



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	PATENT NUMBER	GROUP ART UNIT	FILE WRAPPER LOCATION
10/438,396	7602706	2416	9200



Correspondence Address/Fee Address Change

The following fields have been set to Customer Number 99543 on 10/28/2010

- Correspondence Address
- Maintenance Fee Address
- Power of Attorney Address

The address of record for Customer Number 99543 is:

99543
Law Office of Cindy Kaplan (Cisco CN)
P.O. Box 2448
Saratoga, CA 95070

PART 1 - ATTORNEY/APPLICANT COPY

page 1 of 1

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 7,602,706 B1
APPLICATION NO. : 10/438396
DATED : October 13, 2009
INVENTOR(S) : Gardo et al.

Page 1 of 1

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

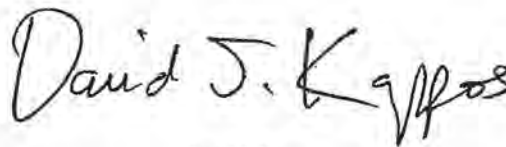
On the Title Page:

The first or sole Notice should read —

Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b)
by 1552 days.

Signed and Sealed this

Fifth Day of October, 2010

A handwritten signature in black ink that reads "David J. Kappos". The signature is written in a cursive, flowing style.

David J. Kappos
Director of the United States Patent and Trademark Office



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1430
Alexandria, Virginia 22313-1450
www.uspto.gov

Cindy S. Kaplan
P.O. BOX 2448
SARATOGA, CA 95070

Mail Date: 04/27/2010

Applicant	: Russell Gardo	: DECISION ON REQUEST FOR
Patent Number	: 7602706	: RECALCULATION of PATENT
Issue Date	: 10/13/2009	: TERM ADJUSTMENT IN VIEW
Application No:	10/438,396	: OF WYETH AND NOTICE OF INTENT TO
Filed	: 05/15/2003	: ISSUE CERTIFICATE OF CORRECTION
		:

The Request for Recalculation is **GRANTED** to the extent indicated.

The patent term adjustment has been determined to be **1552** days. The USPTO will *sua sponte* issue a certificate of correction reflecting the amount of PTA days determined by the recalculation.

Prior to the issuance of the certificate of correction, the USPTO will afford patentee an opportunity to be heard and request reconsideration. Accordingly, patentee has **one month or thirty (30) days**, whichever is longer, to file a request for reconsideration of this patent term adjustment calculation. See 35 U.S.C. 154(b)(3)(B)(ii) and 37 CFR 1.322(a)(4). No extensions of time will be granted under 37 CFR 1.136.

Patentee should use document code PET.OP if electronically filing a request for reconsideration of this patent term adjustment calculation. The patentee must also include the information required by 37 CFR 1.705(b)(2) and the fee required by 37 CFR 1.18(e). If patentee does not file a timely request for reconsideration of this patent term adjustment calculation including the information required by 37 CFR 1.705(b)(2) and the fee required by 37 CFR 1.18(e), the USPTO will issue a certificate of correction reflecting the PTA determination noted above.

Patentee should be aware that in order to preserve the right to review in the United States District Court for the District of Columbia of the USPTO patent term adjustment determination, patentee must ensure that he or she also take the steps required under 35 U.S.C. 154(b)(4)(A) in a timely manner. Nothing in the request for recalculation should be construed as providing an alternative time frame for commencing a civil action under 35 U.S.C. 154(b)(4)(A).

Any questions concerning this decision should be directed to the Office of Patent Legal Administration at 571-272-7702.

Doc Code: PET.PTA.RCAL

Document Description: Request for Recalculation in view of Wyeth

PTO/SB/131 (02-10)

Approved for use through 07/31/2010. OMB 0651-0020

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

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

REQUEST FOR RECALCULATION OF PATENT TERM ADJUSTMENT IN VIEW OF *WYETH**

Attorney Docket
Number: CISC822

Application
Number: 10/438,396

Filing Date
(or 371(b) or (f) Date): May 15, 2003

Patent Number: 7,602,706

Issue Date: October 13, 2009

First Named
Inventor: Russell Gardo

Title: Inter-Ring Protection for Shared Packet Rings

PATENTEE HEREBY REQUESTS RECALCULATION OF THE PATENT TERM ADJUSTMENT (PTA) UNDER 35 USC 154(b) INDICATED ON THE ABOVE-IDENTIFIED PATENT. THE PATENTEE'S SOLE BASIS FOR REQUESTING THE RECALCULATION IS THE USPTO'S PRE-*WYETH* INTERPRETATION OF 35 U.S.C. 154(b)(2)(A).

Note: This form is only for requesting a recalculation of PTA for patents issued before March 2, 2010, if the sole basis for requesting the recalculation is the USPTO's pre-*Wyeth* interpretation of 35 U.S.C. 154(b)(2)(A). See Instruction Sheet on page 2 for more information.

Patentees are reminded that to preserve the right to review in the United States District Court for the District of Columbia of the USPTO's patent term adjustment determination, a patentee must ensure that he or she also takes the steps required under 35 U.S.C. 154(b)(3) and (b)(4) and 37 CFR 1.705 in a timely manner.

**Wyeth v. Kappos*, No. 2009-1120 (Fed. Cir., Jan. 7, 2010).

Signature /Thomas J. Frame/

Date April 8, 2010

Name
(Print/Typed) Thomas J. Frame

Registration Number 47,232

Note: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required in accordance with 37 CFR 1.33 and 11.18. Please see 37 CFR 1.4(d) for the form of the signature. If necessary, submit multiple forms for more than one signature, see below*.

☐ *Total of _____ forms are submitted.

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 hours 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.

**Instruction Sheet for:
REQUEST FOR RECALCULATION OF PATENT TERM ADJUSTMENT
IN VIEW OF *WYETH****
(Not to be Submitted to the USPTO)

This form is only for requesting a recalculation of PTA for patents issued before March 2, 2010, if the sole basis for requesting the recalculation is the USPTO's pre-*Wyeth* interpretation of 35 U.S.C. 154(b)(2)(A).

This form must be filed within 180 days of the day the patent was granted, with the following exception:

Patentees who received a decision from the USPTO under the USPTO's pre-*Wyeth* interpretation of 35 U.S.C. 154(b)(2)(A) may file a request for reconsideration of that decision if such a request for reconsideration is filed within **two months** of the date of the decision (37 CFR 1.181(f)). If the patentee's sole basis for requesting reconsideration of the decision is the USPTO's pre-*Wyeth* interpretation of 35 U.S.C. 154(b)(2)(A), the request for reconsideration need only state that reconsideration is being requested in view of *Wyeth* (this form may be used for this purpose if it is filed within **two months** of the date of the decision from the USPTO).

Do not use this form if the application has been allowed, but not yet issued as a patent.

- 1. For patents issued before March 2, 2010:** A request for reconsideration under 37 CFR 1.705(d) and the fee set forth in 37 CFR 1.18(e) are not required, provided that the patentee's sole basis for requesting recalculation of the PTA in the patent is the USPTO's pre-*Wyeth* interpretation of 35 U.S.C. 154(b)(2)(A) and this form is filed within 180 days of the day the patent was granted.
- 2. For patents issued on or after March 2, 2010 (do not use this form):** Patentees seeking a revised PTA in a patent issued on or after March 2, 2010, must file a request for reconsideration under 37 CFR 1.705(d) that complies with the requirements of 37 CFR 1.705(b)(1) and (b)(2) within two months of the day the patent issued.

For more information, see "Notice Concerning Calculation of the Patent Term Adjustment With Respect to the Overlapping Delay Provision of 35 U.S.C. 154(b)(2)(A)" available on the USPTO Web site at <http://www.uspto.gov/patents/law/notices/2010.jsp>.

**Wyeth v. Kappos*, No. 2009-1120 (Fed. Cir., Jan. 7, 2010).

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:	7379913
Application Number:	10438396
International Application Number:	
Confirmation Number:	4274
Title of Invention:	INTER-RING PROTECTION FOR SHARED PACKET RINGS
First Named Inventor/Applicant Name:	Russell Gardo
Customer Number:	26541
Filer:	Thomas John Frame/Pat Bradford
Filer Authorized By:	Thomas John Frame
Attorney Docket Number:	CISCP822
Receipt Date:	08-APR-2010
Filing Date:	15-MAY-2003
Time Stamp:	17:23:03
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	Request for PTA recalculation in view of Wyeth	2010-4-8-RequestForRecalculationOfPTA.pdf	75340 D90F22A95A00733C16C51A8B6432204C107-945B	no	3

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 1430
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/438,396	10/13/2009	7602706	CISCP822	4274
26541	7590	09/23/2009		
Cindy S. Kaplan P.O. BOX 2448 SARATOGA, CA 95070				

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 884 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):

Russell Gardo, Raleigh, NC;
Praveen Bhagwatula, Rohnert Park, CA;
Jimmy Ervin, Raleigh, NC;
Charles Allen Carriker, Cary, NC;
James Scott Alexander, Raleigh, NC;



PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: **Mail** Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or **Fax** (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

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

26541 7590 05/15/2009

Cindy S. Kaplan
P.O. BOX 2448
SARATOGA, CA 95070

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.

Cindy Kaplan (Depositor's name)
CJK (Signature)
August 10, 2009 (Date)

08/14/2009 CCHAU2 00000031 10438396

01 FC:1501 1510.00 OP

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/438,396	05/15/2003	Russell Gardo	CISC822	4274

TITLE OF INVENTION: INTER-RING PROTECTION FOR SHARED PACKET RINGS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$0	\$0	\$1510	08/17/2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
DUONG, CHRISTINE T	2416	370-219000

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 Cindy Kaplan
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)

Cisco Technology, Inc.

San Jose, California

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 50-1652 (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 *CJK*

Date August 10, 2009

Typed or printed name Cindy Kaplan

Registration No. 40,043

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.



PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: **Mail** Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or **Fax** (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

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

26541 7590 05/15/2009

Cindy S. Kaplan
P.O. BOX 2448
SARATOGA, CA 95070

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.

Cindy Kaplan	(Depositor's name)
<i>Cindy Kaplan</i>	(Signature)
August 10, 2009	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/438,396	05/15/2003	Russell Gardo	CISCP822	4274

TITLE OF INVENTION: INTER-RING PROTECTION FOR SHARED PACKET RINGS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$0	\$0	\$1510	08/17/2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
DUONG, CHRISTINE T	2416	370-219000

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. Cindy Kaplan

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

Cisco Technology, Inc.

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

San Jose, California

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 reuply 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 50-1652 (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

Cindy Kaplan

Date August 10, 2009

Typed or printed name

Cindy Kaplan

Registration No. 40,043

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.



PTO/SB/21 (09-06)
Approved for use through 03/31/2007. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

TRANSMITTAL FORM (to be used for all correspondence after initial filing)	Application Number	10/438,396	
	Filing Date	May 15, 2003	
	First Named Inventor	Russell Gardo	
	Art Unit	2416	
	Examiner Name	Christine T. Duong	
Total Number of Pages in This Submission	5	Attorney Docket Number	CISCP822

ENCLOSURES (Check all that apply)		
☒ Fee Transmittal Form ☒ Fee Attached ☐ Amendment/Reply ☐ After Final ☐ Affidavits/declaration(s) ☐ Extension of Time Request ☐ Express Abandonment Request ☐ Information Disclosure Statement ☐ Certified Copy of Priority Document(s) ☐ Reply to Missing Parts/ Incomplete Application ☐ Reply to Missing Parts under 37 CFR 1.52 or 1.53	☐ Drawing(s) ☐ Licensing-related Papers ☐ Petition ☐ Petition to Convert to a Provisional Application ☐ Power of Attorney, Revocation Change of Correspondence Address ☐ Terminal Disclaimer ☐ Request for Refund ☐ CD, Number of CD(s) _____ ☐ Landscape Table on CD	☐ After Allowance Communication to TC ☐ Appeal Communication to Board of Appeals and Interferences ☐ Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) ☐ Proprietary Information ☐ Status Letter ☒ Other Enclosure(s) (please identify below): Postcard
Remarks The Commissioner is authorized to charge any additional fees to Deposit Account 50-1652.		

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT			
Firm Name	Cindy S. Kaplan, Attorney at Law		
Signature			
Printed name	Cindy S. Kaplan		
Date	August 10, 2009	Reg. No.	40,043

CERTIFICATE OF TRANSMISSION/MAILING			
I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below.			
Signature			
Typed or printed name	Cindy S. Kaplan	Date	August 10, 2009

This collection of information is required by 37 CFR 1.5. 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 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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



UNITED STATES PATENT AND TRADEMARK OFFICE

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

NOTICE OF ALLOWANCE AND FEE(S) DUE

26541 7590 05/15/2009

Cindy S. Kaplan
P.O. BOX 2448
SARATOGA, CA 95070

EXAMINER

DUONG, CHRISTINE T

ART UNIT

PAPER NUMBER

2416

DATE MAILED: 05/15/2009

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/438,396	05/15/2003	Russell Gardo	CISCP822	4274
TITLE OF INVENTION: INTER-RING PROTECTION FOR SHARED PACKET RINGS				

APPL. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$0	\$0	\$1510	08/17/2009

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

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN **THREE MONTHS** FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. **THIS STATUTORY PERIOD CANNOT BE EXTENDED.** SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

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

- A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.
- B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

- A. Pay TOTAL FEE(S) DUE shown above, or
- B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

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

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

PART B - FEE(S) TRANSMITTAL

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

26541 7590 05/15/2009

Cindy S. Kaplan
P.O. BOX 2448
SARATOGA, CA 95070

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.
10/438,396	05/15/2003	Russell Gardo	CISC822	4274

TITLE OF INVENTION: INTER-RING PROTECTION FOR SHARED PACKET RINGS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$0	\$0	\$1510	08/17/2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
DUONG, CHRISTINE T	2416	370-219000

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.
10/438,396	05/15/2003	Russell Gardo	CISC822	4274
26541	7590	05/15/2009	EXAMINER	
Cindy S. Kaplan P.O. BOX 2448 SARATOGA, CA 95070			DUONG, CHRISTINE T	
			ART UNIT	PAPER NUMBER
			2416	
DATE MAILED: 05/15/2009				

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

The Patent Term Adjustment to date is 801 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 801 day(s).

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

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

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability	Application No.	Applicant(s)	
	10/438,396	GARDO ET AL.	
	Examiner	Art Unit	
	CHRISTINE DUONG	2416	

-- 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 01/30/2009.
2. ☒ The allowed claim(s) is/are 1, 4, 6, 8, 10-14, 16-17, 20, 22-26 (renumbered as 1-17).
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| <ol style="list-style-type: none"> 1. ☐ Notice of References Cited (PTO-892) 2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ 4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material | <ol style="list-style-type: none"> 5. ☐ Notice of Informal Patent Application 6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date <u>04/24/2009</u>. 7. ☒ Examiner's Amendment/Comment 8. ☐ Examiner's Statement of Reasons for Allowance 9. ☐ Other _____ |
|---|--|

Examiner-Initiated Interview Summary	Application No.	Applicant(s)	
	10/438,396	GARDO ET AL.	
	Examiner	Art Unit	
	CHRISTINE DUONG	2416	

All Participants:

(1) CHRISTINE DUONG

(2) Cindy S. Kaplan

Date of Interview: 24 April 2009

Type of Interview:

☒ Telephonic

☐ Video Conference

☐ Personal (Copy given to: ☐ Applicant ☐ Applicant's representative)

Status of Application: _____

(3) _____

(4) _____

Time: 4 PM

Exhibit Shown or Demonstrated: ☐ Yes ☒ No

If Yes, provide a brief description:

Part I.

Rejection(s) discussed:

Claims discussed:

1, 8

Prior art documents discussed:

deBoer (US Patent No. 6,658,013 B1), Chikenji (US Patent No. 6,639,893 B1)

Part II.

SUBSTANCE OF INTERVIEW DESCRIBING THE GENERAL NATURE OF WHAT WAS DISCUSSED:

Discussed the allowance of claims 8, 13, 17; Discussed adding the limitation in claim 5 into independent claims 1, 11, 16; Discussed deleting "a data signal" in page 12 of the specification.

Part III.

☒ It is not necessary for applicant to provide a separate record of the substance of the interview, since the interview directly resulted in the allowance of the application. The examiner will provide a written summary of the substance of the interview in the Notice of Allowability.

☐ It is not necessary for applicant to provide a separate record of the substance of the interview, since the interview did not result in resolution of all issues. A brief summary by the examiner appears in Part II above.

/Christine Duong/
Examiner, Art Unit 2416

(Applicant/Applicant's Representative Signature – if appropriate)

EXAMINER'S AMENDMENT

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

Authorization for this examiner's amendment was given in a telephone interview with Cindy S. Kaplan on 27 April 2009.

The application has been amended as follows:

2. In the claims:

Claim 1 (currently amended): A method for providing inter-ring protection in shared packet rings, the method comprising:

utilizing a spanning tree protocol to identify a first node as a root node;

operating the first node in an active mode, the first node connected to a ring interconnect node on the same ring as the first node and to a peer node on a different ring, the ring interconnect node in a standby mode, the first node configured to exchange control messages with the ring interconnect node during a failure of the peer node or a ring interconnecting link connecting the first node to the peer node;

forwarding packets from the first node to the peer node on the ring interconnecting link in the active mode;

receiving at the first node, notification of a failure of the ring interconnecting link or the peer node; and

in response to said notification of a failure:

sending said control message from the first node to the ring interconnect node instructing the ring interconnect node to switch from the standby mode to

the active mode, wherein the ring interconnect node forwards packets in the active mode; and

Formatted: Underline

changing the first node to the standby mode and changing a port path cost of the first node from a default port path cost associated with the active mode to a standby port path cost associated with the standby mode;

Formatted: Underline

wherein packets received at the first node or the ring interconnect node are blocked from being forwarded to said different ring when the node is in the standby mode.

Claim 2 (canceled).

Claim 3 (canceled).

Claim 4 (previously presented): The method of claim 1 wherein sending said control message from the first node to the ring interconnect node comprises changing the status of a ring interconnect link of the ring interconnect node from blocked to forwarding.

Claim 5 (canceled).

Claim 6 (previously presented): The method of claim 1 further comprising receiving a message at the first node that the failed link or node is restored and wherein the first node and ring interconnect node remain in their same modes when the failed link or node is restored.

Claim 7 (canceled).

Claim 8 (previously presented): A method for providing inter-ring protection in shared packet rings, the method comprising:

- utilizing a spanning tree protocol to identify a first node as a root node;

- operating the first node in an active mode, the first node connected to a ring interconnect node on the same ring as the first node and to a peer node on a different ring, the ring interconnect node in a standby mode, the first node configured to exchange control messages with the ring interconnect node during a failure of the peer node or a ring interconnecting link connecting the first node to the peer node;

- forwarding packets from the first node to the peer node on a ring interconnecting link in the active mode;

- receiving at the first node, notification of a failure of the ring interconnecting link or the peer node; and

- in response to said notification of a failure:

 - sending said control message from the first node to the ring interconnect node instructing the ring interconnect node to switch from the standby mode to the active mode;

 - changing the first node to the standby mode; and

- changing the first node to a flush state wherein packets that are in process at the first node are removed and packets received at the first node from said different ring are not added to the ring, prior to entering the standby mode;

- wherein packets received at the first node or the ring interconnect node are blocked from being forwarded to said different ring when the node is in the standby mode.

Claim 9 (canceled).

Claim 10 (previously presented): The method of claim 1 wherein the ring interconnecting link has generally the same bandwidth as the ring of the first node.

Claim 11 (currently amended): A computer program product for preventing loops in a ring topology of a computer network, the product comprising:

code that utilizes a spanning tree protocol to identify a first node as a root node;

code that operates the first node in an active mode, the first node connected to a ring interconnect node on the same ring as the first node and to a peer node on a different ring, the ring interconnect node in a standby mode, the first node configured to exchange control messages with the ring interconnect node during a failure of the peer node or a ring interconnecting link connecting the first node to the peer node;

code that forwards packets from the first node to the peer node on a ring interconnecting link in the active mode;

code that receives notification of a failure of the ring interconnecting link or the peer node;

code that in response to said notification of a failure:

sends said control message from the first node to the ring interconnect node instructing the ring interconnect node to switch from the standby mode to the active mode, wherein the ring interconnect node forwards packets in the active mode;

Formatted: Underline

changes the first node to said standby mode and changes a port path cost of the first node from a default port path cost associated with the active mode to a standby port path cost associated with the standby mode; and

Formatted: Underline

a computer-readable storage medium for storing the codes;

wherein packets received at the first node or the ring interconnect node are blocked from being forwarded to said different ring when the node is in the standby mode.

Claim 12 (previously presented): The product of claim 11 further comprising code that receives a message at the first node that the failed link or node is restored and wherein the first node and ring interconnect node remain in their same modes when the failed link or node is restored.

Claim 13 (previously presented): A computer program product for preventing loops in a ring topology of a computer network, the product comprising:

- code that utilizes a spanning tree protocol to identify a first node as a root node;

- code that operates the first node in an active mode, the first node connected to a ring interconnect node on the same ring as the first node and to a peer node on a different ring, the ring interconnect node in a standby mode, the first node configured to exchange control messages with the ring interconnect node during a failure of the peer node or a ring interconnecting link connecting the first node to the peer node;

- code that forwards packets from the first node to the peer node on a ring interconnecting link in the active mode;

- code that receives notification of a failure of the ring interconnecting link or the peer node;

- code that in response to said notification failure:

 - sends said control message from the first node to the ring interconnect node instructing the ring interconnect node to switch from the standby mode to the active mode; and

 - changes the first node to said standby mode;

code that changes the first node to a flush state wherein packets that are in process at the first node are removed and packets received at the first node from said different ring are not added to the ring, prior to entering the standby mode; and

a computer-readable storage medium for storing the codes;

wherein packets received at the first node or the ring interconnect node are blocked from being forwarded to said different ring when the node is in the standby mode.

Claim 14 (previously presented): The product of claim 11 wherein the ring interconnecting link has generally the same bandwidth as the ring of the first node.

Claim 15 (canceled).

Claim 16 (currently amended): An apparatus for providing inter-ring protection in shared packet rings, comprising:

a processor configured to utilize a spanning tree protocol to identify a first node as a root node, operate the first node in an active mode or a standby mode, and switch the first node between said active and standby modes, the first node configured for connection to a ring interconnect node on the same ring as the first node and for connection to a peer node on a different ring with a ring interconnecting link, the first node configured to exchange control messages with the ring interconnect node during a failure of the peer node or a ring interconnecting link connecting the first node to the peer node; and

a transmitter operable to send said control message from the first node to the ring interconnect node upon detection of a failure of the ring interconnecting link or the peer node instructing the ring interconnect node to switch from the standby mode to the active mode;

Formatted: Underline

wherein only one of the first node and the ring interconnect node operate in the active mode at one time, the first node and the ring interconnect node only add packets to the ring or remove packets from the ring when the node is in the active mode, and the processor is configured to change a port path cost of the first node upon switching the first node between said active and standby modes.

Formatted: Underline

Deleted: and wherein

Deleted: continue to operate the first node in the standby mode upon receiving notification that a failed link or node is restored

Claim 17 (previously presented): An apparatus for providing inter-ring protection in shared packet rings, comprising:

a processor configured to utilize a spanning tree protocol to identify a first node as a root node, operate the first node in an active mode or a standby mode, the first node configured for connection to a ring interconnect node on the same ring as the first node and for connection to a peer node on a different ring with a ring interconnecting link, the first node configured to exchange control messages with the ring interconnect node during a failure of the peer node or a ring interconnecting link connecting the first node to the peer node; and

a transmitter operable to send said control message from the first node to the ring interconnect node upon detection of a failure of the ring interconnecting link or the peer node instructing the ring interconnect node to switch from the standby mode to the active mode;

wherein only one of the first node and the ring interconnect node operate in the active mode at one time and wherein the first node and the ring interconnect node only add packets to the ring or remove packets from the ring when the node is in the active mode, and the processor is configured to operate the first node in a flush state wherein packets that are in process at the first node are removed and packets received at the first node from said different ring are not added to the ring, prior to entering the standby mode.

Claim 18 (canceled).

Claim 19 (canceled).

Claim 20 (previously presented): The apparatus of claim 16 wherein the ring interconnecting link has generally the same bandwidth as the ring of the first node.

Claim 21 (canceled).

Claim 22 (previously presented): The apparatus of claim 16 wherein the spanning tree protocol is rapid spanning tree protocol.

Claim 23 (previously presented): The apparatus of claim 17 wherein a packet received at the apparatus includes a ring header comprising a field identifying a node that added the packet to the ring.

Claim 24 (previously presented): The method of claim 1 wherein a state set by said message sent to the ring interconnect node takes precedence over the state set by the spanning tree protocol running on the ring interconnect node.

Claim 25 (previously presented): The method of claim 1 wherein a state set at the first node by the spanning tree protocol identifies only an initial state of the first node and wherein said control messages exchanged between the first node and the ring interconnect node determine the state at the first node.

Claim 26 (previously presented): The method of claim 1 wherein changing the first node to the standby mode comprises setting the ring interconnecting link to a down or blocked state.

Claim 27 (canceled).

3. In the specification, page 12 first paragraph:

include CD-ROM, floppy disk, tape, flash memory, system memory, and hard drive. Additionally, ~~a data signal embodied in a carrier wave (e.g., in a network including the Internet) may be a transmission medium.~~ Computer system 84 further includes subsystems such as a central processor 86, fixed storage 90 (e.g., hard drive), removable storage 92 (e.g., CD-ROM drive), and one or more network interfaces 94. Other computer systems suitable for use with the invention may include additional or fewer subsystems. For example, computer system 84 may include more than one processor 86 (i.e., a multi-processor system) or a cache memory.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTINE DUONG whose telephone number is (571)270-1664. The examiner can normally be reached on Monday - Friday: 830 AM-6 PM EST with first Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on (571) 272-3174. 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.

