

AO 120 (Rev. 08/10)

TO: Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
---	---

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Western District of Texas - Waco Division on the following

☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO. 6:22-cv-396	DATE FILED 4/19/2022	U.S. DISTRICT COURT Western District of Texas - Waco Division
PLAINTIFF Corrigent Corporation		DEFENDANT Cisco Systems, Inc.
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 6,957,369	10/18/2005	Corrigent Corporation
2 7,113,485	9/26/2006	Corrigent Corporation
3 7,330,431	2/12/2008	Corrigent Corporation
4 7,593,400	9/22/2009	Corrigent Corporation
5 9,118,602	8/25/2015	Corrigent Corporation

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading		
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK	
1			
2			
3			
4			
5			

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT		
CLERK	(BY) DEPUTY CLERK	DATE

Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
 Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

Print

Save As...

Reset

AO 120 (Rev. 08/10)

TO: Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
---	---

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been
 filed in the U.S. District Court _____ for the District of Delaware _____ on the following

☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.);

DOCKET NO.	DATE FILED 4/19/2022	U.S. DISTRICT COURT for the District of Delaware
PLAINTIFF CORRIGENT CORPORATION		DEPENDANT DELL TECHNOLOGIES INC. AND DELL INC.
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 6,957,369	10/18/2005	Corrigent Corporation
2 7,113,485	9/26/2006	Corrigent Corporation
3 7,330,431	2/12/2008	Corrigent Corporation
4 7,593,400	9/22/2009	Corrigent Corporation
5		

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading		
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK	
1			
2			
3			
4			
5			

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT		
CLERK	(BY) DEPUTY CLERK	DATE

Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
 Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

AO 120 (Rev. 08/10)

TO: Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
---	---

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been
 filed in the U.S. District Court _____ for the District of Delaware _____ on the following

☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.);

DOCKET NO.	DATE FILED 4/19/2022	U.S. DISTRICT COURT for the District of Delaware
PLAINTIFF CORRIGENT CORPORATION		DEPENDANT ARISTA NETWORKS, INC.
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 6,957,369	10/18/2005	Corrigent Corporation
2 7,330,431	2/12/2008	Corrigent Corporation
3 7,593,400	9/22/2009	Corrigent Corporation
4 9,118,602	8/25/2015	Corrigent Corporation
5		

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading		
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK	
1			
2			
3			
4			
5			

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT		
CLERK	(BY) DEPUTY CLERK	DATE

Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
 Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file 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

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
10/933,572	09/03/2004	Leon Bruckman	COLB-125XX

CONFIRMATION NO. 3628

POWER OF ATTORNEY NOTICE

57449
SHEEHAN PHINNEY BASS & GREEN, PA
c/o PETER NIEVES
1000 ELM STREET
MANCHESTER, NH 03105-3701



Date Mailed: 07/21/2016

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 07/11/2016.

- The Power of Attorney to you in this application has been revoked by the assignee who has intervened as provided by 37 CFR 3.71. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at (571) 272-4000 or (571) 272-4200 or 1-888-786-0101.

/Itaba/



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
10/933,572	09/03/2004	Leon Bruckman	COLB-125XX

CONFIRMATION NO. 3628

POA ACCEPTANCE LETTER

131926
May Patents Ltd. c/o Dorit Shem-Tov
P.O.B 7230
Ramat-Gan, 5217102
ISRAEL



Date Mailed: 07/21/2016

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 07/11/2016.

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.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at (571) 272-4000 or (571) 272-4200 or 1-888-786-0101.

/Itaba/

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 TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(b).

I hereby appoint:



Practitioners associated with the Customer Number:

131926

OR



Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

Name	Registration Number	Name	Registration Number

as attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignment documents attached to this form in accordance with 37 CFR 3.73(b).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(b) to:



The address associated with Customer Number:

131926

OR



Firm or Individual Name

Address

City

State

Zip

Country

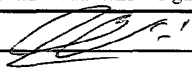
Telephone

Email

Assignee Name and Address:

Orckit IP, LLC
874 Walker Road, Suite C, Dover, Delaware, USA

A copy of this form, together with a statement under 37 CFR 3.73(b) (Form PTO/SB/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(b) may be completed by one of the practitioners appointed in this form if the appointed practitioner is authorized to act on behalf of the assignee, and must identify the application in which this Power of Attorney is to be filed.

SIGNATURE OF THE SIGNER OF RECORD	
The individual whose signature and title is supplied below is authorized to act on behalf of the assignee	
Signature	
Name	Yehuda Binder
Title	CEO and Owner of Orckit IP LLC

ORCKIT IP, LLC
DE LLC # 5886551
831 Beacon St. # 307
Newton, MA 02459-1840
Date June 5, 2016
Telephone +972-54-4444577

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.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

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.

STATEMENT UNDER 37 CFR 3.73(b)Applicant/Patent Owner: Leon BruckmanApplication No./Patent No.: 10/933,572Filed/Issue Date: 09-03-2004Titled: MULTIPOINT TO MULTIPOINT COMMUNICATION OVER RING TOPOLOGIES

ORCKIT IP, LLC

, a Limited Liability Company

(Name of Assignee)

(Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that it is:

1. ☒ the assignee of the entire right, title, and interest in;
2. ☐ an assignee of less than the entire right, title, and interest in
(The extent (by percentage) of its ownership interest is _____ %); or
3. ☐ the assignee of an undivided interest in the entirety of (a complete assignment from one of the joint inventors was made)

the patent application/patent identified above, by virtue of either:

- A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy therefore is attached.

OR

- B. ☒ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: Leon Bruckman To: CORRIGENT SYSTEMS LTD

The document was recorded in the United States Patent and Trademark Office at
Reel 015389, Frame 0644, or for which a copy thereof is attached.

2. From: CORRIGENT SYSTEMS LTD To: ORCKIT-CORRIGENT LTD

The document was recorded in the United States Patent and Trademark Office at
Reel 032579, Frame 0201, or for which a copy thereof is attached.

3. From: ORCKIT-CORRIGENT LTD To: ORCKIT IP, LLC

The document was recorded in the United States Patent and Trademark Office at
Reel 038529, Frame 0087, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☐ As required by 37 CFR 3.73(b)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Yehuda Binder/

Signature

Yehuda Binder

Printed or Typed Name

ORCKIT IP, LLC
DE LLC # 5886551
831 Beacon St. # 307
Newton, MA 02459-1840

July 6 2016

Date

CEO and Owner of Orckit IP LLC

Title

This collection of information is required by 37 CFR 3.73(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 1.11 and 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.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt	
EFS ID:	26304799
Application Number:	10933572
International Application Number:	
Confirmation Number:	3628
Title of Invention:	MULTIPOINT TO MULTIPOINT COMMUNICATION OVER RING TOPOLOGIES
First Named Inventor/Applicant Name:	Leon Bruckman
Customer Number:	57449
Filer:	Yehuda Binder
Filer Authorized By:	
Attorney Docket Number:	COLB-125XX
Receipt Date:	11-JUL-2016
Filing Date:	03-SEP-2004
Time Stamp:	09:36:59
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	Signed-POA.pdf	137789	no	2
			03199d6fc2535ea8201418fc7d2606b12fcefb97		

Warnings:

Information:					
2	Assignee showing of ownership per 37 CFR 3.73	SIGNED-sb0096-37.pdf	164017	no	2
			f523fbbd350de29de156db093be064456a266040		
Warnings:					
Information:					
Total Files Size (in bytes):			301806		
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 NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
10/933,572	09/03/2004	Leon Bruckman	COLB-125XX

CONFIRMATION NO. 3628

207
WEINGARTEN, SCHURGIN, GAGNEBIN & LEOVICI LLP
TEN POST OFFICE SQUARE
BOSTON, MA 02109

POWER OF ATTORNEY NOTICE



Date Mailed: 02/01/2011

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 01/24/2011.

- The Power of Attorney to you in this application has been revoked by the assignee who has intervened as provided by 37 CFR 3.71. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

/tnguyen/

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



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
10/933,572	09/03/2004	Leon Bruckman	COLB-125XX

CONFIRMATION NO. 3628

POA ACCEPTANCE LETTER

57449
SHEEHAN PHINNEY BASS & GREEN, PA
c/o PETER NIEVES
1000 ELM STREET
MANCHESTER, NH 03105-3701



Date Mailed: 02/01/2011

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 01/24/2011.

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.

/tnguyen/

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

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

**COMBINED REVOCATION OF POWER OF ATTORNEY WITH A NEW POWER OF
ATTORNEY AND CHANGE OF CORRESPONDENCE ADDRESS AND STATEMENT
UNDER 37 CFR 3.73(B)**

To: Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

CORRIGENT SYSTEMS LTD., a corporation organized under the laws of Israel, states that it is:

1. The assignee of the entire, right, title and interest in each of the patents and patent applications identified on the attached Schedule A by virtue of either an assignment from the inventor(s) of each of the identified patents and patent applications to the current assignee as identified on the attached Schedule A, or a chain of title from the inventor(s) of the patent application/patents to the current assignee as identified on the attached Schedule A, said assignments recorded with the United States Patent and Trademark Office at the reel and frame identified on the attached Schedule A or for which a copy therefore is attached; and
2. As required by 37 CFR 3.73(b)(1)(i), for each of the patents and patent applications listed on the attached Schedule A the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

FURTHER, Corrigent Systems Ltd. states

3. That it hereby revokes all previous Powers of Attorney in the patents and patent applications identified on the attached Schedule A, and hereby appoints Practitioners associated with Customer Number 57449 as its attorneys and agents with respect to the patents and patent applications identified in the attached Schedule A, and to transact all business in the United States Patent and Trademark Office connected therewith; and
4. Requests that this Office please change the correspondence address for the patents and patent applications identified in the attached Schedule A to the address associated with Customer Number 57449.

The undersigned has reviewed all documents in the chain of title for the patents and patent applications identified in the attached Schedule A, and to the best of the undersigned's knowledge and belief, right, title and interest to the applications identified is in the assignee identified above. The undersigned is empowered to act on behalf of the assignee.

CORRIGENT SYSTEMS LTD.

Signature: *[Handwritten Signature]* Date: 29-Jan-2011

Printed Name: PAET RAM

Title: PATENT ASSIGNEE

SCHEDULE A

Matter No.	Patent name	Application Nr.	Recorded
40552-6103	Multiple Data Links Aggregation With Nested Packet Interruption	09/756,553	Assignment from Inventors to Corrigent Systems Ltd. recorded 7/15/2003 at 014274/0423
40552-6100	Dynamic Fragmentation in Low Rate Channels	09/756,554	Assignment from Inventors to Orekit Communications, Ltd. recorded 3/15/2001 at 011593/0881; Assignment from Orekit Communications Ltd. to Corrigent Systems Ltd. recorded 4/26/2002 at 012866/0880
40552-6102	Flows Allocation in IP Ring Topologies	09/756,946	Assignment from Inventors to Orekit Communications, Ltd. recorded 1/9/2001 at 011435/0015; Assignment from Orekit Communications Ltd. to Corrigent Systems Ltd. recorded 4/26/2002 at 012866/0880
40552-6101	Resource Reservation in a Ring Network	09/794,898	Assignment from Inventors to Orekit Communications, Ltd. recorded 2/26/2001 at 011580/0893; Assignment from Orekit Communications Ltd. to Corrigent Systems Ltd. recorded 4/26/2002 at 012866/0880
40552-6104	One Sided RPR	09/876,414	Assignment from Inventors to Corrigent Systems Ltd. recorded 6/7/2001 at 011888/0028
40552-6107	Interconnect And Gateway Protection In Bidirectional Rings Networks	09/910,790	Assignment from Inventors to Corrigent Systems Ltd. recorded 7/24/2001 at 012017/0934
40552-6108	Fast Protection in Ring Topologies	09/941,723	Assignment from Inventors to Corrigent Systems Ltd. recorded 8/30/2001 at 012130/0608
40552-6109	Latency evaluation in a ring network	09/947,183	Assignment from Inventors to Corrigent Systems Ltd. recorded 11/29/2001 at 012336/0419
40552-6106	Selective protection for ring topologies	09/969,839	Assignment from Inventors to Corrigent Systems Ltd. recorded 10/3/2001 at 012229/0832
40552-6110	Sonet circuit emulation with VT compression	09/978,342	Assignment from Inventors to Corrigent Systems Ltd. recorded 10/17/2001 at 012270-0165
40552-6111	Configuration of network interfaces in a bidirectional ring network	09/978,642	Assignment from Inventors to Corrigent Systems Ltd. recorded 10/16/2001 at 012274/0607
40552-6117	Generic Framework for Embedded Software Development	10/005,030	Assignment from Inventors to Corrigent Systems Ltd. recorded 12/3/2001 at 012358/0508
40552-6118	Fast failure protection using redundant network edge ports	10/036,518	Assignment from Inventors to Corrigent Systems Ltd. recorded 1/7/2002 at 012442/0914
40552-6114	Avoiding Overlapping Segments In ring based TLS	10/054,845	Assignment from Inventors to Corrigent Systems Ltd. recorded 1/25/2002 at 012523/0691
40552-6115	Spanning Tree Protocol For Transparent LAN Services	10/057,332	Assignment from Inventors to Corrigent Systems Ltd. recorded 1/25/2002 at 012535/0510
40552-6112	Protecting the Filtering Data Base in Virtual B bridges	10/061,721	Assignment from Inventors to Corrigent Systems Ltd. recorded 2/1/2002 at 012568/0664
40552-6113	Protecting the filtering database in virtual bridges	10/061,721	Assignment from Inventors to Corrigent Systems Ltd. recorded 2/1/2002 at 012568/0664

40552-6121	Performance monitoring of multiple channels in an automatic protection switched network	10/082,771	Assignment from Inventors to Corrigent Systems Ltd. recorded 2/25/2002 at 012645/0029
40552-6120	Differentiated services with multiple lagging levels	10/128,454	Assignment from Inventors to Corrigent Systems Ltd. recorded 4/24/2002 at 012833/0049
40552-6116	Performance Monitoring of high speed communications network	10/128,459	Assignment from Inventors to Corrigent Systems Ltd. recorded 4/24/2002 at 012832/0932
40552-6122	Hidden Failure Detection	10/156,851	Assignment from Inventors to Corrigent Systems Ltd. recorded 5/30/2002 at 012954/0104
40552-6123	Equipment Protection Using a Partial Star Architecture	10/211,065	Assignment from Inventors to Corrigent Systems Ltd. recorded 8/2/2002 at 013170/0387
40552-6119	Traffic Engineerings in Bi-directional Ring Networks	10/211,066	Assignment from Inventors to Corrigent Systems Ltd. recorded 8/2/2002 at 013172/0613
40552-6125	VPLS using a multicast protocol	10/226,525	Assignment from Inventors to Corrigent Systems Ltd. recorded 8/23/2002 at 013242/0050
40552-6126	Hierarchical VPLS protection	10/337,382	Assignment from Inventors to Corrigent Systems Ltd. recorded 1/7/2003 at 013638/0975
40552-6124	MPLS signaling over RPR	10/369,953	Assignment from Inventors to Corrigent Systems Ltd. recorded 2/20/2003 at 013807/0903
40552-6130	Ring network with variable rate	10/387,657	Assignment from Inventors to Corrigent Systems Ltd. recorded 3/12/2003 at 013884/0505
40552-6128	Efficient Transport of TDM Services	10/396,008	Assignment from Inventors to Corrigent Systems Ltd. recorded 3/24/2003 at 013915/0077
40552-6131	Bandwidth Allocations for Link Aggregation	10/436,516	Assignment from Inventors to Corrigent Systems Ltd. recorded 5/13/2003 at 014072/0524
40552-6132	Multiprotocol media conversion	10/461,807	Assignment from Inventors to Corrigent Systems Ltd. recorded 6/13/2003 at 014190/0326
40552-6133	Layer 3 network routing with RPR Layer 2 visibility	10/812,321	Assignment from Inventors to Corrigent Systems Ltd. recorded 3/29/2004 at 015161/0655
40552-6134	Weight calculation for traffic management	10/861,272	Assignment from Inventors to Corrigent Systems Ltd. recorded 6/3/2004 at 015444/0178
40552-6135	Multipoint to multipoint communication over ring topologies	10/933,572	Assignment from Inventors to Corrigent Systems Ltd. recorded 11/17/2004 at 015389/0644
40552-6137	Synchronized Ring Software Download (SRDL)	10/951,575	Assignment from Inventors to Corrigent Systems Ltd. recorded 9/27/2004 at 015844/0428
40552-6136	VPLS over ring networks	10/993,882	Assignment from Inventors to Corrigent Systems Ltd. recorded 11/19/2004 at 016019/0425
40552-6138	Link aggregation With Tunneling	11/123,801	Assignment from Inventors to Corrigent Systems Ltd. recorded 5/6/2005 at 016545/0876
40552-6140	Two Way Link Aggregation	11/279,045	Assignment from Inventors to Corrigent Systems Ltd. recorded 4/7/2006 at 017441/0881

40552-6142	Resource Sharing Among Network Tunnels	11/305,486	Assignment from Inventors to Corrigent Systems Ltd. recorded 1/11/2006 at 017001/0167
40552-6144	VPLS Failure Protection In Ring Networks	11/335,770	Assignment from Inventors to Corrigent Systems Ltd. recorded 1/18/2006 at 017502/0055
40552-6143	Route Selection with Bandwidth Sharing Optimization Over Rings	11/339,148	Assignment from Inventors to Corrigent Systems Ltd. recorded 1/24/2006 at 017504/0802
40552-6145	High capacity ring communication network	11/367,231	Assignment from Inventors to Corrigent Systems Ltd. recorded 3/2/2006 at 017651/0359; corrective assignment to add the additional name of a conveying party recorded 6/27/2006 at 017868/0544; corrective assignment to correct the 5th assignor's name previously recorded, recorded 7/31/2006 at 018035/0163
40552-6146	MAC address learning in a distributed bridge	11/419,444	Assignment from Inventors to Corrigent Systems Ltd. recorded 7/10/2006 at 017904/0311
40552-6139	Transparent Transport of Fibre Channel Traffic Over Packet-Switched Networks	11/479,595	Assignment from Inventors to Corrigent Systems Ltd. recorded 6/29/2006 at 018034/0195
40552-6149	Connectivity Fault Management (CFM) In Networks With Link Aggregation Group Connections	11/483,650	Assignment from Inventors to Corrigent Systems Ltd. recorded 7/11/2006 at 018103/0490
40552-6150	Point-to-multipoint functionality in a bridged network	11/508,599	Assignment from Inventors to Corrigent Systems Ltd. recorded 8/22/2006 at 018222/0834
40552-6151	Fault-tolerant medium access control (MAC) address assignment in network elements	11/534,536	Assignment from Inventors to Corrigent Systems Ltd. recorded 9/22/2006 at 018292/0823
40552-6154	Hash-based multi-homing	11/559,037	Assignment from Inventors to Corrigent Systems Ltd. recorded 12/27/2007 at 020292/0128
40552-6152	Forwarding Multicast Traffic Over link Aggregation Ports	11/644,773	Assignment from Inventors to Corrigent Systems Ltd. recorded 12/21/2006 at 018743/0396
40552-6155	Frame Concatenation with Drop Precedence Assignment	11/704,615	Assignment from Inventors to Corrigent Systems Ltd. recorded 2/8/2007 at 018986/0082
40552-6153	MAC ADDRESS SCALABILITY IN INTERCONNECTED RINGS	11/764,764	Assignment from Inventors to Corrigent Systems Ltd. recorded 6/18/2007 at 019459/0806
40552-6156	Prevention Of Frame Duplication In Interconnected Ring Network	12/044,158	Assignment from Inventors to Corrigent Systems Ltd. recorded 3/7/2008 at 020615/0339
40552-6141	VPLS remote failure indicator	12/093,824	Assignment from Inventors to Corrigent Systems Ltd. recorded 7/22/2008 at 021269/0633
40552-6158	A Device Method and System for providing a media stream	12/143,944	Assignment from Inventors to Corrigent Systems Ltd. recorded 2/2/2009 at 022186/0537

40552-6159	Efficient Full Mesh Load Testing of Packet based Communication Systems	12/261,072	Assignment from Inventors to Corrigan Systems Ltd. recorded 10/30/2008 at 021759/0438
40552-6162	Ring Network Aggregate Rates	12/348,361	Assignment from Inventors to Corrigan Systems Ltd. recorded 1/5/2009 at 022053/0650
40552-6160	High-Speed Processing of Multicast Content Requests	12/369,011	Assignment from Inventors to Corrigan Systems Ltd. recorded 2/11/2009 at 022238/0791
40552-6129	Efficient transport of TDM services over packet networks	12/404,444	Assignment from Inventors to Corrigan Systems Ltd. recorded 3/17/2009 at 022405/0541
40552-6161	Method for unicast streaming of multicast content	12/628,247	Assignment from Inventors to Corrigan Systems Ltd. recorded 12/1/2009 at 023582/0533

Electronic Acknowledgement Receipt	
EFS ID:	9289125
Application Number:	10933572
International Application Number:	
Confirmation Number:	3628
Title of Invention:	MULTIPOINT TO MULTIPOINT COMMUNICATION OVER RING TOPOLOGIES
First Named Inventor/Applicant Name:	Leon Bruckman
Customer Number:	00207
Filer:	Peter Anthony Nieves/Elaine Cote
Filer Authorized By:	Peter Anthony Nieves
Attorney Docket Number:	COLB-125XX
Receipt Date:	24-JAN-2011
Filing Date:	03-SEP-2004
Time Stamp:	13:27:38
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	executedpoaTOFILE.pdf	347366 df9ee8608d5bb0d5e838df4303fbb4d7577dc3	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.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/933,572	02/12/2008	7330431	COLB-125XX	3628

207 7590 01/23/2008
WEINGARTEN, SCHURGIN, GAGNEBIN & LEOVICI LLP
TEN POST OFFICE SQUARE
BOSTON, MA 02109

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 700 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):

Leon Bruckman, Petah Tikva, ISRAEL;

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

DEC 17 2007

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 notification.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

207 7590 10/04/2007

WEINGARTEN, SCHURGIN, GAGNEBIN & LBOVICI LLP
TEN POST OFFICE SQUARE
BOSTON, MA 02109

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.

