

8558392



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

January 06, 2025

**THIS IS TO CERTIFY THAT ANNEXED IS A TRUE COPY FROM THE
RECORDS OF THIS OFFICE OF THE FILE WRAPPER AND CONTENTS
OF:**

APPLICATION NUMBER: 10/686,375

FILING DATE: October 14, 2003

PATENT NUMBER: 7606156

ISSUE DATE: October 20, 2009



Certified by

David A. Brent

Acting Under Secretary of Commerce
for Intellectual Property
and Acting Director of the United States
Patent and Trademark Office

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.

**UTILITY
PATENT APPLICATION
TRANSMITTAL**

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No.

First Inventor

Title

Express Mail Label N.

Delangis

Residential Communications Gateway

ER493670148US

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

ADDRESS TO:

Mail Stop Patent Applications
Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

1. ☒ Fee Transmittal Form (e.g., PTO/SB/17)
(Submit an original and a duplicate for fee processing)
2. ☒ Applicant claims small entity status.
See 37 CFR 1.27.
3. ☒ Specification [Total Pages 38]
(preferred arrangement set forth below)
- Descriptive title of the invention
 - Cross Reference to Related Applications
 - Statement Regarding Fed sponsored R & D
 - Reference to sequence listing, a table, or a computer program listing appendix
 - Background of the Invention
 - Brief Summary of the Invention
 - Brief Description of the Drawings (if filed)
 - Detailed Description
 - Claim(s)
 - Abstract of the Disclosure
4. ☒ Drawing(s) (35 U.S.C. 113) [Total Sheets 9]
5. ☒ Oath or Declaration [Total Sheets 1]
- a. ☒ Newly executed (original or copy)
- b. ☐ Copy from a prior application (37 CFR 1.63(d))
(for continuation/divisional with Box 18 completed)
- i. ☐ **DELETION OF INVENTOR(S)**
Signed statement attached deleting inventor(s)
name in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).
6. ☐ Application Data Sheet. See 37 CFR 1.76

7. ☐ CD-ROM or CD-R in duplicate, large table or Computer Program (Appendix)
8. Nucleotide and/or Amino Acid Sequence Submission (if applicable, all necessary)
- a. ☐ Computer Readable Form (CRF)
- b. Specification Sequence Listing on:
- i. ☐ CD-ROM or CD-R (2 copies); or
- ii. ☐ Paper
- c. ☐ Statements verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

9. ☐ Assignment Papers (cover sheet & document(s))
10. ☐ 37 CFR 3.73(b) Statement of Attorney (when there is an assignee) ☐ Power of Attorney
11. ☐ English Translation Document (if applicable)
12. ☐ Information Disclosure Statement (IDS)/PTO-1449 ☐ Copies of IDS Citations
13. ☐ Preliminary Amendment
14. ☒ Return Receipt Postcard (MPEP 503)
(Should be specifically itemized)
15. ☐ Certified Copy of Priority Document(s)
(if foreign priority is claimed)
16. ☐ Nonpublication Request under 35 U.S.C. 122 (b)(2)(B)(i). Applicant must attach form PTO/SB/35 or its equivalent.
17. ☐ Other:

18. If a CONTINUING APPLICATION, check appropriate box, and supply the requisite information below and in the first sentence of the specification following the title, or in an Application Data Sheet under 37 CFR 1.76:

☐ Continuation☐ Divisional☐ Continuation-in-part (CIP)

of prior application No.:

Prior application information:

Examiner

Art Unit:

For CONTINUATION OF DIVISIONAL APPS only: The entire disclosure of the prior application, from which an oath or declaration is supplied under Box 5b, is considered a part of the disclosure of the accompanying continuation or divisional application and is hereby incorporated by reference. The incorporation can only be relied upon when a portion has been inadvertently omitted from the submitted application parts.

19. CORRESPONDENCE ADDRESS☐ Customer Number: OR ☒ Correspondence address below

Name: Eric Delangis

Address: 4339 Golf Vista Dr.

City: Loveland State: Colorado Zip Code: 80537

Country: USA Telephone: 970-278-4099 Fax:

Name (Print/Type): Eric Delangis Registration No. (Attorney/Agent):

Signature: [Signature] Date: 10/13/03

This collection of information is required by 37 CFR 1.53(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop Patent Application, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

FEE TRANSMITTAL for FY 2004

Effective 10/01/2003. Patent fees are subject to annual revision.

☒ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$)

Complete if Known

Application Number	
Filing Date	10/13/03 w/ Provisional 10/15/02
First Named Inventor	Delangis
Examiner Name	
Art Unit	
Attorney Docket No.	

METHOD OF PAYMENT (check all that apply)

☒ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None

☐ Deposit Account:

Deposit Account Number
Deposit Account Name

The Director is authorized to: (check all that apply)

☐ Charge fee(s) indicated below ☐ Credit any overpayments
☐ Charge any additional fee(s) or any underpayment of fee(s)
☐ Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account.

FEE CALCULATION

1. BASIC FILING FEE

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1001	770	2001	385	Utility filing fee	385
1002	340	2002	170	Design filing fee	
1003	530	2003	265	Plant filing fee	
1004	770	2004	385	Reissue filing fee	
1005	160	2005	80	Provisional filing fee	
SUBTOTAL (1)				(\$)	385

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

Total Claims 9 - 20** = 6 X 60 = 360
 Independent Claims 1 - 3** = 0 X 0 = 0
 Multiple Dependent 0 = 0

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1202	18	2202	9	Claims in excess of 20	360
1201	86	2201	43	Independent claims in excess of 3	
1203	290	2203	145	Multiple dependent claim, if not paid	
1204	86	2204	43	** Reissue independent claims over original patent	
1205	18	2205	9	** Reissue claims in excess of 20 and over original patent	
SUBTOTAL (2)				(\$)	360

**or number previously paid, if greater. For Reissues, see above

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet	
1053	130	1053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for <i>ex parte</i> reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	110	2251	55	Extension for reply within first month	
1252	420	2252	210	Extension for reply within second month	
1253	950	2253	475	Extension for reply within third month	
1254	1,480	2254	740	Extension for reply within fourth month	
1255	2,010	2255	1,005	Extension for reply within fifth month	
1401	330	2401	165	Notice of Appeal	
1402	330	2402	165	Filing a brief in support of an appeal	
1403	290	2403	145	Request for oral hearing	
1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	110	2452	55	Petition to revive - unavoidable	
1453	1,330	2453	665	Petition to revive - unintentional	
1501	1,330	2501	665	Utility issue fee (or reissue)	
1502	480	2502	240	Design issue fee	
1503	640	2503	320	Plant issue fee	
1460	130	1460	130	Petitions to the Commissioner	
1807	50	1807	50	Processing fee under 37 CFR 1.17(q)	
1806	180	1806	180	Submission of Information Disclosure Stmt	
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	770	2809	385	Filing a submission after final rejection (37 CFR 1.129(a))	
1810	770	2810	385	For each additional invention to be examined (37 CFR 1.129(b))	
1801	770	2801	385	Request for Continued Examination (RCE)	
1802	900	1802	900	Request for expedited examination of a design application	

Other fee (specify)

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) (\$)

SUBMITTED BY

Name (Print/Type)	Eric Delangis	Registration No.	Telephone 970-278-4089
Signature	<i>Eric Delangis</i>	(Attorney/Agent)	Date 10/13/03

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

This collection of information is required by 37 CFR 1.17 and 1.27. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

First Non-Provisional Patent Specification

Inventor: Eric DeLangis
a US Citizen

Address: 4339 Golf Vista Dr.
Loveland, CO 80537
Tel: 970-278-4099

TITLE:

A Residential Communications Gateway (RCG) for broadband communications over a plurality of standard POTS lines, with dynamic allocation of said bandwidth, that requires no additional equipment or modifications to the associated Class 5 offices or the PSTN at large.

RELATED U.S. APPLICATIONS:

This first non-provisional patent applications makes claim to the Provisional Application for Patent filed October 15, 2002 and titled Residential Communications Gateway, of the same inventorship and with the express mail label no EF 100339383 US.

References Cited:

US 2002/0054597	O'Toole et al.
5,909,445	Schneider
6,061,392	Bremer at al.
6,167,095	Furukawa et al.
6,307,839	Gerszbert et al.
6,373,860	O'Toole et al.

FIELDS OF SEARCH:

370/235, 230, 370/233, 363, 371, 374, 381, 433, 465-468, 470-474, 483-486, 493-495,
352, 395, 252, 379/399, 93.01, 375/222,

ABSTRACT:

The Residential Communications Gateway (RCG) is a broadband communications device that combines all voice, data and video communications to and from a typical residence or small business for transmission over a single, or a plurality of Plain Old Telephone Service (POTS) lines separately or in conjunction with, a wireless broadband backbone. The RCG does this by employing packetized data with Voice over Internet Protocol (VoIP) technologies combined with RF communications technologies. A key consideration to the design of the RCG is that no additional or special transmission equipment must be installed at the Central Office or anywhere else in the network to enable new calling features provided by the RCG as is the case with DSL and Cable systems. By eliminating the requirement for costly infrastructure enhancements, ubiquitous high speed communications and services can be deployed to every POTS subscriber.

BACKGROUND OF INVENTION:

The primary function of the RCG is to provide a platform for Competitive Local Exchange Companies (CLECs) to compete with the Local Exchange Companies (LECs) for residential voice and data services. The LECs have a strangle hold on the "last mile" of copper over which almost all residential customers receive their communications services. Today, most CLECs resell the existing services that are offered by the LECs. CLECs make their money by purchasing these services from the LECs at a discount and marking them up to the customer. Since these services are regulated and controlled by the Public Utilities

Commission (PUC) the pricing for these services to the CLECs is set. The monthly CLEC discount is approximately \$5 to \$6 per line per month for basic rate services. This means, in practicality, that a CLEC can only charge an additional \$5 or \$6 to the residential customer for basic rate services otherwise they would be more expensive than the LEC, and no one would buy the services from them; telephone customers would simply stay with the LEC.

To be competitive then, CLECs try to sell additional services such as call waiting, caller ID, etc. where they have as much as a 50% margin. Some CLECs also bundle long distance services with their packages as additional incentive to get residential customers to buy local telephone service from them. Since long distance fees are as low as pennies per minute to the customer, there is little profit in long distance for the CLECs. As it is, the pricing structure is such that the LECs will stay in control of the residential market, and the CLECs are nothing more than a marketing arm of the LEC. This structure also keeps the CLECs at an equal competitive advantage, or disadvantage, with respect to each other. The only thing that one CLEC could do to gain more customers is to be a better marketer. Since the CLECs are unable to discount their services because their margins are too slim as it is, the net effect is that the consumer loses by not really getting competition in the residential markets, and prices are kept artificially high.

For the CLECs to be truly competitive in the local telecommunications markets, they must be able to do more than simply resell the LECs services. CLECs must be able to offer many more features or services than those that the LEC provides, and they must be able to do this at a lower cost, in order to attract new customers.

So, what new services can the CLECs offer? As things stand today there are none, with the exception of DSL or Cable services which require tremendous infrastructure costs

on behalf of the CLEC. However, by deploying an RCG in a residence, CLECs can offer advanced new calling features and services over the existing POTS line. Their costs for the POTS line from the LEC remains the same, but they can now charge for high bandwidth data services as well as additional calling and messaging features that the LECs cannot offer. This is their competitive advantage.

Competition:

Many companies are currently trying to provide VoIP services to residential customers over high-speed or broadband backbones such as DSL and cable modems, over Internet connections via a computer. The high-speed services require expensive infrastructure enhancements to the local telephone companies' facilities and cable plants, as well as expensive modems at the customer's end. These services are also difficult to deploy and too complicated for the average user. Internet based VoIP services suffer from Internet delays caused by a lack of true Quality of Service (QOS) capabilities across the Internet. Existing VoIP services also require access to a computer and a technical knowledge to be able to make it work. Because of these problems, VoIP services are primarily targeted at the corporate market place where private IP networks that can carry VoIP services with a true guaranteed QOS exist, or can be controlled.

The only available alternatives for the residential user for high speed services are DSL and cable modems. DSL and Cable based communications reach only a small segment of the population, and growth has failed to live up to initial expectations. The recent collapse of the internet boom has led to the failure of many DSL service providers and has effectively eliminated DSL as a potential service for most POTS users for the immediate future.

SUMMARY OF THE INVENTION:

The RCG combines the capabilities and features of IP routers, Class 5 circuit switches and wireless LANs in a small stand-alone external modem like device. Additional capabilities for a hands-free speakerphone device with a large touch display are also detailed. The RCG can employ a large display with sufficient resolution to provide a functional user interface to access all of the advanced features offered by the RCG, but also to be able to provide video telephone services.

The device is placed in a residence and connected to the primary POTS line coming from the LEC. Up to three standard telephones or FAX machines (or any combination) are typically connected into the RCG. It also has a Universal Serial Bus (USB) and/or a 10-100 Ethernet interface for connection to a computer or a Local Area Network (LAN). In addition, it has an 802.11b/g wireless interface for wireless home networking as well as broadband-to-the-home services.

The system is installed in a customer's home by simply plugging it into the existing incoming telephone line that provides POTS services from the LEC. One or more standard telephones are then plugged into its three line-output jacks. This is the simplest and most basic usage. In this implementation, the user only is interested in gaining additional telephone lines into the household. No computer connection is required in order to use the system. However, if data communications are desired, then there are three additional interfaces for computer connectivity. Typically either an Ethernet port, USB port or firewire (IEEE 1394) port is used to connect to a PC or LAN. The 802.11b/g interface is for wireless communications between the RCG and PCs, other RCGs as well as any other types

of compatible wireless devices. A version of the RCG includes a speakerphone and video camera to provided for video telephone services.

Services provided by the RCG:

The following discussion refers to figure 1. The RCG has a main system processor that is responsible for all house keeping and traffic routing tasks. The Main CPU 19 routes data to and from the Ethernet Port 11, USB Port 12, Modem/DAA 41, DSP Engine 33, 802.11b/g Module 36 and the Display and Keypad 10.

The RCG provides a total telecommunications communications services package for residential and small business customers. With the RCG, a CLEC can offer its customers dialtone for up to three separate telephone numbers per residence (the limit of three telephone numbers is an arbitrary number based upon typical residential usage and is not a limit imposed by the system), all local and long distance services, 24/7 always-on Internet access, a host of custom messaging and calling features, as well as Broadband access and lifeline service. All of these services can be offered over a customer's existing POTS line, and it doesn't require any network infrastructure build out like DSL and Cable services. Because there is no expensive network equipment required, it can be readily deployed throughout the country to expand the CLECs customer base quickly.

The RCG is designed to enhance, not replace, the existing telephone line, enabling it to provide new combined packetized voice and data services. Meanwhile, all existing telecommunications infrastructure and equipment will continue to work seamlessly with the RCG. Aside from simply installing the low cost RCG device in the home telephone wiring, no other equipment needs to be purchased by either the home owner or telephone

companies. This eliminates the tremendously expensive infrastructure costs for communications companies that are trying to provide voice services using DSL or cable modems.

The RCG VIP Home Gateway features:

Up to three telephone lines i.e. numbers, over a single POTS line and/or wireless connection.

Ethernet, USB and IEEE 1394 computer interfaces.

Full G1, G2 and G3 FAX support.

Full support for all CLASS services.

Broadband networking for home computers and appliances as well as wide area networking using a combination of a plurality POTS lines connected to a plurality of RCGs and/or a direct wireless connection to a wireless access point. (These interfaces allow smart devices to communicate to other devices within the home, or over the Internet through the RCG.)

Automated, remote upgradability and configuration. (Requires the customer to do nothing.)

Transparent user operation. (User doesn't have to know that any new technology is being employed)

100% compatible with existing public telephone system.

Video Telephone capabilities.

No local or long distance usage charges.

No Internet access fees.

Lower monthly communication costs.

Multiple telephone calls at the same time.

Voice messaging, follow me features, call forwarding, automatic call back, conferencing, custom call routing. Home networking capabilities, all CLASS calling features, high speed broadband networking, continuous 24/7 internet access. and many others.

All of these features are available even while connected to the Internet.

Very low cost of entry into the market, especially as compared to broadband alternatives.

New calling features that are not currently available to home users.

BRIEF DESCRIPTION OF THE DRAWINGS:

Figure 1 shows the RCG functional block diagram with the preferred embodiment of an 802.11 wireless connection.

Figure 2 shows the network topology for native RCG to RCG communications.

Figure 3 shows the network topology for an RCG to PSTN call.

Figure 4 shows the RCG top view with associated functions.

Figure 5 shows the RCG rear view and associated connections.

Figure 6 shows a typical application with peripheral equipment connections.

Figure 7 shows an ad-hoc wireless LAN configuration with ppp multilink data distribution and wireless connectivity.

Figure 8 shows an ad-hoc wireless LAN configuration with ppp multilink data distribution and wireless connectivity with connection to a broadband neighborhood access point (Wi-Fi hot spot).

Figure 9 shows an ad-hoc wireless LAN configuration with ppp multilink data distribution and wireless connectivity with wireless data hopping with POTS connections through numerous different Class 5 offices.

DETAILED DESCRIPTION AND PREFERRED EMBODIMENT:

The preferred embodiment is detailed herein using the ubiquitous 802.11 wireless protocol. It is by no means insinuated that this is the only wireless scheme that can be used by this device; rather, it is intended that any wireless transmission scheme can be used for wireless communications between this device and other wireless devices as various applications may dictate.

System Initialization:

Refer to figures 1, 2 and 3 for the following discussion. When the RCG is first plugged into an AC power outlet the Main CPU 19, performs a Power-on Self Test (POST) routine. Once the POST completes and the RCG is connected to an active POTS line, connected to the LEC, by means of the Incoming POTS Port 40, the RCG automatically

initiates a modem connection via the Modem/DAA 41, to a registration service via a toll free 800 telephone number. The registration service connects directly to the service provider's sales or customer service offices via a VoIP connection. An operator or an automated service answers the call and sets up a new account for the customer. Once the account is set up, the service provider's network automatically sends control information to the device to store the required routing and feature/service information in its non-volatile memory of its Main CPU 19. As part of this information, a local dialup telephone number is sent to the device that it will use for local network access in the same fashion as a standard ISP connection is made from a home computer. The URL of the Softswitch/SIP Proxy Server and Registrar 51 that will be controlling this particular device is also stored at this time. During the service activation and configuration process, the customer service operator can send test requests to the device, as well as call into it on another telephone number (assuming an additional telephone number is part of the users class of service) or the speakerphone to verify that it is configured and working properly. The final step of the configuration and initialization process is to register the device with the appropriate Softswitch/SIP Proxy Server and Registrar 51 so that the Softswitch/SIP Proxy Server and Registrar 51 knows that it is the controlling SIP Proxy for this RCG. Also configured at this time is the username/password verification server (this is a standard network device and is not shown) that is used to allow the RCG's modem to make a connection onto the service provider's network. Once the RCG configuration is completed, it disconnects the call by hanging up the Modem/DAA 41, then dials the new local network access number that had been sent during the configuration process and establishes a constant local network connection. This connection is maintained continuously on a 24/7 basis, and is immediately reestablished whenever it drops. Should the RCG become unable to reestablish this

connection after several tries, it will switch over to failsafe mode and inform the user via the Display and Keypad 10. The RCG will try to reestablish the connection every few minutes until it finally succeeds.

By default, the first telephone port, POTS 1 Port 30, is assigned as the termination port for the existing POTS service that is connected to Incoming POTS Port 40. This is the existing telephone service that the user already has as his primary telephone service from his LEC. POTS 1 Port 30, typically has connected to it a standard telephone set that does not require any power (other than that derived over the POTS interface) to operate properly. POTS 1 Port 30 is the Lifeline telephone port for the user. In the case that all power is lost to the RCG, POTS 1 Port 30 will fail to a direct connection to the Incoming POTS Port 40 telephone line that comes into the RCG from the LEC to provide uninterrupted telephone services to the user. In this state, however, none of the enhanced VoIP services of the RCG are available to the user since the user simply has a stand POTS telephone service to the LEC.

Two additional and unique telephone numbers can be assigned to the other two telephone ports, POTS 2 Port 29 and POTS 3 Port 28, by the service provider at any time. These numbers are drawn from a pool of available telephone numbers assigned to the service provider. POTS 2 Port 29 and POTS 3 Port 28 must to have standard telephone numbers assigned to them so that the PSTN is able to route calls from its network to these ports. For calls originating from IP based telephones, these numbers are not necessarily needed since POTS 1 Port 30, POTS 2 Port 29 and POTS 3 Port 28 are uniquely identifiable to IP networks via their IP addresses assigned through the Dynamic Host Configuration Protocol (DHCP) at the time that the RCG establishes a connection to the service provider's

network. Since POTS 2 Port 29 and POTS 3 Port 28 must have a telephone number assigned to them, it is a matter of convenience to use the assigned telephone numbers as part of their SIP address for IP routing of their data. In this way, all three user POTS ports, POTS 1 Port 30, POTS 2 Port 29 and POTS 3 Port 28 are all addressed the same manner.

At this point, the user is able to take advantage of all of the RCG's features that have been activated according to his service agreement. The user can at any time connect additional telephones, a computer or a computer network to the RCG. The user will only be able to use those telephone ports (POTS 1 Port 30, POTS 2 Port 29 or POTS 3 Port 28) that have been activated, and assigned unique telephone numbers by the service provider. Any type of standard telephone can be connected to the three POTS ports, POTS 1 Port 30, POTS 2 Port 29 and POTS 3 Port 28. In the event that a cordless telephone or a telephone that derives its power from an AC outlet is connected to POTS 1 Port 30, the lifeline functionality of this port will be ineffective since the telephone itself will not operate once power is lost.

The speaker phone feature of the RCG, comprised of Speakerphone Drivers 22, Microphone 24, Speaker 25 and DSP Engine 33, can be used on any of the activated telephone numbers and is by default enabled to operate on POTS 1 Port 30. Once either of the other two telephone ports, POTS 2 Port 29 or POTS 3 Port 28, is activated, the speakerphone function is activated for those lines as well. To use the speakerphone for any assigned telephone number, the user simply presses either the Line Select Button 79-81 for Line 1, Line2 or Line 3 on the face of the RCG, and the speakerphone function is activated on that line. This is convenient for answering any call directly at the RCG. The RCG may

or may not have a number keypad for originating calls. This feature may be added or removed based upon the target market price points.

The determination as to which Inter Exchange Carrier (IXC) the RCG will route its data through is determined by any of a number of criteria including, but not limited to, whether the RCG is a private labeled product, or which carrier has the lowest cost routing, or if a specific carrier is specified by the customer, or and number of other considerations. The RCG can be programmed to change its routing path to any IXC at any time by the service provider. Complicated routing algorithms can be programmed into the RCG to control which IXC it will use at any time.

Failsafe Mode:

During any time that the RCG is in failsafe mode i.e. Lifeline failsafe logic 39 is activated, the RCG will only be able to receive or initiate telephone calls via the telephone connected to its primary telephone port, POTS 1 Port 30 or through its speakerphone feature. In this condition, all activated telephone numbers are ported via the PSTN to the primary (first) telephone number for delivery to the user's telephone that is connected to POTS 1 Port 30. While in failsafe mode, the modem is not activated, and the RCG appears to the local Class 5 office as a standard telephone, and the PSTN will route all incoming calls to the RCG as it normally would to any standard telephone.

Call Flow 1:

Dialed call origination from a telephone connected to an RCG POTS port and terminating at another user's RCG POTS port:

When a user picks up a telephone connected to any of the three POTS ports, POTS 1 Port 30, POTS 2 Port 29 and POTS 3 Port 28, an off hook condition is detected by the SLIC/CODEC Interface 27 that is connected to the DSP Engine 33 by way of the DSP Audio Interface 31. The DSP Engine 33 responds by sending digitally generated dialtone to the appropriate POTS interface over the DSP Audio Interface 31. (Note: all BORSCHT telephony functions are performed by the DSP Engine 33 and the SLIC/CODEC Interface 27.) Upon hearing the dialtone, the user enters the desired telephone number on his telephone keypad. The Dual Tone Multi-Frequency (DTMF) digits that the user dials are decoded within the DSP Engine 33. The dialed digits are transferred to the Main CPU 19 via the CPU/DSP Communications Path 34. The Main CPU 19 polls the DSP Engine 33 approximately every two milliseconds looking for data. The Main CPU 19 polling rate varies according to the process that is being performed. The CPU/DSP Communications path 34 also can generate an interrupt to force data transfer between it and the Main CPU 19.

The Main CPU 19 generates a SIP Invite IP packet using the dialed digits as the called destination address and the URL of its local controlling SIP Proxy Server which was programmed into the RCG during the configuration process. The Main CPU 19 passes this SIP packet off to the Modem/DAA 41 for transmission over the network. The RCG Modem/DAA 41 is connected to and communicating with a modem in a modem bank located in the Inter Exchange Carrier's (IXCs) facility. This facility may actually be located in the LEC's physical plant or it may be physically located at another location.

Referring to Figure 2, User A RCG 44 is connected via its modem to the LEC's local Class 5 Office A 47. In this example, the service provider's connections to the IXC A Modem Bank & Router 48 are through IXC A Inter-Office Trunks 46. The service provider may or may not be the IXC. If the service provider does not have its own network, then it will purchase capacity from an IXC and route its traffic to that IXC's facilities. The SIP Invite IP Packet that is sent from User A RCG 44 transits the LEC's Class 5 Office A 47 facilities and is routed to the IXC A Modem Bank/Router 48 via the IXC A Inter-Office Trunks 46. It is the job of the router to take the IP packet and route it on to its intended destination, in this case the appropriate SIP proxy server 51. The router uses the URL for the Softswitch/SIP Proxy Server and Registrar 51 contained in the SIP Invite to know where to route the packet. (Note: The Softswitch, SIP Proxy Server and Registrar are logical devices that may reside in a single computer system, or may be implemented as completely separate devices. In this example, the Softswitch, SIP Proxy Server and Registrar are all shown as a single physical device running these three separate processes.) The IXC A Modem Bank/Router 48 sends the SIP Invite IP packet on to Softswitch/SIP Proxy Server and Registrar 51 via an IP based network route 52.

The SIP Proxy Server process running on Softswitch/SIP Proxy Server and Registrar 51 performs a look up to determine the termination destination for the call using the dialed digits passed along in the SIP Invite IP packet. In this example, the terminating device for User B RCG 56 is via IXC B's Modem Bank/Router 49 then through Class 5 Office B 50 and over User B POTS line 55 and finally to User B RCG 56. Not covered in detail here is the SIP message handling since it is completely covered in IETF RFC2543. This example shows that both the originating and terminating ends of this call are controlled by the same Softswitch/SIP Proxy Server and Registrar 51 device. Where the originating and terminating

ends of a call are controlled by different Softswitch/SIP Proxy Server and Registrar devices, an additional level of SIP messaging is used between the two SIP Proxy Server processes of each of the Softswitch/SIP Proxy Server and Registrar devices to locate and control the terminating location of the call. Again, that information is covered in IETF RFC2543 and is repeated here.

After the call routing is setup using SIP, and User B answers the call, the Softswitch/SIP Proxy Server and Registrar 51 device sends IP address of the originating User A RCG 44 to the User B RCG 56 and the IP address of User B RCG 56 to User A RCG 44. Once both RCG's have the other's IP address, they then communicate directly to each other using Real Time Protocol (RTP), and the Softswitch/SIP Proxy Server and Registrar 51 device is no longer part of the connection. This direct communication is shown as IP based RTP Stream 57 between IXC A Modem Bank/Router 48 and IXC B Modem Bank/Router 49.

On the receiving end of the call, referring back to Figure 2, User B RCG 56 receives the SIP Invite data stream through its Modem/DAA 41 and passes it on to the Main CPU 19. The Main CPU 19 reassembles the SIP IP packet and interrogates the header information to determine which POTS port, POTS 1 Port 30, POTS 2 Port 29 and POTS 3 Port 28 the call is destined for based upon the dialed number contained in the SIP Invite message. The Main CPU 19 commands the DSP Engine 33 to control the SLIC/CODEC Interface 27 to apply ringing voltage to the selected POTS port to ring the phone. A corresponding SIP 180 (ringing) message is sent back to User A RCG 44 in the reverse direction. When the phone attached to the selected POTS port is answered, the off hook condition detected by the SLIC/CODEC Interface 27 is sent through the DSP Engine 33 to

the Main CPU 19 that sends the SIP 200 OK message back to User A RCG 44 to let the RCG know that the call was answered by User B RCG 56 and to turn off the audible ringing tone for User B. Once the call is established, User A RCG 44 sends an ACK F12 SIP message to User B RCG 56 indicating that User A RCG 44 understands that the call setup has been completed.

The two RCGs now exchange SIP messages that include the type of voice encoding that will be used such as G.729, G.723.1, G.711 etc to configure their RTP streams so that they can reliably transfer the user information between them. At this point the call (voice data) is sent between both RCGs and a normal telephone conversation takes place between the user A and user B.

Call teardown is accomplished by either user hanging up their telephone. The RCG of the terminating end (the end that hangs up the phone first) detects the on-hook condition and sends a SIP Bye message to the other end. The other end upon receiving the SIP Bye message responds with an OK 200 SIP message and disables the appropriate POTS port that the user was using.

The Speakerphone interface can be used for either end of a telephone conversation in exactly the same way as described above except that the corresponding POTS port that the call was intended for is disabled if the call is answered via the speakerphone.