/Kevin C. Harper/
Primary Examiner, Art Unit 2416

/Christine Duong/
Examiner, Art Unit 2416
04/28/2009

Search Notes 	Application/Control No. 10438396	Applicant(s)/Patent Under Reexamination GARD0 ET AL.
	Examiner Duong, Christine	Art Unit 2416

SEARCHED			
Class	Subclass	Date	Examiner
370	223,255,256	10/30/2006	ctd
370	216-228,244,250,252,256,404-406	11/15/2006	ctd
370	216-228	11/27/2006	ctd
370	217,221,222,223,229,403,404,405	06/25/2007	ctd
370	217,221,222,223,229,403,404,405	09/17/2008	ctd

SEARCH NOTES		
Search Notes	Date	Examiner
Software patenting William Grant (TQAS)	10/27/2006	ctd
Class/Subclass search Gregory Sefcheck (Primary)	11/15/2006	ctd
101 Statutory William Grant (TQAS)	11/29/2006	ctd
EAST search notes printout attached		ctd
PLUS search notes printout attached		ctd
EAST search updated	06/27/2006	ctd
Seema Rao (SPE)	01/28/2008	ctd
EAST search updated	01/29/2008	ctd
EAST search updated (USPGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB)	09/17/2008 (updated 04/28/2009)	ctd
370/219,222,405 with text	04/28/2009	ctd
Seema Rao (SPE) allowance	04/27/2009	ctd
Inventorship search	updated 04/28/2009	ctd

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner
	Interference search attached	04/28/2009	ctd

--	--

Issue Classification 	Application/Control No. 10438396	Applicant(s)/Patent Under Reexamination GARDO ET AL.
	Examiner CHRISTINE DUONG	Art Unit 2416

ORIGINAL						INTERNATIONAL CLASSIFICATION												
CLASS		SUBCLASS				CLAIMED					NON-CLAIMED							
370		219				G	0	1	R	31 / 08 (2006.0)								
						H	0	4	L	12 / 28 (2006.0)								
CROSS REFERENCE(S)																		
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)																	
370	222	405																

☐ 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	11	17												
	2		18												
	3		19												
2	4	12	20												
	5		21												
3	6	13	22												
	7	14	23												
4	8	15	24												
	9	16	25												
5	10	17	26												
8	11		27												
7	12														
8	13														
9	14														
	15														
10	16														

/CHRISTINE DUONG/ Examiner, Art Unit 2416 (Assistant Examiner)	04/28/2009 (Date)	Total Claims Allowed: 17	
/Kevin C Harper/ Primary Examiner, Art Unit 2416 (Primary Examiner)	05/07/2009 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 4

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	867	(370/219,222,405).CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/04/28 13:36
L2	42	1 and (\$stp or (spanning tree))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/04/28 13:37
L3	245	((ring) and (fail\$4 or fault or error) and (packet)).clm.	US-PGPUB	ADJ	ON	2009/04/28 14:21
L4	82	((ring) and (fail\$4 or fault or error) and (packet) and (active or primary or master)).clm.	US-PGPUB	ADJ	ON	2009/04/28 14:23
L5	50	((ring) and (fail\$4 or fault or error) and (packet) and (active or primary or master) and (standby or secondary or slave)).clm.	US-PGPUB	ADJ	ON	2009/04/28 14:24
S1	1149	\$stp and (ring same (shar\$4 or interconnect\$4 or interconnect\$4 or inter\$connect \$4))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/03/31 11:41
S2	61	\$stp and (ring same (shar\$4 or interconnect\$4 or interconnect\$4 or inter\$connect \$4)) and root and (@pd<"20030515")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/03/31 11:52
S3	23	\$stp and (ring same (interconnect\$4 or interconnect\$4 or inter\$connect \$4)) and root and (@pd<"20030515")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/03/31 11:58
S4	11	\$stp and (ring same (interconnect\$4 or interconnect\$4 or inter\$connect \$4) same (redundan\$4 or backup or back\$up or back \$up)) and (@pd<"20030515")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/03/31 15:48

S5	4326	\$stp and (ring same (shar\$4 or interconnect\$4 or inter-connect\$4 or inter\$connect\$4 or internetwork\$4 or interwork\$4 or backup or second\$4))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/04/01 11:30
S6	233	\$stp and (ring with (interconnect\$4 or inter-connect\$4 or inter\$connect\$4))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/04/01 11:31
S7	139	\$stp and (ring with (interconnect\$4 or inter-connect\$4 or inter\$connect\$4)) and (@pd<"20030515")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/04/01 11:31
S8	1012	\$stp and (ring with (fault\$4 or protect\$4 or fail\$5 or second\$5)) and (@pd<"20030515")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/04/01 15:23
S9	410	\$stp and (ring with (fault\$4 or protect\$4 or fail\$5 or second\$5)) and ((inter-ring or inter\$ring or interrering or inter-connect\$4 or interconnect\$4 or inter\$connect\$4)) and (@pd<"20030515")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/04/01 15:25
S10	84	\$stp and (ring with (fault\$4 or protect\$4 or fail\$5 or second\$5)) same ((inter-ring or inter\$ring or interrering or inter-connect\$4 or interconnect\$4 or inter\$connect\$4)) and (@pd<"20030515")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/04/01 15:25
S11	4945	(ring with (fault\$4 or protect\$4 or fail\$5 or second\$5)) with ((inter-ring or inter\$ring or interrering or inter-connect\$4 or interconnect\$4 or inter\$connect\$4)) and (@pd<"20030515")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/04/01 15:26
S12	4945	(ring with (fault\$4 or protect\$4 or fail\$5 or second\$5)) with (inter-ring or inter\$ring or interrering or inter-connect\$4 or interconnect\$4 or inter\$connect\$4)) and (@pd<"20030515")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/04/01 15:27

S13	643	(ring with (fault\$4 or protect \$4 or fail\$5) with (inter-ring or inter\$ring or interrering or inter-connect\$4 or interconnect\$4 or inter \$connect\$4)) and (@pd<"20030515")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/04/01 15:27
S14	78	(ring with (fault\$4 or protect \$4 or fail\$5) with (inter-ring or inter\$ring or interrering or inter-connect\$4 or interconnect\$4 or inter \$connect\$4)) and (@pd<"20030515") and (370/216-228,241-253).ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/04/01 15:29
S15	4	(ring with (fault\$4 or protect \$4 or fail\$5) with (inter-ring or inter\$ring or interrering or inter-connect\$4 or interconnect\$4 or inter \$connect\$4)) and (@pd<"20030515") and rpr	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/04/01 15:31
S16	14708	(370/216-228,241-253). CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/04/02 10:22
S17	128	S16 and rpr	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/04/02 10:22
S18	16	S16 and rpr and (@pd<"20030515")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/04/02 10:23
S19	2	((("6658013") or ("7054264")). PN.	US-PGPUB; USPAT; USOCR; EPO; JPO; IBM_TDB	OR	OFF	2009/04/02 11:16
S20	1	("6639893").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO; IBM_TDB	OR	OFF	2009/04/02 14:14
S21	33752	ring same restor\$4	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/04/02 15:28
S22	10	((stp or (spannin\$4 tree protocol)) and ring and (fault or fail\$4 or protect\$4)).clm.	US-PGPUB; USPAT	ADJ	ON	2009/04/06 15:08

4/28/2009 2:38:56 PM

C:\Documents and Settings\cduong\My Documents\EAST\Workspaces\christine\10438396\20090331.wsp

Index of Claims 	Application/Control No. 10438396	Applicant(s)/Patent Under Reexamination GARDO ET AL.
	Examiner CHRISTINE DUONG	Art Unit 2416

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

☐ Claims renumbered in the same order as presented by applicant		☐ CPA		☐ T.D.		☐ R.1.47	
CLAIM		DATE					
Final	Original	12/08/2006	07/03/2007	01/29/2008	09/17/2008	04/28/2009	
1	1	✓	✓	✓	✓	=	
	2	✓	✓	✓	-	-	
	3	✓	-	-	-	-	
2	4	✓	✓	✓	✓	=	
	5	✓	✓	✓	✓	-	
3	6	✓	✓	✓	✓	=	
	7	✓	O	-	-	-	
4	8	✓	O	✓	✓	=	
	9	✓	O	✓	-	-	
5	10	✓	✓	✓	✓	=	
6	11	✓	✓	✓	✓	=	
7	12	✓	✓	✓	✓	=	
8	13	✓	O	✓	✓	=	
9	14	✓	✓	✓	✓	=	
	15		O	-	-	-	
10	16		✓	✓	✓	=	
11	17		O	✓	✓	=	
	18		O	✓	-	-	
	19		O	-	-	-	
12	20		✓	✓	✓	=	
	21		✓	✓	✓	-	
13	22				✓	=	
14	23				✓	=	
15	24				✓	=	
16	25				✓	=	
17	26				✓	=	
	27				✓	-	



15 RCE

PTO/SB/30 (09-08)
Approved for use through 10/31/2008. OMB 0651-0031
U.S. Patent and Trademark Office, U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Request
for
Continued Examination (RCE)
Transmittal

Address to:
Mail Stop RCE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Application Number	10/438,396
Filing Date	May 15, 2003
First Named Inventor	Russell Gardo
Art Unit	2616
Examiner Name	Christine T. Duong
Attorney Docket Number	CISCP822

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. See Instruction Sheet for RCEs (not to be submitted to the USPTO) on page 2.

1. **Submission required under 37 CFR 1.114** Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

a. ☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

i. ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____

ii. ☐ Other _____

b. ☒ Enclosed

i. ☒ Amendment/Reply

ii. ☐ Affidavit(s)/ Declaration(s)

iii. ☐ Information Disclosure Statement (IDS)

iv. ☐ Other _____

2. **Miscellaneous**

a. ☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of _____ months. (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

b. ☐ Other _____

3. **Fees** The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.

The Director is hereby authorized to charge the following fees, any underpayment of fees, or credit any overpayments, to

a. ☒ Deposit Account No. 50-1652

i. ☐ RCE fee required under 37 CFR 1.17(e)

ii. ☐ Extension of time fee (37 CFR 1.136 and 1.17)

iii. ☐ Other _____

b. ☒ Check in the amount of \$ 940 enclosed

c. ☐ Payment by credit card (Form PTO-2038 enclosed)

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

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED			
Signature		Date	January 26, 2009
Name (Print/Type)	Cindy S. Kaplan	Registration No.	40,043

CERTIFICATE OF MAILING OR TRANSMISSION	
I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Mail Stop RCE, Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450 or facsimile transmitted to the U.S. Patent and Trademark Office on the date shown below.	
Signature	
Name (Print/Type)	Cindy S. Kaplan
Date	January 26, 2009

This collection of information is required by 37 CFR 1.114. 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: Mail Stop RCE, 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.

01/30/2009 SLUANG1 00000020 10438396
01 FC:1801 810.00 DP



**Request
for
Continued Examination (RCE)
Transmittal**

Address to:
Mail Stop RCE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Application Number	10/438,396
Filing Date	May 15, 2003
First Named Inventor	Russell Gardo
Art Unit	2616
Examiner Name	Christine T. Duong
Attorney Docket Number	CISCP822

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. See Instruction Sheet for RCEs (not to be submitted to the USPTO) on page 2.

1. **Submission required under 37 CFR 1.114** Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).
- a. ☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.
- i. ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____
- ii. ☐ Other _____
- b. ☒ Enclosed
- i. ☒ Amendment/Reply
- ii. ☐ Affidavit(s)/ Declaration(s)
- iii. ☐ Information Disclosure Statement (IDS)
- iv. ☐ Other _____
2. **Miscellaneous**
- a. ☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of _____ months. (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)
- b. ☐ Other _____
3. **Fees** The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.
- The Director is hereby authorized to charge the following fees, any underpayment of fees, or credit any overpayments, to
- a. ☒ Deposit Account No. 50-1652
- i. ☐ RCE fee required under 37 CFR 1.17(e)
- ii. ☐ Extension of time fee (37 CFR 1.136 and 1.17)
- iii. ☐ Other _____
- b. ☒ Check in the amount of \$ 940 enclosed
- c. ☐ Payment by credit card (Form PTO-2038 enclosed)

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

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

Signature	<i>Cindy S. Kaplan</i>	Date	January 26, 2009
Name (Print/Type)	Cindy S. Kaplan	Registration No.	40,043

CERTIFICATE OF MAILING OR TRANSMISSION

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Mail Stop RCE, Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450 or facsimile transmitted to the U.S. Patent and Trademark Office on the date shown below.

Signature	<i>Cindy S. Kaplan</i>	Date	January 26, 2009
Name (Print/Type)	Cindy S. Kaplan		

This collection of information is required by 37 CFR 1.114. 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: Mail Stop RCE, 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.



PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a) FY 2006 <i>(Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).)</i>		Docket Number (Optional) CISC822	
Application Number 10/438,396		Filed May 15, 2003	
For Inter-Ring Protection for Shared Packet Rings			
Art Unit 2616		Examiner Christine T. Duong	
This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above identified application.			
The requested extension and fee are as follows (check time period desired and enter the appropriate fee below):			
☒ One month (37 CFR 1.17(a)(1))	Fee \$ 120	Small Entity Fee \$ 60	\$ 130
☐ Two months (37 CFR 1.17(a)(2))	\$ 460	\$ 230	\$
☐ Three months (37 CFR 1.17(a)(3))	\$ 1050	\$ 525	\$
☐ Four months (37 CFR 1.17(a)(4))	\$ 1640	\$ 820	\$
☐ Five months (37 CFR 1.17(a)(5))	\$ 2230	\$ 1115	\$
☐ Applicant claims small entity status. See 37 CFR 1.27.			
☒ A check in the amount of the fee is enclosed.			
☐ Payment by credit card. Form PTO-2038 is attached.			
☐ The Director has already been authorized to charge fees in this application to a Deposit Account.			
☒ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number <u>50-1652</u> . I have enclosed a duplicate copy of this sheet.			
WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.			
I am the ☐ applicant/inventor.			
☐ assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96).			
☒ attorney or agent of record. Registration Number <u>40,043</u>			
☐ attorney or agent under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34 _____			
_____ Signature		_____ Date	
Cindy S. Kaplan Typed or printed name		408-399-5608 Telephone Number	
NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below.			
☐ Total of _____ forms are submitted.			

This collection of information is required by 37 CFR 1.136(a). 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 6 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.

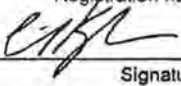
01/30/2009 SLUANG1 00000020 10438396

02 FC:1251

130.00 DP



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.

PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a) FY 2006 <i>(Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).)</i>		Docket Number (Optional) CISC822	
Application Number 10/438,396		Filed May 15, 2003	
For Inter-Ring Protection for Shared Packet Rings			
Art Unit 2616		Examiner Christine T. Duong	
This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above identified application.			
The requested extension and fee are as follows (check time period desired and enter the appropriate fee below):			
☒ One month (37 CFR 1.17(a)(1))	Fee \$ 120	Small Entity Fee \$ 60	\$ 130
☐ Two months (37 CFR 1.17(a)(2))	\$ 460	\$ 230	\$
☐ Three months (37 CFR 1.17(a)(3))	\$ 1050	\$ 525	\$
☐ Four months (37 CFR 1.17(a)(4))	\$ 1640	\$ 820	\$
☐ Five months (37 CFR 1.17(a)(5))	\$ 2230	\$ 1115	\$
☐ Applicant claims small entity status. See 37 CFR 1.27.			
☒ A check in the amount of the fee is enclosed.			
☐ Payment by credit card. Form PTO-2038 is attached.			
☐ The Director has already been authorized to charge fees in this application to a Deposit Account.			
☒ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number <u>50-1652</u> . I have enclosed a duplicate copy of this sheet.			
WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.			
I am the ☐ applicant/inventor.			
☐ assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96).			
☒ attorney or agent of record. Registration Number <u>40,043</u>			
☐ attorney or agent under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34 _____			
 Signature		January 26, 2009 Date	
Cindy S. Kaplan Typed or printed name		408-399-5608 Telephone Number	
NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below.			
☐ Total of _____ forms are submitted.			

This collection of information is required by 37 CFR 1.136(a). 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 6 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.



CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on January 26, 2009.

Signed: _____

Cindy S. Kaplan

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appln. No.	:	10/438,396	Confirmation No.:	4274
Applicant	:	Russell Gardo et al.		
Filed	:	May 15, 2003		
TC/A.U.	:	2112		
Examiner	:	Christine T. Duong		
Docket No.	:	CISCP822		
Customer No.	:	26541		
Title	:	INTER-RING PROTECTION FOR SHARED PACKET RINGS		

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

AMENDMENT D

Sir:

In response to the Office Action of September 26, 2008 please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 10 of this paper.

Amendment to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A method for providing inter-ring protection in shared packet rings, the method comprising:

utilizing a spanning tree protocol to identify a first node as a root node;

operating the first node in an active mode, the first node connected to a ring interconnect node on the same ring as the first node and to a peer node on a different ring, the ring interconnect node in a standby mode, the first node configured to exchange control messages with the ring interconnect node during a failure of the peer node or a ring interconnecting link connecting the first node to the peer node;

forwarding packets from the first node to the peer node on ~~a~~ the ring interconnecting link in the active mode;

receiving at the first node, notification of a failure of the ring interconnecting link or the peer node; and

in response to said notification of a failure:

sending ~~a~~ said control message from the first node to the ring interconnect node instructing the ring interconnect node to switch ~~the ring interconnect node~~ from the standby mode to the active mode; and

changing the first node to the standby mode;

wherein packets received at the first node or the ring interconnect node are blocked from being forwarded to said different ring when the node is in the standby mode, ~~and the first node and ring interconnect node remain in their same modes when the failed link or node is restored.~~

Claim 2 (canceled).

Claim 3 (canceled).

Claim 4 (currently amended): The method of claim 1 wherein sending a said control message from the first node to the ring interconnect node comprises changing the status of a ring interconnect link of the ring interconnect node from blocked to forwarding.

Claim 5 (currently amended): The method of claim 1 wherein changing the first node to the standby mode comprises changing a port path cost of the first node from a default port path cost associated with the active mode to a standby port path cost associated with the standby mode.

Claim 6 (currently amended): The method of claim 1 further comprising receiving a message at the first node that the failed link or node is restored and wherein the first node and ring interconnect node remain in their same modes when the failed link or node is restored.

Claim 7 (canceled).

Claim 8 (currently amended): A method for providing inter-ring protection in shared packet rings, the method comprising:

utilizing a spanning tree protocol to identify a first node as a root node;

operating the first node in an active mode, the first node connected to a ring interconnect node on the same ring as the first node and to a peer node on a different ring, the ring interconnect node in a standby mode, the first node configured to exchange control messages with the ring interconnect node during a failure of the peer node or a ring interconnecting link connecting the first node to the peer node;

forwarding packets from the first node to the peer node on a ring interconnecting link in the active mode;

receiving at the first node, notification of a failure of the ring interconnecting link or the peer node; and

in response to said notification of a failure:

sending a said control message from the first node to the ring interconnect node instructing the ring interconnect node to switch the ring interconnect node from the standby mode to the active mode;

changing the first node to the standby mode; and

changing the first node to a flush state wherein packets that are in process at the first node are removed and packets received at the first node from said different ring are not added to the ring, prior to entering the standby mode;

wherein packets received at the first node or the ring interconnect node are blocked from being forwarded to said different ring when the node is in the standby mode.

Claim 9 (canceled).

Claim 10 (previously presented): The method of claim 1 wherein the ring interconnecting link has generally the same bandwidth as the ring of the first node.

Claim 11 (currently amended): A computer program product for preventing loops in a ring topology of a computer network, the product comprising:

code that utilizes a spanning tree protocol to identify a first node as a root node;

code that operates the first node in an active mode, the first node connected to a ring interconnect node on the same ring as the first node and to a peer node on a different ring, the ring interconnect node in a standby mode, the first node configured to exchange control messages with the ring interconnect node during a failure of the peer node or a ring interconnecting link connecting the first node to the peer node;

code that forwards packets from the first node to the peer node on a ring interconnecting link in the active mode;

code that receives notification of a failure of the ring interconnecting link or the peer node;

code that in response to said notification of a failure:

sends a said control message from the first node to the ring interconnect node instructing the ring interconnect node to switch the ring interconnect node from the standby mode to the active mode;

changes the first node to said standby mode; and

a computer-readable storage medium for storing the codes;

wherein packets received at the first node or the ring interconnect node are blocked from being forwarded to said different ring when the node is in the standby mode; ~~and the first node and ring interconnect node remain in their same modes when the failed link or node is restored.~~

Claim 12 (currently amended): The product of claim 11 further comprising code that receives a message at the first node that the failed link or node is restored and wherein the first node and ring interconnect node remain in their same modes when the failed link or node is restored.

Claim 13 (currently amended): A computer program product for preventing loops in a ring topology of a computer network, the product comprising:

code that utilizes a spanning tree protocol to identify a first node as a root node;

code that operates the first node in an active mode, the first node connected to a ring interconnect node on the same ring as the first node and to a peer node on a different ring, the ring interconnect node in a standby mode; the first node configured to exchange control messages with the ring interconnect node during a failure of the peer node or a ring interconnecting link connecting the first node to the peer node;

code that forwards packets from the first node to the peer node on a ring interconnecting link in the active mode;

code that receives notification of a failure of the ring interconnecting link or the peer node;

code that in response to said notification failure:

sends ~~a~~ said control message from the first node to the ring interconnect node instructing the ring interconnect node to switch the ring interconnect node from the standby mode to the active mode; and

changes the first node to said standby mode;

code that changes the first node to a flush state wherein packets that are in process at the first node are removed and packets received at the first node from said different ring are not added to the ring, prior to entering the standby mode; and

a computer-readable storage medium for storing the codes;

wherein packets received at the first node or the ring interconnect node are blocked from being forwarded to said different ring when the node is in the standby mode.

Claim 14 (previously presented): The product of claim 11 wherein the ring interconnecting link has generally the same bandwidth as the ring of the first node.

Claim 15 (canceled).

Claim 16 (currently amended): An apparatus for providing inter-ring protection in shared packet rings, comprising:

a processor configured to utilize a spanning tree protocol to identify a first node as a root node, operate the first node in an active mode or a standby mode, the first node configured for connection to a ring interconnect node on the same ring as the first node and for connection to a peer node on a different ring with a ring interconnecting link, the first node configured to exchange control messages with the ring interconnect node during a failure of the peer node or a ring interconnecting link connecting the first node to the peer node; and

a transmitter operable to send a said control message from the first node to the ring interconnect node upon detection of a failure of the ring interconnecting link or the peer node instructing the ring interconnect node to switch ~~the ring interconnect node~~ from the standby mode to the active mode;

wherein only one of the first node and the ring interconnect node operate in the active mode at one time and wherein the first node and the ring interconnect node only add packets to the ring or remove packets from the ring when the node is in the active mode, and the processor is configured to continue to operate the first node in the standby mode upon receiving notification that a failed link or node is restored.

Claim 17 (currently amended): An apparatus for providing inter-ring protection in shared packet rings, comprising:

a processor configured to utilize a spanning tree protocol to identify a first node as a root node, operate the first node in an active mode or a standby mode, the first node configured for connection to a ring interconnect node on the same ring as the first node and for connection to a peer node on a different ring with a ring interconnecting link, the first node configured to exchange control messages with the ring interconnect node during a failure of the peer node or a ring interconnecting link connecting the first node to the peer node; and

a transmitter operable to send a said control message from the first node to the ring interconnect node upon detection of a failure of the ring interconnecting link or the peer node instructing the ring interconnect node to switch ~~the ring interconnect node~~ from the standby mode to the active mode;

wherein only one of the first node and the ring interconnect node operate in the active mode at one time and wherein the first node and the ring interconnect node only add packets to the ring or remove packets from the ring when the node is in the active mode, and the processor is configured to operate the first node in a flush state wherein packets that are in process at the first node are removed and packets received at the first node from said different ring are not added to the ring, prior to entering the standby mode.

Claim 18 (canceled).

Claim 19 (canceled).

Claim 20 (previously presented): The apparatus of claim 16 wherein the ring interconnecting link has generally the same bandwidth as the ring of the first node.

Claim 21 (previously presented): The apparatus of claim 16 wherein the processor is configured to change a port path cost of the first node when the first node switches from the active mode to the standby mode.

Claim 22 (previously presented): The apparatus of claim 16 wherein the spanning tree protocol is rapid spanning tree protocol.

Claim 23 (previously presented): The apparatus of claim 17 wherein a packet received at the apparatus includes a ring header comprising a field identifying a node that added the packet to the ring.

Claim 24 (previously presented): The method of claim 1 wherein a state set by said message sent to the ring interconnect node takes precedence over the state set by the spanning tree protocol running on the ring interconnect node.

Claim 25 (currently amended): The method of claim 1 wherein ~~the~~ a state set at the first node by the spanning tree protocol identifies only an initial state of the first

node and wherein said control messages exchanged between the first node and the ring interconnect node determine the state at the first node.

Claim 26 (previously presented): The method of claim 1 wherein changing the first node to the standby mode comprises setting the ring interconnecting link to a down or blocked state.

Claim 27 (canceled).

REMARKS/ARGUMENTS

Claims 1, 4-6, 8, 11-13, 16, 17, and 25 are amended and claim 27 is canceled herein. With entry of this amendment, claims 1-2, 4-6, 8-14, 16-18, and 20-26 will be pending.

Claim 25 has been amended to replace "the state set at the first node" with --a state set at the first node--. The claim objection should therefore be withdrawn.

Claims 1, 4-6, 11-12, 16, 21, 24, and 26-27 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent No. 6,658,013 (de Boer et al.) in view of U.S. Patent No. 6,639,893 (Chikenji et al.) and U.S. Patent Application Publication No. 2003/0165119 (Hsu et al.).

Claim 1 has been amended to clarify that the first node is configured to exchange control messages with the ring interconnect node during a failure of the peer node or a ring interconnecting link connecting the first node to the peer node and that in response to a failure notification, the first node sends a control message to the ring interconnect node instructing the ring interconnect node to switch from standby mode to active mode.

De Boer et al. describe a method and apparatus for ensuring survivability of inter-ring traffic. The system includes two gateways connecting two rings. Routing is effected at gateway node G1 by switch S1 in accordance with switching instructions received from controller C1 at gateway node. At least one incoming and outgoing signal serves as a control channel for transmitting operation, administration, maintenance and provisioning (OAM&P) information to the controller. The controller C1 generates switching instructions for the switch S1 based on OAM&P information received at the gateway node. De Boer et al. do not show or suggest sending a control message from a first node to a ring interconnect node instructing the ring interconnect node to switch from standby mode to active mode, in response to receiving a failure notification. Instead, de Boer et al. use OAM&P information in determining when to

switch from primary to secondary. See, for example, col. 8, lines 1-13 (OAM&P information provided to the controller C2 indicates that a primary inter-ring connection is established and the algorithm run by the by the controller C2 requires monitoring of the status of the primary gateway node G1 (based on OAM&P information)). A drawback with conventional systems, such as de Boer et al. is that OAM&P protocols do not provide quick (e.g., sub-second) convergence during failure. Applicants' invention, as set forth in the claims, is particularly advantageous in that the node in active mode sends a control message directly to the node in standby mode instructing the node to switch to active mode, thus providing quick recovery following a failure. There is no need to wait for a discovery or management protocol to discover a failure and then for the node to receive information regarding the failure through management protocols, which significantly increases convergence time.

As noted by the Examiner, de Boer et al. fail to disclose utilizing a spanning tree protocol to identify a first node as a root node.

Hsu et al. disclose a network configuration protocol for rapid traffic recovery and loop avoidance in ring topologies. The Examiner cites Hsu et al. with regard to the use of a spanning tree protocol. Hsu et al. describe in the background of the invention, how conventional STP is used to elect a root bridge to prevent loops. Hsu et al. do not show or suggest operating a first node identified by a spanning tree protocol as a root node in an active mode in the context of the claims. Therefore, Hsu et al. do not overcome the deficiencies of the primary reference.

Accordingly, claims 1, 11, 16, and 17, and the claims depending therefrom, are submitted as patentable over the cited references.

Claim 4 is further submitted as patentable over the cited references which do not show or suggest sending a message from a first node to a ring interconnect node comprising changing a status of a ring interconnect link of the ring interconnect node from blocked to forwarding. As noted by the Examiner and discussed above, the controller at the gateway node instructs the switch to change configuration based on

OAM&P information. De Boer et al. do not send a control message that causes a change in status at one of the nodes.

Claims 5, 21, and 27 are further as submitted as patentable because Hsu et al. do not disclose wherein changing a node from active to standby comprises changing a port path cost of the node. In rejecting the claims, the Examiner refers to paragraph [0005] of Hsu et al. This section of the patent application describes how path cost data is used by bridges to elect one of the bridges to be a unique root bridge for the network. There is no discussion of changing a port path cost upon changing the mode of a node.