Constance Clark Gagnebin	(Depositor's name)
<i>Constance Clark Gagnebin</i>	(Signature)
December 13, 2007	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/933,572	09/03/2004	Leon Bruckman	COLB-125XX	3628

TITLE OF INVENTION: MULTIPOINT TO MULTIPOINT COMMUNICATION OVER RING TOPOLOGIES

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	\$720	\$300	\$0	\$1020	01/04/2008
EXAMINER	ART UNIT	CLASS-SUBCLASS				
HOANG, THAI D	2616	370-232000				

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 Weingarten, Schurgin,
2 Gagnebin & Lebovici LLP
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 3.111. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

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

CORRIGENT SYSTEMS LTD.

Tel Aviv, Israel

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 5

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 23-0804 (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. (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 of the party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature

Charles L. Gagnebin III

Date

December 13, 2007

Typed or printed name

Charles L. Gagnebin III

Registration No.

25,467

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

NOTICE OF ALLOWANCE AND FEE(S) DUE

207 7590 10/04/2007

WEINGARTEN, SCHURGIN, GAGNEBIN & LEOVICI LLP
TEN POST OFFICE SQUARE
BOSTON, MA 02109

EXAMINER

HOANG, THAI D

ART UNIT

PAPER NUMBER

2616

DATE MAILED: 10/04/2007

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/933,572	09/03/2004	Leon Bruckman	COLB-125XX	3628

TITLE OF INVENTION: MULTIPOINT TO MULTIPOINT COMMUNICATION OVER RING TOPOLOGIES

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	\$720	\$300	\$0	\$1020	01/04/2008

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 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)

207 7590 10/04/2007

WEINGARTEN, SCHURGIN, GAGNEBIN & LEOVICI LLP
TEN POST OFFICE SQUARE
BOSTON, MA 02109

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.
10/933.572	09/03/2004	Leon Bruckman	COLB-125XX	3628

TITLE OF INVENTION: MULTIPOINT TO MULTIPOINT COMMUNICATION OVER RING TOPOLOGIES

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	\$720	\$300	\$0	\$1020	01/04/2008

EXAMINER	ART UNIT	CLASS-SUBCLASS
HOANG, THAI D	2616	370-232000

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, 1 _____
 (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. 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.
10/933,572	09/03/2004	Leon Bruckman	COLB-125XX	3628
207	7590	10/04/2007	EXAMINER	
WEINGARTEN, SCHURGIN, GAGNEBIN & LEOVICI LLP TEN POST OFFICE SQUARE BOSTON, MA 02109			HOANG, THAI D	
			ART UNIT	PAPER NUMBER
			2616	
DATE MAILED: 10/04/2007				

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 700 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 700 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.

8

Notice of Allowability	Application No.	Applicant(s)	
	10/933,572	BRUCKMAN, LEON	
	Examiner	Art Unit	
	Thai D. Hoang	2616	

-- 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 09/23/2004.
2. ☒ The allowed claim(s) is/are 1-30.
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 <u>See Continuation Sheet</u> 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 _____ |
|---|--|

DETAILED ACTION

Allowable Subject Matter

Allowable Subject Matter

Claims 1-30 are allowed.

The following is an examiner's statement of reasons for allowance:

Morrison et al. (hereinafter Morrison), US Patent No. 5,854,903 A, discloses "Optimization method for routing and logical network design in multi-service networks." Morrison does not teach or fairly suggest the following features, which are recited in independent claims of the present application:

- (i) A method and apparatus for assigning bandwidth in a network including nodes coupled by links arranged in a physical topology, the method comprising:
- defining between the nodes logical connections associated with a data transmission service to be provided over the network, the logical connections having a connection topology different from the physical topology;
 - determining respective bandwidth requirements for the logical connections based on parameters of the service;
 - mapping the connection topology to the physical topology, so that each of the logical connections is associated with one or more links of the physical topology; and
 - allocating a bandwidth for the service on each of the links in response to the bandwidth requirements of the logical connections and to the mapping as recited in
- claims 1 and 25.

Claims 2-11 and 26-27 are allowed because they depend on allowed claims 1 and 25 respectively.

(ii) A method and apparatus for assigning bandwidth in a network including nodes coupled by links arranged in a physical topology, the method comprising:

defining between the nodes a first set of logical connections associated with a first data transmission service to be provided over the network, and a second set of logical connections associated with a second data transmission service to be provided over the network, the first set of logical connections having a first connection topology, the second set of logical connections having a second connection topology, the first and second connection topologies being different from the physical topology;

determining respective first bandwidth requirements for the first set of logical connections based on first parameters of the first data transmission service and respective second bandwidth requirements for the second set of logical connections based on second parameters of the second data transmission service;

generating a first mapping of the first connection topology to the physical topology, so that each of the first set of logical connections is associated with one or more links of the physical topology;

allocating a first bandwidth for the first data transmission service on each of the links in response to the first bandwidth requirements of the first set of logical connections and to the first mapping;

generating a second mapping of the second connection topology to the physical topology, so that each of the second set of logical connections is associated with one or more links of the physical topology;

allocating a second bandwidth for the second data transmission service on each of the links in response to the second bandwidth requirements of the second set of logical connections and to the second mapping; and

summing the first and the second bandwidths to determine a total allocation for each of the links as recited in claims 12, 24 and 28.

Claims 13-23 and 29-30 are allowed because they depend on allowed claims 12 and 28 respectively.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Jain, US PG-PUB No. 2002/0133756 A1, "System and method for providing multiple levels of fault protection in a data communication network."

Morrison et al., US PAT No. 5,854,903 A, "Optimization method for routing and logical network design in multi-service networks."

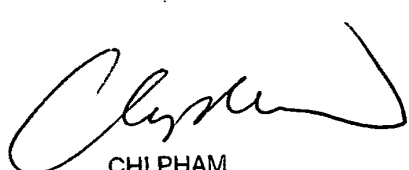
Chernyak et al., US PAT No. 6,580,693 B1, "Methods and apparatus for detecting leaks in ATM networks."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thai D. Hoang whose telephone number is (571) 272-3184. The examiner can normally be reached on Monday-Friday 10:00am-6:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on (571) 272-3179. 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). 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.

/Thai Hoang/


CHI PHAM
SUPERVISORY PATENT EXAMINER

9/28/07

Date: August 12, 2005

Page 1 of 2

(REV. 05/03)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY. DOCKET NO. COLB-125XX		APPLICATION NO. 10/933,572		
 INFORMATION DISCLOSURE CITATION (Use several sheets if necessary)				APPLICANT: Leon Bruckman				
				FILING DATE September 3, 2004		TC ART UNIT ~~2661~~ 2616		
U.S. PATENT DOCUMENTS								
EXAMINER INITIAL	DOCUMENT NUMBER	PUBLICATION/ ISSUE DATE	NAME	CLASS	SUBCLASS	FILING DATE		
/T.H./	US 6,442,134	08/2002	Mitchell					
	US 6,680,912	01/2004	Kalman, et al.					
	US 6,711,125	03/2004	Walrand, et al.					
	US 6,795,394	09/2004	Swinkels, et al.					
	US 6,820,210	11/2004	Daruwalla, et al.					
↓	US 6,256,292	07/2001	Ellis, et al.					
/T.H./	US 6,731,597	05/2004	Batchellor, et al.					
FOREIGN PATENT DOCUMENTS								
	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO		
OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, etc.)								
/T.H./	* Moy, "OSPF", Version 2, published as Request for Comments (RFC) 2328 of the Internet Engineering Task Force (IETF) Network Working Group, April 1998.							
	* Awduche, et al., "Requirement for Traffic Engineering Over MPLS", published as IETF RFC 2702, September 1999.							
	* Blake, S. et al., "Architecture for Differentiated Services", Internet Engineering Task Force, Network Working Group, RFC 2457, December 1998.							
	* Seddigh, N. et al., "An Assured Rate Per-Domain Behaviour for Differentiated Services", Internet Engineering Task Force, Network Working Group, July 2001.							
↓	* D. Tsiang et al., Request for Comments (RFC) 2892 of the Internet Engineering Task Force (IETF), August 2000.							
/T.H./	* Braden, et al., in IETF RFC 2205, "Resource ReServation Protocol (RSVP) - Version 1 Functional Specification", September 1997.							
EXAMINER			/Thai Hoang/		DATE CONSIDERED			09/27/2007
*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.								

* ARTICLES ENCLOSED

Date: August 12, 2005

Page 2 of 2

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE INFORMATION DISCLOSURE CITATION <i>(Use several sheets if necessary)</i>				ATTY. DOCKET NO.		APPLICATION NO.	
				COLB-125XX		10/933,572	
				APPLICANT: Leon Bruckman			
FILING DATE September 3, 2004				TC ART UNIT ~~2661~~ 2616			
U.S. PATENT DOCUMENTS							
EXAMINER INITIAL	DOCUMENT NUMBER	PUBLICATION/ ISSUE DATE	NAME	CLASS	SUBCLASS	FILING DATE	
/T.H./	US 6,456,407	09/2002	Tammela, et al.				
	US 6,647,008	11/2003	Galand, et al.				
	US 6,584,535	06/2003	Ouellet, et al.				
	US 6,400,681	06/2002	Bertin, et al.				
	US 6,021,263	02/2000	Kujoory, et al.				
	US 6,157,654	12/2000	Davis				
	US 5,235,593	08/1993	Grow, et al.				
	US 6,262,976	07/2001	McNamara				
	US 5,706,516	01/1998	Chang, et al.				
	US 5,461,611	10/1995	Drake, et al.				
	US 6,639,893	10/2003	Chikenji, et al.				
	US 6,339,488	01/2002	Beshai, et al.				
↓	US 5,581,703	12/1996	Baughner, et al.				
/T.H./	US 6,639,896	10/2003	Goode, et al.				
OTHER DOCUMENTS <i>(including Author, Title, Date, Pertinent Pages, etc.)</i>							
/T.H./	* Andersson, et al., in IETF RFC 3036, "LDP Specification" January 2001.						
/T.H./	* Yavatkar et al., RFC 2814 "A Protocol for RSVP - Based Admission Control Over IEEE 802-Style Networks", May 2000, pp. 1-56.						
EXAMINER /Thai Hoang/				DATE CONSIDERED 09/27/2007			
*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.							

CLG/mfc/325252-1

*** ARTICLES ENCLOSED**

Date: APRIL 7, 2006

Page 1 of 1



FORM PTO-1449 (Colb)	ATTY DOCKET NO. COLB-125XX	SERIAL NUMBER 10/933,572
LIST OF PATENTS AND PUBLICATIONS FOR APPLICANTS' INFORMATION STATEMENT	APPLICANT Leon BRUCKMAN	EXAMINER (N/A)
	FILING DATE September 3, 2004	GROUP ART UNIT ~~2661~~ 2616

U.S. PATENT DOCUMENTS

Examiner's Initials		DOCUMENT NO.	DATE	NAME	CLASS	SUB	FILING DATE
/T.H./	AA	6,678,241	01-2004	Gai, et al.			
	AB	6,370,121	04-2002	Hausman			
	AC	6,801,506	10-2004	Dey			
	AD	2003/0002443	01-2003	Basso, et al.			
	AE	6,757,286	06-2004	Stone			
	AF	6,922,394	07-2005	Kajiwara			
	AG	6,934,259	08-2005	Klincewicz, et al.			
↓	AH	6,826,158	11-2004	Seaman, et al.			
/T.H./	AI	2004/0071089	04-2004	Bauer, et al.			

FOREIGN PATENT DOCUMENTS

		DOCUMENT NO.	DATE	COUNTRY	CLASS	SUB	TRANS- LATION
	AJ						

OTHER ART (Including Author, Bills, Pertinent Pages, Etc.)

/T.H./	AK	Official Action dated November 28, 2005, which issued during the prosecution of US Assignee/Israeli Applicant's US Patent Application No. 10/054,845 filed January 25, 2002.
EXAMINER: /Thai Hoang/		DATE CONSIDERED: 09/27/2007
EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.		

FORM PTO-1449 (Colb)	ATTY DOCKET NO. COLB-125XX	SERIAL NUMBER 10/933,572
LIST OF PATENTS AND PUBLICATIONS FOR APPLICANTS' INFORMATION STATEMENT	APPLICANT Leon BRUCKMAN	EXAMINER (N/A)
	FILING DATE September 3, 2004	GROUP ART UNIT ~~2661~~ 2616

U.S. PATENT DOCUMENTS

Examiner's Initials		DOCUMENT NO.	DATE	NAME	CLASS	SUB	FILING DATE
/T.H./	AA	2002/0186661	12-2002	Santiago, et al.			
/T.H./	AB	6,826,147	11-2004	Nandy, et al.			
/T.H./	AC	2003/0055920	03-2003	Kakadia, et al.			
	AD						
	AE						
	AF						
	AG						
	AH						
	AI						

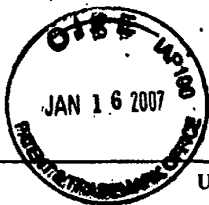
FOREIGN PATENT DOCUMENTS

		DOCUMENT NO.	DATE	COUNTRY	CLASS	SUB	TRANS- LATION
	AJ						

OTHER ART (Including Author, Bills, Pertinent Pages, Etc.)

/T.H./	AK	*Office Action dated March 21, 2006 which issued in Applicant's U.S. Pat. Appln. No. 10/128,454 filed April 24, 2002.
	AL	
	AM	
EXAMINER: /Thai Hoang/		DATE CONSIDERED: 09/27/2007
EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.		

*Office Action enclosed.



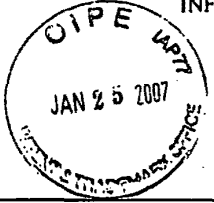
Date: January 12, 2007
Page 1 of 1

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE INFORMATION DISCLOSURE CITATION <i>(Use several sheets if necessary)</i>		ATTY. DOCKET NO. COLB-125XX		APPLICATION NO. 10/933,572		
		APPLICANT: Leon Bruckman				
		FILING DATE September 3, 2004		TC ART UNIT ~~2661~~ 2616		
U.S. PATENT DOCUMENTS						
EXAMINER INITIAL	DOCUMENT NUMBER	PUBLICATION/ ISSUE DATE	NAME	CLASS	SUBCLASS	FILING DATE
/T.H./	US6,510,141	1/2003	Ramfelt et al.	370	254	
↓	US6,992,975	1/2006	Daniel et al.	370	222	
↓	US6,952,397	10/2005	Mor et al.	370	223	
/T.H./	US7,035,279	4/2006	Bruckman	370	460	
	US					
	US					
	US					
FOREIGN PATENT DOCUMENTS						
	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO
OTHER DOCUMENTS <i>(including Author, Title, Date, Pertinent Pages, etc.)</i>						
/T.H./	An Official Action dated September 29, 2006, which issued during the prosecution of Applicant's U.S. Application No. 10/211,066.					
EXAMINER /Thai Hoang/			DATE CONSIDERED /Thai Hoang/			
*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.						

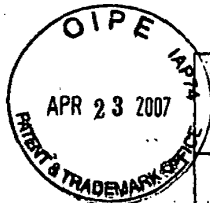
346670.1

Date: January 23, 2007

Page 1 of 1

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE INFORMATION DISCLOSURE CITATION <i>(Use several sheets if necessary)</i>				ATTY. DOCKET NO. COLB-125XX		APPLICATION NO. 10/933,572	
				APPLICANT: Leon Bruckman			
				FILING DATE September 3, 2004		TC ART UNIT ~~2661~~ 2616	
U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	PUBLICATION/ ISSUE DATE	NAME	CLASS	SUBCLASS	FILING DATE
/T.H./		US6,507,577	1/14/2003	Mauger et al.	370	356	
/T.H./		US6,522,627	2/18/2003	Mauger	370	230	
/T.H./		US6,778,494	8/17/2004	Mauger	370	230	
		US					
		US					
		US					
		US					
FOREIGN PATENT DOCUMENTS							
		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO
OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, etc.)							
EXAMINER				DATE CONSIDERED			
/Thai Hoang/				09/27/2007			
*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.							

347076.1



Date: April 19, 2007 Page 1 of 2

FORM PTO-1449 (Colb)	ATTY DOCKET NO. COLB-125XX	SERIAL NUMBER 10/933,572
LIST OF PATENTS AND PUBLICATIONS FOR APPLICANTS' INFORMATION STATEMENT	APPLICANT Leon BRUCKMAN	EXAMINER (N/A)
	FILING DATE September 3, 2004	GROUP ART UNIT ~~2661~~ 2616

U.S. PATENT DOCUMENTS

Examiner's Initials		DOCUMENT NO.	DATE	NAME	CLASS	SUB	FILING DATE
/T.H./	AA	2005/0030948	02-2005	Wyatt			
	AB	2003/0223428	12-2003	Blanquer, et al.			
	AC	5,933,422	08-1999	Kusano, et al.			
	AD	6,625,155	09-2003	Dziong			
	AE	2003/0158930	08-2003	Mc Bride			
	AF	6,169,783	01-2001	Brooks, et al.			
	AG	7,158,486	01-2007	Rhodes			
↓	AH	2004/0105459	06-2004	Mannam			
/T.H./	AI	2004/0052274	03-2004	Wang, et al.			

FOREIGN PATENT DOCUMENTS

		DOCUMENT NO.	DATE	COUNTRY	CLASS	SUB	TRANS- LATION
	AJ						

OTHER ART (Including Author, Bills, Pertinent Pages, Etc.)

/T.H./	AK	Dziong, et al., "A Framework For Bandwidth Management In ATM Networks - Aggregate Equivalent Bandwidth Estimation Approach", IEEE/ACM transactions on networking, Vol. 5, No. 1, February 1997.
/T.H./	AL	Inverse Multiplexing over ATM, Strategic Technologies Group, July 12, 2001.
/T.H./	AM	The PPP Multilink Protocol (MP) Standard, RFC 1990, The Internet Engineering Task Force, www.ietf.org , August 1996.
EXAMINER: /Thai Hoang/		DATE CONSIDERED: 09/27/2007
EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.		

FORM PTO-1449 (Colb)	ATTY DOCKET NO. COLB-125XX	SERIAL NUMBER 10/933,572
LIST OF PATENTS AND PUBLICATIONS FOR APPLICANTS' INFORMATION STATEMENT	APPLICANT Leon BRUCKMAN	EXAMINER (N/A)
	FILING DATE September 3, 2004	GROUP ART UNIT ~~2664~~ 2616

U.S. PATENT DOCUMENTS

Examiner's Initials		DOCUMENT NO.	DATE	NAME	CLASS	SUB	FILING DATE
/T.H./	AA	2004/0076176	04-2004	Kfir			
	AB	2003/0145108	07-2003	Joseph, et al.			
	AC	2002/0181479	12-2002	Okuno			
	AD	7,058,008	06-2006	Wilson, et al.			
	AE	6,965,612	11-2005	Chohan, et al.			
	AF	6,486,988	11-2002	Lewis, et al.			
↓	AG	7,161,899	01-2007	Limaye, et al.			
/T.H./	AH	7,042,846	05-2006	Bauer			
	AI						

FOREIGN PATENT DOCUMENTS

		DOCUMENT NO.	DATE	COUNTRY	CLASS	SUB	TRANS- LATION
	AJ						

OTHER ART (Including Author, Bills, Pertinent Pages, Etc.)

	AK	
	AL	
	AM	
EXAMINER:	/Thai Hoang/	DATE CONSIDERED: 09/27/2007
EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.		

Date: August 15, 2007
Page 1 of 1

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE (REV. 05/03)				ATTY. DOCKET NO. COLB-125XX		APPLICATION NO. 10/933,572	
 INFORMATION DISCLOSURE CITATION <i>(Use several sheets if necessary)</i>				APPLICANT: Leon Bruckman			
				FILING DATE September 3, 2004		TC ART UNIT ~~2661~~ 2616	
U.S. PATENT DOCUMENTS							
EXAMINER INITIAL	DOCUMENT NUMBER	PUBLICATION/ ISSUE DATE	NAME	CLASS	SUBCLASS	FILING DATE	
/T.H./	US 6,560,231	05/2003	Kawakami et al.				
↓	US 6,624,917	09/2003	Paschal et al.				
↓	US 6,763,025	07/2004	Leatherbury et al.				
/T.H./	US 7,184,402	02/2007	Sharma et al.				
	US						
	US						
	US						
FOREIGN PATENT DOCUMENTS							
	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO	
OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, etc.)							
EXAMINER /Thai Hoang/				DATE CONSIDERED 09/27/2007			
*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.							

CLG/mfc/355753.1

References were cited in a US Office Action dated July 25, 2007, which issued in Application's application 10/436,516.

Notice of References Cited	Application/Control No. 10/933,572	Applicant(s)/Patent Under Reexamination BRUCKMAN, LEON	
	Examiner Thai D. Hoang	Art Unit 2616	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2002/0133756 A1	09-2002	Jain, Sudhanshu	714/43
*	B	US-5,854,903 A	12-1998	Morrison et al.	709/249
*	C	US-6,580,693 B1	06-2003	Chernyak et al.	370/248
	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.