Call Flow 2:

Calls between an RCG device and a PSTN telephone:

Refer to figure 3 for the following discussion.

In the previous call example, the PSTN network had nothing to do since the call was over a previously established modem connection between two RCGs. In the cases where a call originates or terminates to a standard telephone serviced by a Class 5 office, the process is a bit more complicated.

When a call originates from a user via an RCG, such as User A RCG 44, the call handling practices are exactly the same up to the point that the SIP Proxy Server process in the Softswitch, SIP Proxy Server and Registrar 51 performs a lookup to determine how to route the call. In this case, the SIP Proxy Server process determines that the call terminates at a standard PSTN telephone attached to the Class 5 Office B 50. Since the call originates as a native VoIP service, it must be converted to a standard switched circuit based service to be able to be delivered to User B's telephone 61. The conversion is performed by the IXC's Media Gateway 60 device. In this example, the SIP Proxy Server process routes the call via the IXC's Media Gateway 60 device instead of through the IXC B Modem Bank/Router 49 as before. The SIP Proxy Server process sends a SIP Invite to the IXC's Media Gateway 60 device, as well as other control information, to direct the Media Gateway 60 device to terminate the call and to apply the appropriate voice compression algorithm to the media stream to convert it between switched circuit PCM format and the selected VoIP protocol. At the same time, the Softswitch process of the Softswitch, SIP Proxy Server and Registrar 51 device sends commands to the Media Gateway 60 device to cause it to route the call's PCM data to a specific channel on the IXC B Interoffice Trunk 54. The Softswitch process then generates an SS7 ISUP message that is sent over the PSTN SS7 signaling network to the Class 5 Office B informing it of the incoming call and on which circuit the call has been placed. It is up to the PSTN at this point to ring the User B telephone 61 and process the call between the IXC's Media Gateway and the User B Telephone 61. The Softswitch

process handles the signaling conversion between the PSTN's SS7 network and the IXC's SIP messaging, as well as any other proprietary signaling schemes utilized by the IXC to control its network. The standard SS7 call control messages, such as ringing, busy, ring back etc., all have a comparable SIP call flow control messages. The Softswitch simply maps the SS7 messages into SIP messages and visa-versa while routing the messages to the appropriate network equipment.

As in the case of a call between two RCGs, the RTP media stream (the actual call data) is routed directly by the IXC A Modem Bank/Router 48 and the IXC's Media Gateway 60 via an IP based RTP Stream 57.

Again, call teardown is accomplished by either user hanging up their telephone. Depending which end hangs up the phone first, the associated network will generate the appropriate messages which will eventually make it back to the Softswitch process. The Softswitch process will relay the appropriate call control messages between the PSTN and the IXC's SIP based control system.

A telephone call originating from a PSTN telephone is configured and setup in the same fashion as the above description except that the originating messaging begins within the PSTN network instead of the IXC's network.

Personal Computer based communications:

Where the RCG is connected to a Personal Computer (PC) through either its USB Port 11 or Ethernet Port 12, the RCG operates exactly as a cable or DSL type modem device. The RCG is simply a pass through for the computer's data. The RCG receives the IP packets (of whatever type) from the computer and sends the information unchanged to

the Modem/DAA 41 interface for transmission over the Internet. Received information from the Internet is processed in the reverse way.

Dynamic Bandwidth Allocation:

When a modem connection is established between the RCG and the "Network", the total available bandwidth of this connection is used in a shared/prioritized fashion. Voice services (calls) take precedence over data services. Therefore, when no calls are in progress all of the available bandwidth is used by data type services such as surfing the Internet or uploading/downloading files. However, when a call is to be passed through the RCG, the required bandwidth for the call is deallocated from the data services and prioritized for the telephone call. This necessary because the Quality Of Service (QOS) is important for effective communications over electronic networks. Since the voice data is carried over a "data centric" network topology (an IP based network), call quality can suffer greatly. Every effort must be taken to eliminate or reduce the packet delay through every network element to be able to provide the best call quality. For data applications such as surfing the Internet or downloading files packet delay is acceptable and expected, and it does not affect the "quality" of the data.

Since all voice and data is transmitted as packets, there are no "time slots" or other type of "channelization" associated with the transmission of this data over either the POTS line or the wireless interface. Channelization of the voice data does occur within the SLIC/Codec Interface – 27 but is converted into IP packets by the DSP engine – 33 and is handled as packets from that point on.

Regardless of whether the call is originating or terminating at the RCG, the bandwidth allocation process is the same. When the SIP call setup messages are processed, the type of voice compression that will be used is defined. The RCG Main CPU 19 handles the IP packet flow between the DSP Engine 33, USB Port 12, Ethernet Port 11, 802.11b/g Module 36 and the Modem/DAA 41 devices giving priority to the voice packets to and from the DSP Engine 33 and the Modem/DAA 41 interfaces. Voice compression algorithms create IP packets at a specified number of packets per second. These packets are handled by a timed process in the RCG. This process is started during call setup so that the packets are handled at the correct rate based upon the compression algorithm's packet generation rate. There is no priority assigned between the voice packets of each of the three different POTS Ports 28-30. When more than one voice call is in progress, they are handled in a round robin fashion based upon the packet rate for the compression algorithm used. If, for example, two calls are using a compression scheme that generates packets every 2 milliseconds, and the third generates packets every 4 milliseconds, then the calls utilizing the faster packet rate will be polled at twice the rate as the call using a slower packet rate but they are not given priority "over" the other call. Only when there are no voice packets ready for transmission to the Modem/DAA 41, i.e. during the approximately 2 to 4 millisecond packetization period between packets, will any pending data packets received from the USB Port 12, Ethernet Port 11 or the 802.11b/g Module 36 be sent to the Modem/DAA 41 for transmission over the network.

Thus, the POTS bandwidth is allocated on a per packet basis, not on a "time slot" or "channelization" or even a "frequency" basis as it the case with T-Carrier, DSL or channelized DSL systems. The same is true for the wireless interface, whether it is carrying pure data or voice.

Security is currently a big concern in today's networks, and especially with wireless 802.11 transmissions. For this reason, the RCG defaults to route voice data over the users POTS connection via Incoming POTS Port 40. As security concerns regarding wireless communications transmissions are addressed and alleviated, voice call data can, and will, be routed over the wireless interface via the 802.11 b/g Module 36.

FAX Transmission:

Group 1, 2 and 3 fax transmission is completely supported by the RCG. Fax transmission has the same priority as other voice communications. That is to say that FAX transmission is treated the same as a voice call and takes precedence over native IP data traffic.

Broadband Over POTS:

One of the primary functions of the RCG is to be able to transfer large files such as video files over the POTS lines to a residence. The ability to do this is limited by the maximum of 56Kbps due to the design of the digital Class 5 office linecards and network transmission schemes based upon T carriers. Typical Class 5 linecard design samples the POTS lines at a rate of 8,000 samples per second. Typically, each sample is digitized into 12 to 16 bits by a codec device. The digitized sample is then companded to an 8 bit sample (1 byte) which makes up the PCM data stream that is transferred over the PSTN. Therefore, each POTS line is sampled at an effective rate of 64Kbps. Since legacy T1 transmission equipment uses robbed-bit signaling, the maximum guaranteed transmission rate for the PSTN as a whole is 56Kbps. Because of this limitation, standard POTS lines can only guarantee a maximum of 56Kbps transfer rate under the best conditions. DSL equipment

gets around this problem by installing DSL Access Multiplexing (DSLAM) equipment at the Class 5 office end of the POTS line. By routing around the linecard, as well as routing the data directly over the Internet or other private IP based networks, and therefore the 64Kbps sampling rate, DSL is not bandwidth limited like PSTN traffic is. DSL, however, suffers from the very high costs associated with the purchase, installation, maintenance, floor lease costs, etc. DSL also suffers from very high deployment costs resulting from the labor intensive process to turn up each line. Each DSL "POTS" line must be inspected, conditioned and all load coils removed.

The RCG gets around the 56Kbps POTS limitation as well as the DSL problems by using the standard POTS lines as they are, and not requiring any additional equipment to be installed at the Class 5 end of the POTS line. This technique simplifies deployment and drastically cuts costs.

Multilink PPP connections:

Referring to figure 7, the RCG implements broadband over POTS by employing an 802.11 b/g wireless interface to configure a multilink PPP bundle – 87 (per RFC 1990) comprised of the POTS lines connected to up to 32 RCGs. The limitation of 32 RCGs in a multilink PPP bundle is an arbitrary number and can be scaled up or down as required to support changes in network equipment capabilities. An 802.11b/g interface – 87 is shown as the preferred embodiment, since its 11/54 Mbps interface is considered sufficient bandwidth at this time also, its transmission distances are sufficient for implementation of this device, as opposed to other shorter ranged wireless transmission schemes. However as time goes on, some other wireless interface may be more desirable. There is nothing special

or specific to the 802.11 wireless interface that makes it particularly suited to this application. Any wireless interface scheme can be used to implement this device.

The 802.11b/g interface – 88 on an individual RCG is also used to provide a peer-to-peer wireless home networking environment to other 802.11 compatible wireless component within the residence (such as a hand-held computer device) while acting as an always on dialup Internet gateway over the POTS line – 40 for the other wireless devices. An RCG that is transferring a very large file can request the services of 31 (in this embodiment) other RCGs to assist in the file transfer using their respective POTS lines. A single RCG can therefore gain the combined bandwidth of up to 32 POTS lines transferring data at as much as 56Kbps each to transfer information. This is roughly equivalent to a transfer rate of 1.79Mbps in the inbound direction (towards the RCG) and approximately 1.075Mbps in the outbound direction (towards the PSTN).

The multilink PPP connection – 87 is initiated by an RCG when it determines that the file (or streaming service) that it is to download (receive) is of sufficient size or requires a minimum amount of bandwidth to justify the use of a multilink PPP connection. This determination can be made on many different criteria such as the file size, type of data being transmitted, the type of compression if any, a Quality-of-Service requirement or any other pertinent information. (Since a certain amount of overhead is required to set up a Multilink PPP connection, it doesn't make sense to use it for small or low data rate transfers.)

Multilink PPP bandwidth allocation and initialization:

Referring to figure 7, an RCG – 85 that decides to initiate a multilink PPP session with a remote computer i.e. internet URL, requests a multilink PPP session with that URL.

resource via Link Control Protocol (LCP) session management. The initiating RCG - 85 and the remote server computer (not shown) will negotiate the pertinent multilink parameters such as compression, packet size, sync/async, link quality monitoring, bit stuffing etc. As part of a successful multilink PPP session setup, the initiating RCG - 85 receives a multilink PPP session ID, or "magic number", which is used to identify this particular multilink PPP session and is also used for adding or removing links from the multilink bundle - 87. Once the multilink bundle is setup, the initiating RCG - 85 begins data transfer across its POTS interface - 90 with the far end computer system. The initiating RCG - 85 then looks up the addresses of up to 31 (in this embodiment) other RCGs in its router tables to use for the multilink PPP transfer. (If a Neighborhood Access Point is available the RCG could request service through it instead of setting up a Multilink PPP connection - see figure 8.) The initiating RCG - 85 determines the number of remote RCGs - 86 that it wants to use to get the desired bandwidth for the transfer and sends multilink PPP service requests via the 802.11 b/g wireless connections - 88 to the selected remote RCGs - 86. The selected remote RCGs - 86 respond back to the initiating RCG with either an acceptance or denial of multilink PPP service request. This decision is made based upon the remote RCG's currently available POTS bandwidth and the current local demands for that bandwidth. The remote RCG - 86 makes a decision to participate in a multilink PPP service for an initiating RCG if its POTS line - 91 has a current average bandwidth utilization of less than some arbitrary limit such as 8Kbps to 16 Kbps. This 8Kbps to 16Kbps bandwidth utilization represents about two concurrent voice conversations using standard voice compression techniques, or some small amount of data transmission occurring on the remote RCG's POTS interface - 91 or a combination thereof. Assuming that the remote RCG - 86 has a modem connection speed somewhere between 33Kbps to 56Kbps, this would leave

approximately 17Kbps to 40Kbps of POTS bandwidth that the remote RCG – 86 could offer to the initiating RCG – 85 for use in its multilink PPP bundle - 87. Of course, if there is no activity on the remote RCG – 86 POTS line, then the entire bandwidth will be used for the multilink transfer. If the remote RCG – 86 accepts the multilink PPP service request from the initiating RCG -85 it also sends its currently available bandwidth on its POTS line - 91 that the initiating RCG –85 will have available to it for the multilink PPP transfers. The initiating RCG then selects which of the responding remote RCGs - 86 it will use for the multilink PPP bundle - 87 and sends them a multilink initialization packet containing the URL of the destination as well as the multilink PPP session ID (magic number) and any other pertinent information required for the remote RCG to join in the existing multilink PPP bundle - 87. Each remote RCG POTS interface – 91 participating in a multilink PPP bundle, represents a logical “link” in the initiating RCG’s multilink PPP bundle - 87. The remote RCGs – 86 then send a multilink PPP packet (over their respective POTS lines - 91) to the destination URL with the multilink PPP session ID and request to be added to that multilink PPP bundle - 87. The destination URL accepts the request of each of the remote RCGs - 86 and begins sending data packets to each over their respective POTS lines - 91. When the remote RCGs –86 receive data packets sent over their respective POTS lines – 91, that are destined for the multilink PPP bundle - 87, they simply relay the data packets over their 802.11b/g interface - 88 to the initiating RCG -85. It is the responsibility of the initiating RCG – 85 to perform all housekeeping tasks associated with the multilink transfer such as detection of lost packets and data packet reassembly, if those functions are required. Typically, lost packet detection and retransmission and reassembly are performed at higher OSI layers by the requesting software such as a browser. The remote RCGs – 86 are simply

data transport nodes and do not perform any data processing on data received over a multilink PPP bundle destined for another RCG.

The initiating RCG- 85 of the multilink PPP bundle -87 continually monitors the bandwidth of each remote RCG's -86 multilink link which together comprise its multilink bundle - 87. When the available bandwidth for the multilink PPP link of an individual remote RCG -86 falls below an arbitrary minimum set by the initiating RCG - 85, the initiating RCG - 85 instructs the offending remote RCG, via its 802.11b/g wireless interface - 88, to remove itself from the multilink bundle. The remote RCG - 86 will then notify the remote computer (URL) to be removed as a link in the current multilink bundle on which it is participating. Alternatively, a remote RCG - 86 can inform the initiating RCG - 85 of local demands on its POTS bandwidth, and request that the initiating RCG - 85 remove it (the remote RCG - 86) from the participation in the initiating RCG's multilink bundle - 87. The remote RCG - 86 will not unilaterally remove itself from participation in a multilink bundle without prior notification to the Initiating RCG - 85. The remote RCG - 86 must get authorization from the initiating RCG - 85 to remove itself from the bundle, since the initiating RCG - 85 will have no way of knowing if the loss of data from that remote RCG is due to some sort of failure or from the remote RCG simply removing itself from participation in the multilink bundle - 87. Also, for services that require a minimum Quality of Service (QOS) such as streaming video, the initiating RCG - 85 needs to control the multilink bundle - 87 bandwidth, and it can not do that if remote RCGs - 86 drop out of the multilink bundle - 87 at will. When a remote RCG - 86 requests to be removed from participation in a multilink bundle - 87, the initiating RCG - 85 must immediately grant the request. If the initiating RCG - 85 were to not grant the request, then the remote RCG - 86 could, in worst case, delay or drop incoming multilink packets destined for the initiating

RCG – 85. If this were to happen, the initiating RCG – 85 will have missing packets and could over run its reassembly buffer (if reassembly is being performed by the RCG) causing catastrophic data loss and potentially have to restart the entire transmission. In the least case, the initiating RCG – 85 would have to initiate retransmission of potentially many packets which it assumes to be lost, but may simply be delayed by the remote RCG – 86. Once a remote RCG – 86 has been removed from participating in a multilink bundle – 87, the initiating RCG – 85 will then look up another remote RCG in its router tables that can be used to participate in the multilink PPP bundle – 87, and request that the new remote RCG – 86 to join the existing multilink bundle – 87. This is necessary to maintain a minimum Quality of Service. Since RCGs prioritize their bandwidth requirements based upon their own “local” service requirements, their participation in any multilink PPP service is available only to bandwidth that is not required for its own current local demands. Therefore, a remote RCG’s – 86 bandwidth that is available for multilink services can change at any time. The dynamic reassignment of remote RCGs that participate in a multilink bundle is also required to prevent a remote RCG – 86 from receiving packets so slowly that the originating RCG – 85 interprets this delay as lost packets. When the initiating RCG – 85 determines that a packet has been lost, and it is performing packet reassembly, it will, itself, request that the remote computer retransmit the lost packet. The initiating RCG will not ask any remote RCG – 86 to perform retransmissions or any other kind of data computations or manipulations.

Refer to figure 8 for the following discussion. In areas where there are existing 802.11 network equipment such as Neighborhood Access Point - 93, or where there is sufficient bandwidth requirements from an installed base of RCGs to warrant the deployment of a Neighborhood Access Point - 93, the RCGs will automatically detect the

presence of the compatible neighborhood access points and register with that equipment for transport services. In this case, an RCG has an alternative broadband service route in addition to the multilink option. An RCG can communicate directly with a local 802.11 Network Access Point - 93 that is connected to the PSTN or another carrier's network via some sort of high bandwidth backbone such as a T-Carrier or optical carrier connection (T1, T3, OC3, OC12 etc.). The RCGs can communicate directly with neighborhood access points at their full 11/54 Mbps data rates to provide up to that full bandwidth to the user. This functionality is, of course, subject to the Network Access Point - 93 allowing access to its resources to the RCG according to the 802.11 wireless protocol.

This architecture is important since it provides an avenue to relieve the local class 5 offices of congestion that can be caused by a wide spread deployment of RCGs within the class 5 service area. Since each RCG requires a constant 24/7 modem connection, this ties up the class 5 switch in a fashion that it was not designed for. This could lead to wholesale class 5 office expansions which would be extremely expensive, and potentially prohibitive for the Local Exchange Carriers (LECs). By deploying neighborhood access points that operate at 54Mbps (802.11a/g), in areas where the RCG concentration starts placing too high of a demand on the local class 5 office, the bandwidth from the RCGs can be aggregated by the neighborhood access points into large capacity backbones to relieve the switch congestion. In this case, the RCG POTS interface - 40 can be used solely as a lifeline connection, or when the 802.11 wireless LAN in which the RCG resides is congested. With this implementation, voice calls will be carried over the wireless interface as opposed to the POTS interface on which they would normally be carried. Also, the RCG modem - 41 connected to the POTS interface - 40 would not need to maintain a constant always on

connection, it could be a dialed on demand connection and thereby relieving the local class 5 office switch.

Bouncing or Hopping traffic:

Refer to figure 9. In areas where the density of RCGs is less than the arbitrary number of 32 RCGs within its transmission radius for multilink connections, the RCGs can bounce, or relay, the data traffic between each other to reach other RCGs located farther than the RCGs wireless transmission area. Since the POTS data rate of 56Kbps is miniscule as compared to the 11/54 Mbps 802.11b/g transfer rate, the overhead associated with bouncing data traffic is not a concern. This will allow for the fastest possible data transfer across POTS lines for every RCG user.

RCGs can also communicate directly with an 802.11a Neighborhood Access Point - 93 device (such as that used in WI-FI networks) that is connected to a data network connection such as a DS3 or OC3 service via a Metro Access Point. Where an RCG has access to a broadband device such as an 802.11a type device, either directly or via a bounced signal across several RCGs, a direct high speed data connection can be used to transfer large files. When an RCG is communicating directly with an 802.11a device, data transfer speeds up to the full 11/54 Mbps can be achieved to speed video transfers for such applications as video on demand.

RCG Router Tables:

The RCG continually monitors its 802.11b/g wireless interface for transmissions from other RCGs or 802.11a Access Points as well as other 802.11b/g wireless devices within the residence. The RCG provides a means to identify and store the addresses of

other RCGs and Neighborhood Access Points within its local area. The RCG creates routing tables, much like an IP router device, so that it knows which RCGs are local to itself, and how many hops will be needed to reach the maximum of 32 POTS lines or a Neighborhood Access Point. The RCG can then determine how to route its data transfers to gain the most efficient routing and network efficiencies.

The router tables in each RCG are continually updated by monitoring the 802.11 frames received from other RCGs or Network Access Points. The number of entries in the router tables can be limited to an arbitrary number of other RCGs but contains room for at least 32 entries. For each RCG listed in the router tables, certain information is kept such as signal strength, if the other device is another RCG or some other 802.11 compatible device, if the other RCG is reachable directly, or if it is accessed via another RCGs by hopping. In the case where RCG hopping is used, the address of each RCG that is hopped is stored in the routing table. When an RCG is first powered up, it monitors its 802.11 interface for a period of time to identify other RCGs or Neighborhood Access Point devices, or other Wi-Fi devices within its transmission area. When first deployed, the RCG will not have any entries in its routing tables. This condition can persist for some time, until another RCG or other 802.11 device is deployed within the former RCGs transmission range. In this state, the RCG can be used for wireless networking within the residence, connecting the local computer to the RCGs always on Internet connection as well as to other wireless devices within the home. When an 802.11 frame is received by an RCG that contains the address of an RCG whose address does not exist in the receiving RCG's router table (as is the case when a new RCG is first installed), the receiving RCG polls the transmitting RCG for its router table information. The received router information is reviewed for other RCG's or other 802.11 compatible devices that are not listed in its own router tables. A decision is

made to use some, all, or none of the new route information in its router tables. There is no real limitation on the number of RCGs that can be "hopped" in order to build a complete router table or to reach many more RCGs, Neighborhood Access Points or Metro Access Points.

Equipment and Services Priorities:

Just as voice has priority over data transfers within a single RCG, local RCG traffic (both voice and data) has priority over remote transfer requests by other RCGs. If an RCG is currently using all of its available POTS bandwidth for its own purposes, it will deny any remote RCG's request for access to its POTS line. Only when there is available POTS bandwidth available will an RCG allow other RCGs access to its POTS line. It will, however, bounce the traffic to other RCGs within its transmission area if requested by the originating RCG. In this case, available wireless bandwidth of any RCG (that amount of the 11/54 Mbps not currently used for its own traffic) can be used to relay traffic between other RCGs that do have available POTS bandwidth. In the same fashion, excess wireless bandwidth of any RCG can be by other RCGs to access high speed backbones via Neighborhood or Metro Access Points.

RCGs can also access other 802.11 wireless networks (Wi-Fi for example) that happen to be deployed within their service areas. In this case, access agreements between the RCG service provider and the wireless network operator must be put into place. By remaining compatible with the 802.11 standards, the RCGs capabilities will benefit by the growing WI-FI network infrastructure, and the WI-FI network will benefit by the RCG network.

Voice Over POTS and Data Over Wireless:

Normally, all communications from an RCG will be transmitted over the local POTS line, or a multilink bundle made up of many remote RCG POTS lines. By default, all voice calls will be carried over the "local" POTS line – 40 to alleviate security/privacy concerns and only "data" will be transmitted via multilink bundles. Generally, since voice "data" is compressed locally by the RCG, the required bandwidth for a voice call is so small that it does not make for a good choice to route it over a multilink connection. However, it is possible to route voice calls entirely over another RCG's POTS line. It is also possible for an RCG to transmit voice data over POTS lines connected to other RCGs via multilink bundles or directly over its 802.11 wireless interface, and since the 802.11 specification does support the Wired Equivalent Privacy (WEP) specification, a secured connection can be made in this fashion.

Remote Upgradability

The RCG is designed with the capability for unassisted remote upgradability. The remote upgradability feature is not the same as the storing of operational parameters during the configuration process. This feature allows the system operator to add new features as they are developed, or to correct bugs remotely and without the user's knowledge or involvement. This feature can also be used to install a complete new operating system (OS).

Key to the successful implementation of the Remote upgradability feature is that a completely fail-safe routine be implemented that can recover from any failure during the upgrade process and to re-initiate and monitor the upgrade process until it has successfully completed. This process is carried out by loading a boot loader program that is stored in

non-volatile memory. The boot loader program provides the minimum capabilities to start up the RCG and connect into the system operator's diagnostics network to download fixes or a new OS. The boot loader program is technically part of the OS, but it cannot be overwritten by any upgrade process. It is responsible for detecting failure of the RCG and initiating a connection to the diagnostics network. Once connected with the diagnostics network, the boot loader will provide diagnostics support to help correct the RCG's operation and reconfigure the OS.

WHAT IS CLAIMED:

1. A Residential Communications Gateway (RCG) device that is capable of providing broadband communications services over a plurality of standard POTS lines, where said POTS lines are of the normal type and do not require any modifications whatsoever, nor is any other additional equipment required to be installed in the Class 5 office or any other PSTN facility. Said RCG device comprising:

one or more connections to the Public Switched Telephone Network (PSTN) via standard Plain-Old-Telephone Service (POTS) connections;

a wireless interface to connect to other wireless devices or wireless LANS as well as a multitude of other RCGs using said wireless interface;

a USB, firewire (IEEE 1394), Ethernet or other physical layer connections that may be or become standardized to connect physically to other equipment;

one or more derived POTS circuits that connect to any standard telephone devices;

a method to create an ad-hoc wireless network via direct wireless connections between devices as well as hopping said wireless connections among many far flung RCGs to create a network of wirelessly connected RCGs that far exceeds the wireless transmission distance of any single point-to-point wireless connection, in order to expand coverage area and increase bandwidth, said ad-hoc hybrid network consisting of a multitude RCG devices each with one or more POTS connections to the LEC that are all used in conjunction to provide high-speed, broadband services to a requesting RCG device wherein the aggregate POTS bandwidth is many times the speed of a single POTS line device can derive by itself;

a method of utilizing Voice over IP (VoIP), voice/data compression and IP packet routing and switched circuit techniques to communicate multiple derived telephone POTS circuits over a single POTS telephone line connected to the LEC;

a method of utilizing Voice over IP (VoIP), voice/data compression and IP packet routing and switched circuit techniques to communicate multiple derived telephone POTS circuits over a wireless network;

a method for the assignment of individual and unique telephone numbers, as those used by the PSTN, to the derived virtual POTS circuits that are carried over a single POTS circuit from the LEC, said derived POTS circuits having unique individual telephone numbers so that they can be used in the same fashion as if they were provided directly from the LEC, and where said derived POTS circuits are directed to individual RJ11 connectors on the RCG to which standard telephone devices are attached and are used in the normal fashion, with each telephone device attached to its own unique telephone number.

2. An RCG of claim 1 that dynamically allocates the POTS and wireless bandwidth between multiple local voice circuits and local data demands as well as requests for that bandwidth made by remote RCG devices;

and that dynamically allocates its physically connected POTS bandwidth to other RCGs not physically connected to said POTS line(s), requesting said bandwidth;

prioritizes local as well as remote bandwidth requirements on both POTS circuits as well as wireless connections;

3. An RCG of claims 1 and 2 that dynamically allocates separate and physically diverse POTS lines or wireless connections into a multilink group capable of aggregating the combined bandwidth of a plurality of said separate physically diverse POTS lines or wireless connections and providing said aggregate bandwidth to the benefit of a single, or a plurality of RCG device for the concurrent and high speed transmission of large or multiple files;

and that can utilize one or more of the separate and physically diverse POTS lines or wireless connections that are physically connected to other remote RCG devices as stand alone connections that are not grouped in a multilink configuration to the benefit of a single or a plurality of RCG devices for the concurrent high speed transmission of large or multiple files;

4. An RCG of claim 1 that creates and maintains POTS as well as wireless routing tables that constantly change and that are used to determine maximum routing efficiencies for Quality Of Service (QOS) and maximum bandwidth between local and remote POTS circuits as well as broadband wireless connections.

5. An RCG of claim 1 that provides dynamic bandwidth reallocation on-the-fly for a plurality of separate and physically diverse POTS lines or wireless connections.