In the Response to Arguments the Examiner argues that nodes tend to change their modes as failure occurs. However, there is no teaching of specifically changing a port path cost at a node as failures occur.

Claims 6 and 12 are submitted as patentable over the cited references which do not show or suggest receiving a message at the first node that the failed link or node is restored and wherein the first node and ring interconnect node remain in their same modes when the failed link or node is restored. In rejecting this limitation, the Examiner cites Chikenji et al.

Chikenji et al. do not teach two nodes remaining in their same modes when a failed link or node is restored. In rejecting this limitation, the Examiner cites col. 24, lines 42-51 and 62-65 of Chikenji et al. The cited section of the patent describes operation following a fault. By performing switching control between a current use system and spare system, the spare system is switched with the current use system. Chikenji et al. even note that survival confirmations are performed and that the spare system may be started as the current use system. This implies that the primary system and spare system would be switched if the primary system came back online. Applicants' invention allows the first node and ring interconnect nodes to remain in their same modes after a failed link or node is restored. For example, in applicants' claimed invention, after the nodes have changed operating modes, RSTP can be used to converge and mark the restored link as blocked based on the change of the modes of the

nodes following failure. Thus, the active nodes do not change during a link restore scenario and there is no traffic required to change the modes of the nodes.

Claim 24 is further submitted as patentable over the cited references which do not teach wherein a state set by a control message sent to a ring interconnect node takes precedence over the state set by the spanning tree protocol on the ring interconnect node. In rejecting the claim, the Examiner refers to Hsu et al. which describes in the Background of the Invention how another spanning tree election is performed after a link failure to find a new root. This teaches away from the claimed limitation in which the state set takes precedence over any state found by the spanning tree protocol.

Claim 25 is further submitted as patentable over the cited references which do not show or suggest wherein a state set at a node by a spanning tree protocol identifies only an initial state of the first node and wherein control messages exchanged between a first node and a ring interconnect node determine the state at the first node. In rejecting the claim, the Examiner refers to Hsu et al., which describe conventional spanning tree protocol used to elect a root bridge. It is the spanning tree protocol which is used to elect a root bridge for the initial state and subsequent states. As noted by the Examiner, the spanning tree protocol is used to prevent loops in initial and later operation.

Claims 8, 13, and 17 stand rejected under 35 U.S.C. 103(a) as being unpatentable over de Boer et al. in view of U.S. Patent No. 4,683,563 (Rouse et al.).

Claims 8, 13, and 17 specify that packets that are in process at the first node are removed and packets received at the first node from a different ring are not added to the ring when the node is in flush state. In contrast to the claimed invention, Rouse et al. "flush" a ring transmission path by force reading all of the data messages incoming to the node into a node processor and then transmit the messages onto a path (col. 5, line 55 - col. 6, line 42). Rouse et al. do not remove packets in process or add packets received to the ring, as set forth in the claims.

Claims 10, 14, and 20 stand rejected under 35 U.S.C. 103(a) as being unpatentable over de Boer et al., Chikenji et al., and Hsu et al. and further in view of U.S. Patent No. 7,054,264 (Mor).

Claims 10, 14, and 20 are further submitted as patentable over Mor, which does not show or suggest a ring interconnecting link having generally the same bandwidth as the ring of the first node. Mor is directed to a communication system for interconnection of first and second networks. As shown in Fig. 2, the system includes first and second interconnect modules each configured to convey at least a portion of the outgoing traffic from the first network to the second network. When a fault occurs in one of the first and second modules, the other module is reconfigured to receive substantially all of the outgoing data traffic and to convey the traffic to the second network. The sharing of the load of traffic by the two modules in normal operation is an important object of the Mor patent (see, e.g., col. 2 lines 42-54). Upon occurrence of a failure, traffic is redirected using wrapping or steering so that the total bandwidth of traffic that the non-failing module must handle is still no greater than the maximum data rate of one of the two directional rings in the network (see, e.g., col. 2, line 65 – col. 3, line 5). In the Response to the Arguments, the Examiner refers to blocks 54 and 56 and the interface between them. As shown in Fig. 2, blocks 54 and 56 are on the same ring. Claim 10 refers to a ring interconnecting link between the first node and a peer node on different rings.

Claims 23 stands rejected under 35 U.S.A.C. 103(a) as being unpatentable over de Boer et al., Hsu et al. in view of U.S. Patent Application Publication No. 2003/0118041 (Fontana et al.).

Fontana et al. do not teach wherein a packet received includes a ring header comprising a field identifying a node that added the packet to the ring. In rejecting the claim, the Examiner refers to paragraphs [0053] and [0054] of Fontana et al. This section of the patent application describes a Source Ring_ID that identifies the source ring where the packet originated. It does not identify the node that added the packet to the ring, as set forth in claim 23.

Appl. No. 10/438,396
Amdt Dated January 26, 2009
Reply to Office Action of September 26, 2008

The other references cited, including U.S. Patent Application Publication No. 2002/0023170 (Seaman et al.), do not overcome the deficiencies of the primary references.

For the foregoing reasons, Applicants believe that all of the pending claims are in condition for allowance and should be passed to issue. If the Examiner feels that a telephone conference would in any way expedite the prosecution of the application, please do not hesitate to call the undersigned at (408) 399-5608.

Respectfully submitted,



Cindy S. Kaplan
Reg. No. 40,043

P.O. Box 2448
Saratoga, CA 95070
Tel: 408-399-5608
Fax: 408-399-5609

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

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875					Application or Docket Number 10/438,396		Filing Date 05/15/2003		☐ To be Mailed	
APPLICATION AS FILED – PART I										
(Column 1)			(Column 2)		SMALL ENTITY ☐		OR		OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)			RATE (\$)	FEE (\$)		
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A				N/A			
☐ SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A				N/A			
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A				N/A			
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 = *		X \$ =		OR		X \$ =			
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 = *		X \$ =		OR		X \$ =			
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).									
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))										
* If the difference in column 1 is less than zero, enter "0" in column 2.										
			TOTAL				TOTAL			
APPLICATION AS AMENDED – PART II										
(Column 1)			(Column 2)		(Column 3)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY	
AMENDMENT	01/30/2009	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)			RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))	+ 19	Minus ** 20	= 0	X \$ =		OR		X \$20=	0
	Independent (37 CFR 1.16(h))	+ 6	Minus *** 6	= 0	X \$ =		OR		X \$220=	0
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
					TOTAL ADD'L FEE		OR		TOTAL ADD'L FEE	0
AMENDMENT	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)			RATE (\$)	ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))	+ *	Minus **	=	X \$ =		OR		X \$ =	
	Independent (37 CFR 1.16(h))	+ *	Minus ***	=	X \$ =		OR		X \$ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
					TOTAL ADD'L FEE		OR		TOTAL ADD'L FEE	
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.										

Legal Instrument Examiner:
MIOLA ROGERS/

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

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



UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/438,396	05/15/2003	Russell Gardo	CISCP822	4274
26541	7590	09/26/2008		
Cindy S. Kaplan P.O. BOX 2448 SARATOGA, CA 95070			EXAMINER DUONG, CHRISTINE T	
			ART UNIT 2616	PAPER NUMBER
			MAIL DATE 09/26/2008	DELIVERY MODE PAPER

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

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

Office Action Summary	Application No. 10/438,396	Applicant(s) GARDO ET AL.	
	Examiner CHRISTINE DUONG	Art Unit 2616	

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

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

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

Status

1) ☒ Responsive to communication(s) filed on 11 June 2008.

2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 1,4-6,8,10-14,16,17 and 20-27 is/are pending in the application.

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

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) 1,4-6,8,10-14,16,17 and 20-27 is/are rejected.

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

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

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

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. _____.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

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

DETAILED ACTION

This is in response to the Applicant's arguments and amendments filed on 11 June 2008 in which Claims 1, 4-6, 8, 10-14, 16-17, 20-27 are currently pending and Claim 2-3, 7, 9, 15, 18-19 have been cancelled.

Claim Objections

1. Claim 25 objected to because of the following informalities: Regarding claim 25, there is no antecedent basis for the claimed limitation "the state set at the first node". Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. Claims 1, 4-6 11-12, 16, 21, 24, 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over de Boer et al. (US Patent No. 6,658,013 B1) further in view of Chikenji et al. (US Patent No. 6,639,893 B1) and Hsu et al. (PG Pub US 2003/0165119 A1).

Regarding **Claims 1 and 11**, de Boer discloses a method for providing inter-ring protection in shared packet rings ("**ensuring survivability of inter-ring traffic**", title), the method comprising:

Operating a first node in an active mode (**Gateway Node G1 on main ring 200, Fig. 3A**), the first node connected to a ring interconnect node on the same ring as the first node (**Gateway Node G2 on main ring 200, Fig. 3A**) and to a peer node on a different ring (**Gateway Node G1 on subtending ring 210, Fig. 3A**), the ring interconnect node in a standby mode ("**choose gateway nodes G1 and G2 as the primary and secondary gateway nodes, respectively, Column 7, Lines 53-55**);

Forwarding packets from the first node to the peer node on a ring interconnecting link in the active mode ("**As required for the delivery of inter-ring services, the**

switches S1, S2 in gateway nodes G1, G2 have the capability to pass traffic between rings. Only one of these gateway nodes (the "primary gateway node") is chosen to provide the inter-ring connection", Column 7, Lines 41-45);

Receiving at the first node, notification of a failure of the ring interconnecting link or the peer node ("The controller C1 generates switching instructions for the switch S1 based on OAM&P information received therefrom via the control line D1, Column 7, Lines 12-14 and further "The OAM&P information preferably includes the status of various network elements in both survivable rings. Those skilled in the SONET networking art will recognize that it is standard practice to provide an indication of whether a given network element is "failed" or "not failed"', Column 6 Line 66 to Column 7 Line 3 and see Fig. 3B);

In response to said notification of a failure, sending a message from the first node to the ring interconnect node to switch the ring interconnect node from the standby mode to the active mode ("if the status of the primary gateway node G1 is "failed", then the controller C2 instructs the switch S2 to connect the protection segment 202P of the main ring 200 to the protection segment 212P of the subtending ring 210", Column 8, 17-21); and

Changing the first node to the standby mode ("if the status of the primary gateway node G1 is "failed", Column 8, Lines 17-18 and further "the signal formerly headed for the primary gateway node G1 along working segment 206W will be looped back around the protection path of ring 200 and will arrive at the secondary gateway node G2 via protection fiber 202P", Column 8, Lines 27-31 and see Fig. 3B);

Wherein packets received at the first node or the ring interconnect node are blocked from being forwarded to said different ring when the node is in the standby mode (**“The secondary gateway node G2, on the other hand, is provisioned not to effect an inter-ring connection for this particular service. That is to say, OAM&P information provided to the controller C2 indicates that the switch S2 is to not establish an inter-ring connection, since a primary inter-ring connection is already established by the primary gateway node G1”**, Column 8, Lines 1-7).

However, de Boer fails to specifically disclose the first node and ring interconnect node remain in their same modes when the failed link or node is restored.

Nevertheless, Chikenji teaches **“After this, when communication is impossible due to occurrence of a fault, etc. at the between-ring transmission line 41, as explained with reference to FIG. 6, by performing switching control between the current use system and spare system, within the concerned between-ring transmission line 41, the spare system transmission line 43 is switched with the current use system transmission line 42 to be the new current use system, and it is obvious that it is possible to maintain the concerned communication by using the paths 431 and 432 in that system”** (Column 24, Lines 42-51).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have the first node and ring interconnect node remain in their same modes when the failed link or node is restored because **“the ring network can maintain communication while controlling the ring node devices even when a fault has occurred with the control node device”** (Column 5, Lines 40-42).

In addition, de Boer and Chikenji discloses everything claimed as applied above. However, de Boer and Chikenji fails to specifically disclose utilizing a spanning tree protocol to identify a first node as a root node.

Nevertheless, Hsu teaches **"the bridges... to "elect" one of the bridges in the spanning tree network to be a unique root bridge for the network..."** (Hsu [0005] Lines 4-7) and **" Spanning tree protocol provides redundancy by defining a single tree that spans the bridges and maintaining all other paths and connections in a standby or blocked state. The protocol allows bridges to transmit messages to one another that allow each bridge to select its place in the tree and which states should be applied to each of its ports to maintain that place. For example, a port in a given bridge that is connected to an active path at a given time is kept in a forwarding state, in which all data traffic is received and transmitted to the next portion of the network, and a port in the bridge that is connected to an inactive path is kept in a non-forwarding state such as a blocking state in which traffic is blocked through that port"** (Hsu [0004]).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to utilize a spanning tree protocol to identify a first node as a root node because **"the spanning tree protocol, defined in IEEE 802.1, is used by bridges in a network to dynamically discover a subset of the network topology that provides path redundancy while preventing loops... by defining a single tree that spans the bridges and maintaining all other paths and connections in a standby or blocked state"** (Hsu [0004] Lines 3-9). As a result, a root node or bridge would be

ultimately necessary “to calculate the shortest, least cost path from each bridge to the root bridge, to select which ports will be blocking...” (Hsu [0005] Lines 7-9).

Regarding **Claim 4**, de Boer, Chikenji, Hsu disclose everything claimed as applied above (see *Claim 1*). In addition, de Boer discloses a message sent from the first node to the ring interconnect node comprises changing the status of a ring interconnect link of the ring interconnect node from blocked to forwarding (**“the controller C2 instructs the switch S2 to connect the protection segment 202P of the main ring 200 to the protection segment 212P of the subtending ring 210”, Column 8, Lines 19-21).**

Regarding **Claim 5**, de Boer, Chikenji, Hsu discloses everything claimed as applied above (see *Claim 1*). However, de Boer and Chikenji fails to specifically disclose that changing the first node to the standby mode comprises changing a port path cost of the first node, as claimed.

Nevertheless, Hsu teaches **“information including root, bridge and port identifiers and path cost data. This information is used by the bridges, among other things, to “elect” one of the bridges in the spanning tree network to be a unique root bridge for the network, to calculate the shortest, least cost path from each bridge to the root bridge...” (Hsu [0005] Lines 3-8).**

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide de Boer and Chikenji et al.’s first node change to standby mode with a change of port path cost because it will maintain optimum survivability in shared packet rings, since any changes will be kept up to date and informed to the root node and consequently, the port path cost will be adjusted as well.

Regarding **Claims 6 and 12**, de Boer, Chikenji, Hsu discloses everything claimed as applied above (see *Claim 1 and 11*). However, de Boer and Chikenji fail to specifically disclose that the first node receives a message that the failed link or node is restored, as claimed.

Nevertheless, Hsu teaches **“when a failed link gets restored, the master bridge quickly detects the link restoration...”** (Hsu [0009] Lines 11-12).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide de Boer and Chikenji et al.’s first node to receive a message that the failed link or node is restored because it would make the method more versatile as it can allow the active node to choose to take further action after the link or node is restored.

Regarding **Claim 16**, de Boer discloses an apparatus for providing inter-ring protection in shared packet rings, comprising:

A processor configured to operate the first node in an active mode or a standby mode (**Gateway Node G1 on main ring 200, Fig. 3A** and **“choose gateway nodes G1 and G2 as the primary and secondary gateway nodes, respectively, Column 7, Lines 53-55)**, the first node configured to connection to a ring interconnect node on the same ring as the first node (**Gateway Node G2 on main ring 200, Fig. 3A**) and for connection to a peer node on a different ring with a ring interconnecting link (**Gateway Node G1 on subtending ring 210, Fig. 3A**), and

A transmitter operable to send a message from the first node to the ring interconnect node upon detection of a failure of the ring interconnecting link or the peer

node to switch the ring interconnect node from the standby mode to the active mode (**“The controller C1 generates switching instructions for the switch S1 based on OAM&P information received therefrom via the control line D1, Column 7, Lines 12-14 and further “The OAM&P information preferably includes the status of various network elements in both survivable rings. Those skilled in the SONET networking art will recognize that it is standard practice to provide an indication of whether a given network element is “failed” or “not failed””, Column 6 Line 66 to Column 7 Line 3 and “if the status of the primary gateway node G1 is “failed”, then the controller C2 instructs the switch S2 to connect the protection segment 202P of the main ring 200 to the protection segment 212P of the subtending ring 210”, Column 8, 17-21, see Fig. 3B);**

Wherein only one of the first node and the ring interconnect node operate in the active mode at one time and wherein the first node and the ring interconnect node only add packets to the ring or remove packets from the ring when the node is in the active mode (**“As required for the delivery of inter-ring services, the switches S1, S2 in gateway nodes G1, G2 have the capability to pass traffic between rings. Only one of these gateway nodes (the “primary gateway node”) is chosen to provide the inter-ring connection”, Column 7, Lines 41-45 and “The secondary gateway node G2, on the other hand, is provisioned not to effect an inter-ring connection for this particular service. That is to say, OAM&P information provided to the controller C2 indicates that the switch S2 is to not establish an inter-ring connection, since a**

primary inter-ring connection is already established by the primary gateway node G1", Column 8, Lines 1-7).

However, de Boer fails to specifically disclose the processor is configured to continue to operate the first node in the standby mode upon receiving notification that a failed link or node is restored.

Nevertheless, Chikenji teaches **"After this, when communication is impossible due to occurrence of a fault, etc. at the between-ring transmission line 41, as explained with reference to FIG. 6, by performing switching control between the current use system and spare system, within the concerned between-ring transmission line 41, the spare system transmission line 43 is switched with the current use system transmission line 42 to be the new current use system, and it is obvious that it is possible to maintain the concerned communication by using the paths 431 and 432 in that system"** (Column 24, Lines 42-51).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to continue to operate the first node in the standby mode upon receiving notification that a failed link or node is restored because **"the ring network can maintain communication while controlling the ring node devices even when a fault has occurred with the control node device"** (Column 5, Lines 40-42).

In addition, de Boer and Chikenji discloses everything claimed as applied above. However, de Boer and Chikenji fails to specifically disclose utilize a spanning tree protocol to identify a first node as a root node.

Nevertheless, Hsu teaches **“the bridges... to “elect” one of the bridges in the spanning tree network to be a unique root bridge for the network...”** (Hsu [0005] Lines 4-7) and **“ Spanning tree protocol provides redundancy by defining a single tree that spans the bridges and maintaining all other paths and connections in a standby or blocked state. The protocol allows bridges to transmit messages to one another that allow each bridge to select its place in the tree and which states should be applied to each of its ports to maintain that place. For example, a port in a given bridge that is connected to an active path at a given time is kept in a forwarding state, in which all data traffic is received and transmitted to the next portion of the network, and a port in the bridge that is connected to an inactive path is kept in a non-forwarding state such as a blocking state in which traffic is blocked through that port”** (Hsu [0004]).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to utilize a spanning tree protocol to identify a first node as a root node because **“the spanning tree protocol, defined in IEEE 802.1, is used by bridges in a network to dynamically discover a subset of the network topology that provides path redundancy while preventing loops... by defining a single tree that spans the bridges and maintaining all other paths and connections in a standby or blocked state”** (Hsu [0004] Lines 3-9). As a result, a root node or bridge would be ultimately necessary **“to calculate the shortest, least cost path from each bridge to the root bridge, to select which ports will be blocking...”** (Hsu [0005] Lines 7-9).

Regarding **Claim 21**, de Boer, Chikenji, Hsu discloses everything claimed as applied above (see *Claim 16*). However, de Boer and Chikenji fails to specifically disclose that the processor is configured to change a port path cost of the first node when the first node switches from the active mode to the standby mode, as claimed.

Nevertheless, Hsu teaches **“information including root, bridge and port identifiers and path cost data. This information is used by the bridges, among other things, to “elect” one of the bridges in the spanning tree network to be a unique root bridge for the network, to calculate the shortest, least cost path from each bridge to the root bridge...”** (Hsu [0005] Lines 3-8).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide de Boer and Chikenji et al.'s first node change to standby mode with a change of port path cost because it will maintain optimum survivability in shared packet rings, since any changes will be kept up to date and informed to the root node and consequently, the port path cost will be adjusted as well.

Regarding **Claim 24**, de Boer, Chikenji, Hsu discloses everything claimed as applied above (see *Claim 1*). However, de Boer and Chikenji fails to specifically disclose a state set by said message sent to the ring interconnect node takes precedence over the state set by the spanning tree protocol running on the ring interconnect node.

Nevertheless, Hsu teaches **“A similar process is followed after a link failure has occurred in the network, in which case a new root and/or new active paths must be found”** (Hsu [0005]).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have a state set by said message sent to the ring interconnect node take precedence over the state set by the spanning tree protocol running on the ring interconnect node because **"loops are prevented by keeping only one path between devices active at any given time"** (Hsu [0003]).

Regarding **Claim 25**, de Boer, Chikenji, Hsu discloses everything claimed as applied above (see *Claim 1*). However, de Boer and Chikenji fails to specifically disclose the state set at the first node by the spanning tree protocol identifies only an initial state of the first node and wherein messages exchanged between the first node and the ring interconnect node determine the state at the first node.

Nevertheless, Hsu teaches **"bridges in a spanning tree network pass bridge protocol data units, or BPDUs, to one another which contain information including root, bridge and port identifiers and path cost data. This information is used by the bridges, among other things, to "elect" one of the bridges in the spanning tree network to be a unique root bridge for the network, to calculate the shortest, least cost path from each bridge to the root bridge, to select which ports will be blocking, and for each LAN, elect one of the bridges residing in the LAN to be a designated bridge. In brief, the election of a root is performed by each bridge initially assuming itself to be the bridge, each bridge transmitting root BPDUs, each bridge comparing its BPDU information with that received from other bridges, and each bridge deciding whether to stop serving as a root and stop transmitting BPDUs when the configuration of another bridge as root is better than this bridge serving as root.**

Ports being converted from blocking to forwarding states and back again undergo several possible transition states depending upon the BPDUs received. Once the bridges have all reached their decisions, the network stabilizes or converges, and is eventually loop-free. A similar process is followed after a link failure has occurred in the network, in which case a new root and/or new active paths must be found” (Hsu [0005]).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have the state set at the first node by the spanning tree protocol identify only an initial state of the first node and wherein messages exchanged between the first node and the ring interconnect node determine the state at the first node because this will **“provide redundancy while preventing loops in the spanning tree algorithm or protocol” (Hsu [0004]).**

Regarding **Claim 26**, de Boer, Chikenji, Hsu discloses everything claimed as applied above (see *Claim 1*). In addition, de Boer discloses changing the first node to the standby mode comprises setting the ring interconnecting link to a down or blocked state (**“The secondary gateway node G2, on the other hand, is provisioned not to effect an inter-ring connection for this particular service. That is to say, OAM&P information provided to the controller C2 indicates that the switch S2 is to not establish an inter-ring connection, since a primary inter-ring connection is already established by the primary gateway node G1” column 8 lines 1-7).**

Regarding **Claim 27**, de Boer, Chikenji, Hsu discloses everything claimed as applied above (see *Claim 21*). However, de Boer and Chikenji fails to specifically disclose

the port path cost of the first node switches from a default port path cost associated with active mode to a standby port path cost associated with standby mode.

Nevertheless, Hsu teaches **"This information is used by the bridges, among other things, to "elect" one of the bridges in the spanning tree network to be a unique root bridge for the network, to calculate the shortest, least cost path from each bridge to the root bridge, to select which ports will be blocking, and for each LAN, elect one of the bridges residing in the LAN to be a designated bridge. In brief, the election of a root is performed by each bridge initially assuming itself to be the bridge, each bridge transmitting root BPDUs, each bridge comparing its BPDU information with that received from other bridges, and each bridge deciding whether to stop serving as a root and stop transmitting BPDUs when the configuration of another bridge as root is better than this bridge serving as root. Ports being converted from blocking to forwarding states and back again undergo several possible transition states depending upon the BPDUs received. Once the bridges have all reached their decisions, the network stabilizes or converges, and is eventually loop-free. A similar process is followed after a link failure has occurred in the network, in which case a new root and/or new active paths must be found"** (Hsu [0005]).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have the port path cost of the first node switches from a default port path cost associated with active mode to a standby port path cost associated with standby mode because this will **"provide redundancy while preventing loops in the spanning tree algorithm or protocol"** (Hsu [0004]).

Art Unit: 2616

3. Claims 8, 13, 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over de Boer further in view of Rouse (US Patent No. 4,683,563).

Regarding claims **8 and 13**, de Boer discloses a method for providing inter-ring protection in shared packet rings, the method comprising:

Operating the first node in an active mode (**Gateway Node G1 on main ring 200, Fig. 3A**), the first node connected to a ring interconnect node on the same ring as the first node (**Gateway Node G2 on main ring 200, Fig. 3A**) and to a peer node on a different ring (**Gateway Node G1 on subtending ring 210, Fig. 3A**), the ring interconnect node in a standby mode (**"choose gateway nodes G1 and G2 as the primary and secondary gateway nodes, respectively, Column 7, Lines 53-55**);

Forwarding packets from the first node to the peer node on a ring interconnecting link in the active mode (**"As required for the delivery of inter-ring services, the switches S1, S2 in gateway nodes G1, G2 have the capability to pass traffic between rings. Only one of these gateway nodes (the "primary gateway node") is chosen to provide the inter-ring connection", Column 7, Lines 41-45**);

Receiving at the first node, notification of a failure of the ring interconnecting link or the peer node (**"The controller C1 generates switching instructions for the switch S1 based on OAM&P information received therefrom via the control line D1, Column 7, Lines 12-14 and further "The OAM&P information preferably includes the status of various network elements in both survivable rings. Those skilled in the SONET networking art will recognize that it is standard practice to provide an indication of**

whether a given network element is "failed" or "not failed"', Column 6 Line 66 to Column 7 Line 3 and see Fig. 3B);

In response to said notification of a failure, sending a message from the first node to the ring interconnect node to switch the ring interconnect node from the standby mode to the active mode (**"if the status of the primary gateway node G1 is "failed", then the controller C2 instructs the switch S2 to connect the protection segment 202P of the main ring 200 to the protection segment 212P of the subtending ring 210", Column 8, 17-21); and**

Changing the first node to the standby mode (**"if the status of the primary gateway node G1 is "failed", Column 8, Lines 17-18 and further "the signal formerly headed for the primary gateway node G1 along working segment 206W will be looped back around the protection path of ring 200 and will arrive at the secondary gateway node G2 via protection fiber 202P", Column 8, Lines 27-31 and see Fig. 3B);**

Wherein packets received at the first node or the ring interconnect node are blocked from being forwarded to said different ring when the node is in the standby mode (**"The secondary gateway node G2, on the other hand, is provisioned not to effect an inter-ring connection for this particular service. That is to say, OAM&P information provided to the controller C2 indicates that the switch S2 is to not establish an inter-ring connection, since a primary inter-ring connection is already established by the primary gateway node G1", Column 8, Lines 1-7).**

However, de Boer fails to specifically disclose changing the first node to a flush state wherein packets that are in process at the first node are removed and packets

Art Unit: 2616

received at the first node from said different ring are not added to the ring, prior to entering the standby mode.