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. 3628

SERIAL NUMBER 10/933,572	FILING or 371(c) DATE 09/03/2004 RULE	CLASS 370	GROUP ART UNIT 2616	ATTORNEY DOCKET NO. COLB-125XX		
APPLICANTS Leon Bruckman, Petah Tikva, ISRAEL; ** CONTINUING DATA ***** No-TM ** FOREIGN APPLICATIONS ***** No-TM ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** SMALL ENTITY ** 11/02/2004						
Foreign Priority claimed ☐ Yes ☒ No 35 USC 119(a-d) conditions met ☐ Yes ☒ No Verified and Acknowledged <u>/THAI D HOANG/</u> Examiner's Signature		☐ Met after Allowance T.H. Initials	STATE OR COUNTRY ISRAEL	SHEETS DRAWINGS 4	TOTAL CLAIMS 30	INDEPENDENT CLAIMS 5
ADDRESS WEINGARTEN, SCHURGIN, GAGNEBIN & LEOVICI LLP TEN POST OFFICE SQUARE BOSTON, MA 02109 UNITED STATES						
TITLE Multipoint to multipoint communication over ring topologies						
FILING FEE RECEIVED 561	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.	Applicant(s)/Patent under Reexamination	
	10/933,572	BRUCKMAN, LEON	
	Examiner	Art Unit	
	Thai D. Hoang	2616	

ISSUE CLASSIFICATION									
ORIGINAL					CROSS REFERENCE(S)				
CLASS	SUBCLASS				CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)			
370	232				370	231	235		
INTERNATIONAL CLASSIFICATION									
H	0	4	L	12/26					
				/					
				/					
				/					
				/					
/THAI HOANG/ 9/27/2007 (Assistant Examiner) (Date)					 CHI PHAM SUPERVISORY PATENT EXAMINER (Primary Examiner) (Date)				
(Legal Instruments Examiner) (Date)									
					Total Claims Allowed: 30				
					O.G. Print Claim(s) 1				
					O.G. Print Fig. 2				

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

Index of Claims



Application/Control No.

10/933,572

Examiner

Thai D. Hoang

Applicant(s)/Patent under Reexamination

BRUCKMAN, LEON

Art Unit

2616

✓	Rejected
=	Allowed

-	(Through numeral) Cancelled
+	Restricted

N	Non-Elected
I	Interference

A	Appeal
O	Objected

Claim		Date			
Final	Original	9/27/07			
1	1	=			
2	2	=			
3	3	=			
4	4	=			
5	5	=			
6	6	=			
7	7	=			
8	8	=			
9	9	=			
10	10	=			
11	11	=			
12	12	=			
13	13	=			
14	14	=			
15	15	=			
16	16	=			
17	17	=			
18	18	=			
19	19	=			
20	20	=			
21	21	=			
22	22	=			
23	23	=			
24	24	=			
25	25	=			
26	26	=			
27	27	=			
28	28	=			
29	29	=			
30	30	=			
31	31				
32	32				
33	33				
34	34				
35	35				
36	36				
37	37				
38	38				
39	39				
40	40				
41	41				
42	42				
43	43				
44	44				
45	45				
46	46				
47	47				
48	48				
49	49				
50	50				

Claim		Date			
Final	Original				
51	51				
52	52				
53	53				
54	54				
55	55				
56	56				
57	57				
58	58				
59	59				
60	60				
61	61				
62	62				
63	63				
64	64				
65	65				
66	66				
67	67				
68	68				
69	69				
70	70				
71	71				
72	72				
73	73				
74	74				
75	75				
76	76				
77	77				
78	78				
79	79				
80	80				
81	81				
82	82				
83	83				
84	84				
85	85				
86	86				
87	87				
88	88				
89	89				
90	90				
91	91				
92	92				
93	93				
94	94				
95	95				
96	96				
97	97				
98	98				
99	99				
100	100				

Claim		Date			
Final	Original				
101	101				
102	102				
103	103				
104	104				
105	105				
106	106				
107	107				
108	108				
109	109				
110	110				
111	111				
112	112				
113	113				
114	114				
115	115				
116	116				
117	117				
118	118				
119	119				
120	120				
121	121				
122	122				
123	123				
124	124				
125	125				
126	126				
127	127				
128	128				
129	129				
130	130				
131	131				
132	132				
133	133				
134	134				
135	135				
136	136				
137	137				
138	138				
139	139				
140	140				
141	141				
142	142				
143	143				
144	144				
145	145				
146	146				
147	147				
148	148				
149	149				
150	150				

Search Notes 	Application/Control No.	Applicant(s)/Patent under Reexamination	
	10/933,572	BRUCKMAN, LEON	
	Examiner	Art Unit	
	Thai D. Hoang	2616	

SEARCHED			
Class	Subclass	Date	Examiner
370	229-235	9/27/2007	TH
	237-238	9/27/2007	TH
	395.2-.21	9/27/2007	TH

INTERFERENCE SEARCHED			
Class	Subclass	Date	Examiner
TEXT SEARCH PG-PUB DATA BASE, SEE SEARCH HISTORY PRINTED OUT		9/27/2007	TH

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	DATE	EXMR
EAST: TEXT SEARCH COMBINES CLASS SEARCH. SEE SEACH HISTORY PRINTED OUT	9/27/2007	TH
NPL: IEEE, GOOGLE AND IETF	9/27/2007	TH

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	8458	(370/229-235,237-238,395.2,395.21).CCLS.	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	ON	2007/09/27 18:09
L2	12	1 and (logical adj3 (connect\$5 or topolog\$2 or link\$1 or path\$1)) with differ\$6 with (physical adj3 (topolog\$2 or connect\$5 or link\$1 or path\$1))	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	ON	2007/09/27 18:10
L3	5	1 and (logical adj3 (connect\$5 or topolog\$2 or link\$1 or path\$1)) with (map\$4 or compar\$6) with (physical adj3 (topolog\$2 or connect\$5 or link\$1 or path\$1))	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	ON	2007/09/27 18:11
L4	11	1 and (logical adj3 (connect\$5 or topolog\$2 or link\$1 or path\$1)) same (map\$4 or compar\$6) same (physical adj3 (topolog\$2 or connect\$5 or link\$1 or path\$1))	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	ON	2007/09/27 18:11
L5	16976	(370/229-235,237-238,395.2,395.21,400-406).CCLS.	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	ON	2007/09/27 18:41
L6	25	5 and (logical adj3 (connect\$5 or topolog\$2 or link\$1 or path\$1)) with differ\$6 with (physical adj3 (topolog\$2 or connect\$5 or link\$1 or path\$1))	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	ON	2007/09/27 18:41
L7	14	5 and (logical adj3 (connect\$5 or topolog\$2 or link\$1 or path\$1)) with (map\$4 or compar\$6) with (physical adj3 (topolog\$2 or connect\$5 or link\$1 or path\$1))	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	ON	2007/09/27 18:42
L11	2	6 and 7	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	ON	2007/09/27 18:44
S2	318	(logical adj3 (connect\$4 or topolog\$2 or link\$1 or path\$1)) same (map\$4 or compar\$6) same (physical adj3 (topolog\$2 or connect\$4 or link\$1 or path\$1))	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	ON	2007/09/27 15:50
S3	129	(logical adj3 (connect\$4 or topolog\$2 or link\$1 or path\$1)) with (map\$4 or compar\$6) with (physical adj3 (topolog\$2 or connect\$4 or link\$1 or path\$1))	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	ON	2007/09/27 15:51

EAST Search History

S4	18	S3 and ((allocat\$4 or assign\$4 or contribut\$6) near3 bandwidth)	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	ON	2007/09/27 16:15
S5	202	(logical adj3 (connect\$4 or topolog\$2 or link\$1 or path\$1)) with different with (physical adj3 (topolog\$2 or connect\$4 or link\$1 or path\$1))	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	ON	2007/09/27 16:18
S6	28	S2 and S5	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	ON	2007/09/27 16:18
S7	10	S3 and S5	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	ON	2007/09/27 16:18
S8	7	S6 and ((allocat\$4 or assign\$4 or contribut\$6) near3 bandwidth)	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	ON	2007/09/27 16:19
S9	4	S7 and ((allocat\$4 or assign\$4 or contribut\$6) near3 bandwidth)	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	ON	2007/09/27 16:19
S10	323	(logical adj3 (connect\$5 or topolog\$2 or link\$1 or path\$1)) same (map\$4 or compar\$6) same (physical adj3 (topolog\$2 or connect\$5 or link\$1 or path\$1))	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	ON	2007/09/27 16:20
S11	134	(logical adj3 (connect\$5 or topolog\$2 or link\$1 or path\$1)) with (map\$4 or compar\$6) with (physical adj3 (topolog\$2 or connect\$5 or link\$1 or path\$1))	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	ON	2007/09/27 16:20
S12	206	(logical adj3 (connect\$5 or topolog\$2 or link\$1 or path\$1)) with different with (physical adj3 (topolog\$2 or connect\$5 or link\$1 or path\$1))	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	ON	2007/09/27 16:20
S13	28	S10 and S12	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	ON	2007/09/27 16:21
S14	10	S11 and S12	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	ON	2007/09/27 16:21

EAST Search History

S15	28	S13 or S14	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	ON	2007/09/27 16:21
S16	7	S15 and ((allocat\$4 or assign\$4 or contribut\$6) near3 bandwidth)	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	ON	2007/09/27 16:21

TH

EAST Search History *(Interference Search)*

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L21	1	((logical adj3 (connect\$5 or topolog\$2 or link\$1 or path\$1)) and (map\$4 or compar\$6) and differ\$6 and (physical adj3 (topolog\$2 or connect\$5 or link\$1 or path\$1)) and ((allocat\$6 or assign\$5) adj2 bandwidth)).clm.	US-PGPUB	OR	ON	2007/09/27 16:31
L22	1	((logical adj (connect\$5 or topolog\$2 or link\$1 or path\$1)) and (map\$4 or compar\$6) and differ\$6 and (physical adj (topolog\$2 or connect\$5 or link\$1 or path\$1)) and ((allocat\$6 or assign\$5) adj bandwidth)).clm.	US-PGPUB	OR	ON	2007/09/27 16:32

TJ



2/06

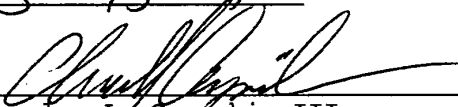
PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application : Leon Bruckman
 Application No. : 10/933,572
 Filed : September 3, 2004
 Confirmation No. : 3628
 For : MULTIPOINT TO MULTIPOINT COMMUNICATION OVER RING
 TOPOLOGIES
 Attorney's Docket : COLB-125XX

TC Art Unit: 2661

 I hereby certify that this correspondence is being deposited with the
 United States Postal Service as first class mail in an envelope
 addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box
 1450, Alexandria, VA 22313-1450 on 8-15-07.

By: 
 Charles L. Gagnebin III
 Registration No. 25,467
 Attorney for Applicant

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

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

Sir:

It is desired to cite for the record in this application the
 enclosed references listed on the attached copy of PTO Form #1449. The
 paragraph(s) marked below are applicable to this Information Disclosure
 Statement.

- [] (1) Pursuant to 37 C.F.R. § 1.97(b)(1) and (2), the attached
 Information Disclosure Statement is being filed within three
 months of the filing date of the above identified national
 application or within three months of the date of entry of the
 national stage as set forth in 37 C.F.R. § 1.491 of the above
 identified application. Accordingly, applicant(s) believes that
 no fee or statement under 37 C.F.R. § 1.97(e) is required.

-1-

WEINGARTEN, SCHURGIN,
 GAGNEBIN & LEBOVICI LLP
 TEL. (617) 542-2290
 FAX. (617) 451-0313

Application No.: 10/933,572

Filed: September 3, 2004

TC Art Unit: 2661

Confirmation No.: 3628

- [X] (2) Pursuant to 37 C.F.R. § 1.97(b)(3), applicant(s) believes the attached Information Disclosure Statement is being filed before the mailing date of a first Office action on the merits. Accordingly, applicant(s) believes that no fee or statement under 37 C.F.R. § 1.97(e) is required.
- [] (3) Pursuant to 37 C.F.R. § 1.97(b)(4), applicant(s) believes the attached Information Disclosure Statement is being filed before the mailing date of a first Office action after the filing of a request for continued examination under § 1.114. Accordingly, applicant(s) believes that no fee or statement under 37 C.F.R. § 1.97(e) is required.
- [] (4) Pursuant to 37 C.F.R. § 1.97(c), the attached Information Disclosure Statement is being filed before the mailing date of a final action or a notice of allowance and is accompanied by:
[] a statement under 37 CFR § 1.97(e); or
[] the fee set forth in § 1.17(p).

PETITION UNDER 37 CFR § 1.97(d)

- [] (5) Pursuant to 37 CFR § 1.97(d), applicant(s) hereby petitions the Commissioner to consider the attached Information Disclosure Statement which is being filed on or before payment of the issue fee. This petition is accompanied by a statement under 37 C.F.R. § 1.97(e) and the petition fee set forth in 37 C.F.R. § 1.17(p).

STATEMENT UNDER 37 C.F.R. § 1.97(e)(1)

- [] (6) The undersigned hereby states that each item of information contained in the attached Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement.

STATEMENT UNDER 37 C.F.R. § 1.97(e)(2)

- [] (7) The undersigned hereby states that no item of information contained in the attached Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to the knowledge of the undersigned after making reasonable inquiry, no item of information contained in the attached Information Disclosure Statement was known to any individual designated in 37 C.F.R. §

Application No.: 10/933,572

Filed: September 3, 2004

TC Art Unit: 2661

Confirmation No.: 3628

1.56(c) more than three months prior to the filing of this Information Disclosure Statement.

Where the status of the application has changed, unknown to the applicant, such that the boxes checked are no longer applicable, the Commissioner is authorized to accept this submission with any additional fees required by that change charged to Deposit Account No. 23-0804.

The filing of this Information Disclosure Statement is not a representation by the undersigned as to personal knowledge of the contents of every word or phrase of the material enclosed or that reliance on other suitably trained professionals has not been made. The filing of this Information Disclosure Statement is not to be construed to be an admission that the information cited herewith is, or is considered to be, material to patentability as defined in 37 CFR §1.56(b), or that Applicant(s) is(are) unable to provide an affidavit under 37 CFR §1.131 swearing back of such information.

If a search report of a searching agency is enclosed identifying the nature of the relevance of each document, such a designation is deemed to satisfy 37 C.F.R. § 1.98(a)(3) even if in a foreign language because the codes are the same in all languages. However, applicant(s) does not necessarily adopt the position reflected by that report.

These references were cited in an Office Action dated July 25, 2007, which issued during the prosecution of Applicant's U.S. Patent Application No. 10/436,516.

- 3 -

WEINGARTEN, SCHURGIN,
GAGNEBIN & LEBOVICI LLP
TEL (617) 542-2290
FAX (617) 451-0313

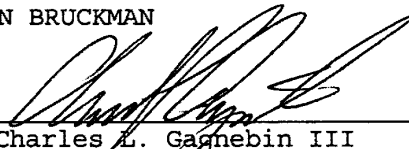
Arista Networks, Inc.
Ex. 1002, p. 52

Application No.: 10/933,572
Filed: September 3, 2004
TC Art Unit: 2661
Confirmation No.: 3628

The Commissioner is hereby authorized to charge payment of any additional fees associated with this communication or credit any overpayment to Deposit Account No. 23-0804. Triplicate copies of this letter are enclosed.

Respectfully submitted,

LEON BRUCKMAN

By: 
Charles L. Gagnebin III
Registration No. 25,467
Attorney for Applicant

WEINGARTEN, SCHURGIN,
GAGNEBIN & LEBOVICI LLP
Ten Post Office Square
Boston, Massachusetts 02109

Telephone: (617) 542-2290
Telecopier: (617) 451-0313

CLG/mfc/355750.1
Enclosure

- 4 -

WEINGARTEN, SCHURGIN,
GAGNEBIN & LEBOVICI LLP
TEL (617) 542-2290
FAX (617) 451-0313

Arista Networks, Inc.
Ex. 1002, p. 53

Date: August 15, 2007

Page 1 of 1

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE  INFORMATION DISCLOSURE CITATION <i>(Use several sheets if necessary)</i>				ATTY. DOCKET NO. COLB-125XX		APPLICATION NO. 10/933,572	
				APPLICANT: Leon Bruckman			
				FILING DATE September 3, 2004		TC ART UNIT 2661	
U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	PUBLICATION/ ISSUE DATE	NAME	CLASS	SUBCLASS	FILING DATE
		US 6,560,231	05/2003	Kawakami et al.			
		US 6,624,917	09/2003	Paschal et al.			
		US 6,763,025	07/2004	Leatherbury et al.			
		US 7,184,402	02/2007	Sharma et al.			
		US					
		US					
		US					
FOREIGN PATENT DOCUMENTS							
		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO
OTHER DOCUMENTS <i>(including Author, Title, Date, Pertinent Pages, etc.)</i>							
EXAMINER				DATE CONSIDERED			
*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.							

CLG/mfc/355753.1

References were cited in a US Office Action dated July 25, 2007, which issued in Application's application 10/436,516.



IPW

Rev 2/06

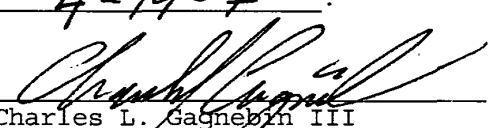
PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application : Leon Bruckman
Application No. : 10/933,572
Filed : September 3, 2004
Confirmation No. : 3628
For : MULTIPOINT TO MULTIPOINT COMMUNICATION OVER RING
TOPOLOGIES
Attorney's Docket : COLB-125XX

TC Art Unit: 2661

I hereby certify that this correspondence is being deposited with the
United States Postal Service as first class mail in an envelope
addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box
1450, Alexandria, VA 22313-1450 on 4-19-7.

By: 
Charles L. Gagnebin III
Registration No. 25,467
Attorney for Applicant

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

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

Sir:

It is desired to cite for the record in this application the
enclosed references listed on the attached copy of PTO Form #1449. The
paragraph(s) marked below are applicable to this Information Disclosure
Statement.

[] (1) Pursuant to 37 C.F.R. § 1.97(b)(1) and (2), the attached
Information Disclosure Statement is being filed within three
months of the filing date of the above identified national
application or within three months of the date of entry of the
national stage as set forth in 37 C.F.R. § 1.491 of the above
identified application. Accordingly, applicant(s) believes that
no fee or statement under 37 C.F.R. § 1.97(e) is required.

-1-

WEINGARTEN, SCHURGIN,
GAGNEBIN & LEBOVICI LLP
TEL. (617) 542-2290
FAX. (617) 451-0313

Arista Networks, Inc.
Ex. 1002, p. 55

- ☒ (2) Pursuant to 37 C.F.R. § 1.97(b)(3), applicant(s) believes the attached Information Disclosure Statement is being filed before the mailing date of a first Office action on the merits. Accordingly, applicant(s) believes that no fee or statement under 37 C.F.R. § 1.97(e) is required.
- ☐ (3) Pursuant to 37 C.F.R. § 1.97(b)(4), applicant(s) believes the attached Information Disclosure Statement is being filed before the mailing date of a first Office action after the filing of a request for continued examination under § 1.114. Accordingly, applicant(s) believes that no fee or statement under 37 C.F.R. § 1.97(e) is required.
- ☐ (4) Pursuant to 37 C.F.R. § 1.97(c), the attached Information Disclosure Statement is being filed before the mailing date of a final action or a notice of allowance and is accompanied by:
☐ a statement under 37 CFR § 1.97(e); or
☐ the fee set forth in § 1.17(p).

PETITION UNDER 37 CFR § 1.97(d)

- ☐ (5) Pursuant to 37 CFR § 1.97(d), applicant(s) hereby petitions the Commissioner to consider the attached Information Disclosure Statement which is being filed on or before payment of the issue fee. This petition is accompanied by a statement under 37 C.F.R. § 1.97(e) and the petition fee set forth in 37 C.F.R. § 1.17(p).

STATEMENT UNDER 37 C.F.R. § 1.97(e)(1)

- ☐ (6) The undersigned hereby states that each item of information contained in the attached Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement.

STATEMENT UNDER 37 C.F.R. § 1.97(e)(2)

- ☐ (7) The undersigned hereby states that no item of information contained in the attached Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to the knowledge of the undersigned after making reasonable inquiry, no item of information contained in the attached Information Disclosure

Application No.: 10/933,572
Filed: September 3, 2004
TC Art Unit: 2661
Confirmation No.: 3628

Statement was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this Information Disclosure Statement.

Where the status of the application has changed, unknown to the applicant, such that the boxes checked are no longer applicable, the Commissioner is authorized to accept this submission with any additional fees required by that change charged to Deposit Account No. 23-0804.

The filing of this Information Disclosure Statement is not a representation by the undersigned as to personal knowledge of the contents of every word or phrase of the material enclosed or that reliance on other suitably trained professionals has not been made. The filing of this Information Disclosure Statement is not to be construed to be an admission that the information cited herewith is, or is considered to be, material to patentability as defined in 37 CFR §1.56(b), or that Applicant(s) is(are) unable to provide an affidavit under 37 CFR §1.131 swearing back of such information.

If a search report of a searching agency is enclosed identifying the nature of the relevance of each document, such a designation is deemed to satisfy 37 C.F.R. § 1.98(a)(3) even if in a foreign language because the codes are the same in all languages. However, applicant(s) does not necessarily adopt the position reflected by that report.

These references were cited in an Office Action dated March 19, 2007, which issued during the prosecution of Applicant's U.S. Patent Application No. 10/387,657, Office Action dated February 1, 2007, which issued during the prosecution of Applicant's U.S. Patent Application No. 10/436,516, and Office Action dated March 1, 2007, which issued during the prosecution of Applicant's U.S. Patent Application No. 10/211,066.

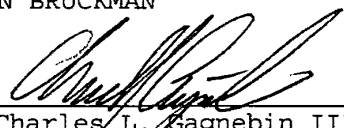
- 3 -

Application No.: 10/933,572
Filed: September 3, 2004
TC Art Unit: 2661
Confirmation No.: 3628

The Commissioner is hereby authorized to charge payment of any additional fees associated with this communication or credit any overpayment to Deposit Account No. 23-0804. Triplicate copies of this letter are enclosed.