6. An RCG of claim 1 that provides security by numerous options such as WEP, IPSEC, combination of proprietary and public security protocols; provides ultra high security by employing those standard security practices described above in conjunction with proprietary routing of individual IP packets over separate physical POTS lines or wireless channels, thus making it very difficult or impossible for

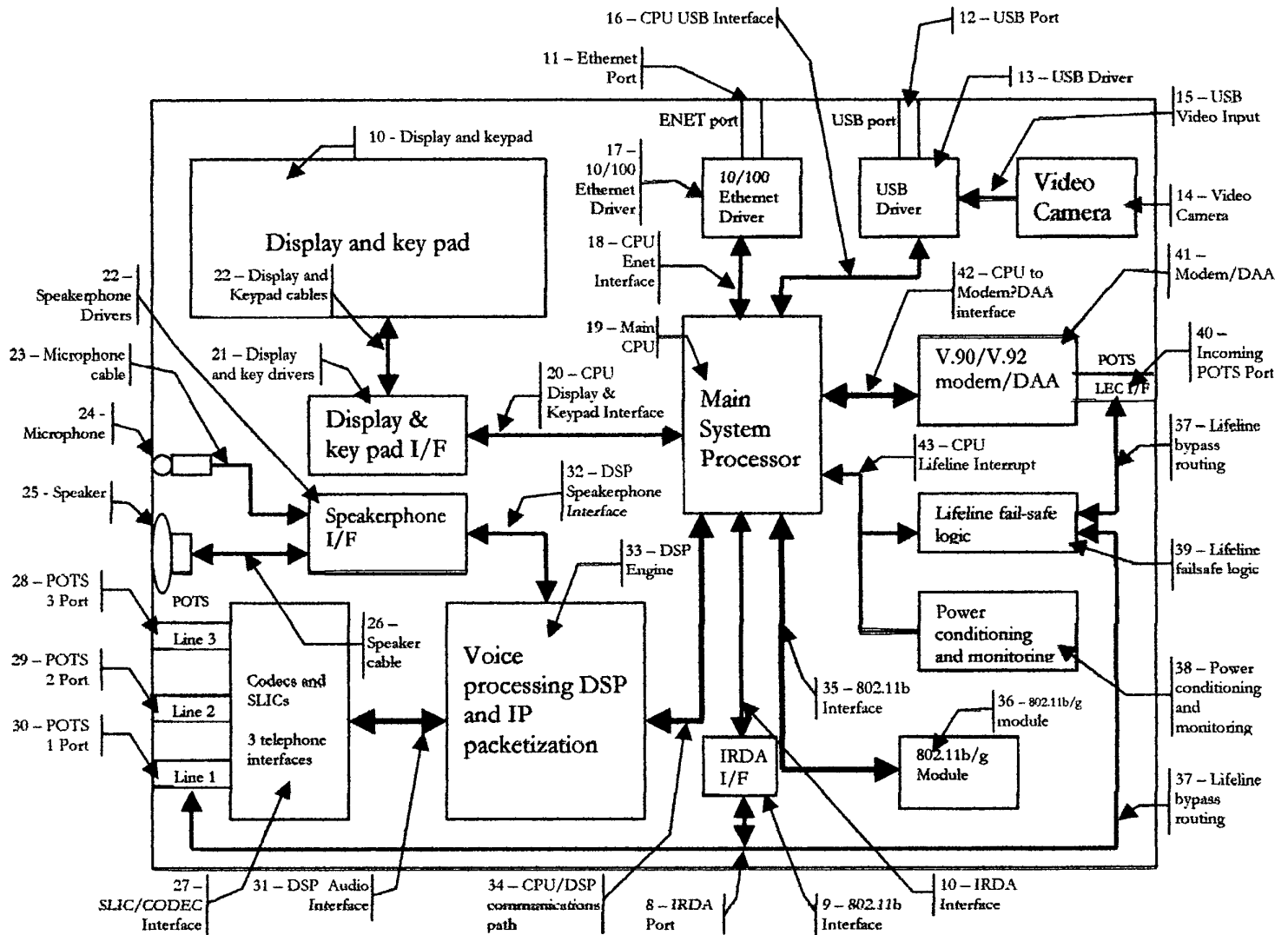
cavesdroppers to be able to monitor any conversation or data transfer since the individual IP packets are routed on-the-fly, in a completely random fashion, over completely separate and different POTS lines and/or wireless channels.

7. An RCG of claim 1 with an automatically initiated account activation service whereby simply installing the device will cause it to initiate the equipment configuration, network configuration, equipment registration, account activation and billing services.

8. An RCG of claim 1 with automatic creation of a wireless router table by polling other devices within its transmission range for their wireless routing tables.

9. An RCG of claim 1 that provides a failsafe lifeline support for power failure. Provides a means to allow users to have telephone service in the event of a power failure.

Inventor: Eric DeLangis



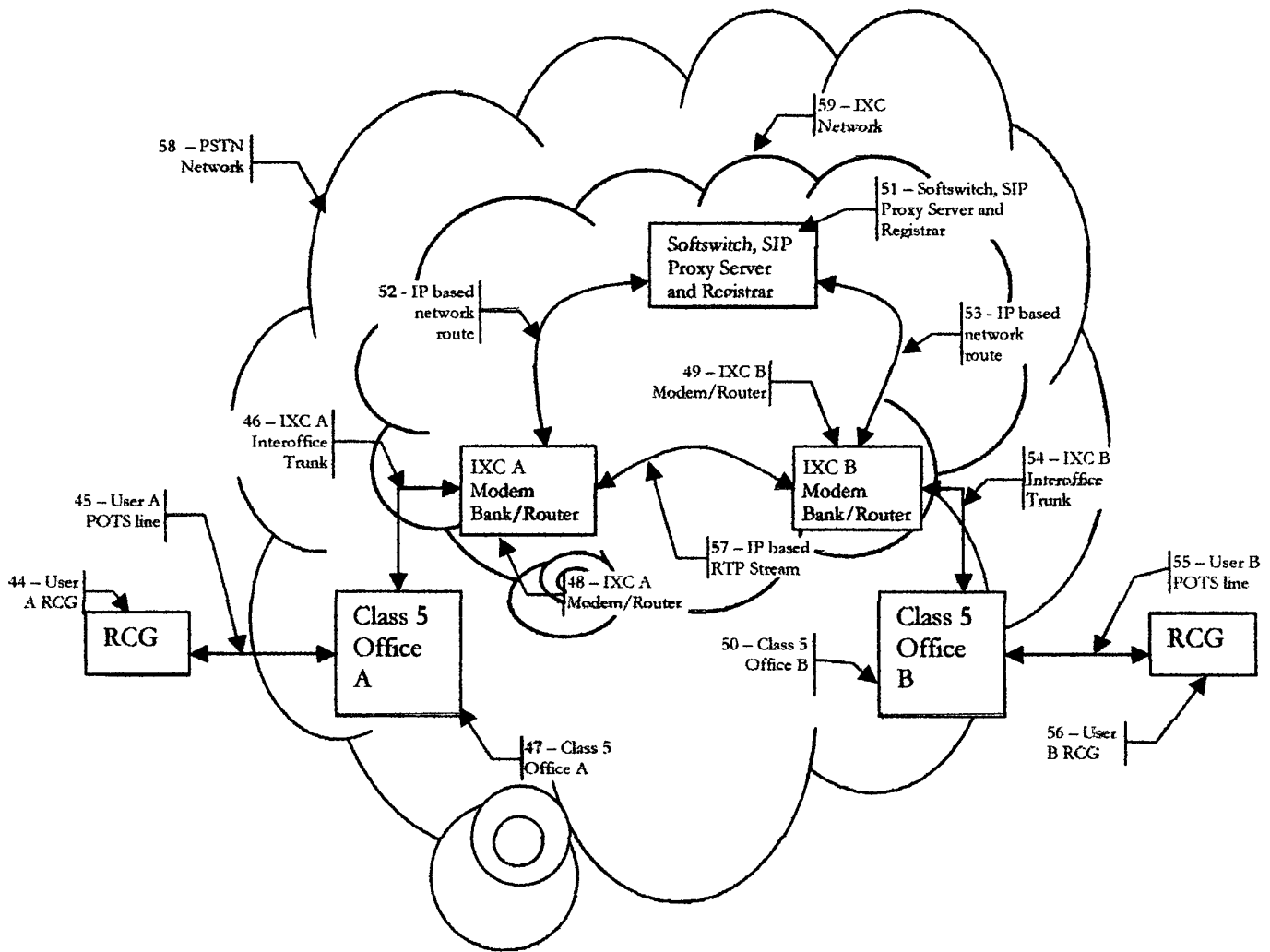


Figure 2 - Network Topology for RCG to RCG Communications

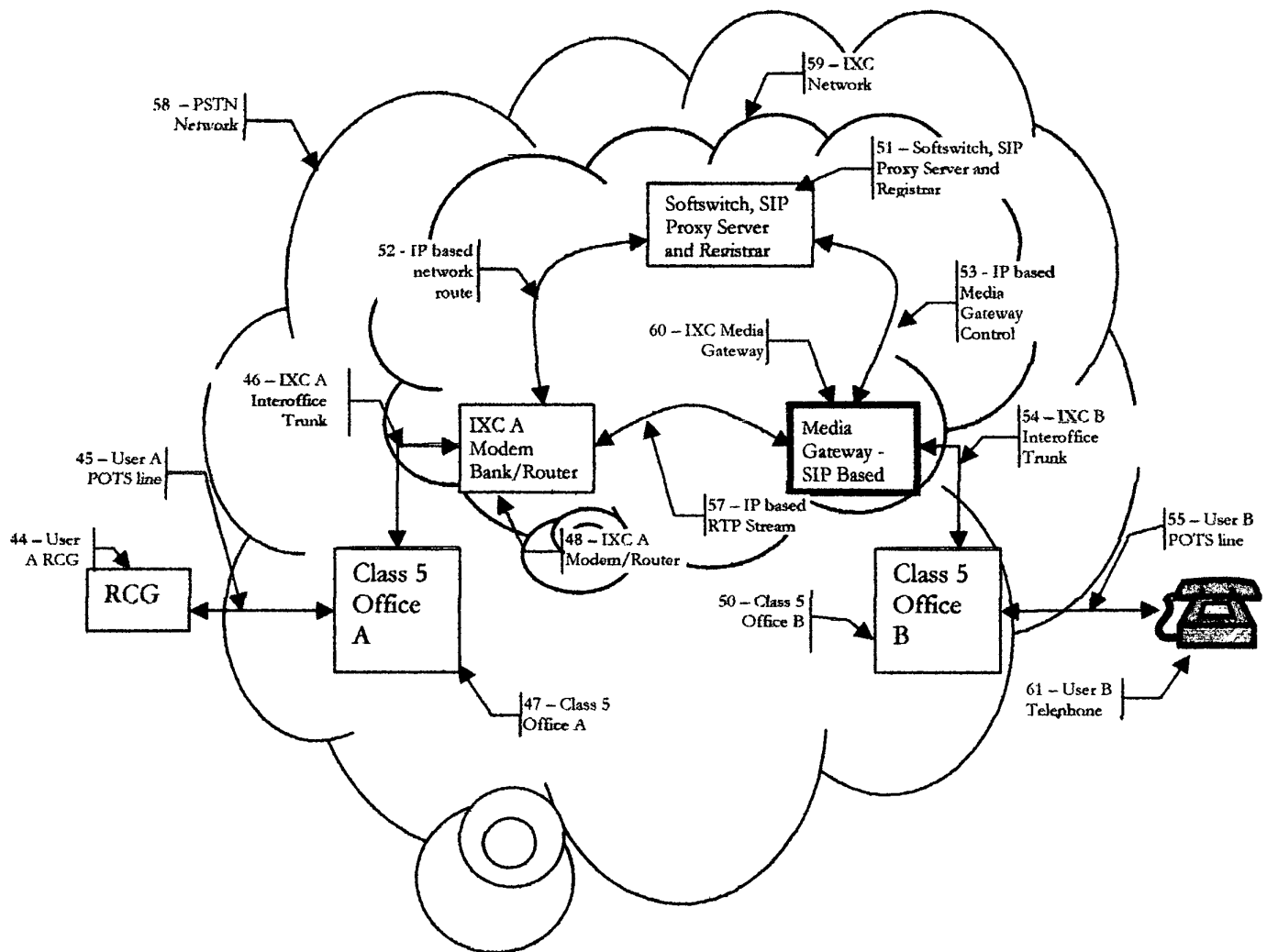


Figure 3 - Network Topology for RCG to PSTN call

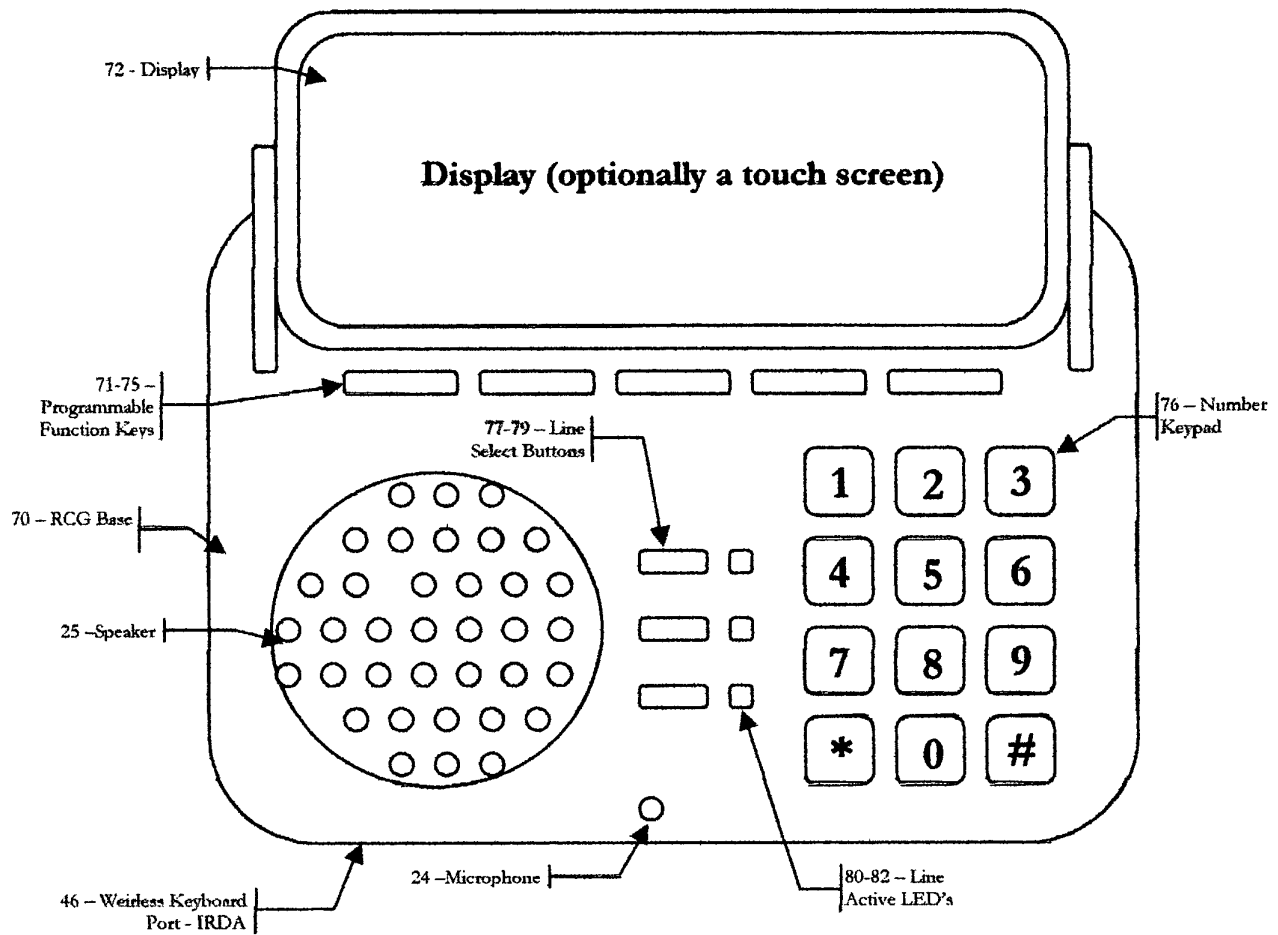


Figure 4 - RCG Top View

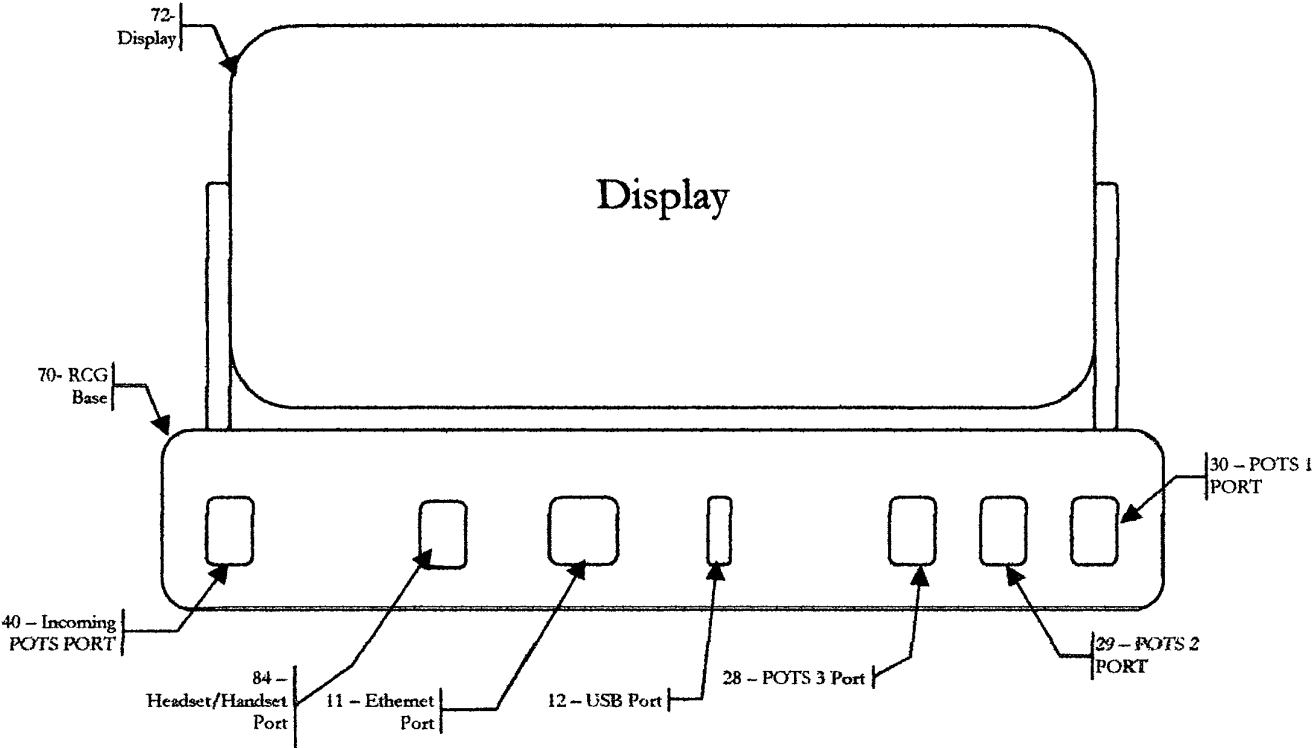


Figure 5 – RCG Rear View

Patent Disclosure Drawings (cont.)

Residential Communications Gateway

Inventor: Eric DeLangis

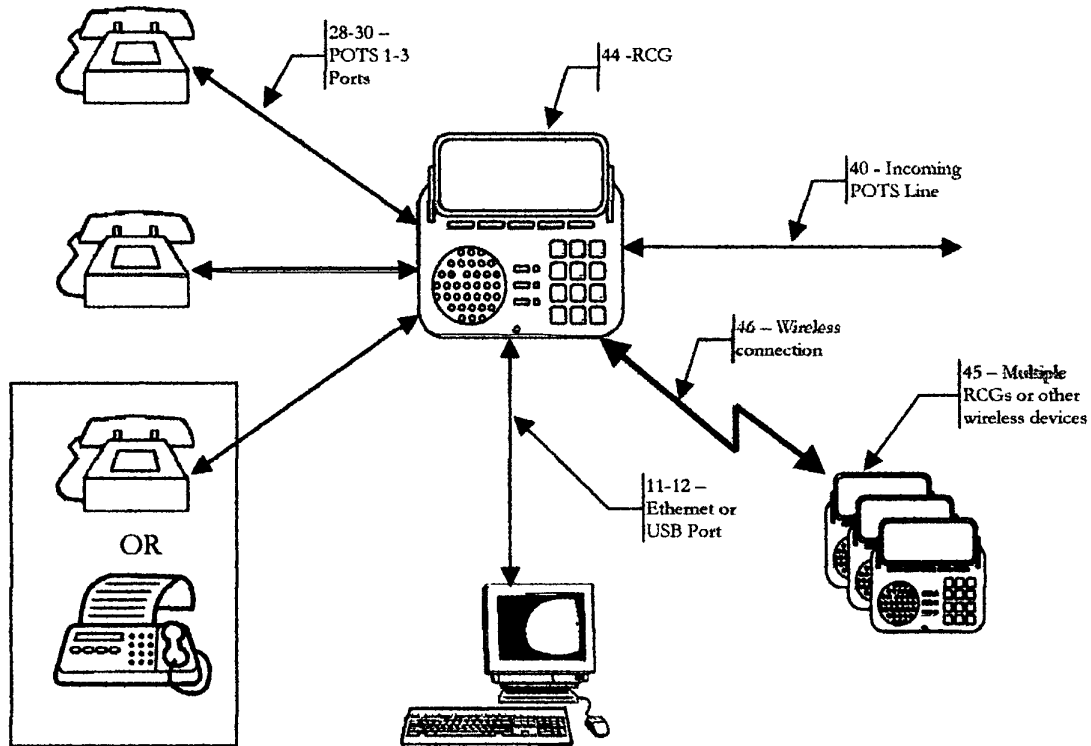


Figure 6 - Typical Application

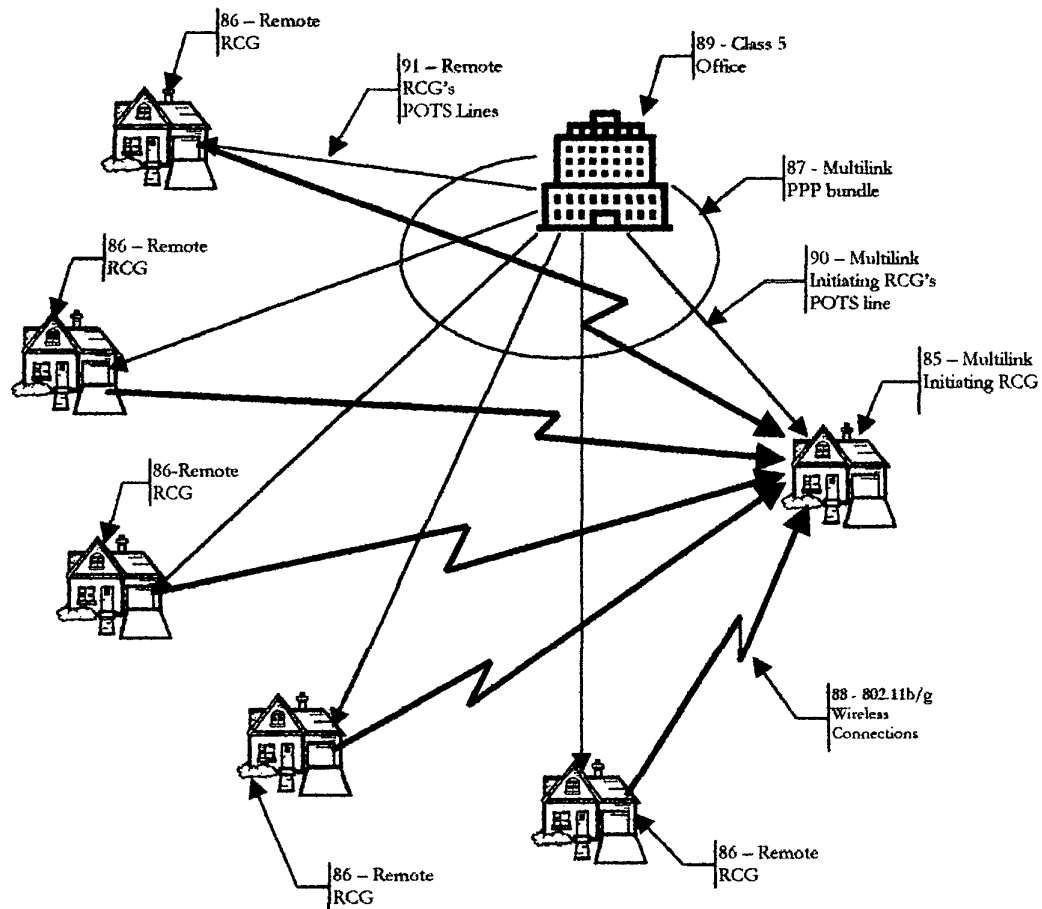


Figure 7 – Ad-hoc wireless LAN with broadband over POTS using 802.11b/g 11/54 Mbps wireless connections

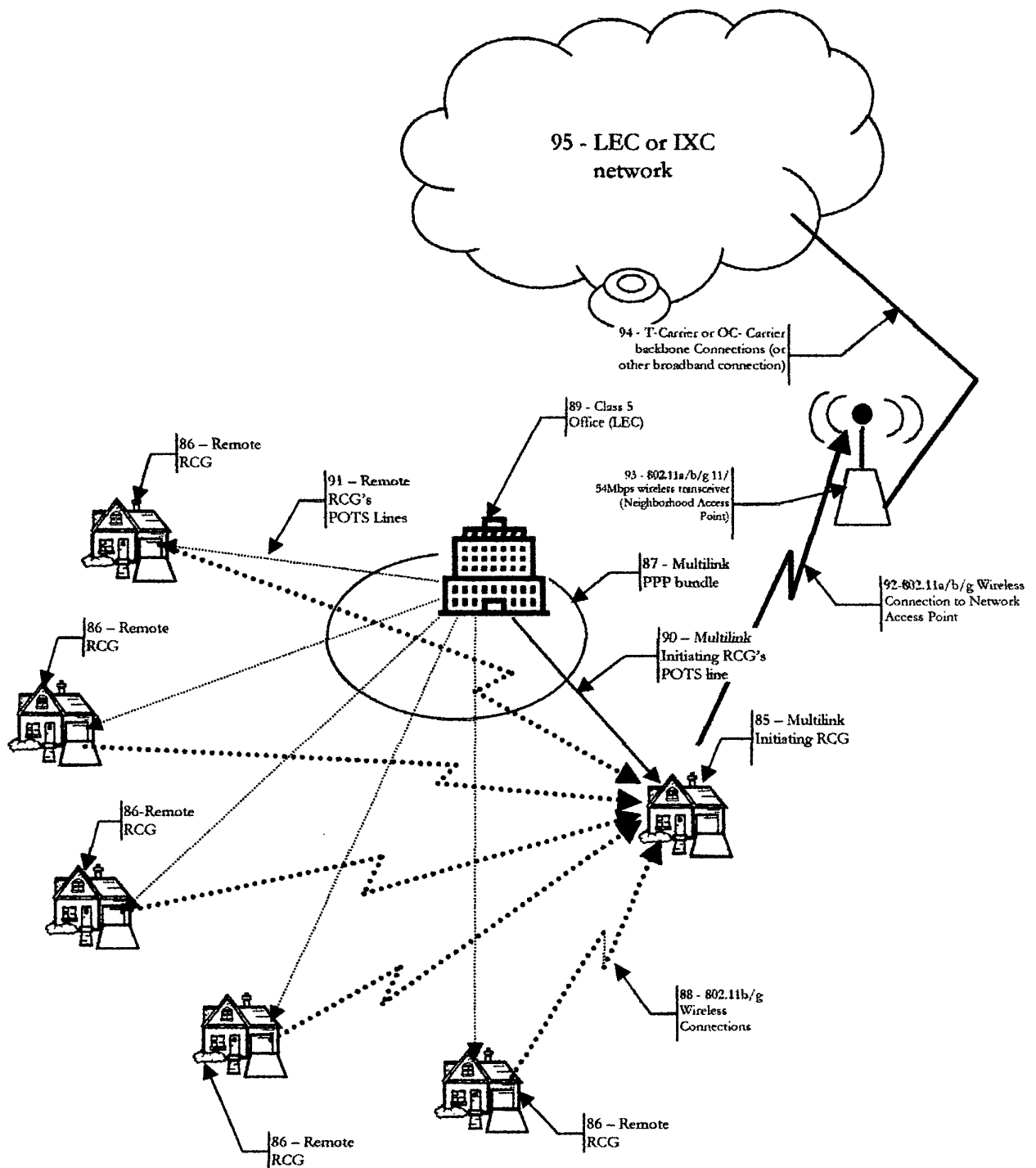


Figure 8 - Broadband over POTS w/ 802.11a/b/g 11/54Mbps wireless connections w/ broadband backbone connection to LEC or IXC

RESIDENTIAL COMMUNICATIONS GATEWAY PATENT APPLICATION
INVENTOR: ERIC DELANGIS

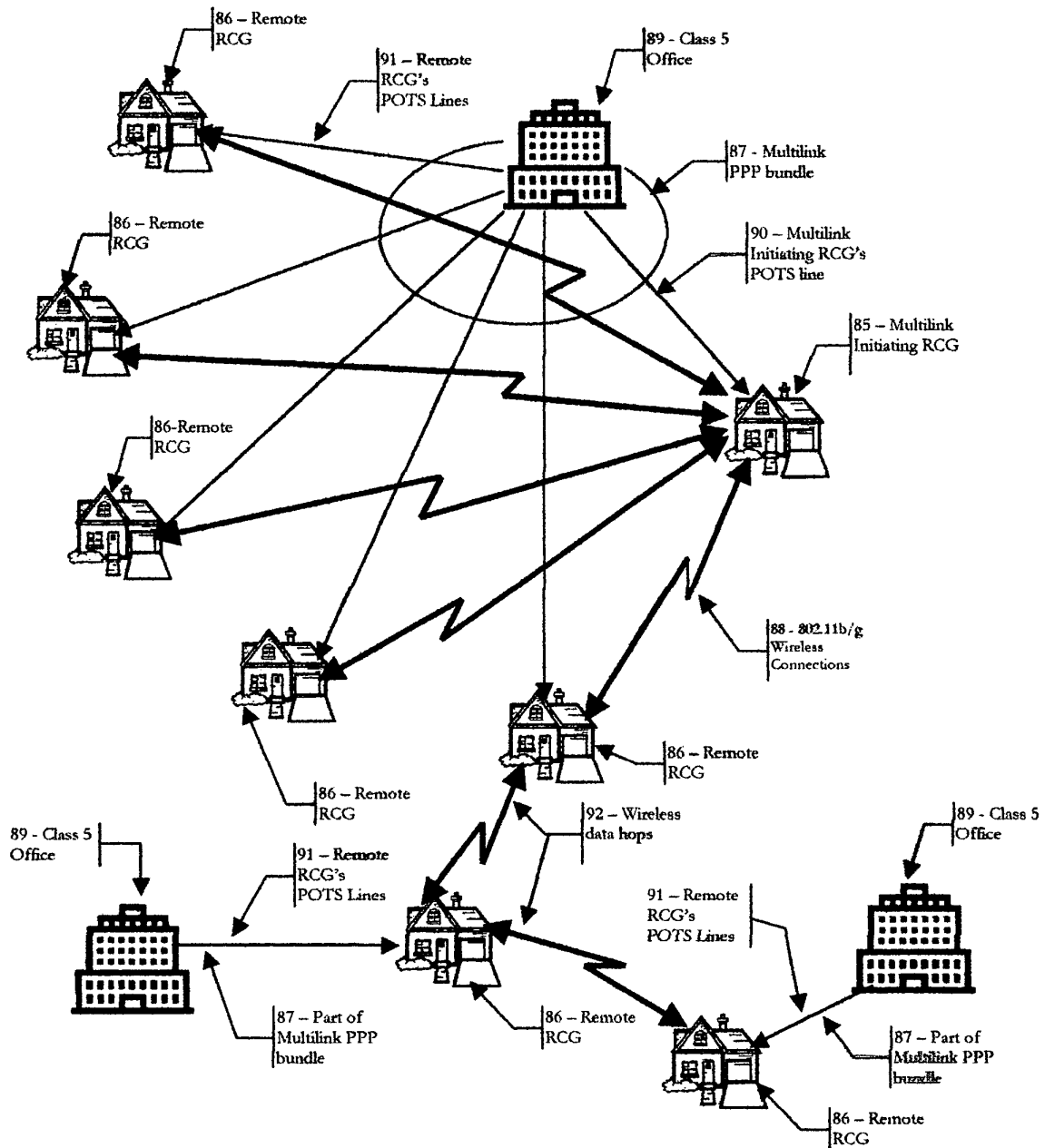


Figure 9 - Ad-hoc wireless LAN with data hopping

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

**DECLARATION FOR UTILITY OR
DESIGN
PATENT APPLICATION
(37 CFR 1.63)**



Declaration
Submitted
With Initial
Filing

OR



Declaration
Submitted after Initial
Filing (surcharge
(37 CFR 1.16 (e))
required)

Attorney Docket Number

First Named Inventor

Delangis

COMPLETE IF KNOWN

Application Number

Filing Date

Art Unit

Examiner Name

I hereby declare that:

Each inventor's residence, mailing address, and citizenship are as stated below next to their name.

