks

**Title:** Selective establishment of telecommunications connections over packet and circuit switched networks

**Title - DWPI:** Telecommunication connection establishment apparatus for packet or public switched telephone network, has interface gateway for converting signals of customer telephone stations to packets for switching by packet switch

**Priority Number:** US2000588248A

**Priority Date:** 2000-06-06

**Application Number:** US2000588248A

**Application Date:** 2000-06-06

**Publication Date:** 2004-03-09

**IPC Class Table:**

IPC	Section	Class	Subclass	Class Group	Subgroup
H04L001266	H	H04	H04L	H04L0012	H04L001266

**IPC Class Table - DWPI:**

IPC - DWPI	Section - DWPI	Class - DWPI	Subclass - DWPI	Class Group - DWPI	Subgroup - DWPI
H04L001256 (IPC 1-7)	H	H04	H04L	H04L0012	H04L001256 (IPC 1-7)

**Assignee/Applicant:** Lucent Technologies Inc.,Murray Hill,NJ

**JP F Terms:**

**JP FI Codes:**

**Assignee - Original:** Lucent Technologies Inc.

**Any CPC Table:**

Type	Invention	Additional	Version	Office
Current	<b>H04L 12/66</b>	-	20130101	EP

**ECLA:** H04L001266

**Abstract:**

A calling and called telecommunications station are each connected to a packet access network. The packet access network under the control of a server system, determines whether an originating call should be routed via a core packet network, such as the Internet, or a Public Switched Telephone Network (PSTN). If the expected delay of packets through the core packet network is excessive, then the call will be connected through the Public Switched Telephone Network. If, during the course of a call, the packet delay becomes excessive, and causes the quality of voice transmission to be below acceptable standards, the call is switched from the packet network to the Public Switched Telephone Network. Advantageously, as many calls as can be handled by the packet network are switched through that network, thus resulting in substantial savings to the customer. Advantageously, the embedded PSTN can be used productively to handle overflows from the core packet network. Advantageously, the quality of voice calls through the core packet network can be maintained by re-routing existing calls through the PSTN when necessary.

**Language of Publication:** EN

**INPADOC Legal Status Table:**

Gazette Date	Code	INPADOC Legal Status Impact
2019-05-21	AS	-
<b>Description:</b> ASSIGNMENT WSOU INVESTMENTS, LLC, CALIFORNIA RELEASE BY SECURED PARTY; ASSIGNOR:OCO OPPORTUNITIES MASTER FUND, L.P. (F/K/A OMEGA CREDIT OPPORTUNITIES MASTER FUND LP; REEL/FRAME:049246/0405 2019-05-16		
2019-05-20	AS	-
<b>Description:</b> ASSIGNMENT BP FUNDING TRUST, SERIES SPL-VI, NEW YORK SECURITY INTEREST; ASSIGNOR:WSOU INVESTMENTS, LLC; REEL/FRAME:049235/0068 2019-05-16		
2017-09-25	AS	-
<b>Description:</b> ASSIGNMENT WSOU INVESTMENTS, LLC, CALIFORNIA ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:ALCATEL LUCENT; REEL/FRAME:044000/0053 2017-07-22		
2017-09-21	AS	-
<b>Description:</b> ASSIGNMENT OMEGA CREDIT OPPORTUNITIES MASTER FUND, LP, NEW YO SECURITY INTEREST; ASSIGNOR:WSOU INVESTMENTS, LLC; REEL/FRAME:043966/0574 2017-08-22		
2017-09-21	AS	-

<b>Description:</b> ASSIGNMENT OMEGA CREDIT OPPORTUNITIES MASTER FUND, LP, NEW YORK SECURITY INTEREST; ASSIGNOR:WSOU INVESTMENTS, LLC; REEL/FRA:043966/0574 2017-08-22		
2015-12-01	SULP	+
<b>Description:</b> SURCHARGE FOR LATE PAYMENT FEE PAYMENT YEAR 11		
2015-12-01	FPAY	+
<b>Description:</b> FEE PAYMENT FEE PAYMENT YEAR 12		
2015-10-16	REMI	-
<b>Description:</b> MAINTENANCE FEE REMINDER MAILED		
2011-09-02	FPAY	+
<b>Description:</b> FEE PAYMENT FEE PAYMENT YEAR 8		
2007-08-30	FPAY	+
<b>Description:</b> FEE PAYMENT FEE PAYMENT YEAR 4		
2004-02-19	STCF	-
<b>Description:</b> INFORMATION ON STATUS: PATENT GRANT PATENTED CASE		
2000-06-06	AS	-
<b>Description:</b> ASSIGNMENT LUCENT TECHNOLOGIES INC., NEW JERSEY ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:GALLAGHER, M.B.; SAND, P.R.; REEL/FRA:010862/0386 2000-06-06		