Respectfully submitted,

LEON BRUCKMAN

By: 

Charles L. Gagnebin III
Registration No. 25,467
Attorney for Applicant

WEINGARTEN, SCHURGIN,
GAGNEBIN & LEBOVICI LLP
Ten Post Office Square
Boston, Massachusetts 02109

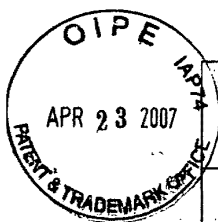
Telephone: (617) 542-2290
Telecopier: (617) 451-0313

CLG/laf
Enclosure
350832-1

- 4 -

WEINGARTEN, SCHURGIN,
GAGNEBIN & LEBOVICI LLP
TEL (617) 542-2290
FAX (617) 451-0313

Arista Networks, Inc.
Ex. 1002, p. 58



Date: April 19, 2007 Page 1 of 2

FORM PTO-1449 (Colb)	ATTY DOCKET NO. COLB-125XX	SERIAL NUMBER 10/933,572
LIST OF PATENTS AND PUBLICATIONS FOR APPLICANTS' INFORMATION STATEMENT	APPLICANT Leon BRUCKMAN	EXAMINER (N/A)
	FILING DATE September 3, 2004	GROUP ART UNIT 2661

U.S. PATENT DOCUMENTS

Examiner's Initials		DOCUMENT NO.	DATE	NAME	CLASS	SUB	FILING DATE
	AA	2005/0030948	02-2005	Wyatt			
	AB	2003/0223428	12-2003	Blanquer, et al.			
	AC	5,933,422	08-1999	Kusano, et al.			
	AD	6,625,155	09-2003	Dziong			
	AE	2003/0158930	08-2003	Mc Bride			
	AF	6,169,783	01-2001	Brooks, et al.			
	AG	7,158,486	01-2007	Rhodes			
	AH	2004/0105459	06-2004	Mannam			
	AI	2004/0052274	03-2004	Wang, et al.			

FOREIGN PATENT DOCUMENTS

		DOCUMENT NO.	DATE	COUNTRY	CLASS	SUB	TRANS- LATION
	AJ						

OTHER ART (Including Author, Bills, Pertinent Pages, Etc.)

AK	Dziong, et al., "A Framework For Bandwidth Management In ATM Networks – Aggregate Equivalent Bandwidth Estimation Approach", IEEE/ACM transactions on networking, Vol. 5, No. 1, February 1997.
AL	Inverse Multiplexing over ATM, Strategic Technologies Group, July 12, 2001.
AM	The PPP Multilink Protocol (MP) Standard, RFC 1990, The Internet Engineering Task Force, www.ietf.org , August 1996.
EXAMINER: _____ DATE CONSIDERED: _____	
EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPBP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	

FORM PTO-1449 (Colb)	ATTY DOCKET NO. COLB-125XX	SERIAL NUMBER 10/933,572
LIST OF PATENTS AND PUBLICATIONS FOR APPLICANTS' INFORMATION STATEMENT	APPLICANT Leon BRUCKMAN	EXAMINER (N/A)
	FILING DATE September 3, 2004	GROUP ART UNIT 2661

U.S. PATENT DOCUMENTS

Examiner's Initials		DOCUMENT NO.	DATE	NAME	CLASS	SUB	FILING DATE
	AA	2004/0076176	04-2004	Kfir			
	AB	2003/0145108	07-2003	Joseph, et al.			
	AC	2002/0181479	12-2002	Okuno			
	AD	7,058,008	06-2006	Wilson, et al.			
	AE	6,965,612	11-2005	Chohan, et al.			
	AF	6,486,988	11-2002	Lewis, et al.			
	AG	7,161,899	01-2007	Limaye, et al.			
	AH	7,042,846	05-2006	Bauer			
	AI						

FOREIGN PATENT DOCUMENTS

		DOCUMENT NO.	DATE	COUNTRY	CLASS	SUB	TRANS- LATION
	AJ						

OTHER ART (Including Author, Bills, Pertinent Pages, Etc.)

AK	
AL	
AM	
EXAMINER:	DATE CONSIDERED:
EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	



Rev 2/06

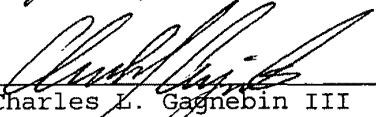
PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application : Leon Bruckman
Application No. : 10/933,572
Filed : September 3, 2004
Confirmation No. : 3628
For : MULTIPOINT TO MULTIPOINT COMMUNICATION OVER RING
TOPOLOGIES
Attorney's Docket : COLB-125XX

TC Art Unit: 2661

I hereby certify that this correspondence is being deposited with the
United States Postal Service as first class mail in an envelope
addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box
1450, Alexandria, VA 22313-1450 on 1-23-7.

By: 
Charles L. Gagnebin III
Registration No. 25,467
Attorney for Applicant

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

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

Sir:

It is desired to cite for the record in this application the
enclosed references listed on the attached copy of PTO Form #1449. The
paragraph(s) marked below are applicable to this Information Disclosure
Statement.

[] (1) Pursuant to 37 C.F.R. § 1.97(b)(1) and (2), the attached
Information Disclosure Statement is being filed within three
months of the filing date of the above identified national
application or within three months of the date of entry of the
national stage as set forth in 37 C.F.R. § 1.491 of the above
identified application. Accordingly, applicant(s) believes that
no fee or statement under 37 C.F.R. § 1.97(e) is required.

-1-

WEINGARTEN, SCHURGIN,
GAGNEBIN & LEBOVICI LLP
TEL. (617) 542-2290
FAX. (617) 451-0313

Arista Networks, Inc.
Ex. 1002, p. 61

- [X] (2) Pursuant to 37 C.F.R. § 1.97(b)(3), applicant(s) believes the attached Information Disclosure Statement is being filed before the mailing date of a first Office action on the merits. Accordingly, applicant(s) believes that no fee or statement under 37 C.F.R. § 1.97(e) is required.
- [] (3) Pursuant to 37 C.F.R. § 1.97(b)(4), applicant(s) believes the attached Information Disclosure Statement is being filed before the mailing date of a first Office action after the filing of a request for continued examination under § 1.114. Accordingly, applicant(s) believes that no fee or statement under 37 C.F.R. § 1.97(e) is required.
- [] (4) Pursuant to 37 C.F.R. § 1.97(c), the attached Information Disclosure Statement is being filed before the mailing date of a final action or a notice of allowance and is accompanied by:
[] a statement under 37 CFR § 1.97(e); or
[] the fee set forth in § 1.17(p).

PETITION UNDER 37 CFR § 1.97(d)

- [] (5) Pursuant to 37 CFR § 1.97(d), applicant(s) hereby petitions the Commissioner to consider the attached Information Disclosure Statement which is being filed on or before payment of the issue fee. This petition is accompanied by a statement under 37 C.F.R. § 1.97(e) and the petition fee set forth in 37 C.F.R. § 1.17(p).

STATEMENT UNDER 37 C.F.R. § 1.97(e)(1)

- [] (6) The undersigned hereby states that each item of information contained in the attached Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement.

STATEMENT UNDER 37 C.F.R. § 1.97(e)(2)

- [] (7) The undersigned hereby states that no item of information contained in the attached Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to the knowledge of the undersigned after making reasonable inquiry, no item of information contained in the attached Information Disclosure

Application No.: 10/933,572
Filed: September 3, 2004
TC Art Unit: 2661
Confirmation No.: 3628

Statement was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this Information Disclosure Statement.

Where the status of the application has changed, unknown to the applicant, such that the boxes checked are no longer applicable, the Commissioner is authorized to accept this submission with any additional fees required by that change charged to Deposit Account No. 23-0804.

The filing of this Information Disclosure Statement is not a representation by the undersigned as to personal knowledge of the contents of every word or phrase of the material enclosed or that reliance on other suitably trained professionals has not been made. The filing of this Information Disclosure Statement is not to be construed to be an admission that the information cited herewith is, or is considered to be, material to patentability as defined in 37 CFR §1.56(b), or that Applicant(s) is(are) unable to provide an affidavit under 37 CFR §1.131 swearing back of such information.

If a search report of a searching agency is enclosed identifying the nature of the relevance of each document, such a designation is deemed to satisfy 37 C.F.R. § 1.98(a)(3) even if in a foreign language because the codes are the same in all languages. However, applicant(s) does not necessarily adopt the position reflected by that report.

These references were cited in an Office Action (copy enclosed) dated August 10, 2006 in U.S. Patent Application No. 09/935,970.

Application No.: 10/933,572
Filed: September 3, 2004
TC Art Unit: 2661
Confirmation No.: 3628

The Commissioner is hereby authorized to charge payment of any additional fees associated with this communication or credit any overpayment to Deposit Account No. 23-0804. Triplicate copies of this letter are enclosed.

Respectfully submitted,

LEON BRUCKMAN

By: 
Charles L. Gagnebin III
Registration No. 25,467
Attorney for Applicant

WEINGARTEN, SCHURGIN,
GAGNEBIN & LEBOVICI LLP
Ten Post Office Square
Boston, Massachusetts 02109
Telephone: (617) 542-2290
Telecopier: (617) 451-0313

Enclosure

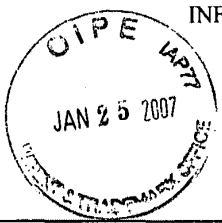
347079.1

- 4 -

WEINGARTEN, SCHURGIN,
GAGNEBIN & LEBOVICI LLP
TEL (617) 542-2290
FAX (617) 451-0313

Arista Networks, Inc.
Ex. 1002, p. 64

Date: January 23, 2007
Page 1 of 1

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE INFORMATION DISCLOSURE CITATION <i>(Use several sheets if necessary)</i>				ATTY. DOCKET NO. COLB-125XX		APPLICATION NO. 10/933,572	
				APPLICANT: Leon Bruckman			
				FILING DATE September 3, 2004		TC ART UNIT 2661	
U.S. PATENT DOCUMENTS							
EXAMINER INITIAL	DOCUMENT NUMBER	PUBLICATION/ ISSUE DATE	NAME	CLASS	SUBCLASS	FILING DATE	
	US6,507,577	1/14/2003	Mauger et al.	370	356		
	US6,522,627	2/18/2003	Mauger	370	230		
	US6,778,494	8/17/2004	Mauger	370	230		
	US						
	US						
	US						
	US						
FOREIGN PATENT DOCUMENTS							
	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO	
OTHER DOCUMENTS <i>(including Author, Title, Date, Pertinent Pages, etc.)</i>							
EXAMINER				DATE CONSIDERED			
*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.							



DFV

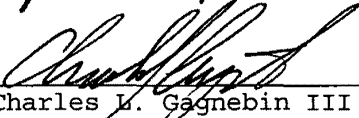
PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application : Leon Bruckman
Application No. : 10/933,572
Filed : September 3, 2004
Confirmation No. : 3628
For : MULTIPOINT TO MULTIPOINT COMMUNICATION OVER RING
TOPOLOGIES
Attorney's Docket : COLB-125XX

TC Art Unit: 2661

I hereby certify that this correspondence is being deposited with the
United States Postal Service as first class mail in an envelope
addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box
1450, Alexandria, VA 22313-1450 on 1-12-7.

By: 
Charles L. Gagnebin III
Registration No. 25,467
Attorney for Applicant

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

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

Sir:

It is desired to cite for the record in this application the
enclosed references listed on the attached copy of PTO Form #1449. The
paragraph(s) marked below are applicable to this Information Disclosure
Statement.

[] (1) Pursuant to 37 C.F.R. § 1.97(b)(1) and (2), the attached
Information Disclosure Statement is being filed within three
months of the filing date of the above identified national
application or within three months of the date of entry of the
national stage as set forth in 37 C.F.R. § 1.491 of the above
identified application. Accordingly, applicant(s) believes that
no fee or statement under 37 C.F.R. § 1.97(e) is required.

-1-

WEINGARTEN, SCHURGIN,
GAGNEBIN & LEBOVICI LLP
TEL. (617) 542-2290
FAX. (617) 451-0313

Arista Networks, Inc.
Ex. 1002, p. 66

Application No.: 10/933,572
Filed: September 3, 2004
TC Art Unit: 2661
Confirmation No.: 3628

- ☒ (2) Pursuant to 37 C.F.R. § 1.97(b)(3), applicant(s) believes the attached Information Disclosure Statement is being filed before the mailing date of a first Office action on the merits. Accordingly, applicant(s) believes that no fee or statement under 37 C.F.R. § 1.97(e) is required.
- ☐ (3) Pursuant to 37 C.F.R. § 1.97(b)(4), applicant(s) believes the attached Information Disclosure Statement is being filed before the mailing date of a first Office action after the filing of a request for continued examination under § 1.114. Accordingly, applicant(s) believes that no fee or statement under 37 C.F.R. § 1.97(e) is required.
- ☐ (4) Pursuant to 37 C.F.R. § 1.97(c), the attached Information Disclosure Statement is being filed before the mailing date of a final action or a notice of allowance and is accompanied by:
☐ a statement under 37 CFR § 1.97(e); or
☐ the fee set forth in § 1.17(p).

PETITION UNDER 37 CFR § 1.97(d)

- ☐ (5) Pursuant to 37 CFR § 1.97(d), applicant(s) hereby petitions the Commissioner to consider the attached Information Disclosure Statement which is being filed on or before payment of the issue fee. This petition is accompanied by a statement under 37 C.F.R. § 1.97(e) and the petition fee set forth in 37 C.F.R. § 1.17(p).

STATEMENT UNDER 37 C.F.R. § 1.97(e)(1)

- ☐ (6) The undersigned hereby states that each item of information contained in the attached Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement.

STATEMENT UNDER 37 C.F.R. § 1.97(e)(2)

- ☐ (7) The undersigned hereby states that no item of information contained in the attached Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to the knowledge of the undersigned after making reasonable inquiry, no item of information contained in the attached Information Disclosure

Application No.: 10/933,572
Filed: September 3, 2004
TC Art Unit: 2661
Confirmation No.: 3628

Statement was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this Information Disclosure Statement.

Where the status of the application has changed, unknown to the applicant, such that the boxes checked are no longer applicable, the Commissioner is authorized to accept this submission with any additional fees required by that change charged to Deposit Account No. 23-0804.

The filing of this Information Disclosure Statement is not a representation by the undersigned as to personal knowledge of the contents of every word or phrase of the material enclosed or that reliance on other suitably trained professionals has not been made. The filing of this Information Disclosure Statement is not to be construed to be an admission that the information cited herewith is, or is considered to be, material to patentability as defined in 37 CFR §1.56(b), or that Applicant(s) is(are) unable to provide an affidavit under 37 CFR §1.131 swearing back of such information.

If a search report of a searching agency is enclosed identifying the nature of the relevance of each document, such a designation is deemed to satisfy 37 C.F.R. § 1.98(a)(3) even if in a foreign language because the codes are the same in all languages. However, applicant(s) does not necessarily adopt the position reflected by that report.

Application No.: 10/933,572
Filed: September 3, 2004
TC Art Unit: 2661
Confirmation No.: 3628

The Commissioner is hereby authorized to charge payment of any additional fees associated with this communication or credit any overpayment to Deposit Account No. 23-0804. Triplicate copies of this letter are enclosed.

Respectfully submitted,

LEON BRUCKMAN

By: 
Charles L. Gagnebin III
Registration No. 25,467
Attorney for Applicant

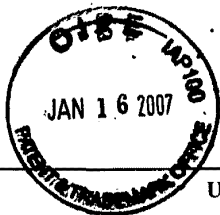
WEINGARTEN, SCHURGIN,
GAGNEBIN & LEOVICI LLP
Ten Post Office Square
Boston, Massachusetts 02109
Telephone: (617) 542-2290
Telecopier: (617) 451-0313

Enclosure
346671.1

- 4 -

WEINGARTEN, SCHURGIN,
GAGNEBIN & LEOVICI LLP
TEL (617) 542-2290
FAX (617) 451-0313

Arista Networks, Inc.
Ex. 1002, p. 69



Date: January 12, 2007
Page 1 of 1

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE INFORMATION DISCLOSURE CITATION <i>(Use several sheets if necessary)</i>				ATTY. DOCKET NO. COLB-125XX		APPLICATION NO. 10/933,572	
				APPLICANT: Leon Bruckman			
				FILING DATE September 3, 2004		TC ART UNIT 2661	
U.S. PATENT DOCUMENTS							
EXAMINER INITIAL	DOCUMENT NUMBER	PUBLICATION/ ISSUE DATE	NAME	CLASS	SUBCLASS	FILING DATE	
	US6,510,141	1/2003	Ramfelt et al.	370	254		
	US6,992,975	1/2006	Daniel et al.	370	222		
	US6,952,397	10/2005	Mor et al.	370	223		
	US7,035,279	4/2006	Bruckman	370	460		
	US						
	US						
	US						
FOREIGN PATENT DOCUMENTS							
	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO	
OTHER DOCUMENTS <i>(including Author, Title, Date, Pertinent Pages, etc.)</i>							
	An Official Action dated September 29, 2006, which issued during the prosecution of Applicant's U.S. Application No. 10/211,066.						
EXAMINER				DATE CONSIDERED			
*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.							



Ifw

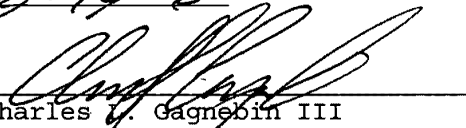
PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application : LEON BRUCKMAN
Application No. : 10/933,572
Filed : September 3, 2004
Confirmation No. : 3628
For : MULTIPOINT TO MULTIPOINT COMMUNICATION OVER RING
TOPOLOGIES
Examiner :
Attorney's Docket : COLB-125XX

TC Art Unit: 2661

I hereby certify that this correspondence is being deposited with the
United States Postal Service as first class mail in an envelope
addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box
1450, Alexandria, VA 22313-1450 on 6-19-6.

By: 
Charles W. Gagnebin III
Registration No. 25,467
Attorney for Applicant

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

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

Sir:

It is desired to cite for the record in this application the
enclosed references listed on the attached copy of PTO Form #1449. The
paragraph(s) marked below are applicable to this Information Disclosure
Statement.

- [] (1) Pursuant to 37 C.F.R. § 1.97(b)(1) and (2), the attached
Information Disclosure Statement is being filed within three
months of the filing date of the above identified national
application or within three months of the date of entry of the
national stage as set forth in 37 C.F.R. § 1.491 of the above
identified application. Accordingly, applicant(s) believes that
no fee or statement under 37 C.F.R. § 1.97(e) is required.

-1-

WEINGARTEN, SCHURGIN,
GAGNEBIN & LEBOVICI LLP
TEL. (617) 542-2290
FAX. (617) 451-0313

Arista Networks, Inc.
Ex. 1002, p. 71

Application No.: 10/933,572
Filed: September 3, 2004
TC Art Unit: 2661
Confirmation No.: 3628

- [X] (2) Pursuant to 37 C.F.R. § 1.97(b)(3), applicant(s) believes the attached Information Disclosure Statement is being filed before the mailing date of a first Office action on the merits. Accordingly, applicant(s) believes that no fee or statement under 37 C.F.R. § 1.97(e) is required.
- [] (3) Pursuant to 37 C.F.R. § 1.97(b)(4), applicant(s) believes the attached Information Disclosure Statement is being filed before the mailing date of a first Office action after the filing of a request for continued examination under § 1.114. Accordingly, applicant(s) believes that no fee or statement under 37 C.F.R. § 1.97(e) is required.
- [] (4) Pursuant to 37 C.F.R. § 1.97(c), the attached Information Disclosure Statement is being filed before the mailing date of a final action or a notice of allowance and is accompanied by:
[] a statement under 37 CFR § 1.97(e); or
[] the fee set forth in § 1.17(p).

PETITION UNDER 37 CFR § 1.97(d)

- [] (5) Pursuant to 37 CFR § 1.97(d), applicant(s) hereby petitions the Commissioner to consider the attached Information Disclosure Statement which is being filed on or before payment of the issue fee. This petition is accompanied by a statement under 37 C.F.R. § 1.97(e) and the petition fee set forth in 37 C.F.R. § 1.17(p).

STATEMENT UNDER 37 C.F.R. § 1.97(e)(1)

- [] (6) The undersigned hereby states that each item of information contained in the attached Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement.

STATEMENT UNDER 37 C.F.R. § 1.97(e)(2)

- [] (7) The undersigned hereby states that no item of information contained in the attached Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to the knowledge of the undersigned after making reasonable inquiry, no item of information contained in the attached Information Disclosure Statement was known to any individual designated in 37 C.F.R. §

Application No.: 10/933,572
Filed: September 3, 2004
TC Art Unit: 2661
Confirmation No.: 3628

1.56(c) more than three months prior to the filing of this Information Disclosure Statement.

Where the status of the application has changed, unknown to the applicant, such that the boxes checked are no longer applicable, the Commissioner is authorized to accept this submission with any additional fees required by that change charged to Deposit Account No. 23-0804.

The filing of this Information Disclosure Statement is not a representation by the undersigned as to personal knowledge of the contents of every word or phrase of the material enclosed or that reliance on other suitably trained professionals has not been made. The filing of this Information Disclosure Statement is not to be construed to be an admission that the information cited herewith is, or is considered to be, material to patentability as defined in 37 CFR §1.56(b), or that Applicant(s) is(are) unable to provide an affidavit under 37 CFR §1.131 swearing back of such information.

If a search report of a searching agency is enclosed identifying the nature of the relevance of each document, such a designation is deemed to satisfy 37 C.F.R. § 1.98(a)(3) even if in a foreign language because the codes are the same in all languages. However, applicant(s) does not necessarily adopt the position reflected by that report.