I believe the inventor(s) named below to be the original and first inventor(s) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

A residential Communications Gateway (RCG) for broadband communications over a plurality of standard POTS lines, with dynamic allocation of said bandwidth, that requires no additional equipment or modifications to the associated class 5 offices or the PSTN at large.
(Title of the Invention)

the specification of which



is attached hereto

OR



was filed on (MM/DD/YYYY)

as United States Application Number or PCT International

Application Number

and was amended on (MM/DD/YYYY)

(if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment specifically referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56, including for continuation-in-part applications, material information which became available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.

I hereby claim foreign priority benefits under 35 U.S.C. 119(a)-(d) or (f), or 365(b) of any foreign application(s) for patent, inventor's or plant breeder's rights certificate(s), or 365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent, inventor's or plant breeder's rights certificate(s), or any PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application Number(s)	Country	Foreign Filing Date (MM/DD/YYYY)	Priority Not Claimed	Certified Copy Attached?	
				Yes	No
			☐	☐	☐
			☐	☐	☐
			☐	☐	☐
			☐	☐	☐

☐ Additional foreign application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto.

[Page 1 of 2]

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 21 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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

DECLARATION — Utility or Design Patent Application

Direct all correspondence to: ☐ Customer Number:		OR ☒ Correspondence address below	
Name <i>Eric Delangis</i>			
Address <i>4339 Golf Vista Dr.</i>			
City <i>Loveland</i>		State <i>CO</i>	ZIP <i>80537</i>
Country <i>U.S.A.</i>	Telephone <i>970-278-4099</i>	Fax <i>970-278-4099</i>	
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 18 U.S.C. 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.			
NAME OF SOLE OR FIRST INVENTOR:		☐ A petition has been filed for this unsigned inventor	
Given Name (first and middle [if any]) <i>Eric M</i>		Family Name or Surname <i>DeLangis</i>	
Inventor's Signature <i>Eric M Delangis</i>		Date <i>10/13/03</i>	
Residence: City <i>Loveland</i>	State <i>CO</i>	Country <i>U.S.A.</i>	Citizenship <i>U.S.</i>
Mailing Address <i>4339 Golf Vista Dr.</i>			
City <i>Loveland</i>	State <i>CO</i>	ZIP <i>80537</i>	Country <i>USA</i>
NAME OF SECOND INVENTOR:		☐ A petition has been filed for this unsigned inventor	
Given Name (first and middle [if any])		Family Name or Surname	
Inventor's Signature		Date	
Residence: City	State	Country	Citizenship
Mailing Address			
City	State	ZIP	Country
☐ Additional inventors or a legal representative are being named on the supplemental sheet(s) PTO/SB/02A or 02LR attached hereto.			

[Page 2 of 2]

PATENT APPLICATION SERIAL NO. _____

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE
FEE RECORD SHEET

10/22/2003 MAHMED1 00000042 10686375

01 FC:2001 385.00 OP

PTO-1556
(5/87)

PATENT APPLICATION FEE DETERMINATION RECORD

Effective October 1, 2003

Application or Docket Number

CLAIMS AS FILED - PART I

(Column 1) (Column 2)

TOTAL CLAIMS	9	
FOR	NUMBER FILED	NUMBER EXTRA
TOTAL CHARGEABLE CLAIMS	9 minus 20 = *	0
INDEPENDENT CLAIMS	1 minus 3 = *	0
MULTIPLE DEPENDENT CLAIM PRESENT ☐		

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

CLAIMS AS AMENDED - PART II

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

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

(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 ☐				

(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 ☐				

* 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.

SMALL ENTITY TYPE

☐

OR

OTHER THAN SMALL ENTITY

RATE	FEE
BASIC FEE	385.00
X\$ 9=	-
X43=	-
+145=	-
TOTAL	385

RATE	FEE
BASIC FEE	770.00
X\$18=	
X86=	
+290=	
TOTAL	

SMALL ENTITY

OR

OTHER THAN SMALL ENTITY

RATE	ADDITIONAL FEE
X\$ 9=	
X43=	
+145=	
TOTAL	
ADDIT. FEE	

RATE	ADDITIONAL FEE
X\$18=	
X86=	
+290=	
TOTAL	
ADDIT. FEE	

RATE	ADDITIONAL FEE
X\$ 9=	
X43=	
+145=	
TOTAL	
ADDIT. FEE	

RATE	ADDITIONAL FEE
X\$18=	
X86=	
+290=	
TOTAL	
ADDIT. FEE	

RATE	ADDITIONAL FEE
X\$ 9=	
X43=	
+145=	
TOTAL	
ADDIT. FEE	

RATE	ADDITIONAL FEE
X\$18=	
X86=	
+290=	
TOTAL	
ADDIT. FEE	

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.

PATENT APPLICATION FEE DETERMINATION RECORD					Application or Docket Number		
Substitute for Form PTO-875							
CLAIMS AS FILED – PART I							
(Column 1)		(Column 2)		SMALL ENTITY		OR	
OTHER THAN SMALL ENTITY							
FOR	NUMBER FILED	NUMBER EXTRA	RATE	FEE	RATE	FEE	
BASIC FEE (37 CFR 1.16(a))				\$385		\$	
TOTAL CLAIMS (37 CFR 1.16(c))			X \$	=	X \$	=	
INDEPENDENT CLAIMS (37 CFR 1.16(b))			X \$	=	X \$	=	
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(d))			+ \$	=	+ \$	=	
			TOTAL	385	TOTAL		
* If the difference in column 1 is less than zero, enter "0" in column 2.							
CLAIMS AS AMENDED – PART II							
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY	
OTHER THAN SMALL ENTITY						OR	
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE	ADDITIONAL FEE	RATE	ADDITIONAL FEE
Total (37 CFR 1.16(c))	*	Minus	**	=	X \$	=	X \$
Independent (37 CFR 1.16(b))	*	Minus	***	=	X \$	=	X \$
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(d))				+ \$	=	+ \$	=
				TOTAL ADD'L FEE		TOTAL ADD'L FEE	
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY	
OTHER THAN SMALL ENTITY						OR	
AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE	ADDITIONAL FEE	RATE	ADDITIONAL FEE
Total (37 CFR 1.16(c))	*	Minus	**	=	X \$	=	X \$
Independent (37 CFR 1.16(b))	*	Minus	***	=	X \$	=	X \$
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(d))				+ \$	=	+ \$	=
				TOTAL ADD'L FEE		TOTAL ADD'L FEE	
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY	
OTHER THAN SMALL ENTITY						OR	
AMENDMENT C	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE	ADDITIONAL FEE	RATE	ADDITIONAL FEE
Total (37 CFR 1.16(c))	*	Minus	**	=	X \$	=	X \$
Independent (37 CFR 1.16(b))	*	Minus	***	=	X \$	=	X \$
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(d))				+ \$	=	+ \$	=
				TOTAL ADD'L FEE		TOTAL ADD'L 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.							

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371 (c) DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NUMBER
10/686,375	10/14/2003	Eric M. DeLangis	

Eric DeLangis
4339 Golf Vista Dr.
Loveland, CO 80537

CONFIRMATION NO. 6329

FORMALITIES LETTER



OC000000011694803

Date Mailed: 01/15/2004

NOTICE TO FILE CORRECTED APPLICATION PAPERS

Filing Date Granted

An application number and filing date have been accorded to this application. The application is informal since it does not comply with the regulations for the reason(s) indicated below. Applicant is given TWO MONTHS from the date of this Notice within which to correct the informalities indicated below. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

The required item(s) identified below must be timely submitted to avoid abandonment:

- A replacement abstract commencing on a separate sheet in compliance with 37 CFR 1.72(b) and 37 CFR 1.121 is required.

Replies should be mailed to: Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

A copy of this notice MUST be returned with the reply.

Customer Service Center
Initial Patent Examination Division (703) 308-1202

PART 3 - OFFICE COPY



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
 United States Patent and Trademark Office
 Address: COMMISSIONER FOR PATENTS
 P.O. Box 1450
 Alexandria, Virginia 22313-1450
 www.uspto.gov

APPL NO.	FILING OR 371 (c) DATE	ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	DRAWINGS	TOT CLMS	IND CLMS
10/686,375	10/14/2003	2641	385		9	9	1

Eric DeLangis
 4339 Golf Vista Dr.
 Loveland, CO 80537



CONFIRMATION NO. 6329

FILING RECEIPT



OC000000011694802

Date Mailed: 01/15/2004

Receipt is acknowledged of this regular Patent Application. It will be considered in its order and you will be notified as to the results of the examination. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please write to the Office of Initial Patent Examination's Filing Receipt Corrections, facsimile number 703-746-9195. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections (if appropriate).

Applicant(s)

Eric M. DeLangis, Loveland, CO;

Domestic Priority data as claimed by applicant

Foreign Applications

If Required, Foreign Filing License Granted: 01/14/2004

Projected Publication Date: To Be Determined - pending completion of Corrected Papers

Non-Publication Request: No

Early Publication Request: No

** SMALL ENTITY **

Title

Residential communications gateway (RCG) for broadband communications over a plurality of standard POTS lines, with dynamic allocation of said bandwidth, that requires no additional equipment or modifications to the associated class 5 offices or the PSTN at large

Preliminary Class



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
 United States Patent and Trademark Office
 Address: COMMISSIONER FOR PATENTS
 P.O. Box 1450
 Alexandria, Virginia 22313-1450
 www.uspto.gov

APPLICATION NUMBER	FILING OR 371 (c) DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NUMBER
10/686,375	10/14/2003	Eric M. DeLangis	

ER278374142US

CONFIRMATION NO. 6329

Eric DeLangis
 4339 Golf Vista Dr.
 Loveland, CO 80537



FORMALITIES LETTER



OC000000011694803

Date Mailed: 01/15/2004

NOTICE TO FILE CORRECTED APPLICATION PAPERS

Filing Date Granted

An application number and filing date have been accorded to this application. The application is informal since it does not comply with the regulations for the reason(s) indicated below. Applicant is given TWO MONTHS from the date of this Notice within which to correct the informalities indicated below. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

The required item(s) identified below must be timely submitted to avoid abandonment:

- A replacement abstract commencing on a separate sheet in compliance with 37 CFR 1.72(b) and 37 CFR 1.121 is required.

Replies should be mailed to: Mail Stop Missing Parts
 Commissioner for Patents
 P.O. Box 1450
 Alexandria VA 22313-1450

*A copy of this notice **MUST** be returned with the reply.*

Customer Service Center

Initial Patent Examination Division (703) 308-1202

PART 2 - COPY TO BE RETURNED WITH RESPONSE

ABSTRACT:

The Residential Communications Gateway (RCG) is a broadband communications device that combines all voice, data and video communications to and from a typical residence or small business for transmission over a single, or a plurality of Plain Old Telephone Service (POTS) lines separately or in conjunction with, a wireless broadband backbone. The RCG does this by employing packetized data with Voice over Internet Protocol (VoIP) technologies combined with RF communications technologies. A key consideration to the design of the RCG is that no additional or special transmission equipment must be installed at the Central Office or anywhere else in the network to enable new calling features provided by the RCG as is the case with DSL and Cable systems. By eliminating the requirement for costly infrastructure enhancements, ubiquitous high speed communications and services can be deployed to every POTS subscriber.



UNITED STATES PATENT AND TRADEMARK OFFICE

lcn

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/686,375	10/14/2003	Eric M. DeLangis		6329
7590 09/20/2007				
Eric DeLangis 4339 Golf Vista Dr. Loveland, CO 80537			EXAMINER SONI, KETAN S	
			ART UNIT	PAPER NUMBER
			2616	
			MAIL DATE	DELIVERY MODE
			09/20/2007	PAPER

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

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/686,375	Applicant(s) DELANGIS, ERIC M.	
	Examiner Ketan Soni	Art Unit 2616	

-- 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) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, 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 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 10/14/03.
- 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) 1-9 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) 1-9 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 _____ 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).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ 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.

Attachment(s)

- | | |
|--|---|
| 1) ☒ Notice of References Cited (PTO-892) | 4) ☐ Interview Summary (PTO-413) |
| 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) ☐ Information Disclosure Statement(s) (PTO/SB/08) | 5) ☐ Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>None</u> . | 6) ☐ Other: _____ |

DETAILED ACTION

Information Disclosure Statement

There is no information disclosure statement submitted hence no record has been made in the application file.

Claim Objections

Claim 1 is objected to because of the following informality, and claim should be in one sentence:

Regarding claim 1, line: 5, period should be replaced with comma. Suggested new claim: 1, line: 5 should read as "... office or any other PSTN facility, said RCG device....".

Claim 1 is objected to because of the following informality:

Regarding claim 1, line: 20, "the aggregate" should be replaced with "aggregated". Suggested line should read as "... to a requesting RCG device wherein aggregated POTS....".

Claim 3 is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim 1 & 2. See MPEP § 608.01(n). Accordingly, the claim 3 not been further treated on the merits.

Claims 1 and 6 are objected to because of the following informality:

Regarding claims 1, and 6, terms LEC (local exchange carrier), WEP (Wired Equivalent Privacy), IPSEC should be spelled out. Suggested new claims should have all acronyms spelled out.

Claim 9 is objected to because of the following informality, and claim should be in one sentence:

Regarding claim 9, line: 2, period should be replaced with comma and word "and" should be inserted. Suggested new claim: 9, line: 2 should read as ".... Power failure, and provides....".

Appropriate action is required.

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 1-9 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.

1. With regard to claim: 1, applicant is claiming a RCG device. But within claim: 1, there are four methods with no clearly defined method steps. It is not clear if the applicant intends to claim an apparatus or a method. It is also not clear the relevance of the method claimed to the RCG device. Hence claim: 1 is vague and indefinite.

2. Claims 2-9 are vague and indefinite because there is improper dependency. The preamble of claim: 1 refers to an apparatus however dependent claims: 2-9 refers to a method. Hence claims: 2-9 are vague and indefinite.

Regarding **claim 1**, line: 10, the phrase "may be or become" renders the claim vague and indefinite. The meets and bounds of the claim cannot be determined because this is not an active recitation.

Claims 6 is 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.

Regarding **claim 6**, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Conclusion

Any response to this Office Action should be **faxed to (571) 273-8300 or mailed to:**

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Hand-delivered responses should be brought to

Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ketan Soni whose telephone number is (571) 270-1782. The Examiner can normally be reached on Monday-Thursday from 7:30am to 6:00pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Vanderpuye, Kenneth can be reached on 571-272-3078. The fax phone

Art Unit: 2616

number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or 703-305-3028. If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist/customer service whose telephone number is (571) 272-2600.

Ketan Soni

ks

Aug 30, 2007.


KENNETH VANDERPUYE
SUPERVISORY PATENT EXAMINER

Notice of References Cited	Application/Control No. 10/686,375		Applicant(s)/Patent Under Reexamination DELANGIS, ERIC M.	
	Examiner Ketan Soni		Art Unit 2616	Page 1 of 2

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-6,728,238	04-2004	Long et al.	370/352
*	B	US-6,101,182	08-2000	Sistanizadeh et al.	370/352
*	C	US-5,638,363	06-1997	Gittins et al.	370/358
*	D	US-5,313,467	05-1994	Varghese et al.	370/468
*	E	US-7,184,427	02-2007	Carew et al.	370/352
*	F	US-7,257,106	08-2007	Chen et al.	370/338
*	G	US-4,197,427	04-1980	Hutcheson et al.	379/133
*	H	US-7,069,328	06-2006	Bell, Russell W.	709/227
*	I	US-7,236,579	06-2007	Mansfield, Carl	379/142.14
*	J	US-6,307,853	10-2001	Storch et al.	370/354
*	K	US-6,647,015	11-2003	Malkemes et al.	370/401
*	L	US-5,909,445	06-1999	Schneider, Kevin W.	370/468
*	M	US-6,061,392	05-2000	Bremer et al.	375/222

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N	PCTEP0104186	04-2001	JP	HEIJNEN	H04L 12/28
	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	

*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.

Notice of References Cited	Application/Control No. 10/686,375	Applicant(s)/Patent Under Reexamination DELANGIS, ERIC M.	
	Examiner Ketan Soni	Art Unit 2616	Page 2 of 2

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2002/0054597	05-2002	O'Toole et al.	370/395.41
*	B	US-6,167,095	12-2000	Furukawa et al.	375/285
*	C	US-6,307,839	10-2001	Gerszberg et al.	370/235
*	D	US-6,373,860	04-2002	O'Toole et al.	370/493
	E	US-			
	F	US-			
	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	

*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.

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
1 November 2001 (01.11.2001)

PCT

(10) International Publication Number
WO 01/82530 A1

(51) International Patent Classification⁷: **H04L 12/28**,
H04M 7/00

(74) Agent: **GROENENDAAL, Antonius, W., M.**; Interna-
tionaal Octrooibureau B.V., Prof Holstlaan 6, NL-5656 AA
Eindhoven (NL).

(21) International Application Number: **PCT/EP01/04186**

(81) Designated State (*national*): **JP**.

(22) International Filing Date: **12 April 2001 (12.04.2001)**

(25) Filing Language: **English**

(84) Designated States (*regional*): European patent (AT, BE,
CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC,
NL, PT, SE, TR).

(26) Publication Language: **English**

(30) Priority Data:
00201468.6 26 April 2000 (26.04.2000) **EP**

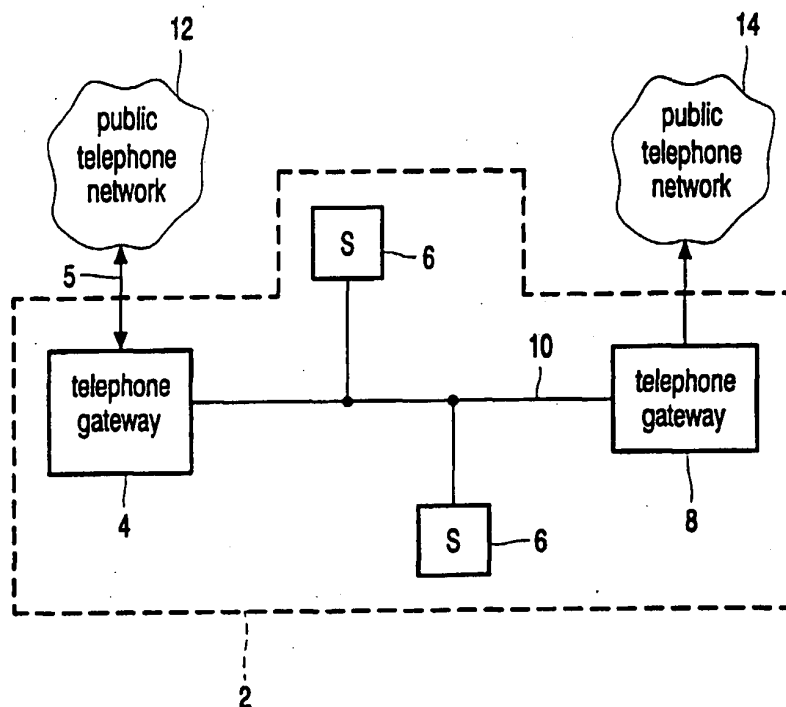
Published:
— with international search report
— before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments

(71) Applicant: **KONINKLIJKE PHILIPS ELECTRON-
ICS N.V. [NL/NL]**; Groenewoudseweg 1, NL-5621 BA
Eindhoven (NL).

(72) Inventor: **HEIJNEN, Antonius, L., J., C.**; Prof. Holst-
laan 6, NL-5656 AA Eindhoven (NL).

*For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.*

(54) Title: **RESIDENTIAL COMMUNICATION SYSTEM**



(57) Abstract: The residential communication system (2) according to the invention comprises a telephone gateway (4), at least one station (6) and a communication network (10) for interconnecting the telephone gateway (4) and the station (6). The telephone gateway (4) receives via the communication network (10) out-going telephone signals from the station (6) and supplies these out-going telephone signals to a non-residential telephone network (12). The residential communication system (2) comprises a further telephone gateway (8), which is connected to the communication network (10). The telephone gateway (4) can transmit part of the out-going telephone signals via the communication network (10) to the further telephone gateway (8), which supplies them to a further non-residential telephone network (14). In this way, least cost routing can be implemented in a in-home

network where separate telephone gateways (4, 8) are available for connection to separate telephone networks (12, 14). Preferably, the communication system is a system according to the Home Phonenumber Networking Alliance (Home PNA). The further telephone network is preferably a CATV network. His preferably to perform least cost routing between the telephone gateways.

WO 01/82530 A1

Residential communication system

The invention relates to a residential communication system comprising a telephone gateway and at least one station, the telephone gateway and the station being interconnected via a communication network, the telephone gateway being arranged for receiving via the communication network out-going telephone signals from the station and
5 for supplying the out-going telephone signals to a non-residential telephone network.

The invention further relates to a telephone gateway for use in a residential communication system and to a further telephone gateway for use in a residential communication system.

10

A residential communication system according to the preamble is known from the document "The Home Phonline Networking Alliance, A White Paper, June 1998" which can be found on the Internet at <http://www.homepna.org/docs/wp1.htm>. Nowadays, residential communication systems such as in-home (digital) networks receive a lot of
15 attention. By means of these residential communication systems new functionality can be provided, like for instance resource sharing (e.g. remote usage of a digital VCR, a printer, a security camera etc.) and follow me (when a person moves through the house, the music he is listening to follows his/her movement). In the known residential communication system ordinary phonline are used to interconnect devices or stations, such as a telephone and a
20 set-top box. The known residential communication system comprises a telephone gateway for coupling the residential communication system to a public telephone network, such as a POTS or a PSTN telephone network. Out-going telephone calls originating from the telephone are routed via the phonline communication network and the telephone gateway to the public telephone network. In-coming telephone calls originating from the public
25 telephone network are routed via the telephone gateway and the phonline communication network to the telephone.

The known residential communication system is relatively inflexible in that it only interfaces with a single non-residential telephone network.

It is an object of the invention to provide a residential communication system which can interface with several non-residential telephone networks. This object is achieved in the residential communication system according to the invention, which is characterized in that the residential communication system comprises a further telephone gateway, the further telephone gateway being interconnected with the telephone gateway and the station via the communication network, the telephone gateway being arranged for transmitting at least part of the out-going telephone signals via the communication network to the further telephone gateway, the further telephone gateway being arranged for receiving the at least part of the out-going telephone signals via the communication network from the telephone gateway and for supplying the at least part of the out-going telephone signals to a further non-residential telephone network. By means of the further telephone gateway, which may be comprised in a set-top box, the residential communication system interfaces with the further non-residential telephone network, e.g. a CATV-network which offers telephone services. The telephone gateway receives the out-going telephone signals from the station. Some or all of these out-going telephone signals may, e.g. for reasons of cost, best be supplied to the further non-residential telephone network. Therefore this part of the out-going telephone signals is transmitted by the telephone gateway via the communication network to the further telephone gateway, which supplies this part of the out-going telephone signals to the further non-residential telephone network. The remaining part of the out-going telephone signal is supplied by the telephone gateway to the non-residential telephone network.

An embodiment of the residential communication system according to the invention is characterized in that the telephone gateway comprises a least cost router. By this measure the telephone gateway can route out-going telephone signals to the cheapest non-residential telephone network. For instance, in the United States local telephone calls via a regular POTS/PSTN telephone network are normally for free, while non-local telephone calls normally have to be paid for. Other telephone networks, such as CATV-networks, may offer cheaper rates for these non-local telephone calls. In such a case the least cost router in the telephone gateway may route the local out-going telephone signals to the POTS/PSTN telephone network, while the non-local out-going telephone signals may be routed to the further telephone gateway for supply to the CATV-network.

An embodiment of the residential communication system according to the invention is characterized in that the communication network comprises a phoneline network. Phoneline networks, such as used in the HomePNA communication system, offer the

advantage that in most cases no or only a few new wires are needed as in most buildings already a substantial phone wire infrastructure is present.

The above object and features of the present invention will be more apparent from the following description of the preferred embodiments with reference to the drawings, wherein:

Fig. 1 shows a block diagram of an embodiment of the residential communication system according to the invention,

Fig. 2 shows a block diagram of an embodiment of the telephone gateway according to the invention.

In the Figs., identical parts are provided with the same reference numbers.

Fig. 1 shows a block diagram of an embodiment of a residential communication system 2 according to the invention. The communication system 2 comprises a telephone gateway 4, a further telephone gateway 8 and one or more stations 6. The telephone gateway 4, the further telephone gateway 8 and the stations 6 are interconnected via a communication network 10. Alternatively, the telephone gateway 4 may be comprised in one of the stations 6. Similarly, the further telephone gateway 8 may be comprised in one of the other stations 6. The telephone gateway 4 is coupled via a connection 5 to a public telephone network 12 and the further telephone gateway 8 is coupled to a further public telephone network 14. The communication network 10 may be a phoneline network, i.e. a network that is based upon ordinary phone lines/wires. The communication system 2 may be a HomePNA communication system. The public telephone network 12 may be a POTS or PSTN network. The further telephone network 14 may be a CATV network which offers telephone services. In the latter case the further telephone gateway 8 may be comprised in a set-top box.

One or more of the stations 6 may comprise a telephone. Out-going telephone signals originating from such a telephone are transferred via the communication network 10 to the telephone gateway 4. The telephone gateway 4 either supplies these telephone signals to the public telephone network 12 or transmits via the communication network 10 to the further telephone gateway 8. The further telephone gateway 8 supplies these out-going telephone signals to the further public telephone network 14.

The telephone gateway 4 may comprise a least cost router so that the out-going telephone signals can be routed to one of the public telephone networks 12 or 14 on the basis of the costs of making telephone calls.

Fig. 2 shows a block diagram of an embodiment of the telephone gateway 4 according to the invention. The telephone gateway 4 comprises a switch 22, a communication network interface 28, a decoder 26 and a controller 24. The decoder 24 detects and interprets various direct telephone commands, such as off-hook, on-hook and pulse dialing codes, received from the communication network 10 and sends them to the controller 24. The controller 24, which may be a microprocessor running a dedicated software program, controls the switch 22 and the communication network interface 28. If an out-going telephone signal is received from the communication network 10 it is first decoded in the decoder 26. On basis of the telephone number comprised in the telephone signal the controller 24 may decide whether this out-going telephone signal should be supplied to the public telephone network 12 or to the further public telephone network 14. For instance, if it is a local telephone number the out-going telephone signal may be supplied via the controller 24 and the switch 22 to the public telephone network 12. Alternatively, in case of a non-local telephone number, the outgoing telephone signal may be supplied via the controller 24 and the switch 22 to the communication network interface 28 (e.g. a Home PNA interface comprising bi-directional bus drivers). This communication network interface 28 then converts and transmits the outgoing telephone signal via the communication network 10 to the further telephone gateway 8, which supplies the outgoing telephone signal to the further telephone network 14.