Nevertheless, Rouse teaches **“apparatus of the node responsive to detecting failure of the node in propagating a data message flushes the data communication network of data messages and isolates segments of the network experiencing trouble” (column 2 lines 62-65).**

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to change the first node to a flush state wherein packets that are in process at the first node are removed and packets received at the first node from said different ring are not added to the ring, prior to entering the standby mode because **“a technical advance is achieved by a data communication network arranged to isolate a part of the network experiencing trouble and maintain data communication with the isolated segment to assist in diagnosis and restoral of the isolated segment to network service” (column 1 lines 45-50).**

In addition, de Boer and Rouse discloses everything claimed as applied above. However, de Boer and Rouse fails to specifically disclose utilizing a spanning tree protocol to identify a first node as a root node.

Nevertheless, Hsu teaches **“the bridges... to “elect” one of the bridges in the spanning tree network to be a unique root bridge for the network...” (Hsu [0005] Lines 4-7) and “ Spanning tree protocol provides redundancy by defining a single tree that spans the bridges and maintaining all other paths and connections in a standby or blocked state. The protocol allows bridges to transmit messages to one another that allow each bridge to select its place in the tree and which states should**

be applied to each of its ports to maintain that place. For example, a port in a given bridge that is connected to an active path at a given time is kept in a forwarding state, in which all data traffic is received and transmitted to the next portion of the network, and a port in the bridge that is connected to an inactive path is kept in a non-forwarding state such as a blocking state in which traffic is blocked through that port” (Hsu [0004]).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to utilize a spanning tree protocol to identify a first node as a root node because “the spanning tree protocol, defined in IEEE 802.1, is used by bridges in a network to dynamically discover a subset of the network topology that provides path redundancy while preventing loops... by defining a single tree that spans the bridges and maintaining all other paths and connections in a standby or blocked state” (Hsu [0004] Lines 3-9). As a result, a root node or bridge would be ultimately necessary “to calculate the shortest, least cost path from each bridge to the root bridge, to select which ports will be blocking...” (Hsu [0005] Lines 7-9).

Regarding **Claim 17**, de Boer discloses an apparatus for providing inter-ring protection in shared packet rings, comprising:

A processor configured to operate the first node in an active mode or a standby mode (**Gateway Node G1 on main ring 200, Fig. 3A** and “choose gateway nodes **G1** and **G2** as the primary and secondary gateway nodes, respectively, Column 7, Lines 53-55), the first node configured to connection to a ring interconnect node on the same ring as the first node (**Gateway Node G2 on main ring 200, Fig. 3A**) and for connection

to a peer node on a different ring with a ring interconnecting link (**Gateway Node G1 on subtending ring 210, Fig. 3A**), and

A transmitter operable to send a message from the first node to the ring interconnect node upon detection of a failure of the ring interconnecting link or the peer node to switch the ring interconnect node from the standby mode to the active mode (**"The controller C1 generates switching instructions for the switch S1 based on OAM&P information received therefrom via the control line D1, Column 7, Lines 12-14 and further "The OAM&P information preferably includes the status of various network elements in both survivable rings. Those skilled in the SONET networking art will recognize that it is standard practice to provide an indication of whether a given network element is "failed" or "not failed"', Column 6 Line 66 to Column 7 Line 3 and "if the status of the primary gateway node G1 is "failed", then the controller C2 instructs the switch S2 to connect the protection segment 202P of the main ring 200 to the protection segment 212P of the subtending ring 210", Column 8, 17-21, see Fig. 3B)**;

Wherein only one of the first node and the ring interconnect node operate in the active mode at one time and wherein the first node and the ring interconnect node only add packets to the ring or remove packets from the ring when the node is in the active mode (**"As required for the delivery of inter-ring services, the switches S1, S2 in gateway nodes G1, G2 have the capability to pass traffic between rings. Only one of these gateway nodes (the "primary gateway node") is chosen to provide the inter-ring connection", Column 7, Lines 41-45 and "The secondary gateway node G2, on**

the other hand, is provisioned not to effect an inter-ring connection for this particular service. That is to say, OAM&P information provided to the controller C2 indicates that the switch S2 is to not establish an inter-ring connection, since a primary inter-ring connection is already established by the primary gateway node G1", Column 8, Lines 1-7).

However, de Boer fails to specifically disclose the processor is configured to operate the first node in a flush state wherein packets that are in process at the first node are removed and packets received at the first node from said different ring are not added to the ring, prior to entering the standby mode.

Nevertheless, Rouse teaches **"apparatus of the node responsive to detecting failure of the node in propagating a data message flushes the data communication network of data messages and isolates segments of the network experiencing trouble" (column 2 lines 62-65).**

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to operate the first node in a flush state wherein packets that are in process at the first node are removed and packets received at the first node from said different ring are not added to the ring, prior to entering the standby mode because **"a technical advance is achieved by a data communication network arranged to isolate a part of the network experiencing trouble and maintain data communication with the isolated segment to assist in diagnosis and restoral of the isolated segment to network service" (column 1 lines 45-50).**

In addition, de Boer and Rouse discloses everything claimed as applied above. However, de Boer and Rouse fails to specifically disclose utilizing a spanning tree protocol to identify a first node as a root node.

Nevertheless, Hsu teaches **“the bridges... to “elect” one of the bridges in the spanning tree network to be a unique root bridge for the network...”** (Hsu [0005] Lines 4-7) and **“ Spanning tree protocol provides redundancy by defining a single tree that spans the bridges and maintaining all other paths and connections in a standby or blocked state. The protocol allows bridges to transmit messages to one another that allow each bridge to select its place in the tree and which states should be applied to each of its ports to maintain that place. For example, a port in a given bridge that is connected to an active path at a given time is kept in a forwarding state, in which all data traffic is received and transmitted to the next portion of the network, and a port in the bridge that is connected to an inactive path is kept in a non-forwarding state such as a blocking state in which traffic is blocked through that port”** (Hsu [0004]).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to utilize a spanning tree protocol to identify a first node as a root node because **“the spanning tree protocol, defined in IEEE 802.1, is used by bridges in a network to dynamically discover a subset of the network topology that provides path redundancy while preventing loops... by defining a single tree that spans the bridges and maintaining all other paths and connections in a standby or blocked state”** (Hsu [0004] Lines 3-9). As a result, a root node or bridge would be

ultimately necessary “to calculate the shortest, least cost path from each bridge to the root bridge, to select which ports will be blocking...” (Hsu [0005] Lines 7-9).

4. **Claims 10, 14 and 20** are rejected under 35 U.S.C. 103(a) as being unpatentable over de Boer, Chikenji, Hsu further in view of Mor (US Patent No. 7,054,264 B2).

Regarding **Claims 10 and 14**, de Boer, Chikenji, Hsu disclose everything claimed as applied above (see *Claim 1 and 11*). However, de Boer, Chikenji, Hsu fails to specifically disclose the ring interconnecting link has generally the same bandwidth as the ring of the first node, as claimed.

Nevertheless, Mor teaches **“the bandwidth of blocks 54 and 56 and of the interface between them (at least for outgoing traffic to network 24) need not be any greater than the bandwidth of one of the rings” (Mor Column 6, Lines 42-45 where block 56 is meant as 58) and further “interface bandwidth of each of the modules need not be substantially greater than the maximum data rate of one of the two directional rings in the ring network” (Mor Column 2, Lines 45-47).**

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to make the ring interconnecting link and first node ring the same bandwidth because **“this bandwidth is sufficient not only for normal operation, but also for operation under failure conditions, in which one of the modules serves as a backup for the other one” (Mor Column 6, Lines 46-49).**

Regarding **Claim 20**, de Boer and Chikenji discloses everything claimed as applied above (see *Claim 16*). However, de Boer and Chikenji fails to specifically disclose the ring

Art Unit: 2616

interconnecting link has generally the same bandwidth as the ring of the first node, as claimed.

Nevertheless, Mor teaches **“the bandwidth of blocks 54 and 56 and of the interface between them (at least for outgoing traffic to network 24) need not be any greater than the bandwidth of one of the rings” (Mor Column 6, Lines 42-45 where block 56 is meant as 58) and further “interface bandwidth of each of the modules need not be substantially greater than the maximum data rate of one of the two directional rings in the ring network” (Mor Column 2, Lines 45-47).**

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to make de Boer and Chikenji et al.’s ring interconnecting link and first node ring the same bandwidth because **“this bandwidth is sufficient not only for normal operation, but also for operation under failure conditions, in which one of the modules serves as a backup for the other one” (Mor Column 6, Lines 46-49).**

5. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over de Boer, Chikenji, Hsu further in view of Seaman et al. (PG Pub US 2002/0023170 A1).

Regarding **Claim 22**, de Boer, Chikenji, Hsu discloses everything claimed as applied above (see *Claim 22*). However, de Boer, Chikenji, Hsu fails to specifically disclose the spanning tree protocol is rapid spanning tree protocol.

Nevertheless, Seaman teaches RSTP (Seaman [0075]).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have the spanning tree protocol be rapid spanning tree

protocol because **"The distinction between the Alternate and Backup Port Roles does not appear in the Spanning Tree Algorithm and Protocol described in Clause 8. This distinction is introduced in RSTP in order to make it possible to describe the possibility of rapidly transitioning an Alternate Port to Forwarding on failure of the Root Port"** (Seaman [0075]).

6. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over de Boer, Rouse, Hsu further in view Fontana et al. (PG Pub US 2003/0118041 A1).

Regarding **Claim 23**, de Boer, Rouse, Hsu discloses everything claimed as applied above (see *Claim 23*). However, de Boer, Rouse, Hsu fails to specifically disclose a packet received at the apparatus includes a ring header comprising a field identifying a node that added the packet to the ring.

Nevertheless, Fontana teaches **"a RING HEADER portion is added in the RPR packet header to insert the following data: SOURCE RING_ID: identification of the source ring where the packet has been originated"** (Fontana [0053-0054]).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have a packet received at the apparatus include a ring header comprising a field identifying a node that added the packet to the ring because **"In order to give a Ring-to-Ring interconnectivity, this header needs to be extended with the inclusion of the Ring_ID information as well"** (Fontana [0052]).

Response to Arguments

7. Applicant's arguments with respect to claims 1, 8, 13, 17 have been considered but are moot in view of the new ground(s) of rejection.

8. Applicant's arguments have been fully considered but they are not persuasive.

In response to Applicant's argument regarding claim 1, 11, 16 that Chikenji et al. does not teach two nodes remaining in their same modes when a failed link or node is restored, the examiner respectfully disagrees. Chikenji discloses "With this structure, for example, even if communication stops due to some fault with the between-ring transmission line 31 between the between ring connection node devices 113A and 113B operating as the current use system, the between ring connection node devices 114A and 114B standing by as the spare system are started up as the current use system, so communication can be maintained using the between-ring transmission line 41 between these node devices 114A and 114B" (Chikenji column 21 lines 11-14). This shows that as "the control node devices 110A and 110B perform regular survival confirmations for the between-ring connection node devices 113A and 114A and the between-ring connection node devices 113B and 114B" (Chikenji column 24 lines 62-65), the nodes will remain in the modes they were last in, since the spare system is now considered as the new current system. Therefore, Chikenji discloses two nodes remaining in their same modes when a failed link or node is restored.

In response to Applicant's argument regarding claim 5, 21 that Hsu does not disclose wherein changing a node from active to standby comprises changing a port path cost of the node, the examiner respectfully disagrees. Hsu discloses "Ports being converted from blocking to forwarding states and back again undergo several possible transition states depending upon the BPDUs received. Once the bridges have all reached their decisions, the network stabilizes or converges, and is eventually loop-free. A similar process is followed after a link failure has occurred in the network, in which case a new root and/or new active paths must be found". This shows that nodes tend to change their

mode as failures occur. This in turn will change the paths and will need to be recalculated. Therefore, Hsu discloses changing a node from active to standby comprises changing a port path cost of the node.

In response to Applicant's argument regarding claim 10, 14, 20 that Mor does not show or suggest a ring interconnecting link having generally the same bandwidth as the ring of the first node, the examiner respectfully disagrees. Mor discloses "the bandwidth of blocks 54 and 56 and any of the interface between them (at least for outgoing traffic to network 24) need not be any greater than the bandwidth of one of the rings" (column 6 lines 42-45). This shows that the bandwidth of RPR blocks 54, blocks 58 and the interface between them is at most the bandwidth of one of the rings, which implies that they are all the same bandwidths. Therefore, Mor discloses a ring interconnecting link having generally the same bandwidth as the ring of the first node.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action.

Art Unit: 2616

In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTINE DUONG whose telephone number is (571)270-1664. The examiner can normally be reached on Monday - Friday: 830 AM-6 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on (571) 272-3174. 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.

/Christine Duong/
Examiner, Art Unit 2616
09/17/2008

/Kevin C. Harper/
Primary Examiner, Art Unit 2616

Notice of References Cited	Application/Control No. 10/438,396	Applicant(s)/Patent Under Reexamination GARDO ET AL.	
	Examiner CHRISTINE DUONG	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-2003/0118041	06-2003	Fontana et al.	370/404
*	B	US-2002/0023170	02-2002	Seaman et al.	709/235
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

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

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

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

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	1459	flush\$4 with packet	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/09/17 15:47
L2	216	(flush\$4 with packet) same (block\$5)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/09/17 16:04
L3	23	(flush\$4 with packet) same (ring)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/09/17 16:04
L5	121	(ring near2 header) with (packet)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/09/17 16:23
L6	15	(ring near2 header) with (packet) with add\$4	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/09/17 16:34
L7	0	((chang\$5) with (port near5 path near5 cost)) same (standby)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/09/17 16:50
L8	20	((chang\$5) with (port near5 path near5 cost))\	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/09/17 16:50
L10	18	"6639893"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/09/17 17:18
L11	125	rstp same spanning	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/09/17 18:06
S1	4101	(370/217,221,222,223,229,403,404,405).CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/09/17 11:15

S2	53	S1 and (stp or (spanning tree)) and interconnect\$4 and ((active or nonblock\$4 or primary) same (block\$4 or secondary or standby))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/09/17 11:17
S3	36	S1 and (stp or (spanning tree)) and interconnect\$4 and ((active or nonblock\$4 or primary) same (block\$4 or secondary or standby)) and ring	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/09/17 11:18
S4	0	10/438396	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/09/17 11:45
S5	4	((("6658013") or ("7054264") or ("4683563") or ("20030165119")).PN.	US-PGPUB; USPAT; USOCR; EPO; JPO; IBM_TDB	OR	OFF	2008/09/17 11:49
S6	2338	(flush\$5 or drain\$5) with packet	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/09/17 13:58
S7	4	((flush\$5 or drain\$5) with packet) same remov\$4 same ring	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/09/17 13:59

9/17/2008 6:46:02 PM

C:\Documents and Settings\cduong\My Documents\EAST\Workspaces\christine\10438396\20080916.wsp

Index of Claims 	Application/Control No. 10438396	Applicant(s)/Patent Under Reexamination GARDO ET AL.
	Examiner Duong, Christine	Art Unit 2616

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

☐ Claims renumbered in the same order as presented by applicant						☐ CPA		☐ T.D.		☐ R.1.47	
CLAIM		DATE									
Final	Original	12/08/2006	07/03/2007	01/29/2008	09/17/2008						
	1	✓	✓	✓	✓						
	2	✓	✓	✓	-						
	3	✓	-	-	-						
	4	✓	✓	✓	✓						
	5	✓	✓	✓	✓						
	6	✓	✓	✓	✓						
	7	✓	O	-	-						
	8	✓	O	✓	✓						
	9	✓	O	✓	-						
	10	✓	✓	✓	✓						
	11	✓	✓	✓	✓						
	12	✓	✓	✓	✓						
	13	✓	O	✓	✓						
	14	✓	✓	✓	✓						
	15		O	-	-						
	16		✓	✓	✓						
	17		O	✓	✓						
	18		O	✓	-						
	19		O	-	-						
	20		✓	✓	✓						
	21		✓	✓	✓						
	22				✓						
	23				✓						
	24				✓						
	25				✓						
	26				✓						
	27				✓						

Search Notes 	Application/Control No. 10438396	Applicant(s)/Patent Under Reexamination GARD0 ET AL.
	Examiner Duong, Christine	Art Unit 2616

SEARCHED			
Class	Subclass	Date	Examiner
370	223,255,256	10/30/2006	ctd
370	216-228,244,250,252,256,404-406	11/15/2006	ctd
370	216-228	11/27/2006	ctd
370	217,221,222,223,229,403,404,405	06/25/2007	ctd
370	217,221,222,223,229,403,404,405	09/17/2008	ctd

SEARCH NOTES		
Search Notes	Date	Examiner
Software patenting William Grant (TQAS)	10/27/2006	ctd
Class/Subclass search Gregory Sefcheck (Primary)	11/15/2006	ctd
101 Statutory William Grant (TQAS)	11/29/2006	ctd
EAST search notes printout attached		ctd
PLUS search notes printout attached		ctd
EAST search updated	06/27/2006	ctd
Seema Rao (SPE)	01/28/2008	ctd
EAST search updated	01/29/2008	ctd
EAST search updated	09/17/2008	ctd

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

--	--



CERTIFICATE OF MAILING I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on June 6, 2008. Signed: <u><i>Cindy S. Kaplan</i></u> Cindy S. Kaplan
--

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appln. No.	:	10/438,396	Confirmation No.:	4274
Applicant	:	Russell Gardo et al.		
Filed	:	May 15, 2003		
TC/A.U.	:	2112		
Examiner	:	Christine T. Duong		
Docket No.	:	CISCP822		
Customer No.	:	26541		
Title	:	INTER-RING PROTECTION FOR SHARED PACKET RINGS		

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

AMENDMENT C

Sir:

In response to the Office Action of February 6, 2008 please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 9 of this paper.

Amendment to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A method for providing inter-ring protection in shared packet rings, the method comprising:

utilizing a spanning tree protocol to identify a first node as a root node;

operating-a the first node in an active mode, the first node connected to a ring interconnect node on the same ring as the first node and to a peer node on a different ring, the ring interconnect node in a standby mode;

forwarding packets from the first node to the peer node on a ring interconnecting link in the active mode;

receiving at the first node, notification of a failure of the ring interconnecting link or the peer node; and

in response to said notification of a failure:

sending a message from the first node to the ring interconnect node to switch the ring interconnect node from the standby mode to the active mode;
and

changing the first node to the standby mode;

wherein packets received at the first node or the ring interconnect node are blocked from being forwarded to said different ring when the node is in the standby mode, and the first node and ring interconnect node remain in their same modes when the failed link or node is restored.

Claim 2 (canceled).

Claim 3 (canceled).

Claim 4 (previously presented): The method of claim 1 wherein sending a message from the first node to the ring interconnect node comprises changing the status of a ring interconnect link of the ring interconnect node from blocked to forwarding.

Claim 5 (previously presented): The method of claim 1 wherein changing the first node to the standby mode comprises changing a port path cost of the first node.

Claim 6 (previously presented): The method of claim 1 further comprising receiving a message at the first node that the failed link or node is restored.

Claim 7 (canceled).

Claim 8 (currently amended): A method for providing inter-ring protection in shared packet rings, the method comprising:

utilizing a spanning tree protocol to identify a first node as a root node;

operating a the first node in an active mode, the first node connected to a ring interconnect node on the same ring as the first node and to a peer node on a different ring, the ring interconnect node in a standby mode;

forwarding packets from the first node to the peer node on a ring interconnecting link in the active mode;

receiving at the first node, notification of a failure of the ring interconnecting link or the peer node; and

in response to said notification of a failure:

sending a message from the first node to the ring interconnect node to switch the ring interconnect node from the standby mode to the active mode;

changing the first node to the standby mode; and

changing the first node to a flush state wherein packets that are in process at the first node are removed and packets received at the first node from said different ring are not added to the ring, prior to entering the standby mode;

wherein packets received at the first node or the ring interconnect node are blocked from being forwarded to said different ring when the node is in the standby mode.

Claim 9 (canceled).

Claim 10 (previously presented): The method of claim 1 wherein the ring interconnecting link has generally the same bandwidth as the ring of the first node.

Claim 11 (currently amended): A computer program product for preventing loops in a ring topology of a computer network, the product comprising:

code that utilizes a spanning tree protocol to identify a first node as a root node;

code that operates ~~a~~ the first node in an active mode, the first node connected to a ring interconnect node on the same ring as the first node and to a peer node on a different ring, the ring interconnect node in a standby mode;

code that forwards packets from the first node to the peer node on a ring interconnecting link in the active mode;

code that receives notification of a failure of the ring interconnecting link or the peer node;

code that in response to said notification of a failure:

~~code that~~ sends a message from the first node to the ring interconnect node to switch the ring interconnect node from the standby mode to the active mode;

~~code that~~ changes the first node to said standby mode; and

a computer-readable storage medium for storing the codes;

wherein packets received at the first node or the ring interconnect node are blocked from being forwarded to said different ring when the node is in the standby

mode, and the first node and ring interconnect node remain in their same modes when the failed link or node is restored.

Claim 12 (previously presented): The product of claim 11 further comprising code that receives a message at the first node that the failed link or node is restored.

Claim 13 (currently amended): A computer program product for preventing loops in a ring topology of a computer network, the product comprising:

code that utilizes a spanning tree protocol to identify a first node as a root node;

code that operates ~~a~~ the first node in an active mode, the first node connected to a ring interconnect node on the same ring as the first node and to a peer node on a different ring, the ring interconnect node in a standby mode;

code that forwards packets from the first node to the peer node on a ring interconnecting link in the active mode;

code that receives notification of a failure of the ring interconnecting link or the peer node;

code that in response to said notification failure:

~~code that~~ sends a message from the first node to the ring interconnect node to switch the ring interconnect node from the standby mode to the active mode; and

~~code that~~ changes the first node to said standby mode;

code that changes the first node to a flush state wherein packets that are in process at the first node are removed and packets received at the first node from said different ring are not added to the ring, prior to entering the standby mode; and

a computer-readable storage medium for storing the codes;

wherein packets received at the first node or the ring interconnect node are blocked from being forwarded to said different ring when the node is in the standby mode.

Claim 14 (previously presented): The product of claim 11 wherein the ring interconnecting link has generally the same bandwidth as the ring of the first node.

Claim 15 (canceled).

Claim 16 (currently amended): An apparatus for providing inter-ring protection in shared packet rings, comprising:

a processor configured to utilize a spanning tree protocol to identify a first node as a root node, operate ~~a~~ the first node in an active mode or a standby mode, the first node configured for connection to a ring interconnect node on the same ring as the first node and for connection to a peer node on a different ring with a ring interconnecting link, and

a transmitter operable to send a message from the first node to the ring interconnect node upon detection of a failure of the ring interconnecting link or the peer node to switch the ring interconnect node from the standby mode to the active mode;

wherein only one of the first node and the ring interconnect node operate in the active mode at one time and wherein the first node and the ring interconnect node only add packets to the ring or remove packets from the ring when the node is in the active mode, and the processor is configured to continue to operate the first node in the standby mode upon receiving notification that a failed link or node is restored.

Claim 17 (currently amended): An apparatus for providing inter-ring protection in shared packet rings, comprising:

a processor configured to utilize a spanning tree protocol to identify a first node as a root node, operate ~~a~~ the first node in an active mode or a standby mode, the first node configured for connection to a ring interconnect node on the same ring as the first node and for connection to a peer node on a different ring with a ring interconnecting link, and

a transmitter operable to send a message from the first node to the ring interconnect node upon detection of a failure of the ring interconnecting link or the peer node to switch the ring interconnect node from the standby mode to the active mode;

wherein only one of the first node and the ring interconnect node operate in the active mode at one time and wherein the first node and the ring interconnect node only add packets to the ring or remove packets from the ring when the node is in the active mode, and the processor is configured to operate the first node in a flush state wherein packets that are in process at the first node are removed and packets received at the first node from said different ring are not added to the ring, prior to entering the standby mode.

Claim 18 (canceled).

Claim 19 (canceled).

Claim 20 (previously presented): The apparatus of claim 16 wherein the ring interconnecting link has generally the same bandwidth as the ring of the first node.

Claim 21 (previously presented): The apparatus of claim 16 wherein the processor is configured to change a port path cost of the first node when the first node switches from the active mode to the standby mode.

Claim 22 (new): The apparatus of claim 16 wherein the spanning tree protocol is rapid spanning tree protocol.

Claim 23 (new): The apparatus of claim 17 wherein a packet received at the apparatus includes a ring header comprising a field identifying a node that added the packet to the ring.

Claim 24 (new): The method of claim 1 wherein a state set by said message sent to the ring interconnect node takes precedence over the state set by the spanning tree protocol running on the ring interconnect node.

Claim 25 (new): The method of claim 1 wherein the state set at the first node by the spanning tree protocol identifies only an initial state of the first node and wherein messages exchanged between the first node and the ring interconnect node determine the state at the first node.

Claim 26 (new): The method of claim 1 wherein changing the first node to the standby mode comprises setting the ring interconnecting link to a down or blocked state.

Claim 27 (new): The method of claim 21 wherein the port path cost of the first node switches from a default port path cost associated with active mode to a standby port path cost associated with standby mode.

REMARKS/ARGUMENTS

Claims 1, 8, 11, 13, 16, and 17 are amended and claims 22-27 are added herein. With entry of this amendment, claims 1-2, 4-6, 8-14, 16-18, and 20-27 will be pending.

Claims 1, 4, 11, and 16 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent No. 6,658,013 (de Boer et al.) in view of U.S. Patent No. 6,639,893 (Chikenji et al.). Claims 8-9, 13, and 17-18 stand rejected under 35 U.S.C. 103(a) as being unpatentable over de Boer et al. and Chikenji et al. and further in view of U.S. Patent No. 4,683,563 (Rouse et al.). Claims 2, 5-6, 12, and 21 stand rejected under 35 U.S.C. 103(a) as being unpatentable over de Boer et al. and Chikenji et al. and further in view of U.S. Patent Application Publication 2003/0165119 (Hsu et al.). Claims 10, 14, and 20 stand rejected under 35 U.S.C. 103(a) as being unpatentable over de Boer et al. and Chikenji et al. and further in view of U.S. Patent No. 7,054,264 (Mor).

De Boer et al. describe a method and apparatus for ensuring survivability of inter-ring traffic. The system includes two gateways connecting two rings. A signal is provided to each gateway to serve as a control channel for transmitting OAM&P information to and from the controller in each gateway. The OAM&P information provides the status of various network elements in both rings and initial switching instructions to be executed by the switch upon setup of a service connection. In contrast to using OAM&P information, applicants' claimed invention utilizes a spanning tree protocol to identify one of the nodes as a root node. The root node operates in active mode initially, with the other node (ring interconnect node) operating in standby mode. Furthermore, de Boer et al. do not show or suggest sending a message from a first node to a ring interconnect node to switch the ring interconnect node from standby mode to active mode, in response to receiving a failure notification. Instead, de Boer et al. use OAM&P information in determining when to switch from primary to secondary. A drawback with conventional systems, such as de Boer et al. is that OAM&P protocols do not provide quick (e.g., sub-second) convergence during failure.

Applicants' invention, as set forth in the claims, is particularly advantageous in that the node in active mode sends a message directly to the node in standby mode instructing the node to switch to active mode, thus providing quick recovery following a failure. There is no need to wait for a discovery or management protocol to discover a failure and then the node to receive information regarding the failure from a management system, which significantly increases convergence time.