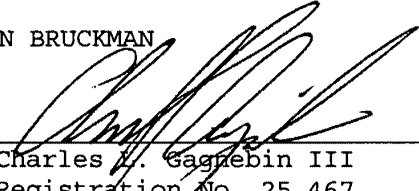
These references were cited by the Examiner in an Office Action dated March 21, 2006 (copy enclosed) which issued during the prosecution of Applicant's U.S. Patent Application No. 10/128,454 filed April 24, 2002.

Application No.: 10/933,572
Filed: September 3, 2004
TC Art Unit: 2661
Confirmation No.: 3628

The Commissioner is hereby authorized to charge payment of any additional fees associated with this communication or credit any overpayment to Deposit Account No. 23-0804. Triplicate copies of this letter are enclosed.

Respectfully submitted,

LEON BRUCKMAN

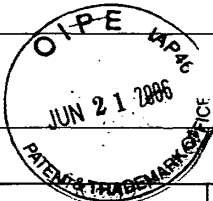
By: 

Charles A. Gagnebin III
Registration No. 25,467
Attorney for Applicant

WEINGARTEN, SCHURGIN,
GAGNEBIN & LEOVICI LLP
Ten Post Office Square
Boston, Massachusetts 02109

Telephone: (617) 542-2290
Telecopier: (617) 451-0313

CLG/mes/337787.1
Enclosure

FORM PTO-1449 (Colb)	ATTY DOCKET NO. COLB-125XX	SERIAL NUMBER 10/933,572
LIST OF PATENTS AND PUBLICATIONS FOR APPLICANTS' INFORMATION STATEMENT	APPLICANT Leon BRUCKMAN	EXAMINER (N/A)
	FILING DATE September 3, 2004	GROUP ART UNIT 2661

U.S. PATENT DOCUMENTS

Examiner's Initials		DOCUMENT NO.	DATE	NAME	CLASS	SUB	FILING DATE
	AA	2002/0186661	12-2002	Santiago, et al.			
	AB	6,826,147	11-2004	Nandy, et al.			
	AC	2003/0055920	03-2003	Kakadia, et al.			
	AD						
	AE						
	AF						
	AG						
	AH						
	AI						

FOREIGN PATENT DOCUMENTS

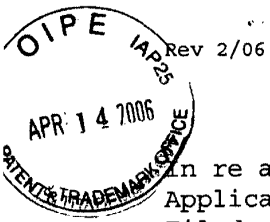
		DOCUMENT NO.	DATE	COUNTRY	CLASS	SUB	TRANS- LATION
	AJ						

OTHER ART (Including Author, Bills, Pertinent Pages, Etc.)

	AK	*Office Action dated March 21, 2006 which issued in Applicant's U.S. Pat. Appln. No. 10/128,454 filed April 24, 2002.
	AL	
	AM	
EXAMINER:		DATE CONSIDERED:
EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.		

*Office Action enclosed.

JAW



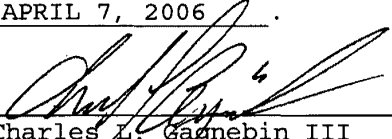
PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application : LEON BRUCKMAN
Application No. : 10/933,572
Filed : September 3, 2004
Confirmation No. : 3628
For : MULTIPOINT TO MULTIPOINT COMMUNICATION OVER RING
TOPOLOGIES
Examiner :
Attorney's Docket : COLB-125XX

TC Art Unit: 2661

I hereby certify that this correspondence is being deposited with the
United States Postal Service as first class mail in an envelope
addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box
1450, Alexandria, VA 22313-1450 on APRIL 7, 2006.

By: 
Charles L. Gagnebin III
Registration No. 25,467
Attorney for Applicant

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

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

Sir:

It is desired to cite for the record in this application the
enclosed references listed on the attached copy of PTO Form #1449. The
paragraph(s) marked below are applicable to this Information Disclosure
Statement.

[] (1) Pursuant to 37 C.F.R. § 1.97(b)(1) and (2), the attached
Information Disclosure Statement is being filed within three
months of the filing date of the above identified national
application or within three months of the date of entry of the
national stage as set forth in 37 C.F.R. § 1.491 of the above
identified application. Accordingly, applicant(s) believes that
no fee or statement under 37 C.F.R. § 1.97(e) is required.

Application No.: 10/933,572
Filed: September 3, 2004
TC Art Unit: 2661
Confirmation No.: 3628

- [X] (2) Pursuant to 37 C.F.R. § 1.97(b)(3), applicant(s) believes the attached Information Disclosure Statement is being filed before the mailing date of a first Office action on the merits. Accordingly, applicant(s) believes that no fee or statement under 37 C.F.R. § 1.97(e) is required.
- [] (3) Pursuant to 37 C.F.R. § 1.97(b)(4), applicant(s) believes the attached Information Disclosure Statement is being filed before the mailing date of a first Office action after the filing of a request for continued examination under § 1.114. Accordingly, applicant(s) believes that no fee or statement under 37 C.F.R. § 1.97(e) is required.
- [] (4) Pursuant to 37 C.F.R. § 1.97(c), the attached Information Disclosure Statement is being filed before the mailing date of a final action or a notice of allowance and is accompanied by:
[] a statement under 37 CFR § 1.97(e); or
[] the fee set forth in § 1.17(p).

PETITION UNDER 37 CFR § 1.97(d)

- [] (5) Pursuant to 37 CFR § 1.97(d), applicant(s) hereby petitions the Commissioner to consider the attached Information Disclosure Statement which is being filed on or before payment of the issue fee. This petition is accompanied by a statement under 37 C.F.R. § 1.97(e) and the petition fee set forth in 37 C.F.R. § 1.17(p).

STATEMENT UNDER 37 C.F.R. § 1.97(e)(1)

- [] (6) The undersigned hereby states that each item of information contained in the attached Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement.

STATEMENT UNDER 37 C.F.R. § 1.97(e)(2)

- [] (7) The undersigned hereby states that no item of information contained in the attached Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to the knowledge of the undersigned after making reasonable inquiry, no item of information contained in the attached Information Disclosure Statement was known to any individual designated in 37 C.F.R. §

Application No.: 10/933,572
Filed: September 3, 2004
TC Art Unit: 2661
Confirmation No.: 3628

1.56(c) more than three months prior to the filing of this Information Disclosure Statement.

Where the status of the application has changed, unknown to the applicant, such that the boxes checked are no longer applicable, the Commissioner is authorized to accept this submission with any additional fees required by that change charged to Deposit Account No. 23-0804.

The filing of this Information Disclosure Statement is not a representation by the undersigned as to personal knowledge of the contents of every word or phrase of the material enclosed or that reliance on other suitably trained professionals has not been made. The filing of this Information Disclosure Statement is not to be construed to be an admission that the information cited herewith is, or is considered to be, material to patentability as defined in 37 CFR §1.56(b), or that Applicant(s) is(are) unable to provide an affidavit under 37 CFR §1.131 swearing back of such information.

If a search report of a searching agency is enclosed identifying the nature of the relevance of each document, such a designation is deemed to satisfy 37 C.F.R. § 1.98(a)(3) even if in a foreign language because the codes are the same in all languages. However, applicant(s) does not necessarily adopt the position reflected by that report.

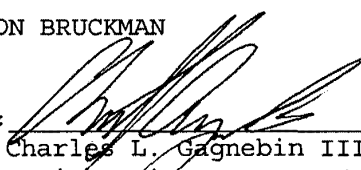
These references were cited by the Examiner in an Office Action dated November 28, 2005 (copy enclosed) which issued during the prosecution of US Assignee's/Israeli Applicant's U.S. Patent Application No. 10/054,845 filed January 25, 2002.

Application No.: 10/933,572
Filed: September 3, 2004
TC Art Unit: 2661
Confirmation No.: 3628

The Commissioner is hereby authorized to charge payment of any additional fees associated with this communication or credit any overpayment to Deposit Account No. 23-0804. Triplicate copies of this letter are enclosed.

Respectfully submitted,

LEON BRUCKMAN

By: 

Charles L. Gagnebin III
Registration No. 25,467
Attorney for Applicant

WEINGARTEN, SCHURGIN,
GAGNEBIN & LEOVICI LLP
Ten Post Office Square
Boston, Massachusetts 02109

Telephone: (617) 542-2290
Telecopier: (617) 451-0313

CLG/mc
Enclosure

334776.1

- 4 -

WEINGARTEN, SCHURGIN,
GAGNEBIN & LEOVICI LLP
TEL (617) 542-2290
FAX (617) 451-0313

Arista Networks, Inc.
Ex. 1002, p. 79



FORM PTO-1449 (Colb)	ATTY DOCKET NO. COLB-125XX	SERIAL NUMBER 10/933,572
LIST OF PATENTS AND PUBLICATIONS FOR APPLICANTS' INFORMATION STATEMENT	APPLICANT Leon BRUCKMAN	EXAMINER (N/A)
	FILING DATE September 3, 2004	GROUP ART UNIT 2661

U.S. PATENT DOCUMENTS

Examiner's Initials		DOCUMENT NO.	DATE	NAME	CLASS	SUB	FILING DATE
	AA	6,678,241	01-2004	Gai, et al.			
	AB	6,370,121	04-2002	Hausman			
	AC	6,801,506	10-2004	Dey			
	AD	2003/0002443	01-2003	Basso, et al.			
	AE	6,757,286	06-2004	Stone			
	AF	6,922,394	07-2005	Kajiwara			
	AG	6,934,259	08-2005	Klincewicz, et al.			
	AH	6,826,158	11-2004	Seaman, et al.			
	AI	2004/0071089	04-2004	Bauer, et al.			

FOREIGN PATENT DOCUMENTS

		DOCUMENT NO.	DATE	COUNTRY	CLASS	SUB	TRANS- LATION
	AJ						

OTHER ART (Including Author, Bills, Pertinent Pages, Etc.)

AK	Official Action dated November 28, 2005, which issued during the prosecution of US Assignee/Israeli Applicant's US Patent Application No. 10/054,845 filed January 25, 2002.
EXAMINER:	DATE CONSIDERED:
EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	



Rev 9/04

PATENT

UNITED STATES PATENT AND TRADEMARK OFFICE

In re application : Leon Bruckman
Application No. : 10/933,572
Filed : September 3, 2004
Confirmation No. : 3628
For : MULTIPOINT TO MULTIPOINT COMMUNICATION OVER RING
TOPOLOGIES
Examiner :
Attorney's Docket : COLB-125XX

TC Art Unit: 2661

I hereby certify that this correspondence is being deposited with the
United States Postal Service as first class mail in an envelope
addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box
1450, Alexandria, VA 22313-1450 on 8-12-05.

By: Charles L. Gagnebin III
Charles L. Gagnebin III
Registration No. 25,467
Attorney for Applicant

INFORMATION DISCLOSURE STATEMENT

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

Sir:

It is desired to cite for the record in this application the
enclosed references listed on the attached copy of PTO Form #1449. The
paragraph(s) marked below are applicable to this Information Disclosure
Statement.

[] (1) Pursuant to 37 C.F.R. § 1.97(b)(1) and (2), the attached
Information Disclosure Statement is being filed within three
months of the filing date of the above identified national
application or within three months of the date of entry of the
national stage as set forth in 37 C.F.R. § 1.491 of the above
identified application. Accordingly, applicant(s) believes that
no fee or statement under 37 C.F.R. § 1.97(e) is required.

-1-

WEINGARTEN, SCHURGIN,
GAGNEBIN & LEBOVICI LLP
TEL. (617) 542-2290
FAX. (617) 451-0313

Arista Networks, Inc.
Ex. 1002, p. 81

Application No.: 10/933,572
Filed: September 3, 2004
TC Art Unit: 2661
Confirmation No.: 3628

- ☒ (2) Pursuant to 37 C.F.R. § 1.97(b)(3), applicant(s) believes the attached Information Disclosure Statement is being filed before the mailing date of a first Office action on the merits. Accordingly, applicant(s) believes that no fee or statement under 37 C.F.R. § 1.97(e) is required.
- ☐ (3) Pursuant to 37 C.F.R. § 1.97(b)(4), applicant(s) believes the attached Information Disclosure Statement is being filed before the mailing date of a first Office action after the filing of a request for continued examination under § 1.114. Accordingly, applicant(s) believes that no fee or statement under 37 C.F.R. § 1.97(e) is required.
- ☐ (4) Pursuant to 37 C.F.R. § 1.97(c), the attached Information Disclosure Statement is being filed before the mailing date of a final action or a notice of allowance and is accompanied by:
- ☐ a statement under 37 CFR § 1.97(e); or
 - ☐ the fee set forth in § 1.17(p).

PETITION UNDER 37 CFR § 1.97(d)

- ☐ (5) Pursuant to 37 CFR § 1.97(d), applicant(s) hereby petitions the Commissioner to consider the attached Information Disclosure Statement which is being filed on or before payment of the issue fee. This petition is accompanied by a statement under 37 C.F.R. § 1.97(e) and the petition fee set forth in 37 C.F.R. § 1.17(p).

STATEMENT UNDER 37 C.F.R. § 1.97(e)(1)

- ☐ (6) The undersigned hereby states that each item of information contained in the attached Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement.

STATEMENT UNDER 37 C.F.R. § 1.97(e)(2)

- ☐ (7) The undersigned hereby states that no item of information contained in the attached Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to the knowledge of the undersigned after making reasonable inquiry, no item of information contained in the attached Information Disclosure Statement was known to any individual designated in 37 C.F.R. §

- 2 -

Application No.: 10/933,572
Filed: September 3, 2004
TC Art Unit: 2661
Confirmation No.: 3628

1.56(c) more than three months prior to the filing of this Information Disclosure Statement.

Where the status of the application has changed, unknown to the applicant, such that the boxes checked are no longer applicable, the Commissioner is authorized to accept this submission with any additional fees required by that change charged to Deposit Account No. 23-0804.

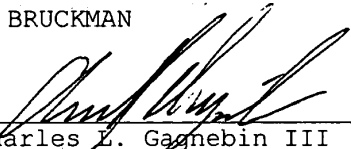
The filing of this Information Disclosure Statement is not a representation by the undersigned as to personal knowledge of the contents of every word or phrase of the material enclosed or that reliance on other suitably trained professionals has not been made.

If a search report of a searching agency is enclosed identifying the nature of the relevance of each document, such a designation is deemed to satisfy 37 C.F.R. § 1.98(a)(3) even if in a foreign language because the codes are the same in all languages. However, applicant(s) does not necessarily adopt the position reflected by that report.

The Commissioner is hereby authorized to charge payment of any additional fees associated with this communication or credit any overpayment to Deposit Account No. 23-0804. Triplicate copies of this letter are enclosed.

Respectfully submitted,

LEON BRUCKMAN

By: 
Charles E. Gagnebin III
Registration No. 25,467
Attorney for Applicant

WEINGARTEN, SCHURGIN,
GAGNEBIN & LEOVICI LLP
Ten Post Office Square
Boston, Massachusetts 02109

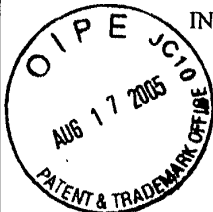
Telephone: (617) 542-2290
Telecopier: (617) 451-0313

CLG/mfc/325257-1
/Enclosure

- 3 -

Date: August 12, 2005

Page 1 of 2

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE INFORMATION DISCLOSURE CITATION <i>(Use several sheets if necessary)</i>				ATTY. DOCKET NO. COLB-125XX		APPLICATION NO. 10/933,572	
				APPLICANT: Leon Bruckman			
				FILING DATE September 3, 2004		TC ART UNIT 2661	
U.S. PATENT DOCUMENTS							
EXAMINER INITIAL	DOCUMENT NUMBER	PUBLICATION/ ISSUE DATE	NAME	CLASS	SUBCLASS	FILING DATE	
	US 6,442,134	08/2002	Mitchell				
	US 6,680,912	01/2004	Kalman, et al.				
	US 6,711,125	03/2004	Walrand, et al.				
	US 6,795,394	09/2004	Swinkels, et al.				
	US 6,820,210	11/2004	Daruwalla, et al.				
	US 6,256,292	07/2001	Ellis, et al.				
	US 6,731,597	05/2004	Batchellor, et al.				
FOREIGN PATENT DOCUMENTS							
	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO	
OTHER DOCUMENTS <i>(including Author, Title, Date, Pertinent Pages, etc.)</i>							
	* Moy, "OSPF", Version 2, published as Request for Comments (RFC) 2328 of the Internet Engineering Task Force (IETF) Network Working Group, April 1998.						
	* Awduche, et al., "Requirement for Traffic Engineering Over MPLS", published as IETF RFC 2702, September 1999.						
	* Blake, S. et al., "Architecture for Differentiated Services", Internet Engineering Task Force, Network Working Group, RFC 2457, December 1998.						
	* Seddigh, N. et al., "An Assured Rate Per-Domain Behaviour for Differentiated Services", Internet Engineering Task Force, Network Working Group, July 2001.						
	* D. Tsiang et al., Request for Comments (RFC) 2892 of the Internet Engineering Task Force (IETF), August 2000.						
	* Braden, et al., in IETF RFC 2205, "Resource ReServation Protocol (RSVP) – Version 1 Functional Specification", September 1997.						
EXAMINER				DATE CONSIDERED			
*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.							

*** ARTICLES ENCLOSED**

Arista Networks, Inc.

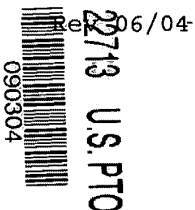
Ex. 1002, p. 84

Date: August 12, 2005
Page 2 of 2

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE INFORMATION DISCLOSURE CITATION <i>(Use several sheets if necessary)</i>				ATTY. DOCKET NO. COLB-125XX	APPLICATION NO. 10/933,572		
				APPLICANT: Leon Bruckman			
				FILING DATE September 3, 2004		TC ART UNIT 2661	
U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	PUBLICATION/ ISSUE DATE	NAME	CLASS	SUBCLASS	FILING DATE
		US 6,456,407	09/2002	Tammela, et al.			
		US 6,647,008	11/2003	Galand, et al.			
		US 6,584,535	06/2003	Ouellet, et al.			
		US 6,400,681	06/2002	Bertin, et al.			
		US 6,021,263	02/2000	Kujoory, et al.			
		US 6,157,654	12/2000	Davis			
		US 5,235,593	08/1993	Grow, et al.			
		US 6,262,976	07/2001	McNamara			
		US 5,706,516	01/1998	Chang, et al.			
		US 5,461,611	10/1995	Drake, et al.			
		US 6,639,893	10/2003	Chickenji, et al.			
		US 6,339,488	01/2002	Beshai, et al.			
		US 5,581,703	12/1996	Baugher, et al.			
		US 6,639,896	10/2003	Goode, et al.			
OTHER DOCUMENTS <i>(including Author, Title, Date, Pertinent Pages, etc.)</i>							
		* Andersson, et al., in IETF RFC 3036, "LDP Specification" January 2001.					
		* Yavatkar et al., RFC 2814 "A Protocol for RSVP – Based Admission Control Over IEEE 802-Style Networks", May 2000, pp. 1-56.					
EXAMINER				DATE CONSIDERED			
*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.							

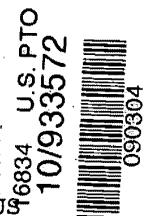
CLG/mfc/325252-1

*** ARTICLES ENCLOSED**

TRANSMITTAL FORM FOR FILING PATENT APPLICATION

Attorney Docket No.: COLB-125XX

WEINGARTEN, SCHURGIN, GAGNEBIN & LEOVICI LLP
Ten Post Office Square
Boston, Massachusetts 02109
Telephone: (617) 542-2290
Telecopier: (617) 451-0313



Express Mail No: EV 223344455 US
Date: September 3, 2004

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

First Named Inventor or Application
Identifier: Leon Bruckman

Sir:

Transmitted herewith under 37 CFR § 1.53 and 35 USC §111(a) for filing is the patent application of:

Inventor: Leon Bruckman

Entitled: MULTIPOINT TO MULTIPOINT COMMUNICATION OVER RING TOPOLOGIES

☐ This is a request for filing a ☐ continuation ☐ divisional
☐ continuation in-part application under §1.53(b) of prior Application
No. _____, filed _____, entitled:

Enclosed are:

- ☒ 37 pages of written description, claims and Abstract, inclusive
- ☒ 4 sheets of ☐ informal ☒ formal drawings of Figs. 1-5 (one set)
- ☒ Oath or Declaration
- ☒ Newly executed (original or copy)
- ☐ Copy from prior application (37 CFR 1.63(d)) (for continuation/divisional). The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied, is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein.
- ☐ To be filed later
- ☐ Cover sheet and Assignment of the invention to:
including a check in the amount of \$_____ for recordation fee.
- ☐ Certified copy of a _____ application (if foreign priority is claimed) with letter claiming priority under Rule 55.
- ☐ Information Disclosure Statement with _____ citations enclosed.
- ☐ Preliminary amendment is enclosed.
- ☒ Return receipt postcard

WEINGARTEN, SCHURGIN,
GAGNEBIN & LEOVICI LLP
TEL (617) 542-2290
FAX (617) 451-0313

TRANSMITTAL FORM FOR FILING PATENT APPLICATION (CONTINUED)

☒ Small entity status is entitled to be, and hereby is, asserted for this application.

☐ Other:

☐ Priority is claimed under 35 USC § 120 of prior Application(s)
No. _____ filed _____, entitled:

☐ The above-identified application(s) is/are assigned of record to:

☐ Priority is claimed under 35 USC § 119 (a)-(d) of the following application(s).

_____ (Application Number)	_____ (Country)	_____ (Filing Date)
-------------------------------	--------------------	------------------------

_____ (Application Number)	_____ (Country)	_____ (Filing Date)
-------------------------------	--------------------	------------------------

_____ (Application Number)	_____ (Country)	_____ (Filing Date)
-------------------------------	--------------------	------------------------

☐ The above-identified application(s) is/are assigned of record to:

☐ Priority is claimed under 35 USC § 119 (e) of the following provisional application(s).