The controller 24 may be programmed by a station 6, e.g. a PC, via the communication network interface 28. Alternatively, the controller 24 can be remotely programmed via the (optional) modem 20.

The scope of the invention is not limited to the embodiments explicitly disclosed. The invention is embodied in each new characteristic and each combination of characteristics. Any reference signs do not limit the scope of the claims. The word "comprising" does not exclude the presence of other elements or steps than those listed in a claim. Use of the word "a" or "an" preceding an element does not exclude the presence of a plurality of such elements.

CLAIMS:

1. A residential communication system (2) comprising a telephone gateway (4) and at least one station (6), the telephone gateway (4) and the station (6) being interconnected via a communication network (10), the telephone gateway (4) being arranged for receiving via the communication network (10) out-going telephone signals from the station (6) and for
5 supplying the out-going telephone signals to a non-residential telephone network (12), characterized in that the residential communication system (2) comprises a further telephone gateway (8), the further telephone gateway (8) being interconnected with the telephone gateway (4) and the station (6) via the communication network (10), the telephone gateway (4) being arranged for transmitting at least part of the out-going telephone signals via the
10 communication network (10) to the further telephone gateway (8), the further telephone gateway (8) being arranged for receiving the at least part of the out-going telephone signals via the communication network (10) from the telephone gateway (4) and for supplying the at least part of the out-going telephone signals to a further non-residential telephone network (14).
- 15 2. A residential communication system (2) according to Claim 1, characterized in that the telephone gateway (4) comprises a least cost router.
3. A residential communication system (2) according to Claim 1 or 2,
20 characterized in that the communication network (10) comprises a phonenumber network.
4. A residential communication system (2) according to Claim 3, characterized in that the residential communication system (2) comprises a HomePNA communication system.
- 25 5. A residential communication system (2) according to any one of the preceding Claims, characterized in that the further telephone gateway (8) is comprised in a set-top box.

6. A residential communication system (2) according to Claim 5, characterized in that the further non-residential telephone network (14) is a CATV-network.

7. A telephone gateway (4) for use in a residential communication system (2) comprising at least one station (6), the telephone gateway (4) and the station (6) being interconnected via a communication network (10), the telephone gateway (4) being arranged for receiving via the communication network (10) out-going telephone signals from the station (6) and for supplying the out-going telephone signals to a non-residential telephone network (12), characterized in that the telephone gateway (4) is arranged for transmitting at least part of the out-going telephone signals via the communication network (10) to a further telephone gateway (8).

8. A further telephone gateway (8) for use in a residential communication system (2) comprising a telephone gateway (4) and at least one station (6), the further telephone gateway (8), the telephone gateway (4) and the station (6) being interconnected via a communication network (10), the telephone gateway (4) being arranged for receiving via the communication network (10) out-going telephone signals from the station (6) and for supplying a first part of the out-going telephone signals to a non-residential telephone network (12), the telephone gateway (4) being further arranged for transmitting a second part of the out-going telephone signals via the communication network (10) to the further telephone gateway (8), the further telephone gateway (8) being arranged for receiving the second part of the out-going telephone signals via the communication network (10) from the telephone gateway (4) and for supplying the second part of the out-going telephone signals to a further non-residential telephone network (14).

1/1

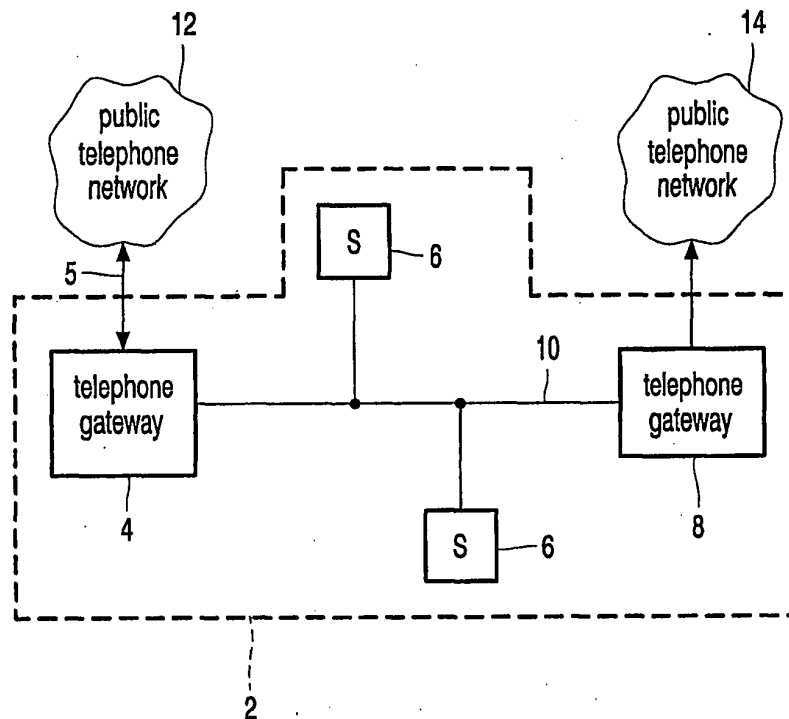


FIG. 1

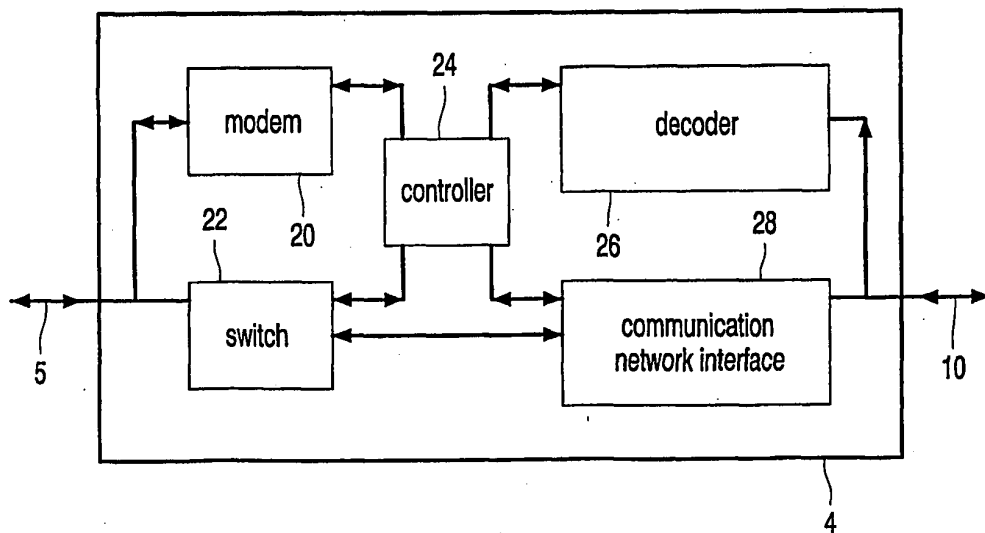


FIG. 2

INTERNATIONAL SEARCH REPORT

Int'l Application No
PCT/EP 01/04186

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04L12/28 H04M7/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 H04L H04M

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

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 029 047 A (SATO YOSHIO ET AL) 22 February 2000 (2000-02-22) abstract column 3, line 54 -column 4, line 24 column 6, line 59 -column 7, line 15	1-3,5-8
Y		4
Y	"ETHERNET UEBERS HEIMISCHE TELEFONNETZ" ELEKTRONIK, FRANZIS VERLAG GMBH. MUNCHEN, DE, vol. 48, no. 17, 24 August 1999 (1999-08-24), page 20,22 XP000931024 ISSN: 0013-5658 the whole document	4
A		1-3,5-8



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

G document member of the same patent family

Date of the actual completion of the international search

20 September 2001

Date of mailing of the international search report

28/09/2001

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Mikkelsen, C

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 01/04186

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 987 847 A (LUCENT TECHNOLOGIES INC) 22 March 2000 (2000-03-22) abstract -----	1-8

Form PCT/ISA/210 (continuation of second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 01/04186

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
US 6029047	A	22-02-2000	JP	10150501 A	02-06-1998
EP 0987847	A	22-03-2000	EP	0987847 A2	22-03-2000
			JP	2000188577 A	04-07-2000

Form PCT/ISA/210 (patent family annex) (July 1992)



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
 United States Patent and Trademark Office
 Address: COMMISSIONER FOR PATENTS
 P.O. Box 1450
 Alexandria, Virginia 22313-1450
 www.uspto.gov

BIB DATA SHEET

CONFIRMATION NO. 6329

SERIAL NUMBER 10/686,375	FILING or 371(c) DATE 10/14/2003 RULE	CLASS 379	GROUP ART UNIT 2616	ATTORNEY DOCKET NO.		
APPLICANTS Eric M. DeLangis, Loveland, CO; ** CONTINUING DATA ***** NONE - <u>KS</u> 8/30/07 ** FOREIGN APPLICATIONS ***** NONE - <u>KS</u> 8/30/07 ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED *** SMALL ENTITY ** 01/14/2004						
Foreign Priority claimed ☐ Yes ☒ No 35 USC 119(a-d) conditions met ☐ Yes ☒ No Verified and Acknowledged <u>Initials</u> <u>AUG/30/07</u> Examiner's Signature <u>KS</u>		☐ Met after Allowance Initials	STATE OR COUNTRY CO	SHEETS DRAWINGS 9	TOTAL CLAIMS 9	INDEPENDENT CLAIMS 1
ADDRESS Eric DeLangis 4339 Golf Vista Dr. Loveland, CO 80537 UNITED STATES						
TITLE Residential communications gateway (RCG) for broadband communications over a plurality of standard POTS lines, with dynamic allocation of said bandwidth, that requires no additional equipment or modifications to the associated class 5 offices or the PSTN at large						
FILING FEE RECEIVED 385	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:		☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit			

Index of Claims 	Application/Control No. 10686375	Applicant(s)/Patent Under Reexamination DELANGIS, ERIC M.
	Examiner Soni, Ketan	Art Unit 2616

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant			☐ CPA			☐ T.D.			☐ R.1.47		
CLAIM		DATE									
Final	Original	08/30/2007									
	1	✓									
	2	✓									
	3	✓									
	4	✓									
	5	✓									
	6	✓									
	7	✓									
	8	✓									
	9	✓									

Search Notes 	Application/Control No.		Applicant(s)/Patent under Reexamination	
	10/686,375		DELANGIS, ERIC M.	
	Examiner		Art Unit	
	Ketan Soni		2616	

SEARCHED			
Class	Subclass	Date	Examiner
370	401	8/28/2007	KS
370	352	8/28/2007	KS

INTERFERENCE SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	DATE	EXMR
EAST Image and keyword search in USPAT, US-PGPUB, DERWENT, EPO, JPO, and IBM_TDB (see attached strategy)	8/28/2007	KS
Inventor name and Assignee search in PALM Expo and EAST.	8/28/2007	KS
Consulted with Kenneth Vanderpuye	8/29/2007	KS

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	27	("3304372" "3660606" "4764919" "5313467" "5384766" "5526350" "5533108" "5592477" "5610910" "5610922" "5636218" "5638363" "5699356" "5841777" "5867494" "6011794" "6026087" "6101182" "6128335" "6130879" "6141339" "6229810" "6282208" "6307839" "6307853" "6393017").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2007/08/30 17:59
L2	4	("5410343" "5610910" "5805591" "5991301").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2007/08/30 18:05
L4	27	("3304372" "3660606" "4764919" "5313467" "5384766" "5526350" "5533108" "5592477" "5610910" "5610922" "5636218" "5638363" "5699356" "5841777" "5867494" "6011794" "6026087" "6101182" "6128335" "6130879" "6141339" "6229810" "6282208" "6307839" "6307853" "6393017").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2007/08/30 18:12
S1	5	"686375".ap.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT ; IBM_TDB	OR	ON	2007/08/23 08:25
S2	5	((ERIC) near2 (DELANGIS)).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2007/08/29 11:39
S3	6	("20040041033" "4886207" "6059192" "6513787" "6688530" "RE37888").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2007/08/30 10:36
S4	27	("3304372" "3660606" "4764919" "5313467" "5384766" "5526350" "5533108" "5592477" "5610910" "5610922" "5636218" "5638363" "5699356" "5841777" "5867494" "6011794" "6026087" "6101182" "6128335" "6130879" "6141339" "6229810" "6282208" "6307839" "6307853" "6393017").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2007/08/28 14:03
S5	27	("3304372" "3660606" "4764919" "5313467" "5384766" "5526350" "5533108" "5592477" "5610910" "5610922" "5636218" "5638363" "5699356" "5841777" "5867494" "6011794" "6026087" "6101182" "6128335" "6130879" "6141339" "6229810" "6282208" "6307839" "6307853" "6393017").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2007/08/23 09:17
S6	1	"20070179848"	US-PGPUB; USPAT; USOCR	OR	ON	2007/08/23 09:17
S7	0	("2007/0179848").URPN.	USPAT	OR	ON	2007/08/23 09:58
S8	649	modem and (SIP adj3 server)	US-PGPUB; USPAT; USOCR	OR	ON	2007/08/28 14:03
S9	135	S8 and pots	US-PGPUB; USPAT; USOCR	OR	ON	2007/08/28 14:05

8/30/2007 6:22:45 PM

Page 1

C:\Documents and Settings\ksn\My Documents\EAST\Workspaces\28th_Appli_10_686375.wsp

EAST Search History

S10	1	RCG and ("residential communication gateway")	US-PGPUB; USPAT; USOCR	OR	ON	2007/08/28 14:06
S11	1	RCG same ("residential communication gateway")	US-PGPUB; USPAT; USOCR	OR	ON	2007/08/28 14:06
S12	12	("residential communication gateway")	US-PGPUB; USPAT; USOCR	OR	ON	2007/08/28 14:19
S13	12	("residential communication gateway") and (dsl cable)	US-PGPUB; USPAT; USOCR	OR	ON	2007/08/28 15:00
S14	4	("residential communication gateway") and (dsl)	US-PGPUB; USPAT; USOCR	OR	ON	2007/08/28 14:20
S15	16	("4935951" "4993058" "5012507" "5161180" "5621379" "5673304" "5940474" "6009148" "6307920" "6476763" "6608886" "6624754" "6680998" "6703930" "6792081" "RE34677"). PN.	US-PGPUB; USPAT; USOCR	OR	ON	2007/08/28 14:21
S16	3	("residential communication gateway") and (voip)	US-PGPUB; USPAT; USOCR	OR	ON	2007/08/28 15:38
S17	645	hpna	US-PGPUB; USPAT; USOCR	OR	ON	2007/08/28 16:17
S18	456	ad-hoc adj2 (wireless adj network)	US-PGPUB; USPAT; USOCR	OR	ON	2007/08/28 17:48
S19	1	"5105392".pn.	US-PGPUB; USPAT; USOCR	OR	ON	2007/08/28 18:49
S20	5	"988565".ap.	US-PGPUB; USPAT; USOCR	OR	ON	2007/08/28 18:49
S21	0	("2005/0063403").URPN.	USPAT	OR	ON	2007/08/28 19:09
S22	4	"469576".ap.	USPAT	OR	ON	2007/08/28 19:25
S23	26	(broadband adj1 communication) with POTS	USPAT	OR	ON	2007/08/28 20:22
S24	3	("6259708" "6345071" "6427237").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2007/08/28 20:11
S25	0	(broadband adj1 communication) with RCG	USPAT	OR	ON	2007/08/28 20:22
S26	0	(broadband adj1 communication) same RCG	USPAT	OR	ON	2007/08/28 20:22
S27	0	(broadband adj1 communication) and RCG	USPAT	OR	ON	2007/08/28 20:22
S28	2	(broadband) and RCG	USPAT	OR	ON	2007/08/28 20:24
S29	0	(broadband adj1 network\$4) and RCG	USPAT	OR	ON	2007/08/28 20:24
S30	591	(broadband adj1 network\$4) and (RCG pots)	USPAT	OR	ON	2007/08/28 21:03
S31	26	(broadband adj2 pots)	USPAT	OR	ON	2007/08/28 20:27
S32	0	("broadband over pots")	USPAT	OR	ON	2007/08/28 20:28
S33	0	("broadband over pots")	USPAT	OR	ON	2007/08/28 20:28

8/30/2007 6:22:45 PM

Page 2

C:\Documents and Settings\ksn\My Documents\EAST\Workspaces\28th_Appli_10_686375.wsp

EAST Search History

S34	1	("broadband over pots")	US-PGPUB; USPAT; USOCR; EPO	OR	ON	2007/08/28 20:28
S35	13	("20020006137" "5023868" "5838777" "6134308" "6134320" "6308062" "6324270" "6693996" "6882714" "6920615" "7023975" "7085357" "7142560").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2007/08/28 20:30
S36	1	RCG and IXC	USPAT	OR	ON	2007/08/28 20:41
S37	4	RCG and IXC	US-PGPUB; USPAT; USOCR; EPO; IBM_TDB	OR	ON	2007/08/28 20:41
S38	4	("4197427" "4464543" "5270919" "5559877"). PN.	US-PGPUB; USPAT; USOCR	OR	ON	2007/08/28 20:42
S39	4	("4197427" "4464543" "5270919" "5559877"). PN.	US-PGPUB; USPAT; USOCR	OR	ON	2007/08/28 20:52
S40	1	S30 and ((multi\$4 adj2 user) same (multi\$4 adj2 drop))	USPAT	OR	ON	2007/08/28 21:02
S41	1	S30 and ((multi\$4 adj2 user) same (multi\$4 adj2 drop))	US-PGPUB; USPAT; USOCR; EPO	OR	ON	2007/08/28 21:02
S42	233	S30 and ("370".clas.)	USPAT	OR	ON	2007/08/28 21:04
S43	233	((broadband adj1 network\$4) and (RCG pots)) and ("370".clas.)	USPAT	OR	ON	2007/08/29 10:46
S44	385	((broadband adj1 network\$4) and (RCG pots)) and ("370".clas.)	US-PGPUB; USPAT; USOCR; EPO	OR	ON	2007/08/28 21:04
S45	0	((dsl adj modem) and RCG)	USPAT	OR	ON	2007/08/28 21:21
S46	0	((dsl adj2 modem) and RCG)	USPAT	OR	ON	2007/08/28 21:22
S47	0	((dsl near modem) and RCG)	USPAT	OR	ON	2007/08/28 21:22
S48	0	((dsl near modem) and RCG)	US-PGPUB; USPAT; USOCR; EPO	OR	ON	2007/08/29 10:43
S49	1	((dsl near3 modem) and RCG)	US-PGPUB; USPAT; USOCR; EPO	OR	ON	2007/08/29 10:43
S50	1	((dsl same modem) and RCG)	US-PGPUB; USPAT; USOCR; EPO	OR	ON	2007/08/29 10:43
S51	0	((broadband adj1 network\$4) and (RCG and (pots pstn))) and ("370".clas.)	USPAT	OR	ON	2007/08/29 10:46
S52	391	((broadband adj1 network\$4) and (RCG (pots pstn))) and ("370".clas.)	USPAT	OR	ON	2007/08/29 11:00

8/30/2007 6:22:45 PM

C:\Documents and Settings\ksoni\My Documents\EAST\Workspaces\28th_Appli_10_686375.wsp

Page 3

EAST Search History

S53	31	(incoming adj1 pots)	USPAT	OR	ON	2007/08/29 11:00
S54	70	((Robert) near2 (Metcalf)).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2007/08/29 11:40
S55	2	"20050027887"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT ; IBM_TDB	OR	ON	2007/08/29 13:00
S56	1	"20050027887"	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2007/08/29 16:50
S57	0	"6,360,375,pn."	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2007/08/29 16:50
S58	0	"6,360,375.pn."	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2007/08/29 16:50
S59	1	("6360375").pn.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2007/08/29 16:51
S60	16	("1642279" "2088800" "3094990" "3524449" "4121305" "4501024" "4698847" "4932079" "5485636" "5876395" "5902170" "6058514"). PN.	US-PGPUB; USPAT; USOCR	OR	ON	2007/08/29 16:53
S61	4294	broadband adj communicat\$5	US-PGPUB; USPAT; USOCR	OR	ON	2007/08/30 10:37
S62	887	S61 and (pots pstn)	US-PGPUB; USPAT; USOCR	OR	ON	2007/08/30 10:37
S63	420	S62 and ("370".clas.)	US-PGPUB; USPAT; USOCR	OR	ON	2007/08/30 10:38
S64	236	S62 and ("370".clas.)	USPAT	OR	ON	2007/08/30 10:43
S65	1	"20020054597"	US-PGPUB; USPAT; USOCR	OR	ON	2007/08/30 10:43
S66	31	"5909445"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT ; IBM_TDB	OR	ON	2007/08/30 10:52
S67	30	"5909445"	US-PGPUB; USPAT; USOCR; EPO	OR	ON	2007/08/30 10:53

8/30/2007 6:22:45 PM

Page 4

C:\Documents and Settings\ksoni\My Documents\EAST\Workspaces\28th_Appli_10_686375.wsp

EAST Search History

S68	61	"6061392"	US-PGPUB; USPAT; USOCR; EPO	OR	ON	2007/08/30 10:56
S69	27	"6167095"	US-PGPUB; USPAT; USOCR; EPO	OR	ON	2007/08/30 11:39
S70	33	"6307839"	US-PGPUB; USPAT; USOCR; EPO	OR	ON	2007/08/30 11:39
S71	15	"6373860"	US-PGPUB; USPAT; USOCR; EPO	OR	ON	2007/08/30 11:41

ITW



Clay McGurk, Esq.
The Law Office of Clay McGurk
Laguna Niguel, California 92607

Telephone: 949.395.3942 Fax 949.315.3084

FAX COVER SHEET

Date: January 22, 2008

Fax No: 571-273-8300

To: PATENT CENTRAL FAX
Commissioner for Patents

From: Clay McGurk, Esq.

11 Number of Pages (including cover sheet)

MESSAGE:

For Patent Application No. 10/686,375

- Amendment (9 pages)**
- Credit Card Payment Form (PTO-2038) (1 page)**

CAUTION - CONFIDENTIAL

THE INFORMATION CONTAINED IN THIS FAX MESSAGE IS PRIVILEGED AND CONFIDENTIAL INFORMATION INTENDED ONLY FOR THE USE OF THE INDIVIDUAL OR ENTITY NAMED ABOVE OR THEIR DESIGNEE. IF THE READER OF THIS MESSAGE IS NOT THE INTENDED RECIPIENT, YOU ARE STRICTLY PROHIBITED FROM DISSEMINATING, DISTRIBUTING OR COPYING THIS FAX. IF RECEIVED THIS FAX IN ERROR, PLEASE NOTIFY US IMMEDIATELY BY TELEPHONE OR FAX, AND DESTROY THE RECEIVED FAX. THANK YOU FOR YOUR COOPERATION.



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

P.O. BOX 1450

ALEXANDRIA, VA 22313-1450

APPLICATION SERIAL NO.: 10/686,375

APPLICANT: Eric M. DeLangis

FILING DATE: 10/14/2003

ART UNIT: 6329

EXAMINER: Ketan Soni

ATTORNEY DOCKET NO.: ED 1000

TITLE A Residential Communications Gateway (RCG) for broadband communications over a plurality of standard POTS lines, with dynamic allocation of said bandwidth, that requires no additional equipment or modifications to the associated Class 5 offices or the PSTN at large.

AMENDMENT FILED: January 22, 2008

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT

This Amendment addresses each of the objections and rejections raised in the Office Action dated September 20, 2007. A request for a one-month extension of time and the appropriate one-month extension fee are filed concurrently with this Amendment, thus extending the period for response to January 20, 2008. This Amendment is being filed on the next succeeding business day, since January 20th was a Sunday, and January 21st was a federal holiday.

01/25/2008 JADD01 00000000 10666375

01 FC:2251

68.00 3P

APPLICATION NO. 10/686,375
PAGE 1 OF 9

AMENDMENTS TO THE CLAIMS

Please AMEND claims 1-9 as follows.

1. (CURRENTLY AMENDED) A Residential Communications Gateway (RCG) device that is capable of providing broadband communications services over a plurality of standard Plain-Old-Telephone Service (POTS) lines, ~~where said POTS lines are of the normal type and do not require any modifications whatsoever, nor is any other additional equipment required to be installed in the Class 5 office or any other PSTN facility. Said said~~ RCG device comprising:

at least one POTS connection or more connections capable of connecting to a the Public Switched Telephone Network (PSTN) ~~via standard Plain Old Telephone Service (POTS) connections;~~

a wireless interface capable of connecting to connect to at least one of other wireless devices, ~~or wireless~~ Local Area Networks (LANS) and other RCGs ~~another RCG as well as a multitude of other RCGs using said wireless interface;~~

one of a USB, firewire (~~IEEE 1394~~), Ethernet and ~~or~~ other physical layer connections capable of ~~that may be or become standardized to connect physically connecting to~~ other equipment;

at least one or more derived POTS circuit capable of connecting circuits that ~~connect to a~~ any standard telephone device ~~devices;~~

APPLICATION NO. 10/686,375
PAGE 2 OF 9

a processor capable of

creating method to create an ad-hoc wireless network via direct wireless connections between devices, as well as

hopping said wireless connections among many far flung other RCGs to create a network of wirelessly connected RCGs that far exceeds the wireless transmission distance of any single point to point wireless connection, in order to expand coverage area and to increase bandwidth, said ad hoc hybrid network consisting of a multitude RCG devices each with one or more POTS connections to the LEC that are all used in conjunction to provide high speed, broadband services to for a requesting RCG device wherein the aggregate an aggregated POTS bandwidth is faster than many times the speed of a single POTS line device can derive by itself[;].

a method of utilizing Voice over IP (VoIP), voice/data compression and IP packet routing and switched circuit techniques to communicate multiple derived telephone POTS circuits over a single POTS telephone line connected to the a Local Exchange Company (LEC)[;]

a method of utilizing Voice over IP (VoIP), voice/data compression and IP packet routing and switched circuit techniques to communicate multiple derived telephone POTS circuits and over a wireless network[;]

a method for the assignment of assigning individual and unique telephone numbers, as those used by the PSTN, to the derived virtual POTS circuits that are

APPLICATION NO. 10/686,375
PAGE 3 OF 9

carried over a single POTS circuit from the LEC, said ~~derived POTS circuits having unique individual telephone numbers so that they can be used in the same fashion as if they were provided directly from the LEC, and were said derived POTS circuits are directed to individual RJ11 connectors on the RCG to which standard telephone devices are attached and are used in the normal fashion, with each telephone device attached to its own unique telephone number.~~

2. (CURRENTLY AMENDED) An The RCG of claim 1, wherein the processor is capable of:

dynamically allocating ~~that dynamically allocates~~ the POTS and wireless bandwidth between multiple local voice circuits and local data demands as well as requests for that bandwidth made by remote RCG devices[;].

and ~~that dynamically~~ allocating ~~allocates~~ its physically connected POTS bandwidth to other RCGs not physically connected to said POTS line(s), requesting said bandwidth[;], and

prioritizing ~~prioritizes~~ local as well as remote bandwidth requirements on both POTS circuits as well as wireless connections[;].

3. (CURRENTLY AMENDED) An The RCG of claim claims 1, and 2 that dynamically allocates wherein the processor is capable of:

allocating separate and physically diverse POTS lines or wireless connections into a multilink group, ~~capable of~~

APPLICATION No. 10/686,375
PAGE 4 OF 9

aggregating the combined bandwidth of a plurality of said separate physically diverse POTS lines or wireless connections,

providing said aggregate bandwidth to the benefit of one of a single[, or] and a plurality of RCG devices device for the concurrent and high speed transmission of one of large or and multiple files[;]

and utilizing that can utilize at least one or more of the separate and physically diverse POTS lines or wireless connections that are physically connected to other remote RCG devices as stand alone connections that are not grouped in a multilink configuration to the benefit of a single or a plurality of RCG devices for the concurrent high speed transmission of large or multiple files[;]

4. (CURRENTLY AMENDED) ~~As~~ The RCG of claim 1, wherein the processor is capable of creating and maintaining that creates and maintains POTS as well as and wireless routing tables that constantly change and that are used to determine maximum routing efficiencies for Quality Of Service (QOS) and maximum bandwidth between local and remote POTS circuits and as well as broadband wireless connections.

5. (CURRENTLY AMENDED) ~~As~~ The RCG of claim 1, wherein the processor is capable of providing that provides dynamic bandwidth reallocation ~~on-the-fly~~ for a plurality of separate and physically diverse POTS lines and or wireless connections.

APPLICATION NO. 10/686,375
PAGE 5 OF 9

6. (CURRENTLY AMENDED) ~~As~~ The RCG of claim 1, wherein the processor is capable of providing that provides security by one of numerous options such as Wired Equivalent Privacy (WEP), Internet Protocol Security (IPSEC), combination of proprietary and public security protocols[;], and providing provides ultra high security by employing these standard security practices described above in conjunction with proprietary routing of individual IP packets over separate physical POTS lines or wireless channels, thus making it very difficult or impossible for eavesdroppers to be able to monitor any conversation or data transfer since the individual IP packets are routed on the fly, in a completely random fashion, over completely separate and different POTS lines and/or wireless channels.