Hsu et al. disclose a network configuration protocol for rapid traffic recovery and loop avoidance in ring topologies. The Examiner cites Hsu et al. with regard to the use of a spanning tree protocol. Hsu et al. describe in the background of the invention, how conventional STP is used to elect a root bridge to prevent loops. Hsu et al. do not show or suggest operating a first node identified as a root node by a spanning tree protocol as a root node, in an active mode in the context of the claims. The Hsu et al. publication is directed at blocking or unblocking a port of a two port bridge and does not address protection in shared packet rings or interaction between two ring interconnect nodes. Thus, Hsu et al. do not overcome the deficiencies of the primary references.

Accordingly, claims 1, 8, 11, 13, 16, and 17, and the claims depending therefrom, are submitted as patentable over the cited references.

Claims 1, 11, and 16 are further submitted as patentable over Chikenji et al., which do not teach two nodes remaining in their same modes when a failed link or node is restored. In rejecting the claims, the Examiner refers to col. 24, lines 42-51. This section of the patent describes operation following a fault. By performing switching control between a current use system and spare system, the spare system is switched with the current use system. Thus, a primary system is switched with a spare system following a fault. There is no discussion of operation following recovery from the fault. Applicants' invention allows the first node and ring interconnect nodes to remain in their same modes after a failed link or node is restored. For example, in applicants' claimed invention, after the nodes have changed operating modes, RSTP can be used to converge and mark the restored link as blocked based on the change of the modes of the

nodes following failure. Thus, the active nodes do not change during a link restore scenario and there is no traffic required to change the modes of the nodes.

Claims 8, 13, and 17 have been amended to clarify that packets that are in process at the first node are removed and packets received at the first node from a different ring are not added to the ring when the node is in flush state. In contrast to the claimed invention, Rouse et al. "flush" a ring transmission path by force reading all of the data messages incoming to the node into a node processor and then transmit the messages onto a path (col. 5, line 55 - col. 6, line 42). Rouse et al. do not remove packets in process or add packets received to the ring, as set forth in the amended claims.

Claims 5 and 21 are further as submitted as patentable because Hsu et al. do not disclose wherein changing a node from active to standby comprises changing a port path cost of the node. In rejecting the claims, the Examiner refers to paragraph [0005] of Hsu et al. This section of the patent application describes how path cost data is used by bridges to elect one of the bridges to be a unique root bridge for the network. There is no discussion of changing a port path cost upon changing the mode of a node.

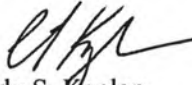
Claims 10, 14, and 20 are further submitted as patentable over Mor, which does not show or suggest a ring interconnecting link having generally the same bandwidth as the ring of the first node. Mor is directed to a communication system for interconnection of first and second networks. As shown in Fig. 2, the system includes first and second interconnect modules each configured to convey at least a portion of the outgoing traffic from the first network to the second network. When a fault occurs in one of the first and second modules, the other module is reconfigured to receive substantially all of the outgoing data traffic and to convey the traffic to the second network. The sharing of the load of traffic by the two modules in normal operation is an important object of the Mor patent (see, e.g., col. 2 lines 42-54). Upon occurrence of a failure, traffic is redirected using wrapping or steering so that the total bandwidth of traffic that the non-failing module must handle is still no greater than the maximum data

Appl. No. 10/438,396
Amd. Dated June 6, 2008
Reply to Office Action of February 6, 2008

rate of one of the two directional rings in the network (see, e.g., col. 2, line 65 – col. 3, line 5).

For the foregoing reasons, Applicants believe that all of the pending claims are in condition for allowance and should be passed to issue. If the Examiner feels that a telephone conference would in any way expedite the prosecution of the application, please do not hesitate to call the undersigned at (408) 399-5608.

Respectfully submitted,



Cindy S. Kaplan
Reg. No. 40,043

P.O. Box 2448
Saratoga, CA 95070
Tel: 408-399-5608
Fax: 408-399-5609



PTO/SB/21 (09-06)
Approved for use through 03/31/2007. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

TRANSMITTAL FORM (to be used for all correspondence after initial filing)	Application Number	10/438,396	
	Filing Date	May 15, 2003	
	First Named Inventor	Russell Gardo	
	Art Unit	2616	
	Examiner Name	Christine T. Duong	
Total Number of Pages in This Submission	17	Attorney Docket Number	CISCP822

ENCLOSURES (Check all that apply)		
☐ Fee Transmittal Form ☐ Fee Attached ☒ Amendment/Reply ☐ After Final ☐ Affidavits/declaration(s) ☒ Extension of Time Request ☐ Express Abandonment Request ☐ Information Disclosure Statement ☐ Certified Copy of Priority Document(s) ☐ Reply to Missing Parts/ Incomplete Application ☐ Reply to Missing Parts under 37 CFR 1.52 or 1.53	☐ Drawing(s) ☐ Licensing-related Papers ☐ Petition ☐ Petition to Convert to a Provisional Application ☐ Power of Attorney, Revocation Change of Correspondence Address ☐ Terminal Disclaimer ☐ Request for Refund ☐ CD, Number of CD(s) _____ ☐ Landscape Table on CD	☐ After Allowance Communication to TC ☐ Appeal Communication to Board of Appeals and Interferences ☐ Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) ☐ Proprietary Information ☐ Status Letter ☒ Other Enclosure(s) (please identify below): Postcard
Remarks The Commissioner is authorized to charge any additional fees to Deposit Account 50-1652.		

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT			
Firm Name	Cindy S. Kaplan, Attorney at Law		
Signature			
Printed name	Cindy S. Kaplan		
Date	June 6, 2008	Reg. No.	40,043

CERTIFICATE OF TRANSMISSION/MAILING			
I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:			
Signature			
Typed or printed name	Cindy S. Kaplan	Date	June 6, 2008

This collection of information is required by 37 CFR 1.5. 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 2 hours 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.



PTO/SB/22 (10-07)

Approved for use through 10/31/07. OMB 0651-0031

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

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

PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a) FY 2006 (Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).)		Docket Number (Optional) CISC822	
Application Number 10/438,396		Filed May 15, 2003	
For Inter-Ring Protection for Shared Packet Rings			
Art Unit 2616		Examiner Christine T. Duong	
This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above identified application.			
The requested extension and fee are as follows (check time period desired and enter the appropriate fee below):			
	<u>Fee</u>	<u>Small Entity Fee</u>	
☒ One month (37 CFR 1.17(a)(1))	\$ 120	\$ 60	\$ 120
☐ Two months (37 CFR 1.17(a)(2))	\$ 460	\$ 230	\$
☐ Three months (37 CFR 1.17(a)(3))	\$ 1050	\$ 525	\$
☐ Four months (37 CFR 1.17(a)(4))	\$ 1640	\$ 820	\$
☐ Five months (37 CFR 1.17(a)(5))	\$ 2230	\$ 1115	\$
☐ Applicant claims small entity status. See 37 CFR 1.27.			
☒ A check in the amount of the fee is enclosed.			
☐ Payment by credit card. Form PTO-2038 is attached.			
☐ The Director has already been authorized to charge fees in this application to a Deposit Account.			
☒ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number <u>50-1652</u> . I have enclosed a duplicate copy of this sheet.			
WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.			
I am the ☐ applicant/inventor.			
☐ assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96).			
☒ attorney or agent of record. Registration Number <u>40,043</u>			
☐ attorney or agent under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34 _____			
 _____ Signature		<u>June 6, 2008</u> _____ Date	
<u>Cindy S. Kaplan</u> _____ Typed or printed name		<u>408-399-5608</u> _____ Telephone Number	
NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below.			
☐ Total of _____ forms are submitted.			

This collection of information is required by 37 CFR 1.136(a). 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 6 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.

06/11/2008 HVUONG1 00000008 10438396

01 FC:1251

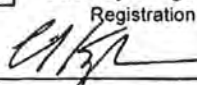
120.00 OP



PTO/SB/22 (10-07)

Approved for use through 10/31/07. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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

PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a) FY 2006 <i>(Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).)</i>		Docket Number (Optional) CISC822	
Application Number 10/438,396		Filed May 15, 2003	
For Inter-Ring Protection for Shared Packet Rings			
Art Unit 2616		Examiner Christine T. Duong	
This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above identified application.			
The requested extension and fee are as follows (check time period desired and enter the appropriate fee below):			
	Fee	Small Entity Fee	
☒ One month (37 CFR 1.17(a)(1))	\$ 120	\$ 60	\$ <u>120</u>
☐ Two months (37 CFR 1.17(a)(2))	\$ 460	\$ 230	\$ _____
☐ Three months (37 CFR 1.17(a)(3))	\$ 1050	\$ 525	\$ _____
☐ Four months (37 CFR 1.17(a)(4))	\$ 1640	\$ 820	\$ _____
☐ Five months (37 CFR 1.17(a)(5))	\$ 2230	\$ 1115	\$ _____
☐ Applicant claims small entity status. See 37 CFR 1.27.			
☒ A check in the amount of the fee is enclosed.			
☐ Payment by credit card. Form PTO-2038 is attached.			
☐ The Director has already been authorized to charge fees in this application to a Deposit Account.			
☒ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number <u>50-1652</u> . I have enclosed a duplicate copy of this sheet.			
WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.			
I am the ☐ applicant/inventor.			
☐ assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96).			
☒ attorney or agent of record. Registration Number <u>40,043</u>			
☐ attorney or agent under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34 _____			
 _____ Signature		<u>June 6, 2008</u> _____ Date	
<u>Cindy S. Kaplan</u> _____ Typed or printed name		<u>408-399-5608</u> _____ Telephone Number	
NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below.			
☐ Total of _____ forms are submitted.			

This collection of information is required by 37 CFR 1.136(a). 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 6 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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

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

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875				Application or Docket Number 10/438,396		Filing Date 05/15/2003		☐ To be Mailed			
APPLICATION AS FILED – PART I											
(Column 1) (Column 2)				SMALL ENTITY ☐ OR		OTHER THAN SMALL ENTITY					
FOR	NUMBER FILED	NUMBER EXTRA		RATE (\$)	FEE (\$)		RATE (\$)	FEE (\$)			
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A			N/A				
☐ SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A		N/A			N/A				
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A			N/A				
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 = *			X \$ =		OR	X \$ =				
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 = *			X \$ =			X \$ =				
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).										
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))											
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL			TOTAL				
APPLICATION AS AMENDED – PART II											
(Column 1) (Column 2) (Column 3)				SMALL ENTITY OR		OTHER THAN SMALL ENTITY					
AMENDMENT	06/11/2008	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE (\$)	ADDITIONAL FEE (\$)		RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))	+ 20	Minus	** 20	= 0		X \$ =		OR	X \$50=	0
	Independent (37 CFR 1.16(h))	+ 6	Minus	***6	= 0		X \$ =		OR	X \$210=	0
	☐ Application Size Fee (37 CFR 1.16(s))										
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	0	
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE (\$)	ADDITIONAL FEE (\$)		RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))	+	Minus	**	=		X \$ =		OR	X \$ =	
	Independent (37 CFR 1.16(h))	+	Minus	***	=		X \$ =		OR	X \$ =	
	☐ Application Size Fee (37 CFR 1.16(s))										
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE		

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
/Fennell A. Pearlie/

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

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



UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/438,396	05/15/2003	Russell Gardo	CISCP822	4274
26541	7590	02/06/2008		
Cindy S. Kaplan P.O. BOX 2448 SARATOGA, CA 95070			EXAMINER DUONG, CHRISTINE T	
			ART UNIT 2616	PAPER NUMBER
			MAIL DATE 02/06/2008	DELIVERY MODE PAPER

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

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

Office Action Summary	Application No.		Applicant(s)	
	10/438,396		GARDO ET AL.	
	Examiner		Art Unit	
	Christine Duong		2616	

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

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

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

Status

1) ☒ Responsive to communication(s) filed on 14 November 2007.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 1,2,4-6,8-14,16-18,20 and 21 is/are pending in the application.

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

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) 1,2,4-6,8-14,16-18,20 and 21 is/are rejected.

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

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

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

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

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

DETAILED ACTION

This is in response to the Applicant's arguments and amendments filed on 14 November 2007 in which Claims 1-2, 4-6, 8-14, 16-18, 20-21 are currently pending and Claim 3, 7, 15, 19 have been cancelled.

Claim Rejections - 35 USC § 103

1. Claims 1, 4, 11, 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over de Boer et al. (US Patent No. 6,658,013 B1) further in view of Chikenji et al. (US Patent No. 6,639,893 B1).

Regarding **Claims 1 and 11**, de Boer et al. discloses a method for providing inter-ring protection in shared packet rings ("**ensuring survivability of inter-ring traffic**", title), the method comprising:

Operating a first node in an active mode (**Gateway Node G1 on main ring 200, Fig. 3A**), the first node connected to a ring interconnect node on the same ring as the first node (**Gateway Node G2 on main ring 200, Fig. 3A**) and to a peer node on a different ring (**Gateway Node G1 on subtending ring 210, Fig. 3A**), the ring interconnect node in a standby mode ("**choose gateway nodes G1 and G2 as the primary and secondary gateway nodes, respectively, Column 7, Lines 53-55**);

Forwarding packets from the first node to the peer node on a ring interconnecting link in the active mode ("**As required for the delivery of inter-ring services, the switches S1, S2 in gateway nodes G1, G2 have the capability to pass traffic between rings. Only one of these gateway nodes**

(the “primary gateway node”) is chosen to provide the inter-ring connection”, Column 7, Lines 41-45);

Receiving at the first node, notification of a failure of the ring interconnecting link or the peer node (“The controller C1 generates switching instructions for the switch S1 based on OAM&P information received therefrom via the control line D1, Column 7, Lines 12-14 and further “The OAM&P information preferably includes the status of various network elements in both survivable rings. Those skilled in the SONET networking art will recognize that it is standard practice to provide an indication of whether a given network element is “failed” or “not failed””, Column 6 Line 66 to Column 7 Line 3 and see Fig. 3B);

Sending a message from the first node to the ring interconnect node to switch the ring interconnect node from the standby mode to the active mode (“if the status of the primary gateway node G1 is “failed”, then the controller C2 instructs the switch S2 to connect the protection segment 202P of the main ring 200 to the protection segment 212P of the subtending ring 210”, Column 8, 17-21); and

Changing the first node to the standby mode (“if the status of the primary gateway node G1 is “failed”, Column 8, Lines 17-18 and further “the signal formerly headed for the primary gateway node G1 along working segment 206W will be looped back around the protection path of

ring 200 and will arrive at the secondary gateway node G2 via protection fiber 202P", Column 8, Lines 27-31 and see Fig. 3B);

Wherein packets received at the first node or the ring interconnect node are blocked from being forwarded to said different ring when the node is in the standby mode ("The secondary gateway node G2, on the other hand, is provisioned not to effect an inter-ring connection for this particular service. That is to say, OAM&P information provided to the controller C2 indicates that the switch S2 is to not establish an inter-ring connection, since a primary inter-ring connection is already established by the primary gateway node G1", Column 8, Lines 1-7).

However, de Boer et al. fails to specifically disclose the first node and ring interconnect node remain in their same modes when the failed link or node is restored.

Nevertheless, Chikenji et al. teaches "After this, when communication is impossible due to occurrence of a fault, etc. at the between-ring transmission line 41, as explained with reference to FIG. 6, by performing switching control between the current use system and spare system, within the concerned between-ring transmission line 41, the spare system transmission line 43 is switched with the current use system transmission line 42 to be the new current use system, and it is obvious that it is possible to maintain the concerned communication by using the paths 431 and 432 in that system" (Column 24, Lines 42-51).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have the first node and ring interconnect node remain in their same modes when the failed link or node is restored because **“the ring network can maintain communication while controlling the ring node devices even when a fault has occurred with the control node device” (Column 5, Lines 40-42).**

Regarding **Claim 4**, de Boer et al. and Chikenji et al. disclose everything claimed as applied above (see *Claim 1*). In addition, de Boer et al. discloses a message sent from the first node to the ring interconnect node comprises changing the status of a ring interconnect link of the ring interconnect node from blocked to forwarding (**“the controller C2 instructs the switch S2 to connect the protection segment 202P of the main ring 200 to the protection segment 212P of the subtending ring 210”**, Column 8, Lines 19-21).

Regarding **Claim 16**, de Boer et al. discloses an apparatus for providing inter-ring protection in shared packet rings, comprising:

A processor configured to operate a first node in an active mode or a standby mode (**Gateway Node G1 on main ring 200, Fig. 3A** and **“choose gateway nodes G1 and G2 as the primary and secondary gateway nodes, respectively, Column 7, Lines 53-55)**, the first node configured to connection to a ring interconnect node on the same ring as the first node (**Gateway Node G2 on main ring 200, Fig. 3A**) and for connection to a peer node on a different ring

with a ring interconnecting link (**Gateway Node G1 on subtending ring 210, Fig. 3A**), and

A transmitter operable to send a message from the first node to the ring interconnect node upon detection of a failure of the ring interconnecting link or the peer node to switch the ring interconnect node from the standby mode to the active mode (**"The controller C1 generates switching instructions for the switch S1 based on OAM&P information received therefrom via the control line D1, Column 7, Lines 12-14 and further "The OAM&P information preferably includes the status of various network elements in both survivable rings. Those skilled in the SONET networking art will recognize that it is standard practice to provide an indication of whether a given network element is "failed" or "not failed"', Column 6 Line 66 to Column 7 Line 3 and "if the status of the primary gateway node G1 is "failed", then the controller C2 instructs the switch S2 to connect the protection segment 202P of the main ring 200 to the protection segment 212P of the subtending ring 210", Column 8, 17-21, see Fig. 3B)**;

Wherein only one of the first node and the ring interconnect node operate in the active mode at one time and wherein the first node and the ring interconnect node only add packets to the ring or remove packets from the ring when the node is in the active mode (**"As required for the delivery of inter-ring services, the switches S1, S2 in gateway nodes G1, G2 have the capability to pass traffic between rings. Only one of these gateway nodes (the**

“primary gateway node”) is chosen to provide the inter-ring connection”, Column 7, Lines 41-45 and “The secondary gateway node G2, on the other hand, is provisioned not to effect an inter-ring connection for this particular service. That is to say, OAM&P information provided to the controller C2 indicates that the switch S2 is to not establish an inter-ring connection, since a primary inter-ring connection is already established by the primary gateway node G1”, Column 8, Lines 1-7).

However, de Boer et al. fails to specifically disclose the processor is configured to continue to operate the first node in the standby mode upon receiving notification that a failed link or node is restored.

Nevertheless, Chikenji et al. teaches **“After this, when communication is impossible due to occurrence of a fault, etc. at the between-ring transmission line 41, as explained with reference to FIG. 6, by performing switching control between the current use system and spare system, within the concerned between-ring transmission line 41, the spare system transmission line 43 is switched with the current use system transmission line 42 to be the new current use system, and it is obvious that it is possible to maintain the concerned communication by using the paths 431 and 432 in that system” (Column 24, Lines 42-51).**

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to continue to operate the first node in the standby mode upon receiving notification that a failed link or node is restored

because **“the ring network can maintain communication while controlling the ring node devices even when a fault has occurred with the control node device” (Column 5, Lines 40-42).**

2. Claims 8-9, 13, 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over de Boer et al. further in view of Rouse et al. (US Patent No. 4,683,563).

Regarding claims **8 and 13**, de Boer et al. discloses a method for providing inter-ring protection in shared packet rings, the method comprising:

Operating a first node in an active mode (**Gateway Node G1 on main ring 200, Fig. 3A**), the first node connected to a ring interconnect node on the same ring as the first node (**Gateway Node G2 on main ring 200, Fig. 3A**) and to a peer node on a different ring (**Gateway Node G1 on subtending ring 210, Fig. 3A**), the ring interconnect node in a standby mode (**“choose gateway nodes G1 and G2 as the primary and secondary gateway nodes, respectively, Column 7, Lines 53-55**);

Forwarding packets from the first node to the peer node on a ring interconnecting link in the active mode (**“As required for the delivery of inter-ring services, the switches S1, S2 in gateway nodes G1, G2 have the capability to pass traffic between rings. Only one of these gateway nodes (the “primary gateway node”) is chosen to provide the inter-ring connection”, Column 7, Lines 41-45**);

Receiving at the first node, notification of a failure of the ring interconnecting link or the peer node (**"The controller C1 generates switching instructions for the switch S1 based on OAM&P information received therefrom via the control line D1, Column 7, Lines 12-14 and further "The OAM&P information preferably includes the status of various network elements in both survivable rings. Those skilled in the SONET networking art will recognize that it is standard practice to provide an indication of whether a given network element is "failed" or "not failed"', Column 6 Line 66 to Column 7 Line 3 and see Fig. 3B);**

Sending a message from the first node to the ring interconnect node to switch the ring interconnect node from the standby mode to the active mode (**"if the status of the primary gateway node G1 is "failed", then the controller C2 instructs the switch S2 to connect the protection segment 202P of the main ring 200 to the protection segment 212P of the subtending ring 210", Column 8, 17-21); and**

Changing the first node to the standby mode (**"if the status of the primary gateway node G1 is "failed", Column 8, Lines 17-18 and further "the signal formerly headed for the primary gateway node G1 along working segment 206W will be looped back around the protection path of ring 200 and will arrive at the secondary gateway node G2 via protection fiber 202P", Column 8, Lines 27-31 and see Fig. 3B);**

Wherein packets received at the first node or the ring interconnect node are blocked from being forwarded to said different ring when the node is in the

standby mode (**"The secondary gateway node G2, on the other hand, is provisioned not to effect an inter-ring connection for this particular service. That is to say, OAM&P information provided to the controller C2 indicates that the switch S2 is to not establish an inter-ring connection, since a primary inter-ring connection is already established by the primary gateway node G1"**, Column 8, Lines 1-7).

However, de Boer et al. fails to specifically disclose changing the first node to a flush state prior to entering the standby mode.

Nevertheless, Rouse et al. teaches **"apparatus of the node responsive to detecting failure of the node in propagating a data message flushes the data communication network of data messages and isolates segments of the network experiencing trouble"** (column 2 lines 62-65).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to change the first node to a flush state prior to entering the standby mode because **"a technical advance is achieved by a data communication network arranged to isolate a part of the network experiencing trouble and maintain data communication with the isolated segment to assist in diagnosis and restoral of the isolated segment to network service"** (column 1 lines 45-50).

Regarding claim 9, de Boer et al. and Rouse et al. discloses everything claimed as applied above (see claim 8). However, de Boer et al. fails to specifically disclose removing packets put onto the ring by the first node while the first node is in the flush state.

Nevertheless, Rouse et al. teaches **"apparatus of the node responsive to detecting failure of the node in propagating a data message flushes the data communication network of data messages and isolates segments of the network experiencing trouble"** (column 2 lines 62-65).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to remove packets put onto the ring by the first node while the first node is in the flush state because **"a technical advance is achieved by a data communication network arranged to isolate a part of the network experiencing trouble and maintain data communication with the isolated segment to assist in diagnosis and restoral of the isolated segment to network service"** (column 1 lines 45-50).

Regarding **Claim 17**, de Boer et al. discloses an apparatus for providing inter-ring protection in shared packet rings, comprising:

A processor configured to operate a first node in an active mode or a standby mode (**Gateway Node G1 on main ring 200, Fig. 3A** and **"choose gateway nodes G1 and G2 as the primary and secondary gateway nodes, respectively, Column 7, Lines 53-55)**, the first node configured to connection to a ring interconnect node on the same ring as the first node (**Gateway Node G2 on main ring 200, Fig. 3A**) and for connection to a peer node on a different ring with a ring interconnecting link (**Gateway Node G1 on subtending ring 210, Fig. 3A**), and

A transmitter operable to send a message from the first node to the ring interconnect node upon detection of a failure of the ring interconnecting link or the peer node to switch the ring interconnect node from the standby mode to the active mode (**"The controller C1 generates switching instructions for the switch S1 based on OAM&P information received therefrom via the control line D1, Column 7, Lines 12-14 and further "The OAM&P information preferably includes the status of various network elements in both survivable rings. Those skilled in the SONET networking art will recognize that it is standard practice to provide an indication of whether a given network element is "failed" or "not failed"', Column 6 Line 66 to Column 7 Line 3 and "if the status of the primary gateway node G1 is "failed", then the controller C2 instructs the switch S2 to connect the protection segment 202P of the main ring 200 to the protection segment 212P of the subtending ring 210", Column 8, 17-21, see Fig. 3B);**

Wherein only one of the first node and the ring interconnect node operate in the active mode at one time and wherein the first node and the ring interconnect node only add packets to the ring or remove packets from the ring when the node is in the active mode (**"As required for the delivery of inter-ring services, the switches S1, S2 in gateway nodes G1, G2 have the capability to pass traffic between rings. Only one of these gateway nodes (the "primary gateway node") is chosen to provide the inter-ring connection", Column 7, Lines 41-45 and "The secondary gateway node G2, on the other**

hand, is provisioned not to effect an inter-ring connection for this particular service. That is to say, OAM&P information provided to the controller C2 indicates that the switch S2 is to not establish an inter-ring connection, since a primary inter-ring connection is already established by the primary gateway node G1", Column 8, Lines 1-7).

However, de Boer et al. fails to specifically disclose the processor is configured to operate the first node in a flush state prior to entering the standby mode.

Nevertheless, Rouse et al. teaches "**apparatus of the node responsive to detecting failure of the node in propagating a data message flushes the data communication network of data messages and isolates segments of the network experiencing trouble**" (column 2 lines 62-65).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to operate the first node in a flush state prior to entering the standby mode because "**a technical advance is achieved by a data communication network arranged to isolate a part of the network experiencing trouble and maintain data communication with the isolated segment to assist in diagnosis and restoral of the isolated segment to network service**" (column 1 lines 45-50).

Regarding claim 18, de Boer et al. and Rouse et al. discloses everything claimed as applied above (see claim 17). However, de Boer et al. fails to

specifically disclose the first node is configured to remove packets put onto the ring by the first node while the first node is in the flush state.

Nevertheless, Rouse et al. teaches **"apparatus of the node responsive to detecting failure of the node in propagating a data message flushes the data communication network of data messages and isolates segments of the network experiencing trouble"** (column 2 lines 62-65).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to remove packets put onto the ring by the first node while the first node is in the flush state because **"a technical advance is achieved by a data communication network arranged to isolate a part of the network experiencing trouble and maintain data communication with the isolated segment to assist in diagnosis and restoral of the isolated segment to network service"** (column 1 lines 45-50).

3. **Claims 2, 5-6, 12, and 21** are rejected under 35 U.S.C. 103(a) as being unpatentable over de Boer et al. and Chikenji et al. further in view of Hsu et al. (PG Pub US 2003/0165119 A1).

Regarding **Claim 2**, de Boer et al. and Chikenji et al. discloses everything claimed as applied above (see *Claim 1*). However, de Boer et al. and Chikenji et al. fails to specifically disclose that operating the first node in an active mode comprises utilizing RSTP to identify a root node, as claimed.

Nevertheless, Hsu et al. teaches **"the bridges... to "elect" one of the bridges in the spanning tree network to be a unique root bridge for the**

network...” (Hsu et al. [0005] Lines 4-7). However, Hsu et al. fails to specifically disclose that the network is a Rapid Spanning Tree Protocol (RSTP), as claimed.