_____ (Application Number)	_____ (Filing Date)
-------------------------------	------------------------

_____ (Application Number)	_____ (Filing Date)
-------------------------------	------------------------

_____ (Application Number)	_____ (Filing Date)
-------------------------------	------------------------

☐ The above-identified provisional application(s) is/are assigned of record to:

Attorney Docket No.: COLB-125XX

TRANSMITTAL FORM FOR FILING PATENT APPLICATION (CONTINUED)

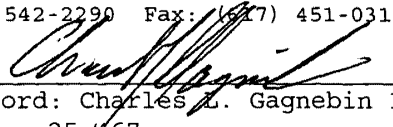
- ☐ Power of Attorney has been granted to practitioners associated with Customer Number 207 (copy enclosed).
- ☐ Cancel in this application original claims _____ of the prior application before calculating the filing fee.
- ☐ Add in this application claims _____ per amendment before calculating fee.

CLAIMS FILED:	MINUS BASE:	EXTRA CLAIMS:	RATE:	BASIC FEE:
				\$770.00
Independent	5 - 3	= 2	x \$86.00 =	\$172.00
Total	30 - 20	= 10	x \$18.00 =	\$180.00
☐ Multiple Dependent Claims (1st presentation)			+ \$290.00 =	0
SUBTOTAL FILING FEE				\$1,122.00
Small Entity filing, divide by 2. (Small Entity status must be asserted.)				\$561.00
TOTAL FILING FEE				\$561.00

- ☒ The filing fee has been calculated above; a check in the amount of \$561.00 is enclosed.
- ☐ The filing fee will be submitted at a later date.
- ☒ In the event a Petition for Extension of Time under 37 CFR \$1.17 is required by this paper and not otherwise provided, such Petition is hereby made and authorization is provided herewith to charge Deposit Account No. 23-0804 for the cost of such extension.
- ☒ The Commissioner is hereby authorized to charge payment of any additional filing fees under 37 CFR \$1.16 associated with this communication or credit any overpayment to Deposit Account No. 23-0804.

☒ Customer Number 207

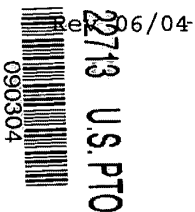
which is associated with the Law Firm of:
 WEINGARTEN, SCHURGIN, GAGNEBIN & LEBOVICI LLP
 Ten Post Office Square
 Boston, Massachusetts 02109
 United States
 Telephone: (617) 542-2290 Fax: (617) 451-0313


 Attorney of Record: Charles L. Gagnebin III
 Registration No. 25,467

SUBMIT IN TRIPLICATE

CLG/mc/310878-1

WEINGARTEN, SCHURGIN,
 GAGNEBIN & LEBOVICI LLP
 TEL (617) 542-2290
 FAX (617) 451-0313

TRANSMITTAL FORM FOR FILING PATENT APPLICATION

Attorney Docket No.: COLB-125XX

WEINGARTEN, SCHURGIN, GAGNEBIN & LEOVICI LLP
Ten Post Office Square
Boston, Massachusetts 02109
Telephone: (617) 542-2290
Telecopier: (617) 451-0313



Express Mail No: EV 223344455 US
Date: September 3, 2004

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

First Named Inventor or Application
Identifier: Leon Bruckman

Sir:

Transmitted herewith under 37 CFR § 1.53 and 35 USC §111(a) for filing is the patent application of:

Inventor: Leon Bruckman

Entitled: MULTIPOINT TO MULTIPOINT COMMUNICATION OVER RING TOPOLOGIES

☐ This is a request for filing a ☐ continuation ☐ divisional
☐ continuation in-part application under §1.53(b) of prior Application
No. _____, filed _____, entitled:

Enclosed are:

- ☒ 37 pages of written description, claims and Abstract, inclusive
- ☒ 4 sheets of ☐ informal ☒ formal drawings of Figs. 1-5 (one set)
- ☒ Oath or Declaration
- ☒ Newly executed (original or copy)
- ☐ Copy from prior application (37 CFR 1.63(d)) (for continuation/divisional). The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied, is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein.
- ☐ To be filed later
- ☐ Cover sheet and Assignment of the invention to:
including a check in the amount of \$_____ for recordation fee.
- ☐ Certified copy of a _____ application (if foreign priority is claimed) with letter claiming priority under Rule 55.
- ☐ Information Disclosure Statement with _____ citations enclosed.
- ☐ Preliminary amendment is enclosed.
- ☒ Return receipt postcard

WEINGARTEN, SCHURGIN,
GAGNEBIN & LEOVICI LLP
TEL (617) 542-2290
FAX (617) 451-0313

TRANSMITTAL FORM FOR FILING PATENT APPLICATION (CONTINUED)

☒ Small entity status is entitled to be, and hereby is, asserted for this application.

☐ Other:

☐ Priority is claimed under 35 USC § 120 of prior Application(s)
No. _____ filed _____, entitled:

☐ The above-identified application(s) is/are assigned of record to:

☐ Priority is claimed under 35 USC § 119 (a)-(d) of the following application(s).

_____ (Application Number)	_____ (Country)	_____ (Filing Date)
-------------------------------	--------------------	------------------------

_____ (Application Number)	_____ (Country)	_____ (Filing Date)
-------------------------------	--------------------	------------------------

_____ (Application Number)	_____ (Country)	_____ (Filing Date)
-------------------------------	--------------------	------------------------

☐ The above-identified application(s) is/are assigned of record to:

☐ Priority is claimed under 35 USC § 119 (e) of the following provisional application(s).

_____ (Application Number)	_____ (Filing Date)
-------------------------------	------------------------

_____ (Application Number)	_____ (Filing Date)
-------------------------------	------------------------

_____ (Application Number)	_____ (Filing Date)
-------------------------------	------------------------

☐ The above-identified provisional application(s) is/are assigned of record to:

Attorney Docket No.: COLB-125XX

TRANSMITTAL FORM FOR FILING PATENT APPLICATION (CONTINUED)

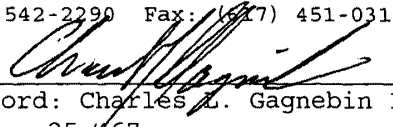
- ☐ Power of Attorney has been granted to practitioners associated with Customer Number 207 (copy enclosed).
- ☐ Cancel in this application original claims _____ of the prior application before calculating the filing fee.
- ☐ Add in this application claims _____ per amendment before calculating fee.

CLAIMS FILED:	MINUS BASE:	EXTRA CLAIMS:	RATE:	BASIC FEE:
				\$770.00
Independent	5 - 3	= 2	x \$86.00 =	\$172.00
Total	30 - 20	= 10	x \$18.00 =	\$180.00
☐ Multiple Dependent Claims (1st presentation)			+ \$290.00 =	0
SUBTOTAL FILING FEE				\$1,122.00
Small Entity filing, divide by 2. (Small Entity status must be asserted.)				\$561.00
TOTAL FILING FEE				\$561.00

- ☒ The filing fee has been calculated above; a check in the amount of \$561.00 is enclosed.
- ☐ The filing fee will be submitted at a later date.
- ☒ In the event a Petition for Extension of Time under 37 CFR \$1.17 is required by this paper and not otherwise provided, such Petition is hereby made and authorization is provided herewith to charge Deposit Account No. 23-0804 for the cost of such extension.
- ☒ The Commissioner is hereby authorized to charge payment of any additional filing fees under 37 CFR \$1.16 associated with this communication or credit any overpayment to Deposit Account No. 23-0804.

☒ Customer Number 207

which is associated with the Law Firm of:
 WEINGARTEN, SCHURGIN, GAGNEBIN & LEOVICI LLP
 Ten Post Office Square
 Boston, Massachusetts 02109
 United States
 Telephone: (617) 542-2290 Fax: (617) 451-0313


 Attorney of Record: Charles L. Gagnebin III
 Registration No. 25,467

SUBMIT IN TRIPLICATE

CLG/mc/310878-1

WEINGARTEN, SCHURGIN,
 GAGNEBIN & LEOVICI LLP
 TEL (617) 542-2290
 FAX (617) 451-0313

MULTIPOINT TO MULTIPOINT COMMUNICATION OVER RING
TOPOLOGIES

FIELD OF THE INVENTION

The present invention relates generally to data
5 communications within a network, and specifically to
optimizing bandwidth allocation for the data in the
network.

BACKGROUND OF THE INVENTION

Packet ring networks are typically significantly
10 easier to operate and administer than complex mesh or
irregular networks, and a ring network may also allow for
failure of a link between nodes of the network, if the
network is bi-directional. The leading bi-directional
protocol for high speed packet rings is the Resilient
15 Packet Ring (RPR) protocol, defined by IEEE Standard
802.17.

If services provided by the ring network do not
require guaranteed bandwidth, all nodes (termed stations
in RPR) operating in the ring may use a "Best Effort"
20 approach to transfer packets. To meet guarantee needs,
however, RPR allocates guaranteed bandwidth for class A
traffic and some class B traffic. (RPR defines three
classes of traffic: class A, class B, and class C. Class
A is a low latency, low jitter class.) Class A0 is a
25 subdivision of class A. The bandwidth of a class A0
traffic reservation may only be used by the station
holding the reservation, and any such reserved bandwidth
that is unused is wasted.

At initiation of an RPR network a station on the RPR
30 network broadcasts reservation requests for its class A0
traffic using topology messages (which are also used for
stations to notify each other of their existence and

position in the ring). The reservations are typically determined by Service Level Agreements (SLAs) between users and an operator of the ring. A Connection Admission Controller (CAC) in the network allocates bandwidth according to the received requests, and all stations on the RPR are informed of the allocation. For any new service, the CAC must know how much bandwidth has been consumed, and how much is required by the new service, to verify that the new service can be provisioned according to the new service's SLA. In addition, and regardless of the class of traffic, it may be necessary to reserve some bandwidth to avoid traffic starvation.

SUMMARY OF THE INVENTION

In a ring network, bandwidth allocation for guaranteed point-to-point traffic can be estimated based on parameters such as interface type, user requirements, and the path on the ring between the two end points. Furthermore, for this traffic, the bandwidth consumed by each link intervening between a start point and an end point on the ring is equal to the bandwidth required at the start and end points. Thus, for guaranteed point-to-point traffic, actual bandwidth needed for each link between stations on the ring can be well estimated.

On the other hand, for guaranteed point-to-multipoint traffic and guaranteed multipoint-to-multipoint traffic, good estimation of actual bandwidth needs is difficult. Point-to-multipoint traffic is characteristic, for example, of Video On Demand Service (VODS), while multipoint-to-multipoint traffic is typical in Virtual Private LAN Service (VPLS). In both of these types of traffic there are multiple paths between the start and the end points, and guaranteed bandwidth is

often required. Although estimation is difficult, it is necessary in order for the CAC to be able to function.

One method to allocate guaranteed bandwidth in multipoint cases is to allocate the full required bandwidth for all possible paths that packets may travel. In this case there will always be sufficient bandwidth, at the expense of large guaranteed bandwidth wastage. Embodiments of the present invention provide methods and systems for bandwidth allocation that make more efficient use of the guaranteed bandwidth available on the ring network.

In embodiments of the present invention, nodes of a network, such as a ring network, are coupled by links according to a physical topology. One or more data transmission services operate between the nodes. Each service has a logical connection topology that may be different from the physical topology. The service parameters for each service determine how much bandwidth each of the nodes in the network participating in the service is required to supply for that service. For each service, a controller in the network maps the logical connections in the logical connection topology of the service to corresponding physical links in the physical topology. The controller determines how the bandwidth of each participating node is to be distributed among the logical connections in the logical topology, and then generates an actual bandwidth requirement for each of the physical links, based on the mapping.

Typically, the logical connection topology for each service is chosen from a number of different logical connection topologies, such as a hub and spoke topology and a full mesh topology, depending on the nature of the service (such as VODS or VPLS). Assigning the actual

bandwidths of the links in a physical network according to the logical connectivity of nodes in services carried by the network is a simple and effective way to allocate bandwidth correctly and efficiently, particularly
5 guaranteed bandwidth.

In some embodiments, at least some of the actual bandwidths are multiplied by a correction factor, typically the same for each of the links, that allows for deviation from the assigned actual bandwidth.

10 In a disclosed embodiment, different services operate in the network, each service having a respective logical connection topology and corresponding bandwidths for nodes participating in the service. Bandwidth requirements for each of the physical links in the
15 network are determined by mapping each of the respective logical topologies to the physical topology of the network, and then adding up the bandwidths required by all the services on each of the links.

Typically, during operation of the network, actual
20 bandwidth usage is monitored, and the assigned bandwidths may be altered to reflect the usage.

There is therefore provided, according to an embodiment of the present invention, a method for assigning bandwidth in a network including nodes coupled
25 by links arranged in a physical topology, the method including:

defining between the nodes logical connections associated with a data transmission service to be provided over the network, the logical connections having
30 a connection topology different from the physical topology;

determining respective bandwidth requirements for the logical connections based on parameters of the service;

5 mapping the connection topology to the physical topology, so that each of the logical connections is associated with one or more links of the physical topology; and

10 allocating a bandwidth for the service on each of the links in response to the bandwidth requirements of the logical connections and to the mapping.

Typically, the network includes a ring network, the physical topology includes a ring topology, and the connection topology is chosen from one of a hub-and-spoke topology and a full mesh topology.

15 In an embodiment, the data transmission service includes a guaranteed bandwidth service, and may include a class of service defined by a protocol under which the network operates.

20 In an alternative embodiment, the method includes multiplying the bandwidth by a correction factor to determine an actual bandwidth.

In a disclosed embodiment, mapping the connection topology to the physical topology includes generating a bandwidth requirement for each of the links.

25 Typically, parameters of the service include respective node-bandwidths required by each of the nodes to provide the service.

30 The method may include monitoring traffic generated in the network by the data transmission service, and adjusting the bandwidth in response to the traffic.

In one embodiment, the data transmission service includes a plurality of subclasses of traffic, and allocating the bandwidth includes allocating a reserved

bandwidth to one of the subclasses, and/or comparing a mapping bandwidth determined in response to the bandwidth requirements of the logical connections and to the mapping with a full bandwidth determined by assuming all possible logical connections in the network are provided for.

There is further provided, according to an embodiment of the present invention, a method for assigning bandwidth in a network including nodes coupled by links arranged in a physical topology, the method including:

defining between the nodes a first set of logical connections associated with a first data transmission service to be provided over the network, and a second set of logical connections associated with a second data transmission service to be provided over the network, the first set of logical connections having a first connection topology, the second set of logical connections having a second connection topology, the first and second connection topologies being different from the physical topology;

determining respective first bandwidth requirements for the first set of logical connections based on first parameters of the first data transmission service and respective second bandwidth requirements for the second set of logical connections based on second parameters of the second data transmission service;

generating a first mapping of the first connection topology to the physical topology, so that each of the first set of logical connections is associated with one or more links of the physical topology;

allocating a first bandwidth for the first data transmission service on each of the links in response to

the first bandwidth requirements of the first set of logical connections and to the first mapping;

generating a second mapping of the second connection topology to the physical topology, so that each of the
5 second set of logical connections is associated with one or more links of the physical topology;

allocating a second bandwidth for the second data transmission service on each of the links in response to the second bandwidth requirements of the second set of
10 logical connections and to the second mapping; and

summing the first and the second bandwidths to determine a total allocation for each of the links.

Typically, the network includes a ring network, and the physical topology includes a ring topology.

15 In an embodiment, the first connection topology includes a hub-and-spoke topology and the second connection topology includes a full mesh topology.

In a disclosed embodiment, at least one of the first and second data transmission services includes a
20 guaranteed bandwidth service and/or a class of service defined by a protocol under which the network operates.

The method typically includes multiplying at least one of the first and second bandwidths by a correction factor to determine a corrected bandwidth.

25 In one embodiment, generating the first mapping includes generating a first bandwidth requirement for each of the links, and generating the second mapping includes generating a second bandwidth requirement for each of the links. Typically, the first parameters of the
30 first service include respective first node-bandwidths required by each of the nodes to provide the first service, and the second parameters of the second service

include respective second node-bandwidths required by each of the nodes to provide the second service.

The method typically includes monitoring traffic generated in the network by the first and second data transmission services, and adjusting the total allocation
5 in response to the traffic.

In an alternative embodiment, the first data transmission service includes a plurality of subclasses of traffic, and allocating the first bandwidth includes
10 allocating a reserved bandwidth to one of the subclasses.

Typically, the first connection topology is different from the second connection topology.

In a further alternative embodiment, summing the first and the second bandwidths to determine a total allocation for each of the links includes:
15

determining a first mapping bandwidth in response to the first bandwidth requirements of the first set of logical connections and to the first mapping;

determining a second mapping bandwidth in response
20 to the second bandwidth requirements of the second set of logical connections and to the second mapping; and

comparing the first mapping bandwidth and the second mapping bandwidth with a full bandwidth determined by assuming all possible logical connections in the network
25 are provided for.

There is further provided, according to an embodiment of the present invention, a method for assigning bandwidth in a ring network including nodes coupled by links, the method including:

30 defining between the nodes a first set of logical connections associated with a first data transmission service to be provided over the network, and a second set of logical connections associated with a second data

transmission service to be provided over the network, the first set of logical connections having a hub-and-spokes connection topology, the second set of logical connections having a full mesh connection topology;

5 determining respective first bandwidth requirements for the first set of logical connections based on first parameters of the first data transmission service and respective second bandwidth requirements for the second set of logical connections based on second parameters of
10 the second data transmission service;

 generating a first mapping of the first connection topology to the ring network, so that each of the first set of logical connections is associated with one or more links of the ring network;

15 determining a first bandwidth for the first data transmission service on each of the links in response to the first bandwidth requirements of the first set of logical connections and to the first mapping;

 generating a second mapping of the second connection
20 topology to the ring topology, so that each of the second set of logical connections is associated with one or more links of the ring network;

 determining a second bandwidth for the second data transmission service on each of the links in response to
25 the second bandwidth requirements of the second set of logical connections and to the second mapping;

 summing the first and the second bandwidths to determine a total bandwidth for each of the links; and

 allocating one of the first bandwidth, the second
30 bandwidth, and the total bandwidth to each of the links in response to respectively providing the first service, the second service, and both services, over the network.

There is further provided, according to an embodiment of the present invention, apparatus for assigning bandwidth in a network including nodes coupled by links arranged in a physical topology, the apparatus
5 including:

a controller which is adapted to:
receive a definition of logical connections between the nodes, the logical connections being associated with a data transmission service to be provided over the
10 network, the logical connections having a connection topology different from the physical topology,
determine respective bandwidth requirements for the logical connections based on parameters of the service,
map the connection topology to the physical
15 topology, so that each of the logical connections is associated with one or more links of the physical topology, and
allocate a bandwidth for the service on each of the links in response to the bandwidth requirements of the
20 logical connections and to the mapping.

Typically, the controller is included in one of the nodes or is external to the network.

There is further provided, according to an embodiment of the present invention, apparatus for
25 assigning bandwidth in a network including nodes coupled by links arranged in a physical topology, the apparatus including:

a controller which is adapted to:
receive a definition of a first set of logical
30 connections, between the nodes, associated with a first data transmission service to be provided over the network, and a second set of logical connections, between the nodes, associated with a second data transmission

service to be provided over the network, the first set of logical connections having a first connection topology, the second set of logical connections having a second connection topology, the first and second connection
5 topologies being different from the physical topology,

determine respective first bandwidth requirements for the first set of logical connections based on first parameters of the first data transmission service and respective second bandwidth requirements for the second
10 set of logical connections based on second parameters of the second data transmission service,

generate a first mapping of the first connection topology to the physical topology, so that each of the first set of logical connections is associated with one
15 or more links of the physical topology,

allocate a first bandwidth for the first data transmission service on each of the links in response to the first bandwidth requirements of the first set of logical connections and to the first mapping,

20 generate a second mapping of the second connection topology to the physical topology, so that each of the second set of logical connections is associated with one or more links of the physical topology,

allocate a second bandwidth for the second data
25 transmission service on each of the links in response to the second bandwidth requirements of the second set of logical connections and to the second mapping, and

sum the first and the second bandwidths to determine a total allocation for each of the links.

30 Typically, the controller is in one of the nodes or is external to the network.

The present invention will be more fully understood from the following detailed description of the preferred

embodiments thereof, taken together with the drawings, a brief description of which follows.

BRIEF DESCRIPTION OF THE DRAWINGS

5 Fig. 1 is a schematic representation of a data communication system, according to an embodiment of the present invention;

 Fig. 2 is a flow chart showing steps of a process applied by a Connection Admission Controller (CAC) in
10 allocating bandwidths to links in the system of Fig. 1, according to an embodiment of the present invention;

 Fig. 3 is a schematic illustration of a first example of the process of Fig. 2, according to an embodiment of the present invention;

15 Fig. 4 is a schematic illustration of a second example of the process of Fig. 2, according to an embodiment of the present invention; and

 Fig. 5 is a flow chart showing an automatic management process performed by a manager node during
20 operation of the system of Fig. 1, according to an embodiment of the present invention.

DETAILED DESCRIPTION OF EMBODIMENTS

Reference is now made to Fig. 1, which is a schematic representation of a data communication system 10, according to an embodiment of the present invention. System 10 is built around a high-speed ring network 12, such as a SONET or SDH network, having data nodes 14, also herein termed nodes A, B, C, D. Each pair of nodes is connected by a physical network link 16, which typically comprises a pair of wired, fiberoptic, and/or wireless links 18, 20, that are configured to carry data traffic in clockwise and counterclockwise directions around the ring. Thus network 12 comprises a clockwise network 19 and a counterclockwise network 21. One of the data nodes also serves as a manager node 22, comprising a connection admission controller (CAC) 24 which performs functions that are described hereinbelow. Alternatively, CAC 24 is implemented external to the network.