7. (CURRENTLY AMENDED) ~~As~~ The RCG of claim 1, further comprising with an automatically initiated account activation service whereby simply installing the RCG device will cause it to initiate the an equipment configuration, network configuration, equipment registration, account activation and billing services.

8. (CURRENTLY AMENDED) ~~As~~ The RCG of claim 1, wherein the processor is capable of creating with automatic creation of a wireless router table by polling other devices within its transmission range for their wireless routing tables.

9. (CURRENTLY AMENDED) ~~As~~ The RCG of claim 1, wherein the processor is capable of providing that provides a failsafe lifeline support for power failure. Provides a means to allow users to have telephone service in the event of a power failure.

APPLICATION NO. 10/686,375
PAGE 6 OF 9

Please **ADD** the following new claims.

10. (NEW CLAIM) A method for aggregating, sharing and dynamically routing and allocating bandwidth from a plurality of wired and wireless networks that are geographically disbursed over a wide area, and providing some or all of the aggregated bandwidth to any user on an on-demand basis, the method comprising the steps of:

developing and updating a network table that comprises a list of nearby RCGs, their bandwidth capabilities over local, remote and wireless connections, and their location with respect to a requesting RCG;

determining an optimum amount of bandwidth needed for an immediate data transfer needs of the requesting RCG;

determining which of the nearby RCGs should be contacted for access to unused bandwidth to support a transfer of the requesting RCG, based upon their unused local bandwidth capacity, and a distance and a number of hops between the RCGs and the requesting RCG;

sending a request to the supporting RCGs asking for use of a portion of the unused bandwidth;

receiving responses from the supporting RCGs with information about how much bandwidth each selected RCG can share;

selecting which of the supporting RCGs to use for optimal use of needed bandwidth;

contacting the selected RCGs with control information for sending data to the requesting RCG;

sending packets of the data from the selected RCGs to the requesting RCG;

reassembling the packets of the data at the requesting RCG; and

relinquishing the bandwidth of each of the selected RCGs.

APPLICATION NO. 10/686,375

PAGE 7 OF 9

11. (NEW CLAIM) The method of claim 10, further comprising the step of sending a request to a single supporting RCG that has sufficient unused bandwidth for satisfying the request of the requesting RCG.

12. (NEW CLAIM) The method of claim 10, wherein each of the supporting RCGs can opt out of bandwidth sharing based upon local demand priority, and wherein local demand for bandwidth supersedes a request of a remote RCG for bandwidth sharing.

13. (NEW CLAIM) The method of claim 10, further comprising the steps of:
dynamically reallocating shared bandwidth of the supporting RCGs during multi-link data transfers as supporting RCGs opt out of bandwidth sharing due to local bandwidth demands; and
enlisting additional supporting RCGs to provide additional bandwidth.

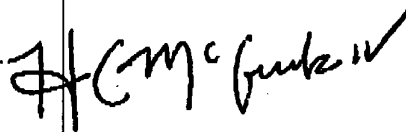
14. (NEW CLAIM) The method of claim 10, further comprising the step of scheduling a data transfer to occur at a future date and time based upon at least one of anticipated network bandwidth availability, network congestion, and future notice of availability of the data of interest.

APPLICATION NO. 10/686,375
PAGE 8 OF 9

REMARKS / ARGUMENTS**Objections and Rejections under 35 U.S.C. §112, First Paragraph**

On pages 2-3 of the Office Action, claims 1, 3, 6 and 9 are objected to by the Examiner for a variety of informalities. On pages 3-4, claims 1-9 are rejected under 35 U.S.C. §112, first paragraph, for being indefinite. The claims have been extensively amended to conform to proper claim construction. Claims 10-14 have been added and are new method claims. It is respectfully requested that the Examiner reconsider and withdraw the objections and rejections to the claims and allow this application. If there are any remaining issues, the Examiner may call the attorney of record so that this application can be allowed without further delay.

Respectfully submitted,



Harold "Clay" McGurk IV

Reg. No. 34,964

APPLICATION NO. 10/686,375
PAGE 9 OF 9

01/22/2008 13:01 FAX

002

Ifw



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

P.O. BOX 1450

ALEXANDRIA, VA 22313-1450

APPLICATION SERIAL NO.: 10/686,375
APPLICANT: Eric M. DeLangis
FILING DATE: 10/14/2003
ART UNIT: 6329
EXAMINER: Ketan Soni
ATTORNEY DOCKET NO.: ED 1000
TITLE A Residential Communications Gateway (RCG) for
broadband communications over a plurality of standard
POTS lines, with dynamic allocation of said bandwidth,
that requires no additional equipment or modifications to
the associated Class 5 offices or the PSTN at large.
AMENDMENT FILED: January 22, 2008

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT

This Amendment addresses each of the objections and rejections raised in the Office Action dated September 20, 2007. A request for a one-month extension of time and the appropriate one-month extension fee are filed concurrently with this Amendment, thus extending the period for response to January 20, 2008. This Amendment is being filed on the next succeeding business day, since January 20th was a Sunday, and January 21st was a federal holiday.

APPLICATION NO. 10/686,375
PAGE 1 OF 9

AMENDMENTS TO THE CLAIMS

Please AMEND claims 1-9 as follows.

1. (CURRENTLY AMENDED) A Residential Communications Gateway (RCG) device that is capable of providing broadband communications services over a plurality of standard Plain-Old-Telephone Service (POTS) lines, ~~where said POTS lines are of the normal type and do not require any modifications whatsoever, nor is any other additional equipment required to be installed in the Class 5 office or any other PSTN facility.~~ Said said RCG device comprising:

at least one POTS connection or more connections capable of connecting to a
the Public Switched Telephone Network (PSTN) ~~via standard Plain Old Telephone Service (POTS) connections;~~

a wireless interface capable of connecting to connect to at least one of other
wireless devices, or wireless Local Area Networks (LANS) and other RCGs another
RCG as well as a multitude of other RCGs using said wireless interface;

one of a USB, firewire (IEEE 1394), Ethernet and or other physical layer
connections capable of that may be or become standardized to connect physically
connecting to other equipment;

at least one or more derived POTS circuit capable of connecting circuits that
connect to a any standard telephone device devices;

APPLICATION NO. 10/686,375
PAGE 2 OF 9

a processor capable of

creating method to create an ad-hoc wireless network via direct wireless connections between devices, as well as

hopping said wireless connections among ~~many far flung other~~ RCGs to create a network of wirelessly connected RCGs ~~that far exceeds the wireless transmission distance of any single point to point wireless connection, in order to expand coverage area and to increase bandwidth,~~ said ad hoc hybrid network consisting of a multitude RCG devices each with one or more POTS connections to the LEC that are all used in conjunction to provide high speed, broadband services to for a requesting RCG device wherein the aggregate an aggregated POTS bandwidth is faster than many times the speed of a single POTS line device can derive by itself[;].

~~a method of utilizing Voice over IP (VoIP), voice/data compression and IP packet routing and switched circuit techniques to communicate multiple derived telephone POTS circuits over a single POTS telephone line connected to the~~ a Local Exchange Company (LEC)[;].

~~a method of utilizing Voice over IP (VoIP), voice/data compression and IP packet routing and switched circuit techniques to communicate multiple derived telephone POTS circuits and~~ over a wireless network[;].

~~a method for the assignment of~~ assigning individual and unique telephone numbers, as those used by the PSTN, to the derived virtual POTS circuits that are

APPLICATION NO. 10/686,375
PAGE 3 OF 9

carried over a single POTS circuit from the LEC, said ~~derived POTS circuits having unique individual telephone numbers so that they can be used in the same fashion as if they were provided directly from the LEC, and were said derived POTS circuits are directed to individual RJ11 connectors on the RCG to which standard telephone devices are attached and are used in the normal fashion, with each telephone device attached to its own unique telephone number.~~

2. (CURRENTLY AMENDED) ~~An~~ The RCG of claim 1, wherein the processor is capable of:

dynamically allocating ~~that dynamically allocates~~ the POTS and wireless bandwidth between multiple local voice circuits and local data demands as well as requests for that bandwidth made by remote RCG devices[;].

~~and that dynamically~~ allocating ~~allocates~~ its physically connected POTS bandwidth to other RCGs not physically connected to said POTS line(s), requesting said bandwidth[;], and

prioritizing ~~prioritizes~~ local as well as remote bandwidth requirements on both POTS circuits as well as wireless connections[;].

3. (CURRENTLY AMENDED) ~~An~~ The RCG of claim claims 1, and 2 that dynamically allocates wherein the processor is capable of:

allocating ~~separate and physically diverse POTS lines or wireless connections into a multilink group, capable of~~

APPLICATION No. 10/686,375
PAGE 4 OF 9

aggregating the combined bandwidth of a plurality of said separate physically diverse POTS lines or wireless connections,

providing said aggregate bandwidth to the benefit of one of a single[, or] and a plurality of RCG devices device for the concurrent and high speed transmission of one of large or and multiple files[;],

and utilizing that can utilize at least one or more of the separate and physically diverse POTS lines or wireless connections that are physically connected to other remote RCG devices as stand alone connections that are not grouped in a multilink configuration to the benefit of a single or a plurality of RCG devices for the concurrent high speed transmission of large or multiple files[;],

4. (CURRENTLY AMENDED) ~~As~~ The RCG of claim 1, wherein the processor is capable of creating and maintaining that creates and maintains POTS as well as and wireless routing tables that constantly change and that are used to determine maximum routing efficiencies for Quality Of Service (QOS) and maximum bandwidth between local and remote POTS circuits and as well as broadband wireless connections.

5. (CURRENTLY AMENDED) ~~As~~ The RCG of claim 1, wherein the processor is capable of providing that provides dynamic bandwidth reallocation ~~on-the-fly~~ for a plurality of separate and physically diverse POTS lines and or wireless connections.

APPLICATION NO. 10/686,375
PAGE 5 OF 9

6. (CURRENTLY AMENDED) An The RCG of claim 1, wherein the processor is capable of providing that provides security by one of numerous options such as Wired Equivalent Privacy (WEP), Internet Protocol Security (IPSEC), combination of proprietary and public security protocols[;], and providing provides ultra high security by employing these standard security practices described above in conjunction with proprietary routing of individual IP packets over separate physical POTS lines or wireless channels, thus making it very difficult or impossible for eavesdroppers to be able to monitor any conversation or data transfer since the individual IP packets are routed on the fly, in a completely random fashion, over completely separate and different POTS lines and/or wireless channels.

7. (CURRENTLY AMENDED) An The RCG of claim 1, further comprising with an automatically initiated account activation service whereby simply installing the RCG device will cause it to initiate the an equipment configuration, network configuration, equipment registration, account activation and billing services.

8. (CURRENTLY AMENDED) An The RCG of claim 1, wherein the processor is capable of creating with automatic creation of a wireless router table by polling other devices within its transmission range for their wireless routing tables.

9. (CURRENTLY AMENDED) An The RCG of claim 1, wherein the processor is capable of providing that provides a failsafe lifeline support for power failure. Provides a means to allow users to have telephone service in the event of a power failure.

APPLICATION NO. 10/686,375
PAGE 6 OF 9

Please **ADD** the following new claims.

10. (NEW CLAIM) A method for aggregating, sharing and dynamically routing and allocating bandwidth from a plurality of wired and wireless networks that are geographically disbursed over a wide area, and providing some or all of the aggregated bandwidth to any user on an on-demand basis, the method comprising the steps of:

developing and updating a network table that comprises a list of nearby RCGs, their bandwidth capabilities over local, remote and wireless connections, and their location with respect to a requesting RCG;

determining an optimum amount of bandwidth needed for an immediate data transfer needs of the requesting RCG;

determining which of the nearby RCGs should be contacted for access to unused bandwidth to support a transfer of the requesting RCG, based upon their unused local bandwidth capacity, and a distance and a number of hops between the RCGs and the requesting RCG;

sending a request to the supporting RCGs asking for use of a portion of the unused bandwidth;

receiving responses from the supporting RCGs with information about how much bandwidth each selected RCG can share;

selecting which of the supporting RCGs to use for optimal use of needed bandwidth;

contacting the selected RCGs with control information for sending data to the requesting RCG;

sending packets of the data from the selected RCGs to the requesting RCG;

reassembling the packets of the data at the requesting RCG; and

relinquishing the bandwidth of each of the selected RCGs.

APPLICATION NO. 10/686,375

PAGE 7 OF 9

11. (NEW CLAIM) The method of claim 10, further comprising the step of sending a request to a single supporting RCG that has sufficient unused bandwidth for satisfying the request of the requesting RCG.

12. (NEW CLAIM) The method of claim 10, wherein each of the supporting RCGs can opt out of bandwidth sharing based upon local demand priority, and wherein local demand for bandwidth supersedes a request of a remote RCG for bandwidth sharing.

13. (NEW CLAIM) The method of claim 10, further comprising the steps of:
dynamically reallocating shared bandwidth of the supporting RCGs during multi-link data transfers as supporting RCGs opt out of bandwidth sharing due to local bandwidth demands; and
enlisting additional supporting RCGs to provide additional bandwidth.

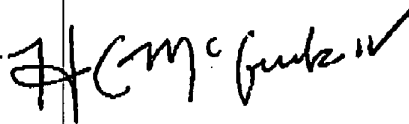
14. (NEW CLAIM) The method of claim 10, further comprising the step of scheduling a data transfer to occur at a future date and time based upon at least one of anticipated network bandwidth availability, network congestion, and future notice of availability of the data of interest.

APPLICATION NO. 10/686,375
PAGE 8 OF 9

REMARKS / ARGUMENTS**Objections and Rejections under 35 U.S.C. §112, First Paragraph**

On pages 2-3 of the Office Action, claims 1, 3, 6 and 9 are objected to by the Examiner for a variety of informalities. On pages 3-4, claims 1-9 are rejected under 35 U.S.C. §112, first paragraph, for being indefinite. The claims have been extensively amended to conform to proper claim construction. Claims 10-14 have been added and are new method claims. It is respectfully requested that the Examiner reconsider and withdraw the objections and rejections to the claims and allow this application. If there are any remaining issues, the Examiner may call the attorney of record so that this application can be allowed without further delay.

Respectfully submitted,



Harold "Clay" McGurk IV

Reg. No. 34,964

APPLICATION NO. 10/686,375
PAGE 9 OF 9



Clay McGurk, Esq.
The Law Office of Clay McGurk
Laguna Niguel, California 92607

Telephone: 949.395.3942 Fax 949.315.3084

FAX COVER SHEET

Date: January 22, 2008

Fax No: 571-273-8300

To: PATENT CENTRAL FAX
Commissioner for Patents

From: Clay McGurk, Esq.

11 Number of Pages (including cover sheet)

MESSAGE:

For Patent Application No. 10/686,375

- **Amendment (9 pages)**
- **Credit Card Payment Form (PTO-2038) (1 page)**

CAUTION – CONFIDENTIAL

THE INFORMATION CONTAINED IN THIS FAX MESSAGE IS PRIVILEGED AND CONFIDENTIAL INFORMATION INTENDED ONLY FOR THE USE OF THE INDIVIDUAL OR ENTITY NAMED ABOVE OR THEIR DESIGNEE. IF THE READER OF THIS MESSAGE IS NOT THE INTENDED RECIPIENT, YOU ARE STRICTLY PROHIBITED FROM DISSEMINATING, DISTRIBUTING OR COPYING THIS FAX. IF RECEIVED THIS FAX IN ERROR, PLEASE NOTIFY US IMMEDIATELY BY TELEPHONE OR FAX, AND DESTROY THE RECEIVED FAX. THANK YOU FOR YOUR COOPERATION.

**Fee History
Query**

Revenue Accounting and Management

Name/Number: 10686375

Total Records Found: 2

Start Date: Any Date

End Date: Any Date

Accounting Date	Sequence Num.	Fee Type	Fee Code	Fee Amount	Mailroom Date	Payment Method
01/25/2008	00000108	<u>1</u>	<u>2251</u>	\$60.00	01/22/2008	CC
10/22/2003	00000080	<u>1</u>	<u>2001</u>	\$385.00	10/14/2003	CK

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.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875					Application or Docket Number 10/686,375		Filing Date 10/14/2003		☐ To be Mailed	
APPLICATION AS FILED – PART I										
(Column 1)			(Column 2)		SMALL ENTITY ☒ OR		OTHER THAN SMALL ENTITY			
FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)	OR	RATE (\$)	FEE (\$)			
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A				
☐ SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A			N/A				
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A				
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X \$ =		OR	X \$ =				
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X \$ =			X \$ =				
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).									
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))										
* If the difference in column 1 is less than zero, enter "0" in column 2.					TOTAL		TOTAL			
APPLICATION AS AMENDED – PART II										
(Column 1)			(Column 2)		(Column 3)		SMALL ENTITY OR		OTHER THAN SMALL ENTITY	
AMENDMENT	01/22/2008	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)		RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(j))	* 1	Minus	** 20	= 0	X \$25 =	0	OR	X \$ =	
	Independent (37 CFR 1.16(h))	* 1	Minus	***3	= 0	X \$105 =	0	OR	X \$ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
					TOTAL ADD'L FEE	0	OR	TOTAL ADD'L FEE		
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)		RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(j))	*	Minus	**	=	X \$ =		OR	X \$ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X \$ =		OR	X \$ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
					TOTAL ADD'L FEE		OR	TOTAL ADD'L 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.										

Legal Instrument Examiner:
/BRUCE D. HARRISON/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875					Application or Docket Number 10/686,375		Filing Date 10/14/2003		☐ To be Mailed	
APPLICATION AS FILED – PART I										
(Column 1)			(Column 2)		SMALL ENTITY ☒		OR		OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)			RATE (\$)	FEE (\$)		
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A				N/A			
☐ SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A				N/A			
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A				N/A			
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X \$ =		OR		X \$ =			
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X \$ =				X \$ =			
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))			If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).							
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))										
			TOTAL				TOTAL			
* If the difference in column 1 is less than zero, enter "0" in column 2.										
APPLICATION AS AMENDED – PART II										
(Column 1)			(Column 2)		(Column 3)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY	
AMENDMENT	01/22/2008	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)		RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(j))	* 1	Minus	** 20	= 0	X \$25 =	0	OR	X \$ =	
	Independent (37 CFR 1.16(h))	* 1	Minus	*** 3	= 0	X \$105 =	0	OR	X \$ =	
	☐ Application Size Fee (37 CFR 1.16(s))							OR		
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE	0	OR	TOTAL ADD'L FEE		
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)		RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(j))	*	Minus	**	=	X \$ =		OR	X \$ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X \$ =		OR	X \$ =	
	☐ Application Size Fee (37 CFR 1.16(s))							OR		
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE		OR	TOTAL ADD'L 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.										

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Legal Instrument Examiner:
/BRUCE D. HARRISON/



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/686,375	10/14/2003	Eric M. DeLangis		6329

7590
Eric DeLangis
4339 Golf Vista Dr.
Loveland, CO 80537

03/26/2008

EXAMINER

CHO, HONG SOL

ART UNIT	PAPER NUMBER
----------	--------------

2619

MAIL DATE	DELIVERY MODE
-----------	---------------

03/26/2008

PAPER

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

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/686,375	Applicant(s) DELANGIS, ERIC M.	
	Examiner HONG CHO	Art Unit 2619	

-- 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) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, 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 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 1/24/2008.

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) 1-14 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) _____ is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☒ Claim(s) 1-14 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 _____ 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).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ 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.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892) 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.	4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____. 5) ☐ Notice of Informal Patent Application 6) ☐ Other: _____.
---	--

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-9, drawn to a gateway device between networks, classified in class 370, subclass 401.
 - II. Claims 10-14, drawn to bandwidth allocation, classified in class 370, subclass 468.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I-II are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different designs, modes of operation, and effects (MPEP § 802.01 and § 806.06). In the instant case, invention I is related to a gateway device between networks and invention II is related to allocating network bandwidth.
3. Because these inventions are independent or distinct for the reasons given above and there would be a serious burden on the examiner if restriction is not required because the inventions require a different field of search (see MPEP § 808.02), restriction for examination purposes as indicated is proper.

4. Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species or invention to be examined even though the requirement be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention. The election of an invention or species may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse. Should applicant traverse on the ground that the inventions or species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions or species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C.103(a) of the other invention.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hong Cho whose telephone number is 571-272-3087.

The examiner can normally be reached on Mon-Fri during 7 am to 4 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wing Chan can be reached on 571-272-7493. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/H. C./

Hong Cho
Patent Examiner
3/18/2008

<i>Index of Claims</i> 	Application/Control No. 10686375	Applicant(s)/Patent Under Reexamination DELANGIS, ERIC M.
	Examiner cho, hong	Art Unit 2619

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant										☐ CPA		☐ T.D.		☐ R.1.47	
CLAIM			DATE												
Final	Original	03/18/2008													
	1	÷													
	2	÷													
	3	÷													
	4	÷													
	5	÷													
	6	÷													
	7	÷													
	8	÷													
	9	÷													
	10	÷													
	11	÷													
	12	÷													
	13	÷													
	14	÷													

Clay McGurk, Esq.
The Law Office of Clay McGurk
Laguna Niguel, California 92607

RECEIVED
CENTRAL FAX CENTER

JUN 26 2008

Telephone: 949.395.3942 Fax 949.315.3084

FAX COVER SHEET

Date: June 26, 2008

Fax No: 571-273-8300

To: PATENT CENTRAL FAX
Commissioner for Patents

From: Clay McGurk, Esq.

8 Number of Pages (including cover sheet)

MESSAGE:

For Patent Application No. 10/686,375
• Response to Restriction Requirement with Traverse (7
pages)

CAUTION – CONFIDENTIAL

THE INFORMATION CONTAINED IN THIS FAX MESSAGE IS PRIVILEGED AND CONFIDENTIAL INFORMATION INTENDED ONLY FOR THE USE OF THE INDIVIDUAL OR ENTITY NAMED ABOVE OR THEIR DESIGNEE. IF THE READER OF THIS MESSAGE IS NOT THE INTENDED RECIPIENT, YOU ARE STRICTLY PROHIBITED FROM DISSEMINATING, DISTRIBUTING OR COPYING THIS FAX. IF RECEIVED THIS FAX IN ERROR, PLEASE NOTIFY US IMMEDIATELY BY TELEPHONE OR FAX, AND DESTROY THE RECEIVED FAX. THANK YOU FOR YOUR COOPERATION.

PAGE 1/5 * RCVD AT 6/26/2008 5:24:12 PM [Eastern Daylight Time] * SVR:USPTO-EFAX-5/42 * DNIS:2738300 * CSID: * DURATION (mm-ss):01-20

Received 5 pages -

RECEIVED
CENTRAL FAX CENTER

002

JUN 26 2008

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
P.O. BOX 1450
ALEXANDRIA, VA 22313-1450

APPLICATION SERIAL NO.:	10/686,375
APPLICANT:	Eric M. DeLangis
FILING DATE:	10/14/2003
ART UNIT:	2619
EXAMINER:	Hong Cho
ATTORNEY DOCKET NO.:	ED 1000
TITLE	A Residential Communications Gateway (RCG) for broadband communications over a plurality of standard POTS lines, with dynamic allocation of said bandwidth, that requires no additional equipment or modifications to the associated Class 5 offices or the PSTN at large.
RESPONSE FILED:	June 26, 2008

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450**Response to Restriction Requirement With Traverse**

This Response addresses the restriction requirement raised in the Office Action dated March 26, 2008. The claims as previously presented are enclosed and are not amended. After the claims, a response to the restriction requirement is presented, followed by a provisional election.

APPLICATION NO. 10/686,375
PAGE 1 OF 7

PAGE 2/5 * RCVD AT 6/26/2008 5:24:12 PM [Eastern Daylight Time] * SVR:USPTO-EFAX-5/42 * DNIS:2738300 * CSID: * DURATION (mm-ss):01-20

**RECEIVED
CENTRAL FAX CENTER**

JUN 26 2008

CLAIMS

1. (Previously Presented) A Residential Communications Gateway (RCG) device that is capable of providing broadband communications services over a plurality of standard Plain-Old-Telephone Service (POTS) lines, said RCG device comprising:

at least one POTS connection capable of connecting to a Public Switched Telephone Network (PSTN);

a wireless interface capable of connecting to at least one of wireless devices, wireless Local Area Networks (LANs) and other RCGs;

one of a USB, firewire, Ethernet and other physical layer connections capable of physically connecting to other equipment;

at least one POTS circuit capable of connecting to a standard telephone device;

a processor capable of creating an ad-hoc wireless network via direct wireless connections between devices, hopping said wireless connections among other RCGs to create a network of wirelessly connected RCGs to increase bandwidth for a requesting RCG device wherein an aggregated POTS bandwidth is faster than the speed of a single POTS line device, utilizing Voice over IP (VoIP), voice/data compression and IP packet routing and switched circuit techniques to communicate multiple derived telephone POTS circuits over a single POTS telephone line connected to a Local Exchange Company (LEC) and over a wireless network, assigning individual and unique telephone numbers, as those used by the PSTN, to the derived virtual POTS circuits that are carried over a single POTS circuit from the LEC.

2. (Previously Presented) The RCG of claim 1, wherein the processor is capable of:

dynamically allocating the POTS and wireless bandwidth between multiple local voice circuits and local data demands as well as requests for that bandwidth made by remote RCG devices,

dynamically allocating its physically connected POTS bandwidth to other RCGs not physically connected to said POTS line(s),

requesting said bandwidth, and

APPLICATION NO. 10/686,375
PAGE 2 OF 7

prioritizing local as well as remote bandwidth requirements on both POTS circuits as well as wireless connections.

3. (Previously Presented) The RCG of claim 1, wherein the processor is capable of:

allocating separate and physically diverse POTS lines or wireless connections into a multilink group,

aggregating the combined bandwidth of a plurality of said separate physically diverse POTS lines or wireless connections,

providing said aggregate bandwidth to the benefit of one of a single and a plurality of RCG devices for the concurrent and high speed transmission of one of large and multiple files,

and utilizing at least one of the separate and physically diverse POTS lines or wireless connections that are physically connected to other remote RCG devices as stand alone connections that are not grouped in a multilink configuration to the benefit of a single or a plurality of RCG devices for the concurrent high speed transmission of large or multiple files.

4. (Previously Presented) The RCG of claim 1, wherein the processor is capable of creating and maintaining POTS and wireless routing tables that constantly change and that are used to determine maximum routing efficiencies for Quality Of Service (QOS) and maximum bandwidth between local and remote POTS circuits and broadband wireless connections.

5. (Previously Presented) The RCG of claim 1, wherein the processor is capable of providing dynamic bandwidth reallocation for a plurality of separate and physically diverse POTS lines and wireless connections.

6. (Previously Presented) The RCG of claim 1, wherein the processor is capable of providing security by one of Wired Equivalent Privacy (WEP), Internet Protocol Security (IPSEC), combination of proprietary and public security protocols, and providing security by employing standard security practices.

7. (Previously Presented) The RCG of claim 1, further comprising an automatically initiated account activation service whereby installing the RCG device will initiate an equipment configuration, network configuration, equipment registration, account activation and billing services.

8. (Previously Presented) The RCG of claim 1, wherein the processor is capable of creating a wireless router table by polling other devices within its transmission range for their wireless routing tables.

APPLICATION NO. 10/686,375
PAGE 3 OF 7

9. (Previously Presented) The RCG of claim 1, wherein the processor is capable of providing a failsafe lifeline support for power failure.

10. (Previously Presented) A method for aggregating, sharing and dynamically routing and allocating bandwidth from a plurality of wired and wireless networks that are geographically disbursed over a wide area, and providing some or all of the aggregated bandwidth to any user on an on-demand basis, the method comprising the steps of:

- developing and updating a network table that comprises a list of nearby RCGs, their bandwidth capabilities over local, remote and wireless connections, and their location with respect to a requesting RCG;

- determining an optimum amount of bandwidth needed for an immediate data transfer needs of the requesting RCG;

- determining which of the nearby RCGs should be contacted for access to unused bandwidth to support a transfer of the requesting RCG, based upon their unused local bandwidth capacity, and a distance and a number of hops between the RCGs and the requesting RCG;

- sending a request to the supporting RCGs asking for use of a portion of the unused bandwidth;

- receiving responses from the supporting RCGs with information about how much bandwidth each selected RCG can share;

- selecting which of the supporting RCGs to use for optimal use of needed bandwidth;

- contacting the selected RCGs with control information for sending data to the requesting RCG;

- sending packets of the data from the selected RCGs to the requesting RCG;

- reassembling the packets of the data at the requesting RCG; and

- relinquishing the bandwidth of each of the selected RCGs.

11. (Previously Presented) The method of claim 10, further comprising the step of sending a request to a single supporting RCG that has sufficient unused bandwidth for satisfying the request of the requesting RCG.

12. (Previously Presented) The method of claim 10, wherein each of the supporting RCGs can opt out of bandwidth sharing based upon local demand priority, and wherein local demand for bandwidth supersedes a request of a remote RCG for bandwidth sharing.

13. (Previously Presented) The method of claim 10, further comprising the steps of:

- dynamically reallocating shared bandwidth of the supporting RCGs during multi-link data transfers as supporting RCGs opt out of bandwidth sharing due to local bandwidth demands; and

- enlisting additional supporting RCGs to provide additional bandwidth.