Since it is well known that RSTP supersedes STP, the examiner takes official notice of the fact. Consequently, it is obvious expedient to interchange both as directed to engineering design choice.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide de Boer et al. and Chikenji et al.'s inter-ring survivability with a root node identification utilizing RSTP as taught by Hsu et al. because **“the spanning tree protocol, defined in IEEE 802.1, is used by bridges in a network to dynamically discover a subset of the network topology that provides path redundancy while preventing loops... by defining a single tree that spans the bridges and maintaining all other paths and connections in a standby or blocked state” (Hsu et al. [0004] Lines 3-9).** As a result, a root node or bridge would be ultimately necessary **“to calculate the shortest, least cost path from each bridge to the root bridge, to select which ports will be blocking...” (Hsu et al. [0005] Lines 7-9).** Note that Hsu et al. discloses bridges, which are considered as exemplary nodes, as disclosed by Applicants.

Regarding **Claim 5**, de Boer et al. and Chikenji et al. discloses everything claimed as applied above (see *Claim 1*). However, de Boer et al. and Chikenji et

al. fails to specifically disclose that changing the first node to the standby mode comprises changing a port path cost of the first node, as claimed.

Nevertheless, Hsu et al. teaches **“information including root, bridge and port identifiers and path cost data. This information is used by the bridges, among other things, to “elect” one of the bridges in the spanning tree network to be a unique root bridge for the network, to calculate the shortest, least cost path from each bridge to the root bridge...”** (Hsu et al. [0005] Lines 3-8).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide de Boer et al. and Chikenji et al.'s first node change to standby mode with a change of port path cost because it will maintain optimum survivability in shared packet rings, since any changes will be kept up to date and informed to the root node and consequently, the port path cost will be adjusted as well.

Regarding **Claims 6 and 12**, de Boer et al. and Chikenji et al. discloses everything claimed as applied above (see *Claim 1* and *11*). However, de Boer et al. and Chikenji et al. fail to specifically disclose that the first node receives a message that the failed link or node is restored, as claimed.

Nevertheless, Hsu et al. teaches **“when a failed link gets restored, the master bridge quickly detects the link restoration...”** (Hsu et al. [0009] Lines 11-12).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide de Boer et al. and Chikenji et al.'s first node to receive a message that the failed link or node is restored because it would make the method more versatile as it can allow the active node to choose to take further action after the link or node is restored.

Regarding **Claim 21**, de Boer et al. and Chikenji et al. discloses everything claimed as applied above (see *Claim 16*). However, de Boer et al. and Chikenji et al. fails to specifically disclose that the processor is configured to change a port path cost of the first node when the first node switches from the active mode to the standby mode, as claimed.

Nevertheless, Hsu et al. teaches **“information including root, bridge and port identifiers and path cost data. This information is used by the bridges, among other things, to “elect” one of the bridges in the spanning tree network to be a unique root bridge for the network, to calculate the shortest, least cost path from each bridge to the root bridge...”** (Hsu et al. [0005] Lines 3-8).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide de Boer et al. and Chikenji et al.'s first node change to standby mode with a change of port path cost because it will maintain optimum survivability in shared packet rings, since any changes will be kept up to date and informed to the root node and consequently, the port path cost will be adjusted as well.

4. **Claims 10, 14 and 20** are rejected under 35 U.S.C. 103(a) as being unpatentable over de Boer et al. and Chikenji et al. further in view of Mor (US Patent No. 7,054,264 B2).

Regarding **Claims 10 and 14**, de Boer et al. and Chikenji et al. disclose everything claimed as applied above (see *Claim 1* and *11*). However, de Boer et al. and Chikenji et al. fails to specifically disclose the ring interconnecting link has generally the same bandwidth as the ring of the first node, as claimed.

Nevertheless, Mor teaches **“the bandwidth of blocks 54 and 56 and of the interface between them (at least for outgoing traffic to network 24) need not be any greater than the bandwidth of one of the rings”** (Mor Column 6, Lines 42-45 where block 56 is meant as 58) and further **“interface bandwidth of each of the modules need not be substantially greater than the maximum data rate of one of the two directional rings in the ring network”** (Mor Column 2, Lines 45-47).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to make de Boer et al. and Chikenji et al.’s ring interconnecting link and first node ring the same bandwidth because **“this bandwidth is sufficient not only for normal operation, but also for operation under failure conditions, in which one of the modules serves as a backup for the other one”** (Mor Column 6, Lines 46-49).

Regarding **Claim 20**, de Boer et al. and Chikenji et al. discloses everything claimed as applied above (see *Claim 16*). However, de Boer et al.

and Chikenji et al. fails to specifically disclose the ring interconnecting link has generally the same bandwidth as the ring of the first node, as claimed.

Nevertheless, Mor teaches **“the bandwidth of blocks 54 and 56 and of the interface between them (at least for outgoing traffic to network 24) need not be any greater than the bandwidth of one of the rings”** (Mor Column 6, Lines 42-45 where block 56 is meant as 58) and further **“interface bandwidth of each of the modules need not be substantially greater than the maximum data rate of one of the two directional rings in the ring network”** (Mor Column 2, Lines 45-47).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to make de Boer et al. and Chikenji et al.'s ring interconnecting link and first node ring the same bandwidth because **“this bandwidth is sufficient not only for normal operation, but also for operation under failure conditions, in which one of the modules serves as a backup for the other one”** (Mor Column 6, Lines 46-49).

Citations of Pertinent Prior Art

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

Yip et al. (US Patent No. 6,766,482 B1) discloses automatic protection switching in a ring network by creating a protection domain having a control vlan and protected data vlans and designating a master node and transit nodes connected by a primary port and a secondary port.

Application/Control Number:
10/438,396
Art Unit: 2616

Page 20

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christine Duong whose telephone number is (571) 270-1664. The examiner can normally be reached on Monday - Friday: 830 AM-6 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on (571) 272-3174. 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.

CTD 01/29/2008 CTD

Seema S. Rao
SEEMA S. RAO 2/14/08
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2000

Notice of References Cited	Application/Control No. 10/438,396	Applicant(s)/Patent Under Reexamination GARDO ET AL.	
	Examiner Christine Duong	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-4,683,563	07-1987	Rouse et al.	370/224
*	B	US-6,639,893	10-2003	Chikenji et al.	370/217
*	C	US-6,766,482	07-2004	Yip et al.	714/717
	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.

Index of Claims 	Application/Control No. 10438396	Applicant(s)/Patent Under Reexamination GARDO ET AL.
	Examiner Duong, Christine	Art Unit 2616

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

☐ Claims renumbered in the same order as presented by applicant					☐ CPA		☐ T.D.		☐ R.1.47	
CLAIM		DATE								
Final	Original	12/08/2006	07/03/2007	01/29/2008						
	1	✓	✓	✓						
	2	✓	✓	✓						
	3	✓	-	-						
	4	✓	✓	✓						
	5	✓	✓	✓						
	6	✓	✓	✓						
	7	✓	O	-						
	8	✓	O	✓						
	9	✓	O	✓						
	10	✓	✓	✓						
	11	✓	✓	✓						
	12	✓	✓	✓						
	13	✓	O	✓						
	14	✓	✓	✓						
	15		O	-						
	16		✓	✓						
	17		O	✓						
	18		O	✓						
	19		O	-						
	20		✓	✓						
	21		✓	✓						

Search Notes 	Application/Control No. 10438396	Applicant(s)/Patent Under Reexamination GARDO ET AL.
	Examiner Duong, Christine	Art Unit 2616

SEARCHED			
Class	Subclass	Date	Examiner
370	223,255,256	10/30/2006	ctd
370	216-228,244,250,252,256,404-406	11/15/2006	ctd
370	216-228	11/27/2006	ctd
370	217,221,222,223,229,403,404,405	06/25/2007	ctd

SEARCH NOTES		
Search Notes	Date	Examiner
Software patenting William Grant (TQAS)	10/27/2006	ctd
Class/Subclass search Gregory Sefcheck (Primary)	11/15/2006	ctd
101 Statutory William Grant (TQAS)	11/29/2006	ctd
EAST search notes printout attached		ctd
PLUS search notes printout attached		ctd
EAST search updated	06/27/2006	ctd
Seema Rao (SPE)	01/28/2008	ctd
EAST search updated	01/29/2008	ctd

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	818	((remain\$4 or maintain\$4 or stay\$) with (active or standby or mode)) and (interconnect\$4 with (node or ring)) and (fail\$4 with (node or ring))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/12/19 09:58
S2	26	((remain\$4 or maintain\$4 or stay\$) with (active or standby or mode)) same (interconnect\$4 with (node or ring))) and (fail\$4 with (node or ring))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/12/19 10:25
S3	6	((("5761435") or ("5859959") or ("6304575")),PN.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/12/19 10:27
S4	24	\$stp and (redundan\$4 near3 node) and ((interconnect\$4 or inter\$connect\$4) with (node or link or path or bridge or router or switch))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/12/19 10:42
S5	1129	(fail\$4 with (node or link)) and ((interconnect\$4 or inter\$connect\$4) with (ring))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/01/28 09:15
S6	228	(fail\$4 with (node or link)) same ((interconnect\$4 or inter\$connect\$4) with (ring))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/12/19 10:43
S7	2	(fail\$4 with (node or link)) same ((interconnect\$4 or inter\$connect\$4) with (ring)) and ((active or standby) near2 mode)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/12/19 13:57
S8	43	flush\$4 same standby same active	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/12/19 15:06
S9	224	flush\$4 with standby	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/12/19 15:06
S10	123	flush\$4 near6 standby	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/12/19 15:06

1/30/2008 10:37:27 AM

Page 1

C:\Documents and Settings\cduong\My Documents\EAST\Workspaces\christine\10438396\12192007.wsp

EAST Search History

S11	16	(flush\$4 near6 standby) same active	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/12/19 15:11
S12	11	(flush\$4 near6 standby) same (fail\$4)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/12/19 15:12
S14	404	loop and ring and active and standby and fail\$4 and flush\$4	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/12/19 15:14
S15	260	loop and ring and active and standby and fail\$4 and flush\$4 and forward\$4 and block\$4	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/12/19 15:17
S16	188	loop and ring and active and standby and fail\$4 and flush\$4 and forward\$4 and block\$4 and (inter\$connect\$4 or interconnect\$4)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/12/19 15:18
S17	7	active and standby and fail\$4 and flush\$4 and forward\$4 and block\$4 and ((inter\$connect\$4 or interconnect\$4) with ring)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/12/19 15:20
S18	2571	flush\$4 and ((inter\$connect\$4 or interconnect\$4) with ring)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/12/19 15:21
S19	352	flush\$4 same ((inter\$connect\$4 or interconnect\$4) with ring)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/12/19 15:21
S20	118567	"370".clas.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/12/19 15:22
S21	1	S19 and S20	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/12/19 15:22

EAST Search History

S22	88	S18 and S20	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/12/19 15:26
S23	31	S18 and S20 and protect\$4	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/12/19 15:31
S24	2	("6658013").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/12/19 15:31
S25	938	((fault near5 (detect\$4 or recover\$4)) and ((flush\$4 or reset\$4 or clear\$4 or reinitia\$6) same (standby or active)) and ring	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/01/28 10:48
S26	133	((fault near5 (detect\$4 or recover\$4)) and ((flush\$4 or reset\$4 or clear\$4 or reinitia\$6) same (standby or active)) and ((sonet or fiber or optic\$4) with ring)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/01/28 10:51
S27	492	((fault near5 (detect\$4 or recover\$4)) and ((flush\$4 or reset\$4 or clear\$4 or reinitia\$6) with (standby or active)) and (ring)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/01/28 10:51
S28	28	((fault near5 (detect\$4 or recover\$4)) same ((flush\$4 or reset\$4 or clear\$4 or reinitia\$6) with (standby or active)) and (ring)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/01/28 10:54
S29	5	((fault near5 (detect\$4 or recover\$4)) same ((flush\$4)) same (ring)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/01/28 10:56
S30	37	((fault near5 (detect\$4 or recover\$4)) same ((flush\$4)) and (ring)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/01/28 12:18
S31	2	("20030165119").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/01/28 11:08

EAST Search History

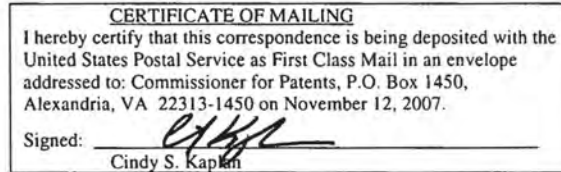
S32	137	(fault near5 (detect\$4 or recover\$4)) and ((flush\$4) same (standby or active or block\$4)) and (ring)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/01/28 12:28
S33	72	(fault near5 (detect\$4 or recover\$4)) and ((flush\$4 with (packet or data or control)) same (standby or active or block\$4)) and (ring)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/01/28 12:28
S34	2290	(fail\$4 with flush\$4)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/01/28 16:11
S36	102	(fail\$4 with flush\$4) same ring	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/01/28 16:30
S37	3181	(fail\$4 same flush\$4) and ring	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/01/28 16:30
S38	71	(fail\$4 same flush\$4) and ring and "370".clas.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/01/28 16:33
S39	3269	370/216,217,218,219,220,221,222,223,224. ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/01/28 16:35
S40	73	S39 and flush\$4	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/01/29 09:37
S41	7256	(remov\$4 with (packet or data or cell or frame)) same flush\$4	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/01/29 09:39
S42	5	(remov\$4 with (packet or data or cell or frame)) same flush\$4 and (fault same ring)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/01/29 09:52

EAST Search History

S43	38	(remov\$4 with (packet or data or cell or frame)) same flush\$4 and (fault and ring)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/01/29 09:58
S44	3	((("5761435") or ("5859959") or ("6304575"))).PN.	US-PGPUB; USPAT; USOCR; EPO; JPO; IBM_TDB	OR	OFF	2008/01/29 09:55
S45	532	(remov\$4 same flush\$4) and (fault and ring)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/01/29 09:59
S47	265	(flush\$4 same fault) and ring	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/01/29 10:00
S48	63	(flush\$4 same fault same (packet or frame or cell or data)) and ring	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/01/29 11:57
S49	97	((fault near5 (detect\$4 or isolat\$4 or notif\$7)) same ring) and ((remain\$4 or retain\$4) near6 (active or standby or block\$4))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/01/29 14:02
S50	586	((inter\$connect\$4 or interconnect\$4) same ring same fault)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/01/29 14:02
S51	120	((inter\$connect\$4 or interconnect\$4) with ring with fault)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/01/29 14:35
S52	42	((inter\$connect\$4 or interconnect\$4) same ring same fault same (restor\$4 or repair\$4 or reinstat\$4))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/01/29 15:05
S53	76	(inter\$connect\$4 or interconnect\$4) and ((remain\$4 or stay\$4 or retain\$4) same ring same fault same (restor\$4 or repair\$4 or reinstat\$4))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/01/29 15:09

EAST Search History

S54	319	(inter\$connect\$4 or interconnect\$4) and ((remain\$4 or stay\$4 or retain\$4) with (restor\$4 or repair\$4 or reinstat\$4) same fault)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/01/29 15:10
S55	132	(inter\$connect\$4 or interconnect\$4) and ring and ((remain\$4 or stay\$4 or retain\$4) with (restor\$4 or repair\$4 or reinstat\$4) same fault)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/01/29 15:24
S56	581	((remain\$4 or stay\$4 or retain\$4) same (restor\$4 or repair\$4 or reinstat\$4) same fault same (active or standby or block\$4))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/01/29 15:25
S57	203	((remain\$4 or stay\$4 or retain\$4) with (active or standby or block\$4)) same (restor\$4 or repair\$4 or reinstat\$4) same fault	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/01/29 15:27
S58	106	((remain\$4 or stay\$4 or retain\$4) with (active or standby or block\$4)) same (restor\$4 or repair\$4 or reinstat\$4) same fault and ring	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/01/29 15:36
S59	66	(link or node) with (restor\$4 or repair\$4 or reinstat\$4) same fault same ring	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/01/29 15:36



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appln. No. : 10/438,396 Confirmation No.: 4274
Applicant : Russell Gardo et al.
Filed : May 15, 2003
TC/A.U. : 2112
Examiner : Christine T. Duong

Docket No. : CISC822
Customer No. : 26541
Title : INTER-RING PROTECTION FOR SHARED PACKET RINGS

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

AMENDMENT B

Sir:

In response to the Office Action of July 12, 2007 please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 8 of this paper.

11/15/2007 HDESTA1 00000007 501652 10438396
02 FC:1201 20.00 DA 610.00 DP

Amendment to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A method for providing inter-ring protection in shared packet rings, the method comprising:

operating a first node in an active mode, the first node connected to a ring interconnect node on the same ring as the first node and to a peer node on a different ring, the ring interconnect node in a standby mode;

forwarding packets from the first node to the peer node on a ring interconnecting link in the active mode;

receiving at the first node, notification of a failure of the ring interconnecting link or the peer node;

sending a message from the first node to the ring interconnect node to switch the ring interconnect node from the standby mode to the active mode; and

changing the first node to the standby mode;

wherein packets received at the first node or the ring interconnect node are blocked from being forwarded to said different ring when the node is in the standby mode, and the first node and ring interconnect node remain in their same modes when the failed link or node is restored.

Claim 2 (previously presented): The method of claim 1 wherein operating the first node in an active mode comprises utilizing RSTP to identify a root node.

Claim 3 (canceled).

Claim 4 (previously presented): The method of claim 1 wherein sending a message from the first node to the ring interconnect node comprises changing the status of a ring interconnect link of the ring interconnect node from blocked to forwarding.

Claim 5 (previously presented): The method of claim 1 wherein changing the first node to the standby mode comprises changing a port path cost of the first node.

Claim 6 (previously presented): The method of claim 1 further comprising receiving a message at the first node that the failed link or node is restored.

Claim 7 (canceled).

Claim 8 (currently amended): ~~The method of claim 1 further comprising A~~
method for providing inter-ring protection in shared packet rings, the method
comprising:

operating a first node in an active mode, the first node connected to a ring
interconnect node on the same ring as the first node and to a peer node on a different
ring, the ring interconnect node in a standby mode;

forwarding packets from the first node to the peer node on a ring interconnecting
link in the active mode;

receiving at the first node, notification of a failure of the ring interconnecting
link or the peer node;

sending a message from the first node to the ring interconnect node to switch the
ring interconnect node from the standby mode to the active mode;

changing the first node to the standby mode; and

changing the first node to a flush state prior to entering the standby mode;

wherein packets received at the first node or the ring interconnect node are
blocked from being forwarded to said different ring when the node is in the standby
mode.

Claim 9 (previously presented): The method of claim 8 further comprising removing packets put onto the ring by the first node while the first node is in the flush state.

Claim 10 (previously presented): The method of claim 1 wherein the ring interconnecting link has generally the same bandwidth as the ring of the first node.

Claim 11 (currently amended): A computer program product for preventing loops in a ring topology of a computer network, the product comprising:

- code that operates a first node in an active mode, the first node connected to a ring interconnect node on the same ring as the first node and to a peer node on a different ring, the ring interconnect node in a standby mode;

- code that forwards packets from the first node to the peer node on a ring interconnecting link in the active mode;

- code that receives notification of a failure of the ring interconnecting link or the peer node;

- code that sends a message from the first node to the ring interconnect node to switch the ring interconnect node from the standby mode to the active mode;

- code that changes the first node to said standby mode; and

- a computer-readable storage medium for storing the codes;

wherein packets received at the first node or the ring interconnect node are blocked from being forwarded to said different ring when the node is in the standby mode, and the first node and ring interconnect node remain in their same modes when the failed link or node is restored.

Claim 12 (previously presented): The product of claim 11 further comprising code that receives a message at the first node that the failed link or node is restored.

Claim 13 (currently amended): ~~The product of claim 11 further comprising A computer program product for preventing loops in a ring topology of a computer network, the product comprising:~~

code that operates a first node in an active mode, the first node connected to a ring interconnect node on the same ring as the first node and to a peer node on a different ring, the ring interconnect node in a standby mode;

code that forwards packets from the first node to the peer node on a ring interconnecting link in the active mode;

code that receives notification of a failure of the ring interconnecting link or the peer node;

code that sends a message from the first node to the ring interconnect node to switch the ring interconnect node from the standby mode to the active mode;

code that changes the first node to said standby mode;

code that changes the first node to a flush state prior to entering the standby mode; and

a computer-readable storage medium for storing the codes;

wherein packets received at the first node or the ring interconnect node are blocked from being forwarded to said different ring when the node is in the standby mode.

Claim 14 (previously presented): The product of claim 11 wherein the ring interconnecting link has generally the same bandwidth as the ring of the first node.

Claim 15 (canceled).

Claim 16 (currently amended): An apparatus for providing inter-ring protection in shared packet rings, comprising:

a processor configured to operate a first node in an active mode or a standby mode, the first node configured for connection to a ring interconnect node on the same

ring as the first node and for connection to a peer node on a different ring with a ring interconnecting link, and

a transmitter operable to send a message from the first node to the ring interconnect node upon detection of a failure of the ring interconnecting link or the peer node to switch the ring interconnect node from the standby mode to the active mode;

wherein only one of the first node and the ring interconnect node operate in the active mode at one time and wherein the first node and the ring interconnect node only add packets to the ring or remove packets from the ring when the node is in the active mode, and the processor is configured to continue to operate the first node in the standby mode upon receiving notification that a failed link or node is restored.

Claim 17 (currently amended): ~~The apparatus of claim 16 wherein~~ An apparatus for providing inter-ring protection in shared packet rings, comprising:

a processor configured to operate a first node in an active mode or a standby mode, the first node configured for connection to a ring interconnect node on the same ring as the first node and for connection to a peer node on a different ring with a ring interconnecting link, and

a transmitter operable to send a message from the first node to the ring interconnect node upon detection of a failure of the ring interconnecting link or the peer node to switch the ring interconnect node from the standby mode to the active mode;

wherein only one of the first node and the ring interconnect node operate in the active mode at one time and wherein the first node and the ring interconnect node only add packets to the ring or remove packets from the ring when the node is in the active mode, and the processor is configured to operate the first node in a flush state prior to entering the standby mode.

Claim 18 (previously presented): The apparatus of claim 17 wherein the first node is configured to remove packets put onto the ring by the first node while the first node is in the flush state.

Appl. No. 10/438,396
Amd. Dated November 12, 2007
Reply to Office Action of July 12, 2007

Claim 19 (canceled).

Claim 20 (previously presented): The apparatus of claim 16 wherein the ring interconnecting link has generally the same bandwidth as the ring of the first node.

Claim 21 (previously presented): The apparatus of claim 16 wherein the processor is configured to change a port path cost of the first node when the first node switches from the active mode to the standby mode.

REMARKS/ARGUMENTS

Claims 1, 8, 11, 13, 16, and 17 are amended and claims 7, 15, and 19 are canceled herein. With entry of this amendment, claims 1-2, 4-6, 8-14, 16-18, and 20-21 will be pending.

Applicants acknowledge the Examiner's allowance of claims 7-9, 13, 15, and 17-19 if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 1, 11, 16 have been amended to include the limitations of claims 7, 15, and 19, respectively. Applicants note that intervening claims 6 and 12 have not been included in the amended independent claim since these claims are not believed to be required for the allowance of the amended independent claims.

Claims 8, 13, and 17 have been amended to include the limitations of their respective base claims.

Accordingly, claims 1, 8, 11, 13, 16, and 17, and the claims depending therefrom, are believed to be in proper form for allowance.

For the foregoing reasons, Applicants believe that all of the pending claims are in condition for allowance and should be passed to issue. If the Examiner feels that a telephone conference would in any way expedite the prosecution of the application, please do not hesitate to call the undersigned at (408) 399-5608.

Respectfully submitted,



Cindy S. Kaplan
Reg. No. 40,043

P.O. Box 2448
Saratoga, CA 95070
Tel: 408-399-5608
Fax: 408-399-5609



if 26/6

PTO/SB/21 (09-06)
Approved for use through 03/31/2007. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

TRANSMITTAL FORM (to be used for all correspondence after initial filing)	Application Number	10/438,396	
	Filing Date	May 15, 2003	
	First Named Inventor	Russell Gardo	
	Art Unit	2616	
	Examiner Name	Christine T. Duong	
Total Number of Pages in This Submission	15	Attorney Docket Number	CISCP822

ENCLOSURES (Check all that apply)		
☒ Fee Transmittal Form	☐ Drawing(s)	☐ After Allowance Communication to TC
☒ Fee Attached	☐ Licensing-related Papers	☐ Appeal Communication to Board of Appeals and Interferences
☒ Amendment/Reply	☐ Petition	☐ Appeal Communication to TC (Appeal Notice, Brief, Reply Brief)
☐ After Final	☐ Petition to Convert to a Provisional Application	☐ Proprietary Information
☐ Affidavits/declaration(s)	☐ Power of Attorney, Revocation	☐ Status Letter
☒ Extension of Time Request	☐ Change of Correspondence Address	☒ Other Enclosure(s) (please identify below):
☐ Express Abandonment Request	☐ Terminal Disclaimer	Postcard
☐ Information Disclosure Statement	☐ Request for Refund	
☐ Certified Copy of Priority Document(s)	☐ CD, Number of CD(s) _____	
☐ Reply to Missing Parts/Incomplete Application	☐ Landscape Table on CD	
☐ Reply to Missing Parts under 37 CFR 1.52 or 1.53	Remarks	
	The Commissioner is authorized to charge any additional fees to Deposit Account 50-1652.	

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT		
Firm Name	Cindy S. Kaplan, Attorney at Law	
Signature		
Printed name	Cindy S. Kaplan	
Date	November 12, 2007	Reg. No. 40,043

CERTIFICATE OF TRANSMISSION/MAILING		
I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:		
Signature		
Typed or printed name	Cindy S. Kaplan	Date November 12, 2007

This collection of information is required by 37 CFR 1.5. 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 2 hours 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.



FEE TRANSMITTAL For FY 2008		Complete if Known	
☐ Applicant claims small entity status. See 37 CFR 1.27		Application Number	10/438,396
TOTAL AMOUNT OF PAYMENT (\$) 610		Filing Date	May 15, 2003
		First Named Inventor	Russell Gardo
		Examiner Name	Christine Duong
		Art Unit	2616
		Attorney Docket No.	CISC822

METHOD OF PAYMENT (check all that apply)

☒ Check ☐ Credit Card ☐ Money Order ☐ None ☐ Other (please identify): _____

☒ Deposit Account Deposit Account Number: 50-1652 Deposit Account Name: Cindy Kaplan

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

☐ Charge fee(s) indicated below ☐ Charge fee(s) indicated below, except for the filing fee

☒ Charge any additional fee(s) or underpayments of fee(s) under 37 CFR 1.16 and 1.17 ☒ Credit any overpayments

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

FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES

Application Type	FILING FEES		SEARCH FEES		EXAMINATION FEES		Fees Paid (\$)
	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	
Utility	310	155	510	255	210	105	
Design	210	105	100	50	130	65	
Plant	210	105	310	155	160	80	
Reissue	310	155	510	255	620	310	
Provisional	210	105	0	0	0	0	

2. EXCESS CLAIM FEES

Fee Description	Fee (\$)	Small Entity Fee (\$)
Each claim over 20 (including Reissues)	50	25
Each independent claim over 3 (including Reissues)	210	105
Multiple dependent claims	370	185

Total Claims 21 - 20 or HP = 0 x 50 = 0

HP = highest number of total claims paid for, if greater than 20.

Indep. Claims 6 - 3 or HP = 3 x 210 = 610

HP = highest number of independent claims paid for, if greater than 3.