The topology of network 12, as of networks 19 and 21, is shown here by way of example, to illustrate aspects of the present invention. It will be understood, however, that the present invention is in no way limited in its applicability to this topology, and may equally be applied to other network topologies, as well. It will also be understood that in the context of the present patent application and in the claims, the terms "clockwise" and "counterclockwise" are used arbitrarily to distinguish between two opposing directions of packet flow in a ring network. These terms are chosen solely for convenience of explanation, and do not necessarily bear any relation to the physical characteristics of the network.

Network 12 serves as the infrastructure for a virtual packet communication network, such as a virtual

private LAN. For example, nodes 14 may be connected to external Ethernet networks (not shown in the figure), and may package the Ethernet packets in virtual-concatenated containers provided by network 12. Alternatively or
5 additionally, system 10 may be configured to support traffic of other types, in accordance with other protocols that are known in the art. Hereinbelow, by way of example, network 12 is assumed to be configured as a bi-directional Resilient Packet Ring (RPR) network, as
10 defined by IEEE standard 802.17, wherein nodes are also referred to as stations and networks 19 and 21 are referred to as ringlets 0 and 1.

On setup of network 12, an operator of the network inputs a basic connectivity map (BCM) 28 to manager node
15 22. As explained below, BCM 28, also herein termed the applied BCM, is used to determine actual bandwidths that are to be applied to each of the links in network 12. The applied BCM is one of a number of different connectivity maps, each having a different logical topology and
20 bandwidth relations, that the operator may input to node 22. Alternatively or additionally, more than one of the basic connectivity maps are stored in node 22, and the operator chooses one of the stored maps as the applied BCM. Each basic connectivity map comprises and defines a
25 logical topology that connects nodes 14 of the network, required bandwidths for each of the nodes when operating in the logical topology, and a correction parameter, herein termed a deviation parameter (DP), that is used to formulate the actual bandwidths used by each link.

30 Except as stated below, the following description assumes that the bandwidths referred to are for traffic of a data transmission service requiring guaranteed bandwidths.

Fig. 2 is a flow chart showing steps of a process 50 applied by CAC 24 in allocating bandwidths to links 16 in network 12, according to an embodiment of the present invention. Examples of the application of process 50 are described in more detail below, with reference to Figs. 3 and 4.

In a first step 52, CAC 24 maps the logical topology of the applied BCM to the existing physical topology of network 12. Performing the mapping generates actual links 16 and 18 used in network 12.

In a step 54, for each of the links the bandwidth requirements are summed to determine a mapping bandwidth, described in more detail below.

In a comparison step 56, the mapping bandwidths are compared with "full" bandwidths. In the specification and in the claims, full bandwidths are assumed to be bandwidths for each link if every possible connection in the network is provided for. It will be appreciated that applying full bandwidth allocations to every link ensures that there are always enough resources for transmitting packets between the nodes. However, full bandwidth allocations waste considerable bandwidth compared to the actual bandwidths needed.

In allocation steps 58, CAC 24 allocates actual bandwidths to each of the links based on the comparison. If the mapping bandwidth is equal to the full bandwidth, then CAC 24 uses the mapping bandwidth as an actual bandwidth applied to the link. If the mapping bandwidth is less than the full bandwidth, CAC 24 multiplies the mapping bandwidth by the deviation parameter to determine the actual bandwidth.

Fig. 3 is a schematic illustration of a first example of process 50 for determining the actual

bandwidth of each link, according to an embodiment of the present invention. In this example, the nodes of network 12 are assumed to be logically connected in a hub and spoke arrangement, with A as the hub and B, C, and D at the ends of the spokes. Furthermore, node A is assumed to require a bandwidth of $3R$, and each of nodes B, C, and D are assumed to require a bandwidth of R to communicate with hub node A, where R is a bandwidth factor measured in Mbps. Although it will be appreciated that for any specific node bandwidth requirements may be different in different directions (referred to herein as uplink and downlink directions), for simplicity the examples herein assume that the uplink and downlink requirements of a node are equal. The logical connectivity between the nodes, and the required bandwidths of the nodes and of the logical connections between them, are shown schematically in a diagram 60 of BCM 28. Diagram 60 also includes the DP, which for this example is set to be 10%.

In the following description of the steps of process 50, it is assumed by way of example that nodes A, B, C, and D are connected in a first physical topology formed by clockwise links 18, corresponding to network 19, and in a second physical topology of counterclockwise links 20, corresponding to network 21.

In step 52 of process 50, CAC 24 analyzes the basic connectivity map of diagram 60 to find links 18 of network 19 and links 20 of network 21 corresponding to the logical connections of the map. Diagram 60 shows that there are six direct logical connections A-B, A-C, A-D, and B-A, C-A, and D-A required. Network 19, reproduced schematically here as a diagram 62, shows that the available single links in network 19 are A-B, B-C, C-D, and D-A. Network 21, reproduced schematically here as a

diagram 63, shows that the available single links in network 21 are A-D, D-C, C-B, and B-A. CAC 24 typically selects from the available single links a minimum hop path between any two nodes, and typically also balances the allocation of the links between the two networks.

Table I below shows the relation between the connections of the hub and spoke map assumed, and the links 18 and 20 selected by CAC 24 in step 52.

Hub and Spoke Connections	Network 19 Links	Network 21 Links
A-B	A-B	
A-C	A-B and B-C	
A-D		A-D
B-A		B-A
C-A		C-B and B-A
D-A	D-A	

Table I

Diagrams 64 and 66 illustrate the results shown by Table I.

In step 54, CAC 24 uses the results of Table I to determine theoretical bandwidths, also herein termed mapping bandwidths, for each link of the networks, as described herein with respect to Table II below. Table II is derived from Table I, and shows the bandwidth requirements for each link according to the required connections. In determining entries in Table II, it is assumed that only nodes at the ends of paths are effective in determining the bandwidth. Thus, connection A-B requires R bandwidth from nodes A and B, and R bandwidth in link A-B. Connection A-C requires R bandwidth from nodes A and C, and R bandwidth in links A-

B and B-C. As stated above, node A provides a bandwidth of 3R, greater than the 2R required by Table II; and each of nodes B and C provide a bandwidth of R as required by Table II. The bandwidth for each link is derived by
 5 summing the individual connection requirements of the link and corresponds to the mapping bandwidth used by CAC
 24.

Link	Connection						Mapping Bandwidth
	A-B	A-C	A-D	B-A	C-A	D-A	Total
A-B	R	R					2R
B-C		R					R
C-D							0
D-A						R	R
A-D			R				R
D-C							0
C-B					R		R
B-A				R	R		2R

Table II

10

For comparison, Table III below shows the full bandwidth requirements. (As stated above, full bandwidths are assumed to be bandwidths for each link if every possible connection in the network is provided for.)

15

Table III is constructed using the same node bandwidth constraints as for Table II, i.e., 3R for node A and R for nodes B, C, and D. The totals for each link are derived by summing the individual connection requirements, except that the requirements indicated by
 20 R* are not summed since the available R has already been allocated in a link. For example, connection B-C uses R

from node B; thus connection B-D may not use R from node B since node B only provides R.

	Connection												Full
Link	A-B	A-C	A-D	B-A	B-C	B-D	C-A	C-B	C-D	D-A	D-B	D-C	Total
A-B	R	R											2R
B-C		R			R	R*							2R
C-D						R			R				2R
D-A										R			R
A-D			R										R
D-C											R*	R	R
C-B							R*	R			R		2R
B-A				R			R						2R

Table III

5

In comparison step 56 and allocation step 58, CAC 24 compares the full bandwidths with the mapping bandwidths and allocates actual bandwidths. The results of the comparison and allocation are shown in Table IV below.

10

	Link (Network 19)				Link (Network 21)			
	A-B	B-C	C-D	D-A	A-D	D-C	C-B	B-A
Full	2R	2R	2R	R	R	R	2R	2R
Mapping	2R	R	0	R	R	0	R	2R
Actual	2R	1.1R	0	R	R	0	1.1R	2R

Table IV

As shown in Table IV, links A-B, D-A, A-D and B-A are allocated bandwidths corresponding to the full bandwidth, since the full and mapping bandwidths are equal. The other links are allocated bandwidths corresponding to the mapping bandwidth multiplied by the

15

deviation parameter (DP) of 10%, since the mapping bandwidth is less than the full bandwidth.

Inspection of Table IV shows that actual allocated bandwidths for links, derived by applying process 50, may
5 be significantly less than the full bandwidths, leading to more efficient bandwidth utilization within network 12.

Fig. 4 is a schematic illustration of a second example of process 50 for determining the actual
10 bandwidth of each link, according to an embodiment of the present invention. In this example, nodes A, B, C, and D are assumed to be logically connected in a balanced full mesh arrangement, and each of the nodes is assumed to be require a bandwidth of R. The logical connectivity
15 between the nodes, and the required bandwidths of the nodes and their logical connections, are shown schematically in a diagram 70 of BCM 28. Diagram 70 also includes the DP, which for this example is also set to be 10%.

20 In step 52, the basic connectivity map of diagram 70 is analyzed to find links 18 of network 19 and links 20 of network 21 corresponding to the logical connections of the map. Diagram 70 shows that there are twelve direct connections required. Table V below shows the relation
25 between the connections of the balanced full mesh map assumed, and the links of networks 19 and 21, illustrated by diagrams 72, 73, 74, and 76, that provide the connections.

Full Mesh Connections	Network 19 Links	Network 21 Links
A-B	A-B	
A-C	A-B and B-C	
A-D		A-D
B-A		B-A
B-C	B-C	
B-D	B-C and C-D	
C-A		C-B and B-A
C-B		C-B
C-D	C-D	
D-A	D-A	
D-B		D-C and C-B
D-C		D-C

Table V

Table VI below shows the mapping bandwidths
5 determined by CAC 24 in step 54 from Table V. (Table VI
corresponds to Table II.)

Link	Connection												Mapp- ing BW
	A-B	A-C	A-D	B-A	B-C	B-D	C-A	C-B	C-D	D-A	D-B	D-C	Total
A-B	$\frac{1}{3}R$	$\frac{1}{3}R$											$\frac{2}{3}R$
B-C		$\frac{1}{3}R$			$\frac{1}{3}R$	$\frac{1}{3}R$							R
C-D						$\frac{1}{3}R$			$\frac{1}{3}R$				$\frac{2}{3}R$
D-A										$\frac{1}{3}R$			$\frac{1}{3}R$
A-D			$\frac{1}{3}R$										$\frac{1}{3}R$
D-C											$\frac{1}{3}R$	$\frac{1}{3}R$	$\frac{2}{3}R$
C-B							$\frac{1}{3}R$	$\frac{1}{3}R$			$\frac{1}{3}R$		R
B-A				$\frac{1}{3}R$			$\frac{1}{3}R$						$\frac{2}{3}R$

Table VI

Table VII below shows the results of applying comparison step 56 and allocation step 58 to the results of Table VI. The full bandwidths are derived in a substantially similar manner to that used to derive the values in Table III above.

	Link (Network 19)				Link (Network 21)			
	A-B	B-C	C-D	D-A	A-D	D-C	C-B	B-A
Full	R	2R	2R	R	R	R	2R	2R
Mapping	$\frac{2}{3}R$	R	$\frac{2}{3}R$	$\frac{1}{3}R$	$\frac{1}{3}R$	$\frac{2}{3}R$	R	$\frac{2}{3}R$
Actual	$\frac{2.2}{3}R$	1.1R	$\frac{2.2}{3}R$	$\frac{1.1}{3}R$	$\frac{1.1}{3}R$	$\frac{2.2}{3}R$	1.1R	$\frac{2.2}{3}R$

Table VII

As for the hub and spoke system described above with
5 reference to Fig. 3, Table VII shows that by applying
process 50 actual allocated bandwidths for links for a
full mesh system are significantly less than the full
bandwidths.

For clarity, the examples described above with
10 respect to Figs. 3 and 4 have each used only one BCM
defining logical connectivity for guaranteed bandwidth.
It will be appreciated, however, that more than one BCM
may be applied in network 12 for different data
transmission services. For example, in network 12 a first
15 BCM may assume that nodes A, B, and C are logically
connected according to a hub and spoke arrangement, where
A is the hub node and B and C are nodes at the ends of
spokes, and a second BCM may assume that nodes B, C, and
D are connected in a balanced full mesh arrangement. Both
20 BCMs are mapped to the network, substantially as
described above with respect to Figs. 2, 3, and 4, to
generate total allocated bandwidths for each link of the
network, corresponding to line 5 of Tables IV and VII.

For any specific BCM, the operator may make
25 adjustments to the allocated bandwidths determined by
mapping the BCM to network 12. For example, for the hub

and spoke system described above with reference to Fig. 3, the operator may increase the bandwidth set for link C-D, such an increase typically being warranted if the operator is aware that there is significant traffic between nodes C and D. Furthermore, the deviation parameter for each of the links in the network may be set to be different values. Alternatively or additionally, the BCM may include other parameters applicable to traffic flow in the logical network (represented by the BCM) or of the physical network. For example, in a BCM for guaranteed traffic, the operator may add in that a specific subclass of guaranteed traffic, such as guaranteed broadcast traffic, has a specified bandwidth reserved in the physical network.

Fig. 5 is a flow chart showing an automatic management process 80 performed by manager node 22 during operation of network 12, according to an embodiment of the present invention. Process 80 is performed after process 50. In a first step 82, manager node 22 monitors and measures actual traffic between the nodes in network 12. The measurements are made for each of the services that have had allocated bandwidths.

In a second step 84, node 22 determines intended changes to the allocated bandwidth values, corresponding to lines 5 of Tables IV and VII, according to differences from the actual measured traffic determined in the step 82. Typically, the determination is performed periodically, at times set by an operator of the network. The intended bandwidth change for each link may be averaged, for example by a moving time average or another suitable averaging process known in the art, so that in implementing the change manager 22 typically does not make abrupt changes in bandwidth allocation.

In a decision step 86, manager node 22 checks if the intended changes to the allocated bandwidths for the links are possible, e.g., if intermediate spans of a link where bandwidth is to be increased are able to supply the increase. If the intended changes are not possible, in an alarm step 88 manager node 22 sets an alarm to notify the network operator. If the intended changes are possible, then in a second decision step 90, manager node 22 checks if the intended changes are greater than a guard value. The guard value is typically preset by the operator of the system so as to preclude unnecessarily high rates of change of bandwidth values. If the required changes are greater than the guard value, then in an implementation step 92, manager 22 makes the changes. If the changes are less than or equal to the guard value, there is no change in allocated bandwidth.

It will be appreciated that the management tasks exemplified by process 80, as well as other management tasks for network 12, may be at least partly performed non-automatically. For example, the network operator may periodically check that the one or more BCMs mapped to the network are still valid, and that their parameters are still applicable. If there have been changes, the operator may change one or more of the allocated link bandwidths and/or apply a different BCM. Alternatively or additionally, manager node 22 may make measurements of bandwidth usage, substantially as described for step 82 above, and provide an indication to the network operator if there are any relatively long term deviations from the allocated bandwidths.

It will thus be appreciated that the embodiments described above are cited by way of example, and that the present invention is not limited to what has been

particularly shown and described hereinabove. Rather,
the scope of the present invention includes both
combinations and subcombinations of the various features
described hereinabove, as well as variations and
5 modifications thereof which would occur to persons
skilled in the art upon reading the foregoing description
and which are not disclosed in the prior art.

CLAIMS

What is claimed is:

1. A method for assigning bandwidth in a network
5 including nodes coupled by links arranged in a physical topology, the method comprising:

defining between the nodes logical connections
associated with a data transmission service to be
provided over the network, the logical connections having
10 a connection topology different from the physical topology;

determining respective bandwidth requirements for
the logical connections based on parameters of the
service;

15 mapping the connection topology to the physical topology, so that each of the logical connections is associated with one or more links of the physical topology; and

allocating a bandwidth for the service on each of
20 the links in response to the bandwidth requirements of the logical connections and to the mapping.

2. The method according to claim 1, wherein the network
comprises a ring network, and wherein the physical
25 topology comprises a ring topology.

3. The method according to claim 1, wherein the
connection topology is chosen from one of a hub-and-spoke
topology and a full mesh topology.

30

4. The method according to claim 1, wherein the data transmission service comprises a guaranteed bandwidth service.

5 5. The method according to claim 1, wherein the data transmission service comprises a class of service defined by a protocol under which the network operates.

6. The method according to claim 1, and comprising
10 multiplying the bandwidth by a correction factor to determine an actual bandwidth.

7. The method according to claim 1, wherein mapping the connection topology to the physical topology comprises
15 generating a bandwidth requirement for each of the links.

8. The method according to claim 1, wherein parameters of the service comprise respective node-bandwidths required by each of the nodes to provide the service.

20

9. The method according to claim 1, and comprising monitoring traffic generated in the network by the data transmission service, and adjusting the bandwidth in response to the traffic.

25

10. The method according to claim 1, wherein the data transmission service comprises a plurality of subclasses of traffic, and wherein allocating the bandwidth

comprises allocating a reserved bandwidth to one of the subclasses.

11. The method according to claim 1, wherein allocating
5 the bandwidth comprises comparing a mapping bandwidth determined in response to the bandwidth requirements of the logical connections and to the mapping with a full bandwidth determined by assuming all possible logical connections in the network are provided for.

10

12. A method for assigning bandwidth in a network including nodes coupled by links arranged in a physical topology, the method comprising:

defining between the nodes a first set of logical
15 connections associated with a first data transmission service to be provided over the network, and a second set of logical connections associated with a second data transmission service to be provided over the network, the first set of logical connections having a first
20 connection topology, the second set of logical connections having a second connection topology, the first and second connection topologies being different from the physical topology;

determining respective first bandwidth requirements
25 for the first set of logical connections based on first parameters of the first data transmission service and respective second bandwidth requirements for the second set of logical connections based on second parameters of the second data transmission service;

30 generating a first mapping of the first connection topology to the physical topology, so that each of the

first set of logical connections is associated with one or more links of the physical topology;

allocating a first bandwidth for the first data transmission service on each of the links in response to
5 the first bandwidth requirements of the first set of logical connections and to the first mapping;

generating a second mapping of the second connection topology to the physical topology, so that each of the second set of logical connections is associated with one
10 or more links of the physical topology;

allocating a second bandwidth for the second data transmission service on each of the links in response to the second bandwidth requirements of the second set of logical connections and to the second mapping; and

15 summing the first and the second bandwidths to determine a total allocation for each of the links.

13. The method according to claim 12, wherein the network comprises a ring network, and wherein the
20 physical topology comprises a ring topology.

14. The method according to claim 12, wherein the first connection topology comprises a hub-and-spoke topology and the second connection topology comprises a full mesh
25 topology.

15. The method according to claim 12, wherein at least one of the first and second data transmission services comprises a guaranteed bandwidth service.

30

16. The method according to claim 12, wherein at least one of the first and second data transmission services comprises a class of service defined by a protocol under which the network operates.

5

17. The method according to claim 12, and comprising multiplying at least one of the first and second bandwidths by a correction factor to determine a corrected bandwidth.

10

18. The method according to claim 12, wherein generating the first mapping comprises generating a first bandwidth requirement for each of the links, and wherein generating the second mapping comprises generating a second
15 bandwidth requirement for each of the links.

19. The method according to claim 12, wherein the first parameters of the first service comprise respective first node-bandwidths required by each of the nodes to provide
20 the first service, and wherein the second parameters of the second service comprise respective second node-bandwidths required by each of the nodes to provide the second service.

25 20. The method according to claim 12, and comprising monitoring traffic generated in the network by the first and second data transmission services, and adjusting the total allocation in response to the traffic.

21. The method according to claim 12, wherein the first data transmission service comprises a plurality of subclasses of traffic, and wherein allocating the first bandwidth comprises allocating a reserved bandwidth to one of the subclasses.

22. The method according to claim 12, wherein the first connection topology is different from the second connection topology.

10

23. The method according to claim 12, wherein summing the first and the second bandwidths to determine a total allocation for each of the links comprises:

15 determining a first mapping bandwidth in response to the first bandwidth requirements of the first set of logical connections and to the first mapping;

determining a second mapping bandwidth in response to the second bandwidth requirements of the second set of logical connections and to the second mapping; and

20 comparing the first mapping bandwidth and the second mapping bandwidth with a full bandwidth determined by assuming all possible logical connections in the network are provided for.

25 24. A method for assigning bandwidth in a ring network including nodes coupled by links, the method comprising:

30 defining between the nodes a first set of logical connections associated with a first data transmission service to be provided over the network, and a second set of logical connections associated with a second data transmission service to be provided over the network, the

first set of logical connections having a hub-and-spokes connection topology, the second set of logical connections having a full mesh connection topology;

5 determining respective first bandwidth requirements for the first set of logical connections based on first parameters of the first data transmission service and respective second bandwidth requirements for the second set of logical connections based on second parameters of the second data transmission service;

10 generating a first mapping of the first connection topology to the ring network, so that each of the first set of logical connections is associated with one or more links of the ring network;

15 determining a first bandwidth for the first data transmission service on each of the links in response to the first bandwidth requirements of the first set of logical connections and to the first mapping;

20 generating a second mapping of the second connection topology to the ring topology, so that each of the second set of logical connections is associated with one or more links of the ring network;

25 determining a second bandwidth for the second data transmission service on each of the links in response to the second bandwidth requirements of the second set of logical connections and to the second mapping;

 summing the first and the second bandwidths to determine a total bandwidth for each of the links; and

30 allocating one of the first bandwidth, the second bandwidth, and the total bandwidth to each of the links in response to respectively providing the first service, the second service, and both services, over the network.