APPLICATION NO. 10/686,375

PAGE 4 OF 7

Clay McGurk, Esq.
The Law Office of Clay McGurk
Laguna Niguel, California 92607

RECEIVED
CENTRAL FAX CENTER

JUN 26 2008

Telephone: 949.395.3942 Fax 949.315.3084

FAX COVER SHEET

Date: June 26, 2008

Fax No: 571-273-8300

**To: PATENT CENTRAL FAX
 Commissioner for Patents**

From: Clay McGurk, Esq.

8 Number of Pages (including cover sheet)

MESSAGE:

For Patent Application No. 10/686,375

· Response to Restriction Requirement with Traverse (7 pages)

CAUTION – CONFIDENTIAL

THE INFORMATION CONTAINED IN THIS FAX MESSAGE IS PRIVILEGED AND CONFIDENTIAL INFORMATION INTENDED ONLY FOR THE USE OF THE INDIVIDUAL OR ENTITY NAMED ABOVE OR THEIR DESIGNEE. IF THE READER OF THIS MESSAGE IS NOT THE INTENDED RECIPIENT, YOU ARE STRICTLY PROHIBITED FROM DISSEMINATING, DISTRIBUTING OR COPYING THIS FAX. IF RECEIVED THIS FAX IN ERROR, PLEASE NOTIFY US IMMEDIATELY BY TELEPHONE OR FAX, AND DESTROY THE RECEIVED FAX. THANK YOU FOR YOUR COOPERATION.

JUN 26 2008

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
P.O. BOX 1450
ALEXANDRIA, VA 22313-1450

APPLICATION SERIAL NO.:	10/686,375
APPLICANT:	Eric M. DeLangis
FILING DATE:	10/14/2003
ART UNIT:	2619
EXAMINER:	Hong Cho
ATTORNEY DOCKET NO.:	ED 1000
TITLE	A Residential Communications Gateway (RCG) for broadband communications over a plurality of standard POTS lines, with dynamic allocation of said bandwidth, that requires no additional equipment or modifications to the associated Class 5 offices or the PSTN at large.
RESPONSE FILED:	June 26, 2008

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450**Response to Restriction Requirement With Traverse**

This Response addresses the restriction requirement raised in the Office Action dated March 26, 2008. The claims as previously presented are enclosed and are not amended. After the claims, a response to the restriction requirement is presented, followed by a provisional election.

APPLICATION NO. 10/686,375
PAGE 1 OF 7

JUN 26 2008

CLAIMS

1. (Previously Presented) A Residential Communications Gateway (RCG) device that is capable of providing broadband communications services over a plurality of standard Plain-Old-Telephone Service (POTS) lines, said RCG device comprising:

at least one POTS connection capable of connecting to a Public Switched Telephone Network (PSTN);

a wireless interface capable of connecting to at least one of wireless devices, wireless Local Area Networks (LANs) and other RCGs;

one of a USB, firewire, Ethernet and other physical layer connections capable of physically connecting to other equipment;

at least one POTS circuit capable of connecting to a standard telephone device;

a processor capable of creating an ad-hoc wireless network via direct wireless connections between devices, hopping said wireless connections among other RCGs to create a network of wirelessly connected RCGs to increase bandwidth for a requesting RCG device wherein an aggregated POTS bandwidth is faster than the speed of a single POTS line device, utilizing Voice over IP (VoIP), voice/data compression and IP packet routing and switched circuit techniques to communicate multiple derived telephone POTS circuits over a single POTS telephone line connected to a Local Exchange Company (LEC) and over a wireless network, assigning individual and unique telephone numbers, as those used by the PSTN, to the derived virtual POTS circuits that are carried over a single POTS circuit from the LEC.

2. (Previously Presented) The RCG of claim 1, wherein the processor is capable of:

dynamically allocating the POTS and wireless bandwidth between multiple local voice circuits and local data demands as well as requests for that bandwidth made by remote RCG devices,

dynamically allocating its physically connected POTS bandwidth to other RCGs not physically connected to said POTS line(s),

requesting said bandwidth, and

APPLICATION NO. 10/686,375
PAGE 2 OF 7

prioritizing local as well as remote bandwidth requirements on both POTS circuits as well as wireless connections.

3. (Previously Presented) The RCG of claim 1, wherein the processor is capable of:

allocating separate and physically diverse POTS lines or wireless connections into a multilink group,

aggregating the combined bandwidth of a plurality of said separate physically diverse POTS lines or wireless connections,

providing said aggregate bandwidth to the benefit of one of a single and a plurality of RCG devices for the concurrent and high speed transmission of one of large and multiple files,

and utilizing at least one of the separate and physically diverse POTS lines or wireless connections that are physically connected to other remote RCG devices as stand alone connections that are not grouped in a multilink configuration to the benefit of a single or a plurality of RCG devices for the concurrent high speed transmission of large or multiple files.

4. (Previously Presented) The RCG of claim 1, wherein the processor is capable of creating and maintaining POTS and wireless routing tables that constantly change and that are used to determine maximum routing efficiencies for Quality Of Service (QOS) and maximum bandwidth between local and remote POTS circuits and broadband wireless connections.

5. (Previously Presented) The RCG of claim 1, wherein the processor is capable of providing dynamic bandwidth reallocation for a plurality of separate and physically diverse POTS lines and wireless connections.

6. (Previously Presented) The RCG of claim 1, wherein the processor is capable of providing security by one of Wired Equivalent Privacy (WEP), Internet Protocol Security (IPSEC), combination of proprietary and public security protocols, and providing security by employing standard security practices.

7. (Previously Presented) The RCG of claim 1, further comprising an automatically initiated account activation service whereby installing the RCG device will initiate an equipment configuration, network configuration, equipment registration, account activation and billing services.

8. (Previously Presented) The RCG of claim 1, wherein the processor is capable of creating a wireless router table by polling other devices within its transmission range for their wireless routing tables.

APPLICATION NO. 10/686,375
PAGE 3 OF 7

9. (Previously Presented) The RCG of claim 1, wherein the processor is capable of providing a failsafe lifeline support for power failure.

10. (Previously Presented) A method for aggregating, sharing and dynamically routing and allocating bandwidth from a plurality of wired and wireless networks that are geographically disbursed over a wide area, and providing some or all of the aggregated bandwidth to any user on an on-demand basis, the method comprising the steps of:

developing and updating a network table that comprises a list of nearby RCGs, their bandwidth capabilities over local, remote and wireless connections, and their location with respect to a requesting RCG;

determining an optimum amount of bandwidth needed for an immediate data transfer needs of the requesting RCG;

determining which of the nearby RCGs should be contacted for access to unused bandwidth to support a transfer of the requesting RCG, based upon their unused local bandwidth capacity, and a distance and a number of hops between the RCGs and the requesting RCG;

sending a request to the supporting RCGs asking for use of a portion of the unused bandwidth;

receiving responses from the supporting RCGs with information about how much bandwidth each selected RCG can share;

selecting which of the supporting RCGs to use for optimal use of needed bandwidth;

contacting the selected RCGs with control information for sending data to the requesting RCG;

sending packets of the data from the selected RCGs to the requesting RCG;

reassembling the packets of the data at the requesting RCG; and

relinquishing the bandwidth of each of the selected RCGs.

11. (Previously Presented) The method of claim 10, further comprising the step of sending a request to a single supporting RCG that has sufficient unused bandwidth for satisfying the request of the requesting RCG.

12. (Previously Presented) The method of claim 10, wherein each of the supporting RCGs can opt out of bandwidth sharing based upon local demand priority, and wherein local demand for bandwidth supersedes a request of a remote RCG for bandwidth sharing.

13. (Previously Presented) The method of claim 10, further comprising the steps of:

dynamically reallocating shared bandwidth of the supporting RCGs during multi-link data transfers as supporting RCGs opt out of bandwidth sharing due to local bandwidth demands; and

enlisting additional supporting RCGs to provide additional bandwidth.

APPLICATION NO. 10/686,375
PAGE 4 OF 7

14. (Previously Presented) The method of claim 10, further comprising the step of scheduling a data transfer to occur at a future date and time based upon at least one of anticipated network bandwidth availability, network congestion, and future notice of availability of the data of interest.

APPLICATION NO. 10/686,375
PAGE 5 OF 7

PAGE 6/8 * RCVD AT 6/26/2008 5:29:55 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-6/34 * DNIS:2738300 * CSID: * DURATION (mm-ss):01-10

REMARKS / ARGUMENTS**I. Restriction Requirement**

On page 2, items 1-3 of the Office Action, the Examiner requests a restriction to one set of the claims. The argument is that there are two unrelated inventions being claimed. However, the Residential Communications Gateway (RCG) device of claims 1-9 is directly related to a bandwidth allocation method of claims 10-14. These inventions are related. The steps performed by the processor of the RCG device of claims 1-9 is directly related to the method for performing dynamic bandwidth allocation and sharing in claims 10-14.

In particular, claim 1 states, "... a processor capable of creating an ad-hoc wireless network via direct wireless connections between devices, hopping said wireless connections among other RCGs to create a network of wirelessly connected RCGs ...". The processor is performing steps that relate to a method of providing wireless bandwidth allocation capabilities.

In claim 2, it states, "... the processor is capable of ... dynamically allocating its physically connected POTS bandwidth to other RCGs not physically connected to said POTS line(s), requesting said bandwidth, and prioritizing local as well as remote bandwidth requirements on both POTS circuits as well as wireless connections..." These also are steps performed by the processor that relate to the bandwidth allocation.

In claim 3, it states, "... the processor is capable of: allocating separate and physically diverse POTS lines or wireless connections into a multilink group, aggregating the combined bandwidth of a plurality of said separate physically diverse POTS lines or wireless connections, providing said aggregate bandwidth to the benefit of one of a single and a plurality of RCG devices for the concurrent and high speed transmission of one of large and multiple files. ...". These bandwidth allocation steps are being performed by the processor of the RCG device.

In claim 5, it states, "... the processor is capable of providing dynamic bandwidth reallocation for a plurality of separate and physically diverse POTS lines and or wireless connections." This states directly that the processor is performing "dynamic bandwidth reallocation." Similarly, claim 8 states that "... the processor is capable of creating a wireless router table by polling other devices within its transmission range for their wireless routing tables." This again is related to bandwidth allocation.

It is respectfully requested that the Examiner reconsider and withdraw the restriction requirement.

APPLICATION NO. 10/686,375
PAGE 6 OF 7

II. Provisional Election

The Applicant provisionally elects claim 10-14, drawn to bandwidth allocation.

Respectfully submitted,



H Clay McGurk IV
Reg. No. 34,984

The Law Office of Clay McGurk
P.O. Box 6127
Laguna Niguel, CA 92607

Phone: 949.395.3942
Fax: 949.315.3084

APPLICATION NO. 10/686,375
PAGE 7 OF 7

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.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875					Application or Docket Number 10/686,375		Filing Date 10/14/2003		☐ To be Mailed	
APPLICATION AS FILED – PART I										
(Column 1)			(Column 2)		SMALL ENTITY ☒ OR		OTHER THAN SMALL ENTITY			
FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)	OR	RATE (\$)	FEE (\$)			
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A				
☐ SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A			N/A				
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A				
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X \$ =		OR	X \$ =				
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X \$ =			X \$ =				
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).									
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))										
* If the difference in column 1 is less than zero, enter "0" in column 2.										
APPLICATION AS AMENDED – PART II										
(Column 1)			(Column 2)		(Column 3)		SMALL ENTITY OR		OTHER THAN SMALL ENTITY	
AMENDMENT	06/26/2008	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)		RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(j))	* 14	Minus	** 20	= 0	X \$25 =	0	OR	X \$ =	
	Independent (37 CFR 1.16(h))	* 2	Minus	*** 3	= 0	X \$105 =	0	OR	X \$ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
						TOTAL ADD'L FEE	0	OR	TOTAL ADD'L FEE	
(Column 1)			(Column 2)		(Column 3)		SMALL ENTITY OR		OTHER THAN SMALL ENTITY	
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)		RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(j))	*	Minus	**	=	X \$ =		OR	X \$ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X \$ =		OR	X \$ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
						TOTAL ADD'L FEE		OR	TOTAL ADD'L 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.										

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Legal Instrument Examiner:
/TRACIE HARGROVE/



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/686,375	10/14/2003	Eric M. DeLangis		6329

7590
Eric DeLangis
4339 Golf Vista Dr.
Loveland, CO 80537

02/25/2009

EXAMINER

CHO, HONG SOL

ART UNIT	PAPER NUMBER
----------	--------------

2419

MAIL DATE	DELIVERY MODE
-----------	---------------

02/25/2009

PAPER

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

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/686,375	DELANGIS, ERIC M.	
	Examiner	Art Unit	
	Hong Cho	2419	

-- 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) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, 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 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 26 June 2008.

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) 1-14 is/are pending in the application.

4a) Of the above claim(s) 1-9 is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) 10-14 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 _____ 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).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ 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.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892) 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.	4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____. 5) ☐ Notice of Informal Patent Application 6) ☐ Other: _____.
--	--

DETAILED ACTION

Response to Amendment

1. Applicant's election of claims 10-14 with traverse in the reply filed on 6/26/08 is acknowledged.

Claim Rejections - 35 USC § 112, First paragraph

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 10-14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Re claim 10, the original specification fails to describe the method comprising the steps as recited in claim 10, lines 5-20.

Claims 11-14 depend on claim 10 are therefore similarly rejected.

Allowable Subject Matter

4. Claims 10-14 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, set forth in this Office action.

Response to Arguments

5. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hong Cho whose telephone number is 571-272-3087. The examiner can normally be reached on Mon-Fri during 7 am to 4 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wing Chan can be reached on 571-272-7493. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Hong Cho/

Hong Cho
Primary Examiner, Art Unit 2419
2/19/2009

<i>Notice of References Cited</i>	Application/Control No. 10/686,375		Applicant(s)/Patent Under Reexamination DELANGIS, ERIC M.	
	Examiner Hong Cho		Art Unit 2419	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-6,307,839 B1	10-2001	Gerszberg et al.	370/235
*	B	US-2006/0079274 A1	04-2006	Gallagher et al.	455/552.1
*	C	US-7,257,106 B2	08-2007	Chen et al.	370/338
	D	US-			
	E	US-			
	F	US-			
	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	

*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.

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	60	pots same pstn same (wireless or ad adj hoc) same ethernet same broadband	US-PGPUB; USPAT	OR	OFF	2009/02/19 12:46
L2	28401	(370/235,230,233,363,371,374,381,433,465-468,470-474,483-486,493-495,352,395,252).cols.	US-PGPUB; USPAT	OR	OFF	2009/02/19 12:47
L3	27	L2 and (aggregat\$3 or combin\$3 or add\$3) with unused near bandwidth	US-PGPUB; USPAT	OR	OFF	2009/02/19 12:47
L7	1	L2 and (aggregat\$3 or combin\$3 or add\$3) with bandwidth same hop\$1 same distance	US-PGPUB; USPAT	OR	OFF	2009/02/19 13:16
L9	5	((aggregat\$3 or combin\$3 or add\$3) with bandwidth same hop \$1).clm.	US-PGPUB; USPAT	OR	OFF	2009/02/19 13:17
L11	1	l1 and(aggregat\$3 or combin\$3 or add\$3) with bandwidth same distance	US-PGPUB; USPAT	OR	OFF	2009/02/19 13:27
L13	5	(eric near delangis).in.	US-PGPUB; USPAT	OR	OFF	2009/02/19 13:29

2/19/09 1:54:31 PM

C:\Documents and Settings\hcho\My Documents\EAST\Workspaces\10686375.wsp

<i>Search Notes</i> 	Application/Control No. 10686375	Applicant(s)/Patent Under Reexamination DELANGIS, ERIC M.
	Examiner Hong Cho	Art Unit 2419

SEARCHED			
Class	Subclass	Date	Examiner
370	235,230,233,363,371,374,381,433,465-468,470-474,483-486,493-495,352,395,252	2/19/09	hc

SEARCH NOTES		
Search Notes	Date	Examiner
EAST search	2/19/09	hc

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

--	--



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
 United States Patent and Trademark Office
 Address: COMMISSIONER FOR PATENTS
 P.O. Box 1450
 Alexandria, Virginia 22313-1450
 www.uspto.gov

BIB DATA SHEET

CONFIRMATION NO. 6329

SERIAL NUMBER 10/686,375	FILING or 371(c) DATE 10/14/2003 RULE	CLASS 379	GROUP ART UNIT 2419	ATTORNEY DOCKET NO.		
APPLICANTS Eric M. DeLangis, Loveland, CO; ** CONTINUING DATA ***** ** FOREIGN APPLICATIONS ***** ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** ** SMALL ENTITY ** 01/14/2004						
Foreign Priority claimed ☐ Yes ☒ No 35 USC 119(a-d) conditions met ☐ Yes ☒ No Verified and Acknowledged <u>hong cho</u> Examiner's Signature		☐ Met after Allowance Initials	STATE OR COUNTRY CO	SHEETS DRAWINGS 9	TOTAL CLAIMS 9	INDEPENDENT CLAIMS 1
ADDRESS Eric DeLangis 4339 Golf Vista Dr. Loveland, CO 80537 UNITED STATES						
TITLE Residential communications gateway (RCG) for broadband communications over a plurality of standard POTS lines, with dynamic allocation of said bandwidth, that requires no additional equipment or modifications to the associated class 5 offices or the PSTN at large						
FILING FEE RECEIVED 385	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:		☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit			

<i>Index of Claims</i> 	Application/Control No. 10686375	Applicant(s)/Patent Under Reexamination DELANGIS, ERIC M.
	Examiner cho, hong	Art Unit 2419

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant				☐ CPA		☐ T.D.		☐ R.1.47	
CLAIM		DATE							
Final	Original	03/18/2008	02/19/2009						
	1	+	N						
	2	+	N						
	3	+	N						
	4	+	N						
	5	+	N						
	6	+	N						
	7	+	N						
	8	+	N						
	9	+	N						
	10	+	✓						
	11	+	✓						
	12	+	✓						
	13	+	✓						
	14	+	✓						

Electronic Acknowledgement Receipt

EFS ID:	5218665
Application Number:	10686375
International Application Number:	
Confirmation Number:	6329
Title of Invention:	Residential communications gateway (RCG) for broadband communications over a plurality of standard POTS lines, with dynamic allocation of said bandwidth, that requires no additional equipment or modifications to the associated class 5 offices or the PSTN at large
First Named Inventor/Applicant Name:	Eric M. DeLangis
Correspondence Address:	Eric DeLangis - 4339 Golf Vista Dr. - Loveland CO 80537 US 9702784099 -
Filer:	Harold C. McGurk
Filer Authorized By:	
Attorney Docket Number:	
Receipt Date:	24-APR-2009
Filing Date:	14-OCT-2003
Time Stamp:	18:40:30
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
------------------------	----

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	POA_10686375.pdf	1500895	no	1
			5a6da31e415256cd628895dd2c1e4e1c5f6594bc		
Warnings:					
Information:					
Total Files Size (in bytes):			1500895		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

**REPLY UNDER 37 C.F.R. §1.116
EXPEDITED PROCEDURE
TECHNOLOGY CENTER 2400**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION SERIAL NO.:	10/686,375
APPLICANT:	Eric M. DeLangis
FILING DATE:	10/14/2003
ART UNIT:	2419
EXAMINER:	Hong Cho
ATTORNEY DOCKET NO.:	ED 1000
CONFIRMATION NO.:	6329
TITLE	A RESIDENTIAL COMMUNICATIONS GATEWAY (RCG) FOR BROADBAND COMMUNICATIONS OVER A PLURALITY OF STANDARD POTS LINES, WITH DYNAMIC ALLOCATION OF SAID BANDWIDTH, THAT REQUIRES NO ADDITIONAL EQUIPMENT OR MODIFICATIONS TO THE ASSOCIATED CLASS 5 OFFICES OR THE PSTN AT LARGE

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

REPLY TO FINAL OFFICE ACTION UNDER 37 C.F.R. §1.116

This Reply addresses the issues raised in the Final Office Action dated February 25, 2009 ("Final Office Action"). The claims as previously presented are enclosed and are not amended. Please reconsider the above-identified application in light of the following remarks.

Mail Stop AF

APPLICATION No. 10/686,375
PAGE 1 OF 4

CLAIMS

10. (Previously Presented) A method for aggregating, sharing and dynamically routing and allocating bandwidth from a plurality of wired and wireless networks that are geographically disbursed over a wide area, and providing some or all of the aggregated bandwidth to any user on an on-demand basis, the method comprising the steps of:

- developing and updating a network table that comprises a list of nearby RCGs, their bandwidth capabilities over local, remote and wireless connections, and their location with respect to a requesting RCG;

- determining an optimum amount of bandwidth needed for an immediate data transfer needs of the requesting RCG;

- determining which of the nearby RCGs should be contacted for access to unused bandwidth to support a transfer of the requesting RCG, based upon their unused local bandwidth capacity, and a distance and a number of hops between the RCGs and the requesting RCG;

- sending a request to the supporting RCGs asking for use of a portion of the unused bandwidth;

- receiving responses from the supporting RCGs with information about how much bandwidth each selected RCG can share;

- selecting which of the supporting RCGs to use for optimal use of needed bandwidth;

- contacting the selected RCGs with control information for sending data to the requesting RCG;

- sending packets of the data from the selected RCGs to the requesting RCG;

- reassembling the packets of the data at the requesting RCG; and

- relinquishing the bandwidth of each of the selected RCGs.

11. (Previously Presented) The method of claim 10, further comprising the step of sending a request to a single supporting RCG that has sufficient unused bandwidth for satisfying the request of the requesting RCG.

12. (Previously Presented) The method of claim 10, wherein each of the supporting RCGs can opt out of bandwidth sharing based upon local demand priority, and wherein local demand for bandwidth supersedes a request of a remote RCG for bandwidth sharing.

13. (Previously Presented) The method of claim 10, further comprising the steps of:
dynamically reallocating shared bandwidth of the supporting RCGs during multi-link data transfers as supporting RCGs opt out of bandwidth sharing due to local bandwidth demands; and
enlisting additional supporting RCGs to provide additional bandwidth.

14. (Previously Presented) The method of claim 10, further comprising the step of scheduling a data transfer to occur at a future date and time based upon at least one of anticipated network bandwidth availability, network congestion, and future notice of availability of the data of interest.

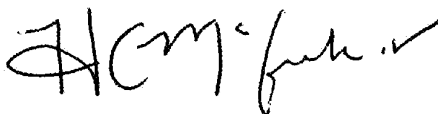
REMARKS

I. 35 U.S.C. §112, First Paragraph

On page 2, items 2-3 of the Final Office Action, claims 10-14 were rejected under 35 U.S.C. §112, first paragraph, as allegedly failing to comply with the written description requirement. It was alleged that the original Specification fails to describe the steps of claim 10. However, Applicant submits that the original Specification adequately and fully describes claim 10. In particular the description of and support of claim 10 can be found in at least at paragraphs 88-97, especially paragraph 91, and is also shown in the Figures, particularly Figure 9. Although these particular paragraphs are noted for the convenience of the Office, there are additional paragraphs that describe the steps of claim 10 in addition to those noted above. Although claim 10 refers to a "network table", such language is equivalent to a "router table" as used throughout the Specification. Therefore, it is respectfully submitted that claim 10 is fully described in the original Specification and is thus allowable. Claims 11-14 are allowable, at least by virtue of their dependence from claim 10. Applicant respectfully requests that the Office reconsider and withdraw the rejection of claims 10-14 and allow this application.

The Examiner is invited to contact the undersigned attorney at the telephone number listed below if such a call would in any way facilitate allowance of this application.

Respectfully submitted,



H Clay McGurk IV
Reg. No. 34,964

The Law Office of Clay McGurk
P.O. Box 6127
Laguna Niguel, CA 92607

Phone: 949.395.3942

Electronic Acknowledgement Receipt

EFS ID:	5218892
Application Number:	10686375
International Application Number:	
Confirmation Number:	6329
Title of Invention:	Residential communications gateway (RCG) for broadband communications over a plurality of standard POTS lines, with dynamic allocation of said bandwidth, that requires no additional equipment or modifications to the associated class 5 offices or the PSTN at large
First Named Inventor/Applicant Name:	Eric M. DeLangis
Correspondence Address:	Eric DeLangis - 4339 Golf Vista Dr. - Loveland CO 80537 US 9702784099 -
Filer:	Harold C. McGurk
Filer Authorized By:	
Attorney Docket Number:	
Receipt Date:	24-APR-2009
Filing Date:	14-OCT-2003
Time Stamp:	19:13:49
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment

no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Accelerated Exam - Transmittal amendment/reply	FOA_Reply_4-23-09_ver2.pdf	59460 043e76970e37c606bcc44b90f8ed4c60fc0337	no	4
Warnings:					
Information:					
Total Files Size (in bytes):			59460		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

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.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875					Application or Docket Number 10/686,375		Filing Date 10/14/2003		☐ To be Mailed	
APPLICATION AS FILED – PART I										
(Column 1)			(Column 2)		SMALL ENTITY ☒ OR		OTHER THAN SMALL ENTITY			
FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)	OR	RATE (\$)	FEE (\$)			
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A				
☐ SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A			N/A				
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A				
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X \$ =		OR	X \$ =				
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X \$ =			X \$ =				
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))			If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).							
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))										
* If the difference in column 1 is less than zero, enter "0" in column 2.										
APPLICATION AS AMENDED – PART II										
(Column 1)			(Column 2)		(Column 3)		SMALL ENTITY OR		OTHER THAN SMALL ENTITY	
AMENDMENT	04/24/2009	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)		RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(j))	* 14	Minus	** 20	= 0	X \$26 =	0	OR	X \$ =	
	Independent (37 CFR 1.16(h))	* 2	Minus	*** 3	= 0	X \$110 =	0	OR	X \$ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
						TOTAL ADD'L FEE	0	OR	TOTAL ADD'L FEE	
(Column 1)			(Column 2)		(Column 3)		SMALL ENTITY OR		OTHER THAN SMALL ENTITY	
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)		RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(j))	*	Minus	**	=	X \$ =		OR	X \$ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X \$ =		OR	X \$ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
						TOTAL ADD'L FEE		OR	TOTAL ADD'L 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.										

Legal Instrument Examiner:
/CORALIA BETANCOURT/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
10/686,375	10/14/2003	Eric M. DeLangis	ED 1000

64828
LAW OFFICE OF CLAY MCGURK
P.O. BOX 6127
LAGUNA NIGUEL, CA 92677

CONFIRMATION NO. 6329
POA ACCEPTANCE LETTER



Date Mailed: 05/01/2009

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 04/24/2009.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

/cbetancourt/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

REPLY UNDER 37 C.F.R. §1.116
EXPEDITED PROCEDURE
TECHNOLOGY CENTER 2400

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION SERIAL NO.:	10/686,375
APPLICANT:	Eric M. DeLangis
FILING DATE:	10/14/2003
ART UNIT:	2419
EXAMINER:	Hong Cho
ATTORNEY DOCKET NO.:	ED 1000
CONFIRMATION NO.:	6329
TITLE	A RESIDENTIAL COMMUNICATIONS GATEWAY (RCG) FOR BROADBAND COMMUNICATIONS OVER A PLURALITY OF STANDARD POTS LINES, WITH DYNAMIC ALLOCATION OF SAID BANDWIDTH, THAT REQUIRES NO ADDITIONAL EQUIPMENT OR MODIFICATIONS TO THE ASSOCIATED CLASS 5 OFFICES OR THE PSTN AT LARGE

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

DO NOT ENTER: /H.C./

REPLY TO FINAL OFFICE ACTION UNDER 37 C.F.R. §1.116

This Reply addresses the issues raised in the Final Office Action dated February 25, 2009 ("Final Office Action"). The claims as previously presented are enclosed and are not amended. Please reconsider the above-identified application in light of the following remarks.

Mail Stop AF

APPLICATION No. 10/686,375
PAGE 1 OF 4



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/686,375	10/14/2003	Eric M. DeLangis	ED 1000	6329
64828	7590	05/01/2009		
LAW OFFICE OF CLAY MCGURK P.O. BOX 6127 LAGUNA NIGUEL, CA 92677			EXAMINER CHO, HONG SOL	
			ART UNIT	PAPER NUMBER
			2419	
			MAIL DATE	DELIVERY MODE
			05/01/2009	PAPER

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

The time period for reply, if any, is set in the attached communication.

**Advisory Action
Before the Filing of an Appeal Brief**

Application No.

10/686,375

Applicant(s)

DELANGIS, ERIC M.

Examiner

Hong Cho

Art Unit

2419

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

THE REPLY FILED on 4/24/2009 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1. ☒ The reply was filed after a final rejection, but prior to or on the same day as filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:

- a) ☐ The period for reply expires _____ months from the mailing date of the final rejection.
b) ☒ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.

Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL

2. ☐ The Notice of Appeal was filed on _____. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

AMENDMENTS

3. ☐ The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will not be entered because
(a) ☐ They raise new issues that would require further consideration and/or search (see NOTE below);
(b) ☐ They raise the issue of new matter (see NOTE below);
(c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
(d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: _____. (See 37 CFR 1.116 and 41.33(a)).