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is \$260 (\$130 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee (\$)	Fee Paid (\$)
<u> </u> - 100 = <u> </u> / 50 = <u> </u> (round up to a whole number) x <u> </u> = <u> </u>				

4. OTHER FEE(S)

Non-English Specification, \$130 fee (no small entity discount)

Other (e.g., late filing surcharge):

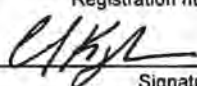
SUBMITTED BY		
Signature		Registration No. (Attorney/Agent) 40,043
Name (Print/Type)	Cindy S. Kaplan	Telephone 408-399-5608
		Date November 12, 2007

This collection of information is required by 37 CFR 1.136. 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 30 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.



PTO/SB/22 (10-07)
Approved for use through 10/31/07. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a) FY 2006 (Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).)		Docket Number (Optional) CISC822	
Application Number 10/438,396		Filed May 15, 2003	
For Inter-Ring Protection for Shared Packet Rings			
Art Unit 2616		Examiner Christine T. Duong	
This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above identified application.			
The requested extension and fee are as follows (check time period desired and enter the appropriate fee below):			
☒ One month (37 CFR 1.17(a)(1))	Fee \$ 120	Small Entity Fee \$ 60	\$ 120
☐ Two months (37 CFR 1.17(a)(2))	\$ 460	\$ 230	\$
☐ Three months (37 CFR 1.17(a)(3))	\$ 1050	\$ 525	\$
☐ Four months (37 CFR 1.17(a)(4))	\$ 1640	\$ 820	\$
☐ Five months (37 CFR 1.17(a)(5))	\$ 2230	\$ 1115	\$
☐ Applicant claims small entity status. See 37 CFR 1.27.			
☒ A check in the amount of the fee is enclosed.			
☐ Payment by credit card. Form PTO-2038 is attached.			
☐ The Director has already been authorized to charge fees in this application to a Deposit Account.			
☒ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number <u>50-1652</u> . I have enclosed a duplicate copy of this sheet.			
WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.			
I am the ☐ applicant/inventor.			
☐ assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96).			
☒ attorney or agent of record. Registration Number <u>40,043</u>			
☐ attorney or agent under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34 _____			
 Signature		November 12, 2007 Date	
Cindy S. Kaplan Typed or printed name		408-399-5608 Telephone Number	
NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below.			
☐ Total of _____ forms are submitted.			

This collection of information is required by 37 CFR 1.136(a). 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 6 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.

11/15/2007 HDESTA1 00000007 501652 10438396

01 FC:1251

120.00 OP

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

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875					Application or Docket Number 10/438,396		Filing Date 05/15/2003		☐ To be Mailed				
APPLICATION AS FILED – PART I													
(Column 1)			(Column 2)		SMALL ENTITY ☐		OR		OTHER THAN SMALL ENTITY				
FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)			RATE (\$)	FEE (\$)					
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A				N/A						
☐ SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A				N/A						
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A				N/A						
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 = *		X \$ =		OR		X \$ =						
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 = *		X \$ =		OR		X \$ =						
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).												
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))													
* If the difference in column 1 is less than zero, enter "0" in column 2.													
			TOTAL				TOTAL						
APPLICATION AS AMENDED – PART II													
(Column 1)			(Column 2)		(Column 3)		SMALL ENTITY		OR		OTHER THAN SMALL ENTITY		
AMENDMENT	11/14/2007	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)		RATE (\$)	ADDITIONAL FEE (\$)			
	Total (37 CFR 1.16(i))	+ 18	Minus	** 20	= 0	X \$ =		OR	X \$50=	0			
	Independent (37 CFR 1.16(h))	+ 6	Minus	*** 3	= 3	X \$ =		OR	X \$210=	630			
	☐ Application Size Fee (37 CFR 1.16(s))								OR				
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								OR				
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	630			
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)		RATE (\$)	ADDITIONAL FEE (\$)			
	Total (37 CFR 1.16(i))	+	Minus	**	=	X \$ =		OR	X \$ =				
	Independent (37 CFR 1.16(h))	+	Minus	***	=	X \$ =		OR	X \$ =				
	☐ Application Size Fee (37 CFR 1.16(s))								OR				
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								OR				
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE				
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.													
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".													
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".													
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.													

Legal Instrument Examiner:
/Audris Sias/

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

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



UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/438,396	05/15/2003	Russell Gardo	CISCP822	4274
26541	7590	07/12/2007		
Cindy S. Kaplan P.O. BOX 2448 SARATOGA, CA 95070			EXAMINER DUONG, CHRISTINE T	
			ART UNIT	PAPER NUMBER
			2616	
			MAIL DATE	DELIVERY MODE
			07/12/2007	PAPER

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

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

Office Action Summary

Application No.

10/438,396

Applicant(s)

GARDO ET AL.

Examiner

Christine Duong

Art Unit

2616

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

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

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

Status

- 1) ☒ Responsive to communication(s) filed on 04/12/2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-6,10-12,14,16,20 and 21 is/are rejected.
- 7) ☒ Claim(s) 7-9,13,15 and 17-19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) ✓
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

This is in response to the Applicant's arguments and amendments filed on 12 April 2007 in which Claims 1-2 and 4-21 are currently pending and Claim 3 has been cancelled.

Claim Rejections - 35 USC § 101

Previous 35 USC 101 rejection to Claims 11-14 are withdrawn in view of Applicant's amendment filed on 12 April 2007.

Claim Rejections - 35 USC § 112

Previous 35 USC 112 rejection to Claim 7 is withdrawn in view of Applicant's amendment filed on 12 April 2007.

Claim Rejections - 35 USC § 102

1. **Claims 1, 4, 11, 16** are rejected under 35 U.S.C. 102(e) as being anticipated by de Boer et al. (US Patent No. 6,658,013 B1).

Regarding **Claims 1 and 11**, de Boer et al. discloses a method for providing inter-ring protection in shared packet rings ("**ensuring survivability of inter-ring traffic**", title), the method comprising:

Operating a first node in an active mode (**Gateway Node G1 on main ring 200, Fig. 3A**), the first node connected to a ring interconnect node on the same ring as the first node (**Gateway Node G2 on main ring 200, Fig. 3A**) and to a peer node on a different ring (**Gateway Node G1 on subtending ring 210, Fig. 3A**), the ring interconnect node in a standby mode ("**choose gateway nodes G1 and G2 as the primary and secondary gateway nodes, respectively, Column 7, Lines 53-55**);

Forwarding packets from the first node to the peer node on a ring interconnecting link in the active mode (**"As required for the delivery of inter-ring services, the switches S1, S2 in gateway nodes G1, G2 have the capability to pass traffic between rings. Only one of these gateway nodes (the "primary gateway node") is chosen to provide the inter-ring connection", Column 7, Lines 41-45;**

Receiving at the first node, notification of a failure of the ring interconnecting link or the peer node (**"The controller C1 generates switching instructions for the switch S1 based on OAM&P information received therefrom via the control line D1, Column 7, Lines 12-14 and further "The OAM&P information preferably includes the status of various network elements in both survivable rings. Those skilled in the SONET networking art will recognize that it is standard practice to provide an indication of whether a given network element is "failed" or "not failed"', Column 6 Line 66 to Column 7 Line 3 and see Fig. 3B);**

Sending a message from the first node to the ring interconnect node to switch the ring interconnect node from the standby mode to the active mode (**"if the status of the primary gateway node G1 is "failed", then the controller C2 instructs the switch S2 to connect the protection segment 202P of the main ring 200 to the protection segment 212P of the subtending ring 210", Column 8, 17-21); and**

Changing the first node to the standby mode (**"if the status of the primary gateway node G1 is "failed", Column 8, Lines 17-18 and further "the signal formerly headed for the primary gateway node G1 along working segment 206W will be looped back around the protection path of ring 200 and will arrive at the**

secondary gateway node G2 via protection fiber 202P", Column 8, Lines 27-31 and see Fig. 3B);

Wherein packets received at the first node or the ring interconnect node are blocked from being forwarded to said different ring when the node is in the standby mode (**"The secondary gateway node G2, on the other hand, is provisioned not to effect an inter-ring connection for this particular service. That is to say, OAM&P information provided to the controller C2 indicates that the switch S2 is to not establish an inter-ring connection, since a primary inter-ring connection is already established by the primary gateway node G1", Column 8, Lines 1-7).**

Regarding **Claim 4**, de Boer et al. disclose everything claimed as applied above (see *Claim 1*). In addition, de Boer et al. discloses a message sent from the first node to the ring interconnect node comprises changing the status of a ring interconnect link of the ring interconnect node from blocked to forwarding (**"the controller C2 instructs the switch S2 to connect the protection segment 202P of the main ring 200 to the protection segment 212P of the subtending ring 210", Column 8, Lines 19-21).**

Regarding **Claim 16**, de Boer et al. discloses an apparatus for providing inter-ring protection in shared packet rings, comprising:

A processor configured to operate a first node in an active mode or a standby mode (**Gateway Node G1 on main ring 200, Fig. 3A and "choose gateway nodes G1 and G2 as the primary and secondary gateway nodes, respectively, Column 7, Lines 53-55)**, the first node configured to connection to a ring interconnect node on the same ring as the first node (**Gateway Node G2 on main ring 200, Fig. 3A)** and for

connection to a peer node on a different ring with a ring interconnecting link (**Gateway Node G1 on subtending ring 210, Fig. 3A**), and

A transmitter operable to send a message from the first node to the ring interconnect node upon detection of a failure of the ring interconnecting link or the peer node to switch the ring interconnect node from the standby mode to the active mode (**"The controller C1 generates switching instructions for the switch S1 based on OAM&P information received therefrom via the control line D1, Column 7, Lines 12-14 and further "The OAM&P information preferably includes the status of various network elements in both survivable rings. Those skilled in the SONET networking art will recognize that it is standard practice to provide an indication of whether a given network element is "failed" or "not failed"', Column 6 Line 66 to Column 7 Line 3 and "if the status of the primary gateway node G1 is "failed", then the controller C2 instructs the switch S2 to connect the protection segment 202P of the main ring 200 to the protection segment 212P of the subtending ring 210", Column 8, 17-21, see Fig. 3B)**;

Wherein only one of the first node and the ring interconnect node operate in the active mode at one time and wherein the first node and the ring interconnect node only add packets to the ring or remove packets from the ring when the node is in the active mode (**"As required for the delivery of inter-ring services, the switches S1, S2 in gateway nodes G1, G2 have the capability to pass traffic between rings. Only one of these gateway nodes (the "primary gateway node") is chosen to provide the inter-ring connection", Column 7, Lines 41-45 and "The secondary gateway node**

G2, on the other hand, is provisioned not to effect an inter-ring connection for this particular service. That is to say, OAM&P information provided to the controller C2 indicates that the switch S2 is to not establish an inter-ring connection, since a primary inter-ring connection is already established by the primary gateway node G1", Column 8, Lines 1-7).

Claim Rejections - 35 USC § 103

2. **Claims 2, 5-6, 12, and 21** are rejected under 35 U.S.C. 103(a) as being unpatentable over de Boer et al. further in view of Hsu et al. (PG Pub US 2003/0165119 A1).

Regarding **Claim 2**, de Boer et al. discloses everything claimed as applied above (see *Claim 1*). However, de Boer et al. fails to specifically disclose that operating the first node in an active mode comprises utilizing RSTP to identify a root node, as claimed.

Nevertheless, Hsu et al. teaches **"the bridges... to "elect" one of the bridges in the spanning tree network to be a unique root bridge for the network..."** (Hsu et al. [0005] Lines 4-7). However, Hsu et al. fails to specifically disclose that the network is a Rapid Spanning Tree Protocol (RSTP), as claimed.

Since it is well known that RSTP supersedes STP, the examiner takes official notice of the fact. Consequently, it is obvious expedient to interchange both as directed to engineering design choice.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide de Boer et al.'s inter-ring survivability with a

root node identification utilizing RSTP as taught by Hsu et al. because **“the spanning tree protocol, defined in IEEE 802.1, is used by bridges in a network to dynamically discover a subset of the network topology that provides path redundancy while preventing loops... by defining a single tree that spans the bridges and maintaining all other paths and connections in a standby or blocked state”** (Hsu et al. [0004] Lines 3-9). As a result, a root node or bridge would be ultimately necessary **“to calculate the shortest, least cost path from each bridge to the root bridge, to select which ports will be blocking...”** (Hsu et al. [0005] Lines 7-9). Note that Hsu et al. discloses bridges, which are considered as exemplary nodes, as disclosed by Applicants.

Regarding **Claim 5**, de Boer et al. discloses everything claimed as applied above (see *Claim 1*). However, de Boer et al. fails to specifically disclose that changing the first node to the standby mode comprises changing a port path cost of the first node, as claimed.

Nevertheless, Hsu et al. teaches **“information including root, bridge and port identifiers and path cost data. This information is used by the bridges, among other things, to “elect” one of the bridges in the spanning tree network to be a unique root bridge for the network, to calculate the shortest, least cost path from each bridge to the root bridge...”** (Hsu et al. [0005] Lines 3-8).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide de Boer et al.'s first node change to standby mode with a change of port path cost because it will maintain optimum

survivability in shared packet rings, since any changes will be kept up to date and informed to the root node and consequently, the port path cost will be adjusted as well.

Regarding **Claims 6 and 12**, de Boer et al. discloses everything claimed as applied above (see *Claim 1* and *11*). However, de Boer et al. fails to specifically disclose that the first node receives a message that the failed link or node is restored, as claimed.

Nevertheless, Hsu et al. teaches **“when a failed link gets restored, the master bridge quickly detects the link restoration...”** (Hsu et al. [0009] Lines 11-12).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide de Boer et al.'s first node to receive a message that the failed link or node is restored because it would make the method more versatile as it can allow the active node to choose to take further action after the link or node is restored.

Regarding **Claim 21**, de Boer et al. discloses everything claimed as applied above (see *Claim 16*). However, de Boer et al. fails to specifically disclose that the processor is configured to change a port path cost of the first node when the first node switches from the active mode to the standby mode, as claimed.

Nevertheless, Hsu et al. teaches **“information including root, bridge and port identifiers and path cost data. This information is used by the bridges, among other things, to “elect” one of the bridges in the spanning tree network to be a unique root bridge for the network, to calculate the shortest, least cost path from each bridge to the root bridge...”** (Hsu et al. [0005] Lines 3-8).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide de Boer et al.'s first node change to standby mode with a change of port path cost because it will maintain optimum survivability in shared packet rings, since any changes will be kept up to date and informed to the root node and consequently, the port path cost will be adjusted as well.

3. **Claims 10, 14 and 20** are rejected under 35 U.S.C. 103(a) as being unpatentable over de Boer et al. further in view of Mor (US Patent No. 7,054,264 B2).

Regarding **Claims 10 and 14**, de Boer et al. disclose everything claimed as applied above (see *Claim 1* and *11*). However, de Boer et al. fails to specifically disclose the ring interconnecting link has generally the same bandwidth as the ring of the first node, as claimed.

Nevertheless, Mor teaches **"the bandwidth of blocks 54 and 56 and of the interface between them (at least for outgoing traffic to network 24) need not be any greater than the bandwidth of one of the rings" (Mor Column 6, Lines 42-45 where block 56 is meant as 58) and further "interface bandwidth of each of the modules need not be substantially greater than the maximum data rate of one of the two directional rings in the ring network" (Mor Column 2, Lines 45-47).**

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to make de Boer et al.'s ring interconnecting link and first node ring the same bandwidth because **"this bandwidth is sufficient not only for normal operation, but also for operation under failure conditions, in which one of the modules serves as a backup for the other one" (Mor Column 6, Lines 46-49).**

Art Unit: 2616

Regarding **Claim 20**, de Boer et al. discloses everything claimed as applied above (see *Claim 16*). However, de Boer et al. fails to specifically disclose the ring interconnecting link has generally the same bandwidth as the ring of the first node, as claimed.

Nevertheless, Mor teaches **"the bandwidth of blocks 54 and 56 and of the interface between them (at least for outgoing traffic to network 24) need not be any greater than the bandwidth of one of the rings"** (Mor Column 6, Lines 42-45 where block 56 is meant as 58) and further **"interface bandwidth of each of the modules need not be substantially greater than the maximum data rate of one of the two directional rings in the ring network"** (Mor Column 2, Lines 45-47).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to make de Boer et al's ring interconnecting link and first node ring the same bandwidth because **"this bandwidth is sufficient not only for normal operation, but also for operation under failure conditions, in which one of the modules serves as a backup for the other one"** (Mor Column 6, Lines 46-49).

Allowable Subject Matter

4. **Claims 7-9, 13, 15, 17-19** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Amendment

5. Applicant's arguments with respect to **Claims 1** and **11-12** have been considered but are moot in view of the new ground(s) of rejection.

6. Applicant's arguments, see Page 10, Line 18 to Page 11, Line 11, filed 12 April 2007, with respect to **Claims 7-9, 13 and 15** have been fully considered and are persuasive. The rejections of **Claims 7-9, 13 and 15** have been withdrawn.

7. Applicant's arguments with respect to **Claims 5, 10 and 14**, filed 12 April 2007, have been fully considered but they are not persuasive.

In response to Applicant's argument regarding **Claim 5** that there is no discussion of changing a port path cost upon changing the mode of a node, it is understood in the reference Hsu et al. that a calculation of the shortest, least cost path from each bridge to the root bridge would imply a change of port path cost. Therefore, the rejection of **Claim 5** is maintained.

In response to Applicant's argument regarding **Claims 10 and 14** that Mor does not disclose a ring interconnect link that has generally the same bandwidth as the ring of the active node, it is understood that the nodes (**blocks 54 and 58, Fig. 2**) and interface bandwidth of each module (**modules 50 and 52, Fig. 2**) can be at most the same bandwidth of one of the rings, including the first node ring. Therefore, the ring interconnect link bandwidth can be the same bandwidth as the ring of the active node and the rejections of **Claims 10 and 14** are maintained.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christine Duong whose telephone number is (571) 270-1664. The examiner can normally be reached on Monday - Friday: 830 AM-6 PM EST.

Art Unit: 2616

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on (571) 272-3174. 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.

CTD 07/03/2007

Seema S. Rao
SEEMA S. RAO 7/6/07
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

Notice of References Cited	Application/Control No. 10/438,396	Applicant(s)/Patent Under Reexamination GARDO ET AL.	
	Examiner Christine Duong	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-6,658,013	12-2003	de Boer et al.	370/404
	B	US-			
	C	US-			
	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.

<i>Index of Claims</i> 	Application/Control No. 10438396	Applicant(s)/Patent Under Reexamination GARDO ET AL.
	Examiner Duong, Christine	Art Unit 2616

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

☐ Claims renumbered in the same order as presented by applicant
 ☐ CPA
 ☐ T.D.
 ☐ R.1.47

CLAIM		DATE							
Final	Original	12/08/2006	07/03/2007						
	1	✓	✓						
	2	✓	✓						
	3	✓	-						
	4	✓	✓						
	5	✓	✓						
	6	✓	✓						
	7	✓	O						
	8	✓	O						
	9	✓	O						
	10	✓	✓						
	11	✓	✓						
	12	✓	✓						
	13	✓	O						
	14	✓	✓						
	15		O						
	16		✓						
	17		O						
	18		O						
	19		O						
	20		✓						
	21		✓						

Search Notes 	Application/Control No. 10438396	Applicant(s)/Patent Under Reexamination GARDO ET AL.
	Examiner Duong, Christine	Art Unit 2616

SEARCHED			
Class	Subclass	Date	Examiner
370	223,255,256	10/30/2006	ctd
370	216-228,244,250,252,256,404-406	11/15/2006	ctd
370	216-228	11/27/2006	ctd
370	217,221,222,223,229,403,404,405	06/25/2007	ctd

SEARCH NOTES		
Search Notes	Date	Examiner
Software patenting William Grant (TQAS)	10/27/2006	ctd
Class/Subclass search Gregory Sefcheck (Primary)	11/15/2006	ctd
101 Statutory William Grant (TQAS)	11/29/2006	ctd
EAST search notes printout attached		ctd
PLUS search notes printout attached		ctd
EAST search updated	06/27/2006	ctd

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	3545	(370/217,221,222,223,229,403,404,405).CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/06/25 14:20
S3	81	((inter near3 connect\$3) with (node or ring)) same (fail\$3)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/06/26 08:48
S4	14	S1 and S3	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/06/25 14:21
S5	2284	((inter near3 connect\$3) with (node or ring))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/06/26 08:49
S6	3548	(370/217,221,222,223,229,403,404,405).CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/06/26 08:49
S7	41	S5 and S6	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/06/26 09:23
S8	11	((inter near2 ring) with (switch or bridge) with fail\$3)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/06/26 09:52
S12	515	(ring network) same ((node or bridge or router or switch or (inter near1 connect\$3)) with (fail\$3))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/06/26 10:48
S13	37	(ring network) same ((node or bridge or router or switch or (inter near1 connect\$3)) with (fail\$3)) same forward\$3	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/06/26 10:15
S14	6	((("5761435") or ("5859959") or ("6304575")).PN.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/06/26 10:16

7/3/2007 11:19:33 AM

Page 1

C:\Documents and Settings\cduong\My Documents\EAST\Workspaces\christine\10438396\06252007.wsp

EAST Search History

S15	2863	((inter near2 (connect\$3 or ring)) with (bridge or switch))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/06/26 11:26
S16	30	S15 and S6	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/06/26 11:19
S17	239	370/223.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/06/26 11:19
S18	125	370/223.ccls. and protect\$3	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/06/26 11:19
S19	79282	((inter near2 (connect\$3 or ring)) or interconnect\$3 or inter\$connect\$3) with (bridge or switch))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/06/26 11:27
S21	57	((inter near2 (connect\$3 or ring)) or interconnect\$3 or inter\$connect\$3) with (ring or bridge or switch or node) with fail\$3) with (different or other)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/06/27 08:33
S22	2805	(ring) with (node or switch or bridge) with (inter\$connect\$3 or interconnect\$3 or inter near2 connect\$3)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/06/27 08:38
S23	3548	(370/217,221,222,223,229,403,404,405).CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/06/27 08:38
S24	237	S22 and S23	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/06/27 08:38
S25	2231	(inter near3 protect\$3)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/06/27 08:38

EAST Search History

S26	758	(inter near3 protect\$3).bsum.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/06/27 08:38
S27	3	S24 and S26	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/06/27 08:56
S29	3	"20020003639"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/06/27 10:31
S30	400	((different or other) near2 ring) and ((active or primary) with (standby or secondary)) with (node or bridge or router or switch or inter or connect\$3)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/06/27 10:38
S31	43	((different or other) near2 ring) same ((active or primary) with (standby or secondary)) with (node or bridge or router or switch or inter or connect\$3)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/06/27 10:57
S32	34	((different or other) near2 ring) same ((active or primary) with (standby or secondary)) with (gateway or inter or connect\$3)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/06/27 10:58
S33	3	((different or other) near2 ring) same ((active or primary) with (standby or secondary)) with (gateway)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/06/27 11:05
S34	7416	(ring) same ((active or primary) with (standby or secondary)) with (gateway or router or node or switch or bridge or inter or connect\$3)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/06/27 11:07
S35	2696	(ring) with ((active or primary) with (standby or secondary)) with (gateway or router or node or switch or bridge or inter or connect\$3)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/06/27 11:07
S36	161	(ring) with ((active or primary) with (standby or secondary)) with (gateway or router or node or switch or bridge or inter or connect\$3) and "370"/\$.cls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/06/27 15:16

EAST Search History

S37	18	(ring near5 loop near5 (avoid\$5 or protect\$4)) and ((primary or active) and (secondary or standby or non\$active)) and ((inter near2 connect\$3) or interconnect\$3 or inter\$connect\$3 or interrering or inter\$ring or (inter ring))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/06/27 15:57
S38	11	(ring near5 loop near5 (avoid\$5 or protect\$4)) and ((primary or active) and (secondary or standby or non\$active)) and ((inter near2 connect\$3) or interconnect\$3 or inter\$connect\$3 or interrering or inter\$ring or (inter ring)).bsum.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/06/27 15:33
S39	56551	(ring) and ((primary or active) and (secondary or standby or non\$active)) and ((inter near2 connect\$3) or interconnect\$3 or inter\$connect\$3 or interrering or inter\$ring or (inter ring))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/06/27 15:57
S40	17121	(ring) and ((primary or active) and (secondary or standby or non\$active)) and ((inter near2 connect\$3) or interconnect\$3 or inter\$connect\$3 or interrering or inter\$ring or (inter ring)).bsum.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2007/06/27 15:57



Handwritten initials "Hw" and number "212" in the top right corner.

PTO/SB/21 (09-06)

Approved for use through 03/31/2007. OMB 0651-0031

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

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

TRANSMITTAL FORM (to be used for all correspondence after initial filing)	Application Number	10/438,396	
	Filing Date	May 15, 2003	
	First Named Inventor	Russell Gardo	
	Art Unit	2112	
	Examiner Name	Christine T. Duong	
Total Number of Pages in This Submission	14	Attorney Docket Number	CISCP822

ENCLOSURES (Check all that apply)		
☐ Fee Transmittal Form	☐ Drawing(s)	☐ After Allowance Communication to TC
☐ Fee Attached	☐ Licensing-related Papers	☐ Appeal Communication to Board of Appeals and Interferences
☒ Amendment/Reply	☐ Petition	☐ Appeal Communication to TC (Appeal Notice, Brief, Reply Brief)
☐ After Final	☐ Petition to Convert to a Provisional Application	☐ Proprietary Information
☐ Affidavits/declaration(s)	☐ Power of Attorney, Revocation	☐ Status Letter
☐ Extension of Time Request	☐ Change of Correspondence Address	☒ Other Enclosure(s) (please identify below):
☐ Express Abandonment Request	☐ Terminal Disclaimer	Postcard
☐ Information Disclosure Statement	☐ Request for Refund	
☐ Certified Copy of Priority Document(s)	☐ CD, Number of CD(s) _____	
☐ Reply to Missing Parts/Incomplete Application	☐ Landscape Table on CD	
☐ Reply to Missing Parts under 37 CFR 1.52 or 1.53	Remarks	
	The Commissioner is authorized to charge any additional fees to Deposit Account 50-1652.	

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT		
Firm Name	Cindy S. Kaplan, Attorney at Law	
Signature		
Printed name	Cindy S. Kaplan	
Date	April 9, 2007	Reg. No. 40,043

CERTIFICATE OF TRANSMISSION/MAILING		
I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:		
Signature		
Typed or printed name	Cindy S. Kaplan	Date April 9, 2007

This collection of information is required by 37 CFR 1.5. 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 2 hours 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.



CERTIFICATE OF MAILING I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on April 9, 2007. Signed: <u><i>Cindy S. Kaplan</i></u> Cindy S. Kaplan
--

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appln. No.	:	10/438,396	Confirmation No.:	4274
Applicant	:	Russell Gardo et al.		
Filed	:	May 15, 2003		
TC/A.U.	:	2112		
Examiner	:	Christine T. Duong		
Docket No.	:	CISCP822		
Customer No.	:	26541		
Title	:	INTER-RING PROTECTION FOR SHARED PACKET RINGS		

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

AMENDMENT A

Sir:

In response to the Office Action of January 9, 2007 please amend the above-identified application as follows:

Amendments to the Specification begin on page 2 of this paper.

Amendments to the Claims are reflected in the listing of claims which begins on page 3 of this paper.