**Post-Issuance (US):**

**Reassignment (US) Table:**

Assignee	Assignor	Date Signed	Reel/Frame	Date
WSOU INVESTMENTS LLC, LOS ANGELES, CA, US	OCO OPPORTUNITIES MASTER FUND, L.P. (F/K/A OMEGA CREDIT OPPORTUNITIES MASTER FUND LP)	2019-05-16	049246/0405	2019-05-21
<b>Conveyance:</b> RELEASE BY SECURED PARTY (SEE DOCUMENT FOR DETAILS).				
<b>Correspondent:</b> ERICK J. PALMER P.O. BOX 2828 CHICAGO, IL 60690-2828				

BP FUNDING TRUST SERIES SPL-VI,WHITE PLAINS,NY,US	WSOU INVESTMENTS, LLC	2019-05-16	049235/0068	2019-05-20
<b>Conveyance:</b> SECURITY INTEREST (SEE DOCUMENT FOR DETAILS).				
<b>Corresponent:</b> BROWN RUDNICK LLP ONE FINANCIAL CENTER BOSTON, MA 02111				
OMEGA CREDIT OPPORTUNITIES MASTER FUND LP,NEW YORK,NY,US	WSOU INVESTMENTS, LLC	2017-08-22	043966/0574	2017-09-21
<b>Conveyance:</b> SECURITY INTEREST (SEE DOCUMENT FOR DETAILS).				
<b>Corresponent:</b> ERICK J. PALMER P.O. BOX 2828 CHICAGO, IL 60690-2828				
WSOU INVESTMENTS LLC,LOS ANGELES,CA,US	ALCATEL LUCENT	2017-07-22	044000/0053	2017-09-25
<b>Conveyance:</b> ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS).				
<b>Corresponent:</b> BURDICK PATENTS 2526 W. STATE STREET BOISE, ID 83702				
LUCENT TECHNOLOGIES INC.,MURRAY HILL,NJ,US	GALLAGHER, M.B.	2000-06-06	010862/0386	2000-06-06
	SAND, P.R.	2000-06-06	-	-
<b>Conveyance:</b> ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS).				
<b>Corresponent:</b> WERNER ULRICH 434 MAPLE STREET GLEN ELLYN, IL 60137-3826				

**Maintenance Status (US):**

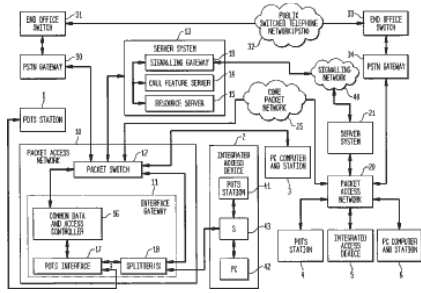
**Litigation (US):** 2020-09-29 2020 WSOU Investments, LLC d/b/a Brazos Licensing and Development Huawei Technologies Co. Ltd. Huawei Technologies USA Inc. W.D. Texas 6:20cv00889

**Opposition (EP):**

**License (EP):**

**EPO Procedural Status:**

**Front Page Drawing:**



Priority Number - DWPI: US2000588248A

Priority Date - DWPI: 2000-06-06

Assignee - Current US: WSOU INVESTMENTS LLC



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## United States Patent and Trademark Office

Office of the Commissioner for Patents

### SELECTIVE ESTABLISHMENT OF TELECOMMUNICATIONS CONNECTIONS OVER PACKET AND CIRCUIT SWITCHED NETWORKS

**PATENT #** 6704304      **APPLICATION #** 09588248      **FILING DATE** 06/06/2000      **ISSUE DATE** 03/09/2004

#### Payment Window Status

**WINDOW**  
11.5 Year      **STATUS**  
Closed      **FEES**  
Paid

No maintenance  
fees are due.

Window	First Day to Pay	Surcharge Starts	Last Day to Pay	Status	Fees
3.5 Year	03/09/2007	09/11/2007	03/10/2008	Closed	Paid
7.5 Year	03/09/2011	09/10/2011	03/09/2012	Closed	Paid
11.5 Year	03/09/2015	09/10/2015	03/09/2016	Closed	Paid

#### Patent Holder Information

**Customer #** 287  
**Entity Status** UNDISCOUNTED  
**Phone Number** 00352/499841  
**Address** DENNEMEYER & CO. LUXEMBOURG  
P.O. BOX 1502  
L - 1015  
LUXEMBOURG,  
LUXEMBOURG