4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).
5. ☐ Applicant's reply has overcome the following rejection(s): _____.
6. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
7. ☐ For purposes of appeal, the proposed amendment(s): a) ☐ will not be entered, or b) ☐ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.
The status of the claim(s) is (or will be) as follows:
Claim(s) allowed: _____.
Claim(s) objected to: _____.
Claim(s) rejected: _____.
Claim(s) withdrawn from consideration: _____.

AFFIDAVIT OR OTHER EVIDENCE

8. ☐ The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).
9. ☐ The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing a good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).
10. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

11. ☒ The request for reconsideration has been considered but does NOT place the application in condition for allowance because:
See Continuation Sheet.
12. ☐ Note the attached Information *Disclosure Statement*(s). (PTO/SB/08) Paper No(s). _____.
13. ☐ Other: _____.

/Hong Cho/
Primary Examiner, Art Unit 2419

Continuation of 11. does NOT place the application in condition for allowance because: the applicant's argument is not persuasive. The applicant argues that support for claim 10 could be found in the specification, paragraphs [0088]- [0097], particular paragraph [0091] and figure 9. The examiner respectfully disagrees. The specification fails to provide support on determining... based upon their unused local bandwidth capacity, and a distance and a number of hops between the RCGs and the requesting RCG; sending a request to the supporting RCGs asking for use of a portion of the unused bandwidth; receiving responses from the supporting RCGs with information about how much bandwidth each selected RCG can share; selecting which of the supporting RCGs to use for optimal use of needed bandwidth; contacting the selected RCGs with control information for sending data to the requesting RCG; sending packets of the data from the selected RCGs to the requesting RCG; reassembling the packets of the data at the requesting RCG; and relinquishing the bandwidth of each of the selected RCGs. The examiner would like to request more in detail where in the specification each method is supported.

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.

POWER OF ATTORNEY and CORRESPONDENCE ADDRESS INDICATION FORM

Application Number	10/686,375
Filing Date	10-14-2003
First Named Inventor	ERIC DELANGIS
Title	A RESIDENTIAL COMMUNICATIONS . . .
Art Unit	2419
Examiner Name	HONG CHO
Attorney Docket Number	ED 1000

I hereby revoke all previous powers of attorney given in the above-identified application.

I hereby appoint:

☒ Practitioners associated with the Customer Number:**64828**

OR

☐ Practitioner(s) named below:

Name	Registration Number

as my/our attorney(s) or agent(s) to prosecute the application identified above, and to transact all business in the United States Patent and Trademark Office connected therewith.

Please recognize or change the correspondence address for the above-identified application to:

☒ The address associated with the above-mentioned Customer Number:

OR

☐ The address associated with Customer Number:

OR

☐ Firm or Individual Name

Address

City

State

Zip

Country

Telephone

Email

I am the:

☒ Applicant/Inventor.☐ Assignee of record of the entire interest. See 37 CFR 3.71.
Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96)

SIGNATURE of Applicant or Assignee of Record

Signature		Date	4/23/2009
Name	ERIC DELANGIS	Telephone	1-970-310-3576
Title and Company			

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below.

☐ *Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

**REPLY UNDER 37 C.F.R. §1.116
EXPEDITED PROCEDURE
TECHNOLOGY CENTER 2400**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION SERIAL NO.:	10/686,375
APPLICANT:	Eric M. DeLangis
FILING DATE:	10/14/2003
ART UNIT:	2419
EXAMINER:	HONG CHO
ATTORNEY DOCKET NO.:	ED 1000
CONFIRMATION NO.:	6329
TITLE	A RESIDENTIAL COMMUNICATIONS GATEWAY (RCG) FOR BROADBAND COMMUNICATIONS OVER A PLURALITY OF STANDARD POTS LINES, WITH DYNAMIC ALLOCATION OF SAID BANDWIDTH, THAT REQUIRES NO ADDITIONAL EQUIPMENT OR MODIFICATIONS TO THE ASSOCIATED CLASS 5 OFFICES OR THE PSTN AT LARGE

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

REPLY TO FINAL OFFICE ACTION UNDER 37 C.F.R. §1.116

This Reply addresses the issues raised in the Final Office Action dated February 25, 2009 ("Final Office Action") and the Advisory Action dated May 1, 2009. The claims as previously presented are enclosed and are not amended. Please reconsider the above-identified application in light of the following remarks.

Mail Stop AF

APPLICATION No. 10/686,375
PAGE 1 OF 6

CLAIMS

10. (Previously Presented) A method for aggregating, sharing and dynamically routing and allocating bandwidth from a plurality of wired and wireless networks that are geographically disbursed over a wide area, and providing some or all of the aggregated bandwidth to any user on an on-demand basis, the method comprising the steps of:

- developing and updating a network table that comprises a list of nearby RCGs, their bandwidth capabilities over local, remote and wireless connections, and their location with respect to a requesting RCG;

- determining an optimum amount of bandwidth needed for an immediate data transfer needs of the requesting RCG;

- determining which of the nearby RCGs should be contacted for access to unused bandwidth to support a transfer of the requesting RCG, based upon their unused local bandwidth capacity, and a distance and a number of hops between the RCGs and the requesting RCG;

- sending a request to the supporting RCGs asking for use of a portion of the unused bandwidth;

- receiving responses from the supporting RCGs with information about how much bandwidth each selected RCG can share;

- selecting which of the supporting RCGs to use for optimal use of needed bandwidth;

- contacting the selected RCGs with control information for sending data to the requesting RCG;

- sending packets of the data from the selected RCGs to the requesting RCG;

- reassembling the packets of the data at the requesting RCG; and

- relinquishing the bandwidth of each of the selected RCGs.

11. (Previously Presented) The method of claim 10, further comprising the step of sending a request to a single supporting RCG that has sufficient unused bandwidth for satisfying the request of the requesting RCG.

12. (Previously Presented) The method of claim 10, wherein each of the supporting RCGs can opt out of bandwidth sharing based upon local demand priority, and wherein local demand for bandwidth supersedes a request of a remote RCG for bandwidth sharing.

13. (Previously Presented) The method of claim 10, further comprising the steps of:
dynamically reallocating shared bandwidth of the supporting RCGs during multi-link data transfers as supporting RCGs opt out of bandwidth sharing due to local bandwidth demands; and
enlisting additional supporting RCGs to provide additional bandwidth.

14. (Previously Presented) The method of claim 10, further comprising the step of scheduling a data transfer to occur at a future date and time based upon at least one of anticipated network bandwidth availability, network congestion, and future notice of availability of the data of interest.

REMARKS

35 U.S.C. §112, First Paragraph

On page 2, items 2-3 of the Final Office Action, claims 10-14 were rejected under 35 U.S.C. §112, first paragraph, as allegedly failing to comply with the written description requirement. It was alleged that the original Specification failed to describe the steps of claim 10. However, Applicant submits that the original Specification adequately and fully describes claim 10. In particular the description of and support of claim 10 can be found in at least at paragraphs 88-97, especially paragraph 91, and is also shown in the Figures, particularly Figure 9. Although these particular paragraphs are noted for the convenience of the Office, there are additional paragraphs that describe the steps of claim 10 in addition to those noted herein.

After an interview with Examiner Cho on May 13, 2009, it was advised to provide a more detailed explanation of where each step of the claim is supported in the Specification. Such explanation is as follows:

10. (NEW CLAIM) A method for aggregating, sharing and dynamically routing and allocating bandwidth from a plurality of wired and wireless networks that are geographically disbursed over a wide area, and providing some or all of the aggregated bandwidth to any user on an on-demand basis, the method comprising the steps of:

SUPPORT: Abstract

developing and updating a network table that comprises a list of nearby RCGs, their bandwidth capabilities over local, remote and wireless connections, and their location with respect to a requesting RCG;

SUPPORT: Figure 9 shows the graphical implementation of this claim. The wireless connections between the RCG's shows the data hopping in conjunction to the hard wired connections (telephone, cable, fiber or wireless). The drawing shows that fixed connections are not required. Also described in paragraph 88 and continuing through paragraph 97.

determining an optimum amount of bandwidth needed for an immediate data transfer needs of the requesting RCG;

SUPPORT: Paragraph 89.

determining which of the nearby RCGs should be contacted for access to unused bandwidth to support a transfer of the requesting RCG, based upon their unused local bandwidth capacity, and a distance and a number of hops between the RCGs and the requesting RCG;

SUPPORT: Paragraph 91, lines 25 thru 45.

sending a request to the supporting RCGs asking for use of a portion of the unused bandwidth;

SUPPORT: Paragraph 91, lines 45 through 60.

receiving responses from the supporting RCGs with information about how much bandwidth each selected RCG can share;

SUPPORT: Paragraph 91, lines 41 thru 45.

selecting which of the supporting RCGs to use for optimal use of needed bandwidth;

SUPPORT: Paragraph 91, lines 45 through 50.

contacting the selected RCGs with control information for sending data to the requesting RCG;

SUPPORT: Paragraph 91, lines 50 through 65.

sending packets of the data from the selected RCGs to the requesting RCG;

SUPPORT: Paragraph 91, lines 60 through 67.

reassembling the packets of the data at the requesting RCG; and

SUPPORT: Paragraph 91, lines 70 through 73.

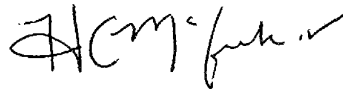
relinquishing the bandwidth of each of the selected RCGs.

SUPPORT: Paragraph 92.

Therefore, it is respectfully submitted that claim 10 is fully described in the original Specification and is thus allowable. It is again asserted that those paragraphs noted above for the convenience of the Office, and that there are additional drawings and paragraphs in the Specification that describe the steps of claim 10. Claims 11-14 are allowable, at least by virtue of their dependence from claim 10. Applicant respectfully requests that the Office reconsider and withdraw the rejection of claims 10-14 and allow this application.

The Examiner is invited to contact the undersigned attorney at the telephone number listed below if the Examiner continues to believe that the Specification does not show support for claim 10 as outlined above.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "H Clay McGurk IV", followed by a checkmark.

H Clay McGurk IV
Reg. No. 34,964

The Law Office of Clay McGurk
P.O. Box 6127
Laguna Niguel, CA 92607

Phone: 949.395.3942

Electronic Acknowledgement Receipt

EFS ID:	5326006
Application Number:	10686375
International Application Number:	
Confirmation Number:	6329
Title of Invention:	Residential communications gateway (RCG) for broadband communications over a plurality of standard POTS lines, with dynamic allocation of said bandwidth, that requires no additional equipment or modifications to the associated class 5 offices or the PSTN at large
First Named Inventor/Applicant Name:	Eric M. DeLangis
Customer Number:	64828
Filer:	Harold C. McGurk
Filer Authorized By:	
Attorney Docket Number:	ED 1000
Receipt Date:	13-MAY-2009
Filing Date:	14-OCT-2003
Time Stamp:	12:47:47
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no				
File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Accelerated Exam - Transmittal amendment/reply	FOA_Reply_5-13-09.pdf	65206 65d6e6d40afb4dff7ee724384415e1b0fcc1cbeb	no	6
Warnings:					
Information:					

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/686,375	10/14/2003	Eric M. DeLangis	ED 1000	6329
64828	7590	05/15/2009		
LAW OFFICE OF CLAY MCGURK P.O. BOX 6127 LAGUNA NIGUEL, CA 92677			EXAMINER CHO, HONG SOL	
			ART UNIT	PAPER NUMBER
			2419	
			MAIL DATE	DELIVERY MODE
			05/15/2009	PAPER

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

The time period for reply, if any, is set in the attached communication.

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.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875					Application or Docket Number 10/686,375		Filing Date 10/14/2003		☐ To be Mailed	
APPLICATION AS FILED – PART I										
(Column 1)			(Column 2)		SMALL ENTITY ☒		OR		OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)			RATE (\$)	FEE (\$)		
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A				N/A			
☐ SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A				N/A			
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A				N/A			
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X \$ =		OR		X \$ =			
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X \$ =				X \$ =			
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))			If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).							
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))										
			TOTAL				TOTAL			
* If the difference in column 1 is less than zero, enter "0" in column 2.										
APPLICATION AS AMENDED – PART II										
(Column 1)			(Column 2)		(Column 3)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY	
AMENDMENT	05/13/2009	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)		RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(j))	* 14	Minus	** 20	= 0	X \$26 =	0	OR	X \$ =	
	Independent (37 CFR 1.16(h))	* 2	Minus	***3	= 0	X \$110 =	0	OR	X \$ =	
	☐ Application Size Fee (37 CFR 1.16(s))							OR		
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE	0	OR	TOTAL ADD'L FEE		
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)		RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(j))	*	Minus	**	=	X \$ =		OR	X \$ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X \$ =		OR	X \$ =	
	☐ Application Size Fee (37 CFR 1.16(s))							OR		
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE		OR	TOTAL ADD'L 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.										

 Legal Instrument Examiner:
 /TRACIE HARGROVE/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

64828 7590 06/26/2009

LAW OFFICE OF CLAY MCGURK
P.O. BOX 6127
LAGUNA NIGUEL, CA 92677

EXAMINER

CHO, HONG SOL

ART UNIT

PAPER NUMBER

2419

DATE MAILED: 06/26/2009

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/686,375 10/14/2003 Eric M. DeLangis ED 1000 6329

TITLE OF INVENTION: RESIDENTIAL COMMUNICATIONS GATEWAY (RCG) FOR BROADBAND COMMUNICATIONS OVER A PLURALITY OF STANDARD POTS LINES, WITH DYNAMIC ALLOCATION OF SAID BANDWIDTH, THAT REQUIRES NO ADDITIONAL EQUIPMENT OR MODIFICATIONS TO THE ASSOCIATED CLASS 5 OFFICES OR THE PSTN AT LARGE

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
-------------	--------------	---------------	---------------------	----------------------	------------------	----------

nonprovisional YES \$755 \$300 \$0 \$1055 09/28/2009

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 DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

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 above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, 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 box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). 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. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

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.

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 (571)-273-2885**

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 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: Use Block 1 for any change of address)

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.

64828 7590 06/26/2009

LAW OFFICE OF CLAY MCGURK
P.O. BOX 6127
LAGUNA NIGUEL, CA 92677

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 (571) 273-2885, on the date indicated below.

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/686,375 10/14/2003 Eric M. DeLangis ED 1000 6329

TITLE OF INVENTION: RESIDENTIAL COMMUNICATIONS GATEWAY (RCG) FOR BROADBAND COMMUNICATIONS OVER A PLURALITY OF STANDARD POTS LINES, WITH DYNAMIC ALLOCATION OF SAID BANDWIDTH, THAT REQUIRES NO ADDITIONAL EQUIPMENT OR MODIFICATIONS TO THE ASSOCIATED CLASS 5 OFFICES OR THE PSTN AT LARGE

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
-------------	--------------	---------------	---------------------	----------------------	------------------	----------

nonprovisional YES \$755 \$300 \$0 \$1055 09/28/2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
----------	----------	----------------

CHO, HONG SOL 2419 370-235000

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.

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. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. 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 submitted:

- ☐ Issue Fee
☐ Publication Fee (No small entity discount permitted)
☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (**Please first reapply any previously paid issue fee shown above**)

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

5. **Change in Entity Status** (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

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.

Authorized Signature _____ Date _____
Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/686,375	10/14/2003	Eric M. DeLangis	ED 1000	6329
64828	7590	06/26/2009	EXAMINER	
LAW OFFICE OF CLAY MCGURK P.O. BOX 6127 LAGUNA NIGUEL, CA 92677			CHO, HONG SOL	
			ART UNIT	PAPER NUMBER
			2419	
DATE MAILED: 06/26/2009				

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 1099 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 1099 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) WEB site (<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 (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability	Application No.	Applicant(s)	
	10/686,375	DELANGIS, ERIC M.	
	Examiner	Art Unit	
	Hong Cho	2419	

-- 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 the amendment filed on 5/13/2009.
2. ☒ The allowed claim(s) is/are 10-14 (renumbered 1-5).
3. ☐ 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: _____.

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.

4. ☐ 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.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") 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./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

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. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ 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)

- | | |
|---|--|
| <ol style="list-style-type: none"> 1. ☐ Notice of References Cited (PTO-892) 2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ 4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material | <ol style="list-style-type: none"> 5. ☐ Notice of Informal Patent Application 6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____. 7. ☒ Examiner's Amendment/Comment 8. ☐ Examiner's Statement of Reasons for Allowance 9. ☐ Other _____. |
|---|--|

/Hong Cho/
Primary Examiner, Art Unit 2419

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with H Clay McGurk IV on 5/15/2009.

The application has been amended as follows:

Claims 1-9 are cancelled.

Conclusion

2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hong Cho whose telephone number is 571-272-3087. The examiner can normally be reached on Mon-Fri during 7 am to 4 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pankaj Kumar can be reached on 571-272-3011. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2419

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Hong Cho/

Primary Examiner, Art Unit 2419

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	5	(eric near delangis).in.	US-PGPUB; USPAT	OR	OFF	2009/05/27 10:12
L2	29370	(370/235,230,233,363,371,374,381,433,465-468,470-474,483-486,493-495,352,395,252).ccls.	US-PGPUB; USPAT	OR	OFF	2009/05/27 10:12
L5	29	L2 and (aggregat\$3 or combin\$3 or add\$3) with unused near bandwidth///	US-PGPUB; USPAT	OR	OFF	2009/05/27 10:13
L7	13	((aggregat\$3 or combin\$3 or add\$3) with unused near bandwidth).clm.	US-PGPUB; USPAT	OR	OFF	2009/05/27 10:16
L8	1	(pots same pstn same (wireless or ad adj hoc) same ethernet same broadband).clm.	US-PGPUB; USPAT	OR	OFF	2009/05/27 10:19

5/27/09 10:34:14 AM

C:\Documents and Settings\hcho\My Documents\EAST\Workspaces\10686375.wsp

Search Notes 	Application/Control No. 10686375	Applicant(s)/Patent Under Reexamination DELANGIS, ERIC M.
	Examiner Hong Cho	Art Unit 2419

SEARCHED			
Class	Subclass	Date	Examiner
370	235,230,233,363,371,374,381,433,465-468,470-474,483-486,493-495,352,395,252	2/19/09	hc
above	UPDATED	5/27/09	hc

SEARCH NOTES		
Search Notes	Date	Examiner
EAST search	2/19/09	hc

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner
370	235,401	5/27/09	hc

--	--



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
 United States Patent and Trademark Office
 Address: COMMISSIONER FOR PATENTS
 P.O. Box 1450
 Alexandria, Virginia 22313-1450
 www.uspto.gov

BIB DATA SHEET

CONFIRMATION NO. 6329

SERIAL NUMBER 10/686,375	FILING or 371(c) DATE 10/14/2003 RULE	CLASS 379	GROUP ART UNIT 2419	ATTORNEY DOCKET NO. ED 1000
APPLICANTS Eric M. DeLangis, Loveland, CO; ** CONTINUING DATA ***** ** FOREIGN APPLICATIONS ***** ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** ** SMALL ENTITY ** 01/14/2004				
Foreign Priority claimed ☐ Yes ☒ No 35 USC 119(a-d) conditions met ☐ Yes ☒ No Verified and Acknowledged <u>hong cho</u> Examiner's Signature	☒ Met after Allowance hc Initials	STATE OR COUNTRY CO	SHEETS DRAWINGS 9	TOTAL CLAIMS 9
INDEPENDENT CLAIMS 1				
ADDRESS LAW OFFICE OF CLAY MCGURK P.O. BOX 6127 LAGUNA NIGUEL, CA 92677 UNITED STATES				
TITLE Residential communications gateway (RCG) for broadband communications over a plurality of standard POTS lines, with dynamic allocation of said bandwidth, that requires no additional equipment or modifications to the associated class 5 offices or the PSTN at large				
FILING FEE RECEIVED 385	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:		☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit	

Issue Classification 	Application/Control No. 10/686,375	Applicant(s)/Patent under Reexamination DELANGIS, ERIC M.
	Examiner Hong Cho	Art Unit 2419

ISSUE CLASSIFICATION												
ORIGINAL					INTERNATIONAL CLASSIFICATION							
CLASS		SUBCLASS			CLAIMED				NON-CLAIMED			
370		235			H	04	L	12	/26			
					H	04	L	12	/28			
CROSS REFERENCES												
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)											
370	401								/		/	
									/		/	
									/		/	
									/		/	
									/		/	
									/		/	
									Total Claims Allowed: 5			
(Assistant Examiner) (Date)					/Hong Cho/ 5/27/2009				O.G. Print Claim(s)			O.G. Print Fig.
(Legal Instruments Examiner) (Date)					(Primary Examiner) (Date)				1			7

☒ Claims renumbered in the same order as presented by applicant												☐ CPA		☐ T.D.		☐ R.1.47	
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original				
	1		31		61		91		121		151		181				
	2		32		62		92		122		152		182				
	3		33		63		93		123		153		183				
	4		34		64		94		124		154		184				
	5		35		65		95		125		155		185				
	6		36		66		96		126		156		186				
	7		37		67		97		127		157		187				
	8		38		68		98		128		158		188				
	9		39		69		99		129		159		189				
	10		40		70		100		130		160		190				
	11		41		71		101		131		161		191				
	12		42		72		102		132		162		192				
	13		43		73		103		133		163		193				
	14		44		74		104		134		164		194				
	15		45		75		105		135		165		195				
	16		46		76		106		136		166		196				
	17		47		77		107		137		167		197				
	18		48		78		108		138		168		198				
	19		49		79		109		139		169		199				
	20		50		80		110		140		170		200				
	21		51		81		111		141		171		201				
	22		52		82		112		142		172		202				
	23		53		83		113		143		173		203				
	24		54		84		114		144		174		204				
	25		55		85		115		145		175		205				
	26		56		86		116		146		176		206				
	27		57		87		117		147		177		207				
	28		58		88		118		148		178		208				
	29		59		89		119		149		179		209				
	30		60		90		120		150		180		210				

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.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875					Application or Docket Number 10/686,375		Filing Date 10/14/2003		☐ To be Mailed							
APPLICATION AS FILED – PART I																
(Column 1)			(Column 2)			SMALL ENTITY ☒		OR		OTHER THAN SMALL ENTITY						
FOR		NUMBER FILED	NUMBER EXTRA		RATE (\$)	FEE (\$)	OR		RATE (\$)	FEE (\$)						
☒ BASIC FEE (37 CFR 1.16(a), (b), or (c))		N/A	N/A		N/A	385			N/A							
☒ SEARCH FEE (37 CFR 1.16(k), (l), or (m))		N/A	N/A		N/A	0			N/A							
☒ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))		N/A	N/A		N/A	0			N/A							
TOTAL CLAIMS (37 CFR 1.16(i))		9 minus 20 =	* 0		X \$9 =	0			X \$ =							
INDEPENDENT CLAIMS (37 CFR 1.16(h))		1 minus 3 =	* 0		X \$43 =	0			X \$ =							
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))		If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).														
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))																
* If the difference in column 1 is less than zero, enter "0" in column 2.																
APPLICATION AS AMENDED – PART II																
(Column 1)			(Column 2)			(Column 3)			SMALL ENTITY		OR		OTHER THAN SMALL ENTITY			
AMENDMENT	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR		PRESENT EXTRA		RATE (\$)		ADDITIONAL FEE (\$)		OR		RATE (\$)		ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(j))		* Minus **		=		X \$ =				OR		X \$ =			
	Independent (37 CFR 1.16(h))		* Minus ***		=		X \$ =				OR		X \$ =			
	☐ Application Size Fee (37 CFR 1.16(s))												OR			
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))												OR			
						TOTAL ADD'L FEE				OR		TOTAL ADD'L FEE				
(Column 1)			(Column 2)			(Column 3)			SMALL ENTITY		OR		OTHER THAN SMALL ENTITY			
AMENDMENT	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR		PRESENT EXTRA		RATE (\$)		ADDITIONAL FEE (\$)		OR		RATE (\$)		ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(j))		* Minus **		=		X \$ =				OR		X \$ =			
	Independent (37 CFR 1.16(h))		* Minus ***		=		X \$ =				OR		X \$ =			
	☐ Application Size Fee (37 CFR 1.16(s))												OR			
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))												OR			
						TOTAL ADD'L FEE				OR		TOTAL ADD'L 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.																

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Legal Instrument Examiner:
/DORIS M. KING/

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.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875					Application or Docket Number 10/686,375		Filing Date 10/14/2003		☐ To be Mailed	
APPLICATION AS FILED – PART I										
(Column 1)			(Column 2)			SMALL ENTITY ☒ OR		OTHER THAN SMALL ENTITY		
FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)	OR	RATE (\$)	FEE (\$)			
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A				
☐ SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A			N/A				
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A				
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X \$	=		X \$	=			
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X \$	=		X \$	=			
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))			If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).							
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))										
* If the difference in column 1 is less than zero, enter "0" in column 2.										
APPLICATION AS AMENDED – PART II										
(Column 1)			(Column 2)			SMALL ENTITY OR		OTHER THAN SMALL ENTITY		
AMENDMENT	06/25/2009	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)		RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(j))	* 5	Minus	** 20	= 0	X \$26 =	0	OR	X \$ =	
	Independent (37 CFR 1.16(h))	* 1	Minus	*** 3	= 0	X \$110 =	0	OR	X \$ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
						TOTAL ADD'L FEE	0	OR	TOTAL ADD'L FEE	
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)		RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(j))	*	Minus	**	=	X \$ =		OR	X \$ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X \$ =		OR	X \$ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
						TOTAL ADD'L FEE		OR	TOTAL ADD'L 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.										

 Legal Instrument Examiner:
 /DORIS M. KING/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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** (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 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: Use Block 1 for any change of address)

64828 7590 06/26/2009

LAW OFFICE OF CLAY MCGURK
 P.O. BOX 6127
 LAGUNA NIGUEL, CA 92677

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 (571) 273-2885, on the date indicated below

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/686,375	10/14/2003	Eric M. DeLangis	ED 1000	6329

TITLE OF INVENTION: RESIDENTIAL COMMUNICATIONS GATEWAY (RCG) FOR BROADBAND COMMUNICATIONS OVER A PLURALITY OF STANDARD POTS LINES, WITH DYNAMIC ALLOCATION OF SAID BANDWIDTH, THAT REQUIRES NO ADDITIONAL EQUIPMENT OR MODIFICATIONS TO THE ASSOCIATED CLASS 5 OFFICES OR THE PSTN AT LARGE

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	\$755	\$300	\$0	\$1055	09/28/2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
CHO, HONG SOL	2419	370-235000

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.

1 Clay McGurk

2 The Law Office of Clay McGurk

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. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. 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 submitted.

- ☒ Issue Fee
- ☒ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

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

5. Change in Entity Status (from status indicated above)

- ☒ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

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.

Authorized Signature H C McGurk

Date September 6, 2009

Typed or printed name H C McGurk

Registration No. 34964

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450

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.

Electronic Patent Application Fee Transmittal				
Application Number:		10686375		
Filing Date:		14-Oct-2003		
Title of Invention:		RESIDENTIAL COMMUNICATIONS GATEWAY (RCG) FOR BROADBAND COMMUNICATIONS OVER A PLURALITY OF STANDARD POTS LINES, WITH DYNAMIC ALLOCATION OF SAID BANDWIDTH, THAT REQUIRES NO ADDITIONAL EQUIPMENT OR MODIFICATIONS TO THE ASSOCIATED CLASS 5 OFFICES OR THE PSTN AT LARGE		
First Named Inventor/Applicant Name:		Eric M. DeLangis		
Filer:		Harold C. McGurk		
Attorney Docket Number:		ED 1000		
Filed as Small Entity				
Utility under 35 USC 111(a) Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Utility Appl issue fee	2501	1	755	755
Publ. Fee- early, voluntary, or normal	1504	1	300	300

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				1055

Electronic Acknowledgement Receipt

EFS ID:	6032110
Application Number:	10686375
International Application Number:	
Confirmation Number:	6329
Title of Invention:	RESIDENTIAL COMMUNICATIONS GATEWAY (RCG) FOR BROADBAND COMMUNICATIONS OVER A PLURALITY OF STANDARD POTS LINES, WITH DYNAMIC ALLOCATION OF SAID BANDWIDTH, THAT REQUIRES NO ADDITIONAL EQUIPMENT OR MODIFICATIONS TO THE ASSOCIATED CLASS 5 OFFICES OR THE PSTN AT LARGE
First Named Inventor/Applicant Name:	Eric M. DeLangis
Customer Number:	64828
Filer:	Harold C. McGurk
Filer Authorized By:	
Attorney Docket Number:	ED 1000
Receipt Date:	08-SEP-2009
Filing Date:	14-OCT-2003
Time Stamp:	18:03:19
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$ 1055
RAM confirmation Number	4672
Deposit Account	
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
-----------------	----------------------	-----------	-------------------------------------	------------------	------------------

1	Issue Fee Payment (PTO-85B)	10686375_Form_85B.pdf	4726696 b08eb37c5794cba3f4e5c7acf81dc88b05b5574	no	1
Warnings:					
Information:					
2	Fee Worksheet (PTO-875)	fee-info.pdf	32318 a98ffa09e465fc9f858abb29d03834123188c0c8	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			4759014		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/686,375	10/20/2009	7606156	ED 1000	6329

64828 7590 09/30/2009
LAW OFFICE OF CLAY MCGURK
P.O. BOX 6127
LAGUNA NIGUEL, CA 92677

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

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

The Patent Term Adjustment is 1099 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

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) WEB site (<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 (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site <http://pair.uspto.gov> for additional applicants):

Eric M. DeLangis, Loveland, CO;