25. Apparatus for assigning bandwidth in a network including nodes coupled by links arranged in a physical topology, the apparatus comprising:

a controller which is adapted to:

5 receive a definition of logical connections between the nodes, the logical connections being associated with a data transmission service to be provided over the network, the logical connections having a connection topology different from the physical topology,

10 determine respective bandwidth requirements for the logical connections based on parameters of the service,

map the connection topology to the physical topology, so that each of the logical connections is associated with one or more links of the physical topology, and

15 allocate a bandwidth for the service on each of the links in response to the bandwidth requirements of the logical connections and to the mapping.

20 26. Apparatus according to claim 25, wherein the controller is comprised in one of the nodes.

27. Apparatus according to claim 25, wherein the controller is external to the network.

25

28. Apparatus for assigning bandwidth in a network including nodes coupled by links arranged in a physical topology, the apparatus comprising:

a controller which is adapted to:

30 receive a definition of a first set of logical connections, between the nodes, associated with a first

data transmission service to be provided over the network, and a second set of logical connections, between the nodes, associated with a second data transmission service to be provided over the network, the first set of

5 logical connections having a first connection topology, the second set of logical connections having a second connection topology, the first and second connection topologies being different from the physical topology,

determine respective first bandwidth requirements

10 for the first set of logical connections based on first parameters of the first data transmission service and respective second bandwidth requirements for the second set of logical connections based on second parameters of the second data transmission service,

15 generate a first mapping of the first connection topology to the physical topology, so that each of the first set of logical connections is associated with one or more links of the physical topology,

allocate a first bandwidth for the first data

20 transmission service on each of the links in response to the first bandwidth requirements of the first set of logical connections and to the first mapping,

generate a second mapping of the second connection topology to the physical topology, so that each of the

25 second set of logical connections is associated with one or more links of the physical topology,

allocate a second bandwidth for the second data transmission service on each of the links in response to the second bandwidth requirements of the second set of

30 logical connections and to the second mapping, and

sum the first and the second bandwidths to determine a total allocation for each of the links.

29. Apparatus according to claim 28, wherein the controller is comprised in one of the nodes.

30. Apparatus according to claim 28, wherein the
5 controller is external to the network.

MULTIPOINT TO MULTIPOINT COMMUNICATION OVER RING
TOPOLOGIES

ABSTRACT

A method for assigning bandwidth in a network
5 including nodes coupled by links arranged in a physical
topology, the method including: defining between the
nodes logical connections associated with a data
transmission service to be provided over the network, the
logical connections having a connection topology
10 different from the physical topology, and determining
respective bandwidth requirements for the logical
connections based on parameters of the service. The
method further includes mapping the connection topology
to the physical topology, so that each of the logical
15 connections is associated with one or more links of the
physical topology, and allocating a bandwidth for the
service on each of the links in response to the bandwidth
requirements of the logical connections and to the
mapping.

20

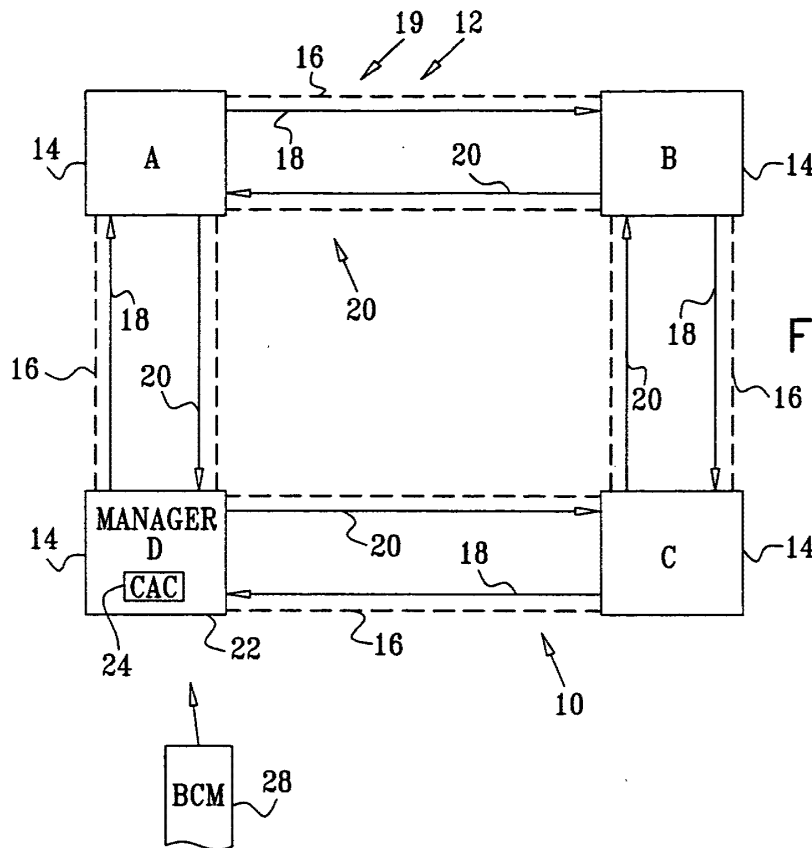


FIG. 1

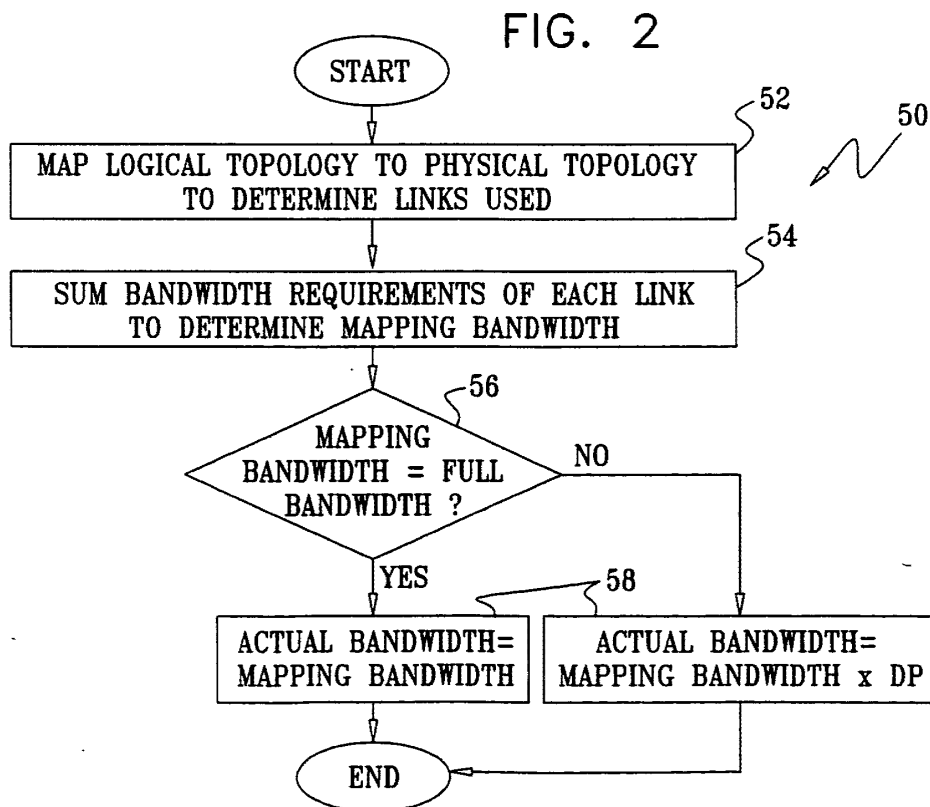


FIG. 2

FIG. 3

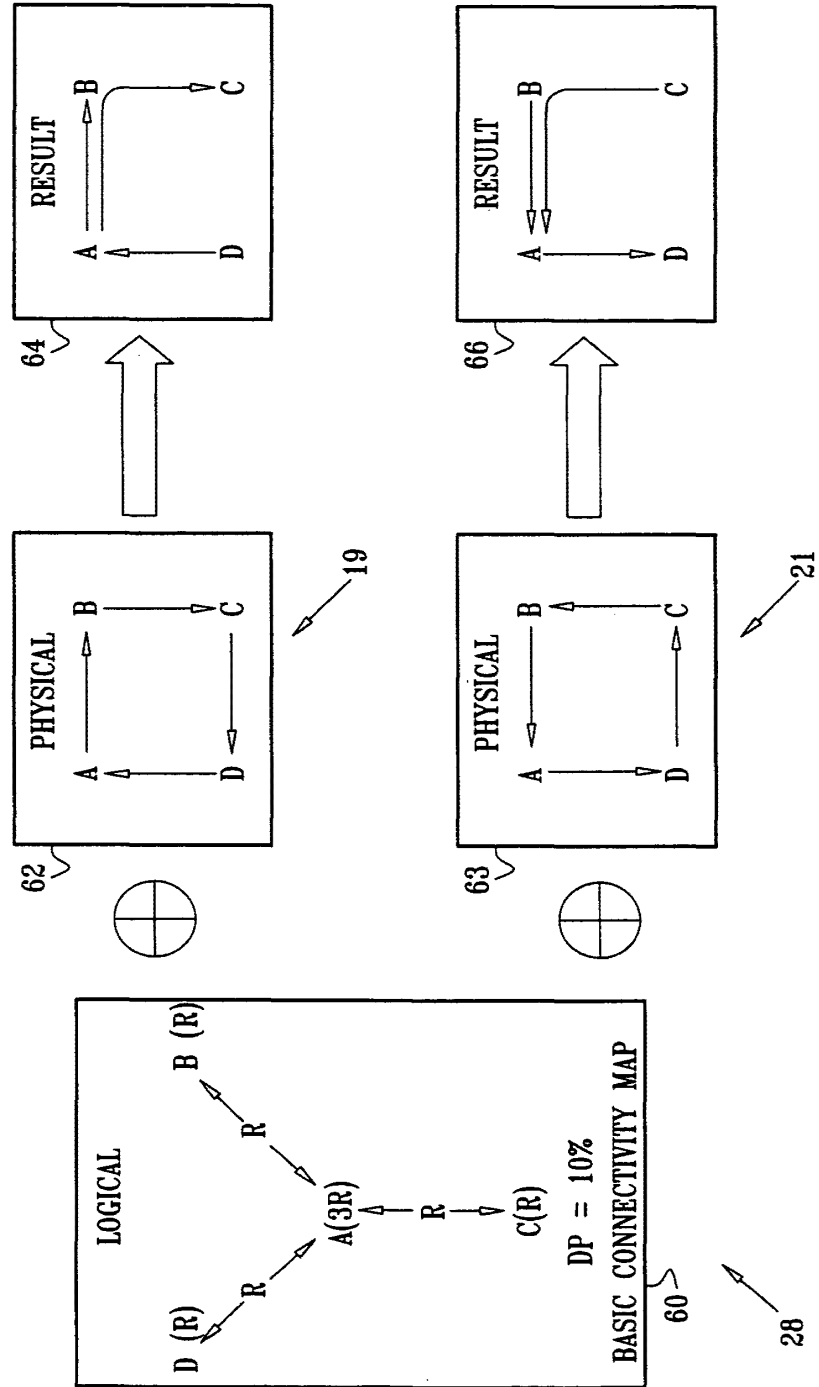
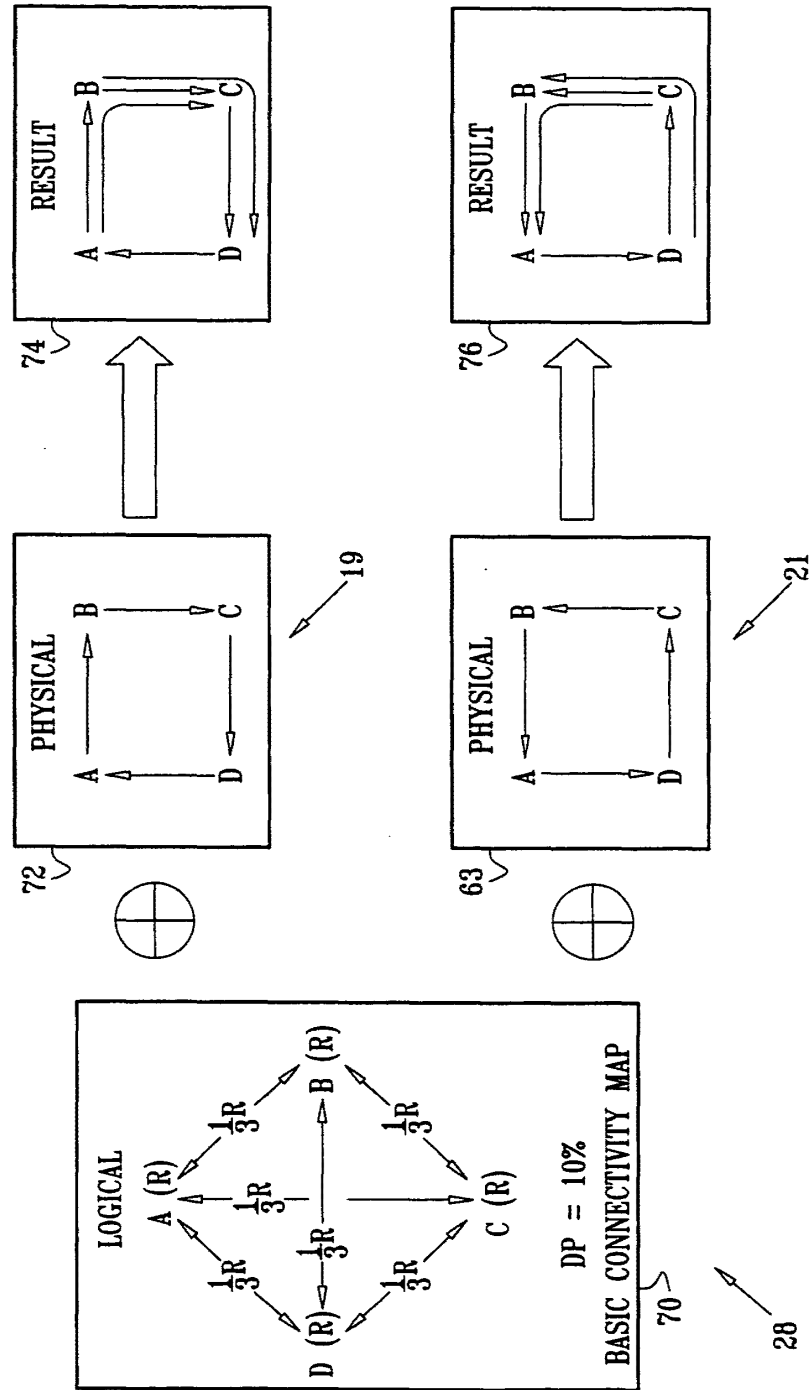
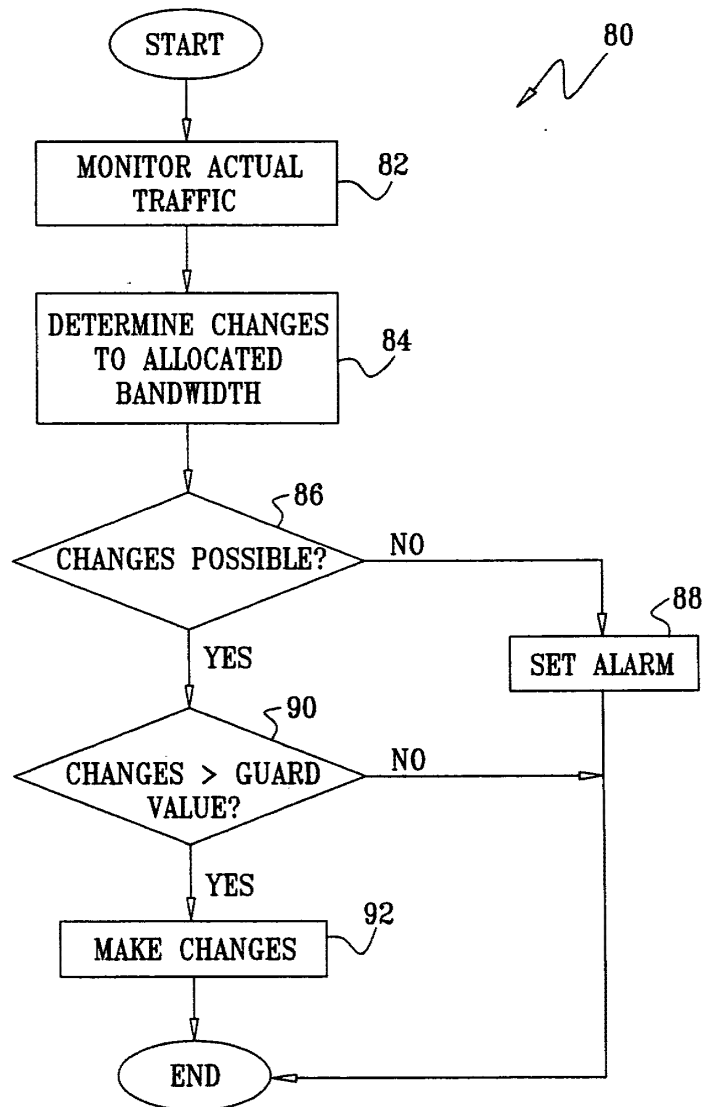


FIG. 4



4/4

FIG. 5



10/01

Sheet 1 of 2

Attorney
Docket No.: COLB-125XX

DECLARATION AND POWER OF ATTORNEY

As a below-named inventor, I hereby declare that:

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

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

MULTIPOINT TO MULTIPOINT COMMUNICATION OVER RING TOPOLOGIES

The specification of which (check one):

☒ is attached hereto. ☐ was filed on _____ as Application No. _____;
amended on _____ (if applicable).

☐ was filed as PCT International. Appl. No. _____ on _____,
and was amended under PCT Article 19 on _____ (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 referred to above.

I acknowledge the duty to disclose information which is material to the patentability of this application in accordance with Title 37, Code of Federal Regulations §1.56(a).

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

<u>Prior Foreign Application(s)</u>	<u>Date Filed</u>	<u>Priority Claimed</u>
<u>(Number)</u> <u>(Country)</u>	<u>(Day/Month/Year)</u>	☐ Yes ☐ No
<u>(Number)</u> <u>(Country)</u>	<u>(Day/Month/Year)</u>	☐ Yes ☐ No
<u>(Number)</u> <u>(Country)</u>	<u>(Day/Month/Year)</u>	☐ Yes ☐ No

I hereby claim the benefit under Title 35, USC §119(e) of any United States provisional application(s) listed below:

<u>(Application Number)</u>	<u>(Filing Date)</u>
<u>(Application Number)</u>	<u>(Filing Date)</u>
<u>(Application Number)</u>	<u>(Filing Date)</u>

Express Mail Number

EV 223344455 US

Attorney
Docket No.: COLB-125XX

I hereby claim the benefit under Title 35 USC §120 of any United States application(s) listed below and insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35 USC §112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

_____ (Application No.)	_____ (Filing Date)	_____ (Patented/pending/abandoned)
_____ (Application No.)	_____ (Filing Date)	_____ (Patented/pending/abandoned)
_____ (Application No.)	_____ (Filing Date)	_____ (Patented/pending/abandoned)

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) to prosecute this application and transact all business connected therewith in the Patent and Trademark Office, and to file with the USRO any International Application based thereon.

Stanley M. Schurgin, Reg. No. 20,979
Charles L. Gagnebin III, Reg. No. 25,467
Victor B. Lebovici, Reg. No. 30,864

Beverly E. Hjorth, Reg. No. 32,033
Holliday C. Heine, Reg. No. 34,346
Gordon R. Moriarty, Reg. No. 38,973
James F. Thompson, Reg. No. 36,699

Address all correspondence to:
Customer Number: 207

WEINGARTEN, SCHURGIN, GAGNEBIN & LEOVICI LLP
Ten Post Office Square
Boston, Massachusetts 02109
Telephone: (617) 542-2290
Telecopier: (617) 451-0313

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

Full Name of First/Sole Inventor: Leon Bruckman		
City of Residence Petah Tikva	State or Country Israel	Country of Citizenship Israel
Post Office Address 3 Degel Reuven Street	City Petah Tikva	State or Country Zip Code Israel 49402
Signature: (Please sign and date in permanent ink.) X 		Date signed: X 8/26/04

PATENT APPLICATION SERIAL NO. _____

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

09/07/2004 FMETEKI1 00000046 10933572

01 FC:2001	385.00	OP
02 FC:2201	86.00	OP
03 FC:2202	90.00	OP

PTO-1556
(5/87)

*U.S. Government Printing Office: 2002 — 489-267/69033

PATENT APPLICATION FEE DETERMINATION RECORD

Effective October 1, 2003

Application or Docket Number

10 933572

CLAIMS AS FILED - PART I

(Column 1) (Column 2)

TOTAL CLAIMS	30	
FOR	NUMBER FILED	NUMBER EXTRA
TOTAL CHARGEABLE CLAIMS	30 minus 20 =	10
INDEPENDENT CLAIMS	5 minus 3 =	2
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
XS 9=	90
X43=	86
+145=	
TOTAL	561

RATE	FEE
BASIC FEE	770.00
XS18=	
X86=	
+290=	
TOTAL	

SMALL ENTITY OR

OTHER THAN SMALL ENTITY

RATE	ADDITIONAL FEE
XS 9=	
X43=	
+145=	
TOTAL ADDIT. FEE	

RATE	ADDITIONAL FEE
XS18=	
X86=	
+290=	
TOTAL ADDIT. FEE	

RATE	ADDITIONAL FEE
XS 9=	
X43=	
+145=	
TOTAL ADDIT. FEE	

RATE	ADDITIONAL FEE
XS18=	
X86=	
+290=	
TOTAL ADDIT. FEE	

RATE	ADDITIONAL FEE
XS 9=	
X43=	
+145=	
TOTAL ADDIT. FEE	

RATE	ADDITIONAL FEE
XS18=	
X86=	
+290=	
TOTAL ADDIT. FEE	