Remarks/Arguments begin on page 8 of this paper.

Amendments to the Specification:

Please replace the paragraph beginning at page 11, line 14, with the following amended paragraph:

The invention described herein may be implemented in dedicated hardware, microcode, software, or photonic (optical) logic. Fig. 6 shows a system block diagram of computer system 84 that may be used as a router or host or used to execute software of an embodiment of the invention. The computer system 84 includes memory 88 which can be utilized to store and retrieve software programs incorporating computer code that implements aspects of the invention, data for use with the invention, and the like. Exemplary computer readable storage media include CD-ROM, floppy disk, tape, flash memory, system memory, and hard drive. Additionally, a data signal embodied in a carrier wave (e.g., in a network including the Internet) may be ~~the computer-readable a~~ transmission-storage medium. Computer system 84 further includes subsystems such as a central processor 86, fixed storage 90 (e.g., hard drive), removable storage 92 (e.g., CD-ROM drive), and one or more network interfaces 94. Other computer systems suitable for use with the invention may include additional or fewer subsystems. For example, computer system 84 may include more than one processor 86 (i.e., a multi-processor system) or a cache memory.

Amendment to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A method for providing inter-ring protection in shared packet rings, the method comprising:

operating a first node in an active mode, the first node identifying an active node
connected to a ring interconnect node on the same ring as the active first node and
~~connected to a peer node on a different ring, the ring interconnect node in a standby~~
mode;

forwarding packets from the first node to the peer node on a ring interconnecting
link in the active mode;

~~with a ring interconnecting link which is in a forwarding mode;~~
receiving at the active first node, notification of a failure of the ring
interconnecting link or the peer node;

sending a message from the active first node to the ring interconnect node ~~on the~~
~~same ring as the active node so that to switch~~ the ring interconnect node ~~switches~~ from
the standby mode to the active mode; and

changing the ~~active first~~ node to the standby mode;

wherein packets received at the first node or the ring interconnect node are
blocked from being forwarded to said different ring when the node is in the standby
mode.

Claim 2 (currently amended): The method of claim 1 wherein operating the first
node in an active mode ~~identifying the active node~~ comprises utilizing RSTP to identify
a root node.

Claim 3 (canceled).

Claim 4 (currently amended): The method of claim 1 wherein sending a message from the ~~active~~ first node to the ring interconnect node comprises changing the status of a ring interconnect link of the ring interconnect node from blocked to forwarding.

Claim 5 (currently amended): The method of claim 1 wherein changing the ~~active~~ first node to the standby mode comprises changing a port path cost of the ~~active~~ first node.

Claim 6 (currently amended): The method of claim 1 further comprising receiving a message at the ~~active~~ first node that the failed link or node is restored.

Claim 7 (currently amended): The method of claim 6 wherein the first node and the ring interconnect node ~~nodes retain their states~~ remain in their same modes when the failed link or node is restored.

Claim 8 (currently amended): The method of claim 1 further comprising changing the ~~active~~ first node to a flush state prior to entering the standby mode.

Claim 9 (currently amended): The method of claim 8 further comprising removing packets put onto the ring by the ~~active~~ first node while the ~~active~~ first node is in the flush state.

Claim 10 (currently amended): The method of claim 1 wherein the ring interconnecting link ~~interconnect link~~ has generally the same bandwidth as the ring of the ~~active~~ first node.

Claim 11 (currently amended): A computer program product for preventing loops in a ring topology of a computer network, the product comprising:

code that operates a first node in an active mode, the first node identifies an active node connected to a ring interconnect node on the same ring as the active first node and connected to a peer node on a different ring with a ring interconnecting link which is in a forwarding mode, the ring interconnect node in a standby mode;

code that forwards packets from the first node to the peer node on a ring interconnecting link in the active mode;

code that receives notification of a failure of the ring interconnecting link or the peer node;

code that sends a message from the ~~active first~~ node to the ring interconnect node ~~on the same ring as the active node so that to switch~~ the ring interconnect node ~~switches from the standby mode to the active mode;~~

code that changes the ~~active first~~ node to said standby mode; and

a computer-readable storage medium for storing the codes;

wherein packets received at the first node or the ring interconnect node are blocked from being forwarded to said different ring when the node is in the standby mode.

Claim 12 (currently amended): The product of claim 11 further comprising code that receives a message at the ~~active first~~ node that the failed link or node is restored.

Claim 13 (currently amended): The product of claim 11 further comprising code that changes the ~~active first~~ node to a flush state prior to entering the standby mode.

Claim 14 (currently amended): The product of claim 11 wherein the ring ~~interconnect interconnecting~~ link has generally the same bandwidth as the ring of the active first node.

Claim 15 (new): The product of claim 12 wherein the first node and the ring interconnect node remain in their same modes when the failed link or node is restored.

Claim 16 (new): An apparatus for providing inter-ring protection in shared packet rings, comprising:

a processor configured to operate a first node in an active mode or a standby mode, the first node configured for connection to a ring interconnect node on the same ring as the first node and for connection to a peer node on a different ring with a ring interconnecting link, and

a transmitter operable to send a message from the first node to the ring interconnect node upon detection of a failure of the ring interconnecting link or the peer node to switch the ring interconnect node from the standby mode to the active mode;

wherein only one of the first node and the ring interconnect node operate in the active mode at one time and wherein the first node and the ring interconnect node only add packets to the ring or remove packets from the ring when the node is in the active mode.

Claim 17 (new): The apparatus of claim 16 wherein the processor is configured to operate the first node in a flush state prior to entering the standby mode.

Claim 18 (new): The apparatus of claim 17 wherein the first node is configured to remove packets put onto the ring by the first node while the first node is in the flush state.

Claim 19 (new): The apparatus of claim 16 wherein the processor is configured to continue to operate the first node in the standby mode upon receiving notification that a failed link or node is restored.

Claim 20 (new): The apparatus of claim 16 wherein the ring interconnecting link has generally the same bandwidth as the ring of the first node.

Claim 21 (new): The apparatus of claim 16 wherein the processor is configured to change a port path cost of the first node when the first node switches from the active mode to the standby mode.

REMARKS/ARGUMENTS

I. Introduction:

Claims 1, 2, and 4-14 are amended, claim 3 is canceled, and new claims 15-21 are added herein. With entry of this amendment, claims 1-2 and 4-21 will be pending.

II. Claim Rejections – 35 U.S.C. 101:

The specification has been amended to clarify that a data signal embodied in a carrier wave may be a transmission medium.

As amended, claims 11-14 are believed to comply with the requirements of 35 U.S.C. 101.

III. Claim Rejections – 35 U.S.C. 112:

Claim 7 has been amended to replace “states” with “modes”. As amended, claim 7 is believed to comply with the requirements of 35 U.S.C. 112.

IV. Claim Rejections – 35 U.S.C. 102 and 103:

Claims 1, 4, and 10 stand rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 7,054,264 (Mor).

Claims 2-3 and 5-6 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Mor in view of U.S. Patent Application Publication No. 2003/0165119 (Hsu et al.). Claim 7 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Mor in view of Hsu et al. and further in view of U.S. Patent Application Publication No. 2004/0203976 (Gupta et al.). Claims 8-9 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Mor in view of Gupta et al. Claims 11-12 and 14 stand rejected

under 35 U.S.C. 103(a) as being unpatentable over Mor. Claim 13 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Mor in view of Gupta et al.

Claim 1 is directed to a method for providing inter-ring protection in shared packet rings. The method includes, inter alia, operating a first node in an active mode, receiving notification of a failure at the first node, sending a message from the first node to a ring interconnect node so that the ring interconnect node switches from standby mode to active mode, and changing the first node to standby mode.

Claim 1 has been amended to clarify that the ring interconnect node is operating in a standby mode when the first node is in an active mode and that packets received at the first node or the ring interconnect node are blocked from being forwarded to the other ring when the node is in standby mode.

Mor is directed to a communication system for interconnection of first and second networks. As shown in Fig. 2, the system includes first and second interconnect modules each configured to convey at least a portion of the outgoing traffic from the first network to the second network. When a fault occurs in one of the first and second modules, the other module is reconfigured to receive substantially all of the outgoing data traffic and to convey the traffic to the second network.

In contrast to applicants' invention, prior to a failure Mor uses both modules to transfer data between networks. As the Examiner noted at page 6 of the Office Action, "Mor fails to specifically disclose that the root node adds or removes packets to or from the ring only when it is in active mode". Applicants' invention, as set forth in the claims, uses only one node (e.g., the first node or the ring interconnect node) to transfer data to the other ring.

Accordingly, claim 1, as amended is submitted as not anticipated by Mor.

Hsu et al. disclose a network configuration protocol for rapid traffic recovery and loop avoidance in ring topologies. As noted by the Examiner Hsu et al. disclose blocking and unblocking data traffic in one of the ring ports of a single master bridge for the ring. One of the ports of a single bridge is set in a blocking state while the other

port is in a forwarding state. The process provides fault recovery in a single ring topology or in each ring in a multiple ring topology when the rings do not share ports. As shown in Fig. 5, one of two ports of a single bridge is initially blocked, while the other is forwarding. Upon a failure in a link, both ports are set to forwarding. The Hsu et al. publication is thus directed at blocking or unblocking a port of a two port bridge and does not address protection in shared packet rings or interaction between two ring interconnect nodes. Neither Hsu et al. nor Mor, either alone or in combination, show or suggest, blocking packets forwarded from one ring to another at one node, while forwarding packets at another node.

Accordingly, claim 1, as amended, and the claims depending therefrom are submitted as patentable over Mor and Hsu et al.

Claim 5 is further as submitted as patentable because Hsu et al. do not disclose wherein changing a node from active to standby comprises changing a port path cost of the node. In rejecting the claim, the Examiner refers to paragraph [0005] of Hsu et al. This section of the patent application publication describes how path cost data is used by bridges to elect one of the bridges to be a unique root bridge for the network. There is no discussion of changing a port path cost upon changing the mode of a node.

With regard to claim 7, the Examiner cites Gupta et al. The Gupta et al. patent application is directed to power management for nodes coupled to a communication link. The Examiner refers to step 402 and paragraph [0038] which describes saving state information and retrieving the information before entering a suspended state of operation. Gupta et al. do not show or suggest nodes that remain in their same modes of operation when a failed link or node is restored. The Examiner refers to setting a local node configuration based on a stored configuration in Gupta et al. In contrast to Gupta et al., applicants' invention, allows nodes (e.g., first node and ring interconnect node) to remain in their respective modes (e.g., standby and active) after a failed link or node is restored. The node does not need to retrieve stored state information, since the node remains in the same mode that it is currently operating in. Since the nodes do not need

to change modes during a link restore, there is no traffic load (to transmit additional messages) or action required by the nodes.

Claims 8 and 9 are further submitted as patentable over Gupta et al., which do not show or suggest changing a node to a flush state prior to entering a standby mode. In rejecting claim 8, the Examiner refers to claim 11 of Gupta et al. This claim describes how a configuration state of a node is reset to a state existing before the first node transitioned from a normal state of operation into the suspended state of operation. The node is simply reset back to a prior state. Gupta et al. refer to a transition (e.g., paragraph [0027]), however, this is during initialization (transition from a powered down state to a normal state of operation). Gupta et al. do not disclose a flush state that is entered when changing a node from active to standby.

Claim 10 is submitted as not anticipated by Mor, which does not disclose a ring interconnect link that has generally the same bandwidth as the ring of the active node. The sharing of the load of traffic by the two modules in normal operation is an important object of the Mor patent (see, e.g., col. 2 lines 42-54). Upon occurrence of a failure, traffic is redirected using wrapping or steering so that the total bandwidth of traffic that the non-failing module must handle is still no greater than the maximum data rate of a one of the two directional rings in the network (see, e.g., col. 2, line 65 – col. 3, line 5).

Claim 11 is directed to a computer program product for preventing loops in a ring topology, and is submitted as patentable for the reasons discussed above with respect to claim 1.

Claims 12-15, depending from claim 11, are submitted as patentable for at least the same reasons as claim 11.

Claims 13 and 14 are further submitted as patentable for the reasons discussed above with respect to claims 8 and 10, respectively.

New claim 16, and the claims depending therefrom, are submitted as patentable for the reasons discussed above with respect to claim 1.

Appl. No. 10/438,396
Amd. Dated April 9, 2007
Reply to Office Action of January 9, 2007

V. Conclusion:

For the foregoing reasons, Applicants believe that all of the pending claims are in condition for allowance and should be passed to issue. If the Examiner feels that a telephone conference would in any way expedite the prosecution of the application, please do not hesitate to call the undersigned at (408) 399-5608.

Respectfully submitted,



Cindy S. Kaplan
Reg. No. 40,043

P.O. Box 2448
Saratoga, CA 95070
Tel: 408-399-5608
Fax: 408-399-5609

PATENT APPLICATION FEE DETERMINATION RECORD
Effective January 1, 2003

Application or Docket Number

450822 10/48396

CLAIMS AS FILED - PART I

	(Column 1)	(Column 2)
TOTAL CLAIMS	14	
FOR	NUMBER FILED	NUMBER EXTRA
TOTAL CHARGEABLE CLAIMS	14 minus 20 = *	
INDEPENDENT CLAIMS	2 minus 3 = *	
MULTIPLE DEPENDENT CLAIM PRESENT ☐		

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

CLAIMS AS AMENDED - PART II

4/12/7

	(Column 1)	(Column 2)	(Column 3)
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
Total	* 20	Minus ** 20	= 0
Independent	* 3	Minus *** 3	= 0
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM ☐			

① 300 21

	(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		RATE	FEE
BASIC FEE	375.00	OR	BASIC FEE	750.00
X\$ 9=		OR	X\$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL		OR	TOTAL	750

SMALL ENTITY

OR OTHER THAN SMALL ENTITY

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X\$ 9=		OR	X\$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X\$ 9=		OR	X\$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X\$ 9=		OR	X\$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	



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

H.A

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/438,396	05/15/2003	Russell Gardo	CISCP822	4274
26541	7590	01/09/2007		
Cindy S. Kaplan P.O. BOX 2448 SARATOGA, CA 95070			EXAMINER DUONG, CHRISTINE T	
			ART UNIT	PAPER NUMBER
			2112	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/09/2007	PAPER

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

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/438,396	GARDO ET AL.	
	Examiner	Art Unit	
	Christine Duong	2616	

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

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

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

Status

1) ☐ Responsive to communication(s) filed on _____.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 1-14 is/are pending in the application.

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

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) 1-14 is/are rejected.

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

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on 15 May 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

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

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

 a) ☐ All b) ☐ Some * c) ☐ None of:

 1. ☐ Certified copies of the priority documents have been received.

 2. ☐ Certified copies of the priority documents have been received in Application No. _____.

 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892) *

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08) .
 Paper No(s)/Mail Date 06/02/2003.

4) ☐ Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The references listed in the Information Disclosure Statement filed on June 02, 2003 have been considered by the examiner (see attached PTO-1449 form or PTO/SB/08A and 08B forms).

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. **Claims 11-14** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

In **Claim 11**, the "computer-readable storage medium", in accordance with Applicants' specification, may be "a data signal embodied in a carrier wave (e.g., in a network including the Internet)". This subject matter is not limited to that which falls within a statutory category of invention because it is not limited to a process, machine, manufacture or a composition of matter. Instead, a signal embodied in a carrier wave is believed to be a form of energy. It does not fall within a statutory category since it is clearly not a series of steps or acts to constitute a process, not a mechanical device or combination of mechanical devices to constitute a machine, not a tangible physical article or object which is some form of matter to be a product and constitute a manufacture, and not a composition of two or more substances to constitute a composition of matter. As a result, Claim 11 fails to fall within a statutory category.

Claims 12-14 are being rejected as incorporating the deficiencies of a claim upon which they depend.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

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

5. **Claim 7** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 7 recites the limitation "states" in line 14. There is insufficient antecedent basis for this limitation in the claim. For the examination of the merits, the claim "states" will be interpreted to be "modes" as referred to claim 1.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. **Claims 1, 4 and 10** are rejected under 35 U.S.C. 102(e) as being anticipated by Mor (US 7,054,264 B2).

Regarding **Claim 1**, Mor discloses a method for providing inter-ring protection in shared packet rings (abstract), the method comprising:

identifying an active node (RPR 1, Fig. 2 #54a) connected to a ring interconnect node on the same ring as the active node (RPR 1, Fig. 2 # 54b) and connected to a peer node on a different ring (RPR 2, Fig. 2 #58a) with a ring interconnecting link which is in a forwarding mode (Traffic Processing, Fig. 2 #56a);

receiving at the active node, notification of a failure of the ring interconnecting link or the peer node (see column 3, lines 40-41);

sending a message from the active node to the ring interconnect node on the same ring as the active node so that the ring interconnect node switches from standby mode to active mode (see column 3, lines 41-44); and

changing the active node to standby mode (see column 4, lines 59-62).

Regarding **Claim 4**, Mor discloses everything claimed as applied above (see *claim 1*). In addition, a message sent from the active node to the ring interconnect node comprises changing the status of a ring interconnect link of the ring interconnect node from blocked to forwarding (see column 3, lines 40-44, lines 58-62).

Regarding **Claim 10**, Mor discloses everything claimed as applied above (see *claim 1*). In addition, the ring interconnect link has generally the same bandwidth as the ring of the active node (see column 6, lines 42-45; where block 56 is meant as 58, see column 2, lines 45-47).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. **Claims 2-3, 5-6** are rejected under 35 U.S.C. 103(a) as being unpatentable over Mor in view of Hsu et al. (US 2003/0165119 A1).

Regarding **Claim 2**, Mor discloses everything claimed as applied above (see *claim 1*). However, Mor fails to specifically disclose that identifying the active node comprises utilizing RSTP to identify a root node, as claimed.

Hsu et al. discloses "the bridges... to "elect" one of the bridges in the spanning tree network to be a unique root bridge for the network..." ([0005]). However, Hsu et al. fails to specifically disclose that the network is a Rapid Spanning Tree Protocol (RSTP), as claimed.

Since it is well known that RSTP supersedes STP, the examiner takes official notice of the fact. Consequently, it is obvious expedient to interchange both as directed to engineering design choice.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide Mor's inter-ring protection with a root node identification utilizing RSTP as taught by Hsu et al. because "the spanning tree protocol, defined in IEEE 802.1, is used by bridges in a network to dynamically discover a subset of the network topology that provides path redundancy while preventing loops... by defining a single tree that spans the bridges and maintaining all other paths and connections in a standby or blocked state" ([0004] of Hsu et al.). As a result, a root node or bridge would be ultimately necessary "to calculate the shortest, least cost path from each bridge to the root bridge, to select which ports will be blocking..." ([0005] of

Hsu et al.). Note that Hsu et al. discloses bridges, which are considered as exemplary nodes, as disclosed by Applicants.

Regarding **Claim 3**, Mor and Hsu et al. discloses everything claimed as applied above (see *claim 2*). However, Mor fails to specifically disclose that the root node adds or removes packets to or from the ring only when it is in active mode, as claimed.

Hsu et al. discloses "selectively blocking and unblocking data traffic in one of the ring ports of a single master bridge for the ring" ([0009]).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide Mor's root node in active mode to add and remove packet to or from the ring because this method will "avoid a loop from occurring" for "a ring loop free topology" ([0009] of Hsu et al.).

Regarding **Claim 5**, Mor discloses everything claimed as applied above (see *claim 1*). However, Mor fails to specifically disclose that the method of changing the active node to the standby mode comprises changing a port path cost of the active node, as claimed.

Hsu et al. discloses "the bridges... to "elect" one of the bridges in the spanning tree network to be a unique root bridge for the network, to calculate the shortest, least cost path from each bridge to the root bridge, to select which ports will be blocking,..." ([0005]).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide Mor's active node change to standby mode with a change of port path cost as taught by Hsu et al. because it is obvious that to

maintain optimum protection in shared packet rings, any changes should be kept up to date and informed to the root node and consequently, the port path cost will be adjusted as well.

Regarding **Claim 6**, Mor discloses everything claimed as applied above (see *claim 1*). However, Mor fails to specifically disclose that the active node receives a message that the failed link or node is restored, as claimed.

Hsu et al. discloses that "when a failed link gets restored, the master bridge quickly detects the link restoration..." ([0009]).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide Mor's active node to receive a message that the failed link or node is restored because it would make the method more versatile as it can allow the active node to choose to take further action after the link or node is restored.

10. **Claim 7** is rejected under 35 U.S.C. 103(a) as being unpatentable over Mor in view of Hsu et al. and further in view of Gupta et al. (US 2004/0203976 A1).

Regarding **Claim 7**, Mor and Hsu et al. disclose everything claimed as applied above (see *claim 6*). However, Mor and Hsu et al. fail to specifically disclose that the nodes retain their states when the failed link or node is restored.

Gupta et al. discloses "retrieving node configuration information that was stored before the node 204 entered the suspended state of operation, as depicted in block 402" (see Fig. 6, block 402 of technique 400, [0038] and claim 4). The reference teaches that information regarding the nodes is retained by being stored.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to retain the states of the nodes when the failed link or node is restored in order to "set the local node configuration based on the stored configuration" ([0039] of Gupta et al.).

11. **Claims 8-9** are rejected under 35 U.S.C. 103(a) as being unpatentable over Mor in view of Gupta et al.

Regarding **Claim 8**, Mor discloses everything claimed as applied above (see *claim 1*). However, Mor fails to specifically disclose that prior to entering the standby mode, the active node changes to a flush state, as claimed.

Gupta et al. discloses a method of "resetting a configuration state of the first node to a state existing before the first node transitioned from a normal state of operation into the suspended state of operation" (see claim 11). The reference teaches that before going into a suspended state of operation, the first node enters a transition state.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to change Mor's active node to a transition state before entering the standby mode to allow the node to further take action before changing state as directed to engineering design choice.

Regarding **Claim 9**, Mor and Gupta et al. discloses everything claimed as applied above (see *claim 8*). However, Mor fails to specifically disclose that the active node, while in the flush state, removes packets put onto the ring by the active node, as claimed.

Gupta et al. discloses that prior to entering the suspended state of operation, "the node 204 subsequently prepares for the suspended state of operation... and flushes the buffers of the node 204, including the transmit 100 and receive 102 FIFO memory buffers" (see Fig. 5, block 308 of technique 300 and [0035]).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to enable the active node to remove packets put onto the ring while in the flush state to "provide a reliable way to synchronize between nodes and prepare a communication link to go into a suspended state of operation" ([0042] of Gupta et al.).

12. **Claims 11-12 and 14** are rejected under 35 U.S.C. 103(a) as being unpatentable over Mor.

Regarding **Claim 11**, Mor discloses a computer program product for preventing loops in a ring topology of a computer network, the product comprising:

code that identifies an active node connected to a ring interconnect node on the same ring as the active node and connected to a peer node on a different ring with a ring interconnecting link which is in a forwarding mode;

code that receives notification of a failure of the ring interconnecting link or the peer node;

code that sends a message from the active node to the ring interconnect node on the same ring as the active node so that the ring interconnect node switches from standby mode to active mode;

code that changes the active node to standby mode; and

a computer-readable storage medium for storing the codes.

Claim 11 is directed to a computer program product, which is an obvious variation of the method of Claim 1. It is conventional in the art to use software to implement methods; therefore, on obvious expedient.

Regarding **Claims 12 and 14**, Mor discloses everything claimed as applied above (see *Claim 11*). In addition, Mor discloses a code that receives a message at the active node that the failed link or node is restored and the ring interconnect link has generally the same bandwidth as the ring of the active node.

Claims 12 and 14 are both directed to a computer program product, which is an obvious variation of the method of Claim 6 and 10, respectively. It is conventional in the art to use software to implement methods; therefore, on obvious expedient.

It is conventional in the art to use software to implement methods, therefore, on obvious expedient.

13. **Claim 13** is rejected under 35 U.S.C. 103(a) as being unpatentable over Mor in view of Gupta et al.

Regarding **Claim 13**, Mor discloses everything claimed as applied above (see *claim 11*). However, Mor fails to specifically disclose that the product further comprises code that changes that active node to a flush state prior to entering the standby mode, as claimed.

Gupta et al. discloses "resetting a configuration state of the first node to a state existing before the first node transitioned from a normal state of operation into the suspended state of operation" (see claim 11).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to add Mor's product with a code that changes the active node, prior to entering the standby mode, to a flush state because it will allow the node to further take action before changing state as directed to engineering design choice. Additionally, though Gupta et al. does not disclose the transition state to be a code, it is understood that in order to accomplish such action, a code is implied.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christine Duong whose telephone number is (571) 270-1664. The examiner can normally be reached on Monday - Friday: 730AM - 5PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eliseo Ramos-Feliciano can be reached on (571) 272-7925. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Application/Control Number: 10/438,396
Art Unit: 2616

Page 12

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.

CTD CTD 12/26/2006


ELISEO RAMOS-FELICIANO
SUPERVISORY PATENT EXAMINER

**Form 1449 (Modified)****Information Disclosure
Statement By Applicant**

(Use Several Sheets if Necessary)

Atty Docket No. CISC822
Application No.: 10/438396
Inventor GARD0, Russell et al.
Group Unassigned
Filing Date May 15, 2003

U.S. Patent Documents

Examiner Initial	No.	Patent No.	Date	Patentee	Class	Sub- Class	Filing Date
CD	A	5,761,435	06/1998	Fukuda et al.	395	200.68	3/10/1995
CD	B	5,859,959	01/1999	Kimball et al.	395	182.02	4/29/1996
CD	C	6,304,575	10/2001	Carroll et al.	370	408	8/31/1998

Foreign Patent or Published Foreign Patent Application

Examiner Initial	No.	Document No.	Publication Date	Country or Patent Office	Class	Sub- class	Translation	
							Yes	No

Other Documents

Examiner Initial	No.	Author, Title, Date, Place (e.g. Journal) of Publication

Examiner /Christine Duong/	Date Considered 01/03/2007
-------------------------------	-------------------------------

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Notice of References Cited	Application/Control No. 10/438,396	Applicant(s)/Patent Under Reexamination GARDO ET AL.	
	Examiner Christine Duong	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-7,054,264	05-2006	Mor, Gal	370/223
*	B	US-2003/0165119	09-2003	Hsu et al.	370/258
*	C	US-2004/0203976	10-2004	Gupta et al.	455/517
	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.

Search Notes 	Application/Control No. 10438396	Applicant(s)/Patent Under Reexamination GARDO ET AL.
	Examiner Duong, Christine	Art Unit 2616

SEARCHED			
Class	Subclass	Date	Examiner
370	223,255,256	10/30/2006	
370	216-228,244,250,252,256,404-406	11/15/2006	
370	216-228	11/27/2006	

SEARCH NOTES		
Search Notes	Date	Examiner
Software patenting	10/27/2006	William Grant (TQAS)
Class/Subclass search	11/15/2006	Gregory Sefcheck (Primary)
101 Statutory	11/29/2006	William Grant (TQAS)
EAST search notes printout attached		
PLUS search notes printout attached		

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

Index of Claims 	Application/Control No. 10438396	Applicant(s)/Patent Under Reexamination GARDO ET AL.
	Examiner Duong, Christine	Art Unit 2616

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

☐ Claims renumbered in the same order as presented by applicant			☐ CPA			☐ T.D.			☐ R.1.47		
CLAIM		DATE									
Final	Original	12/08/2006									
	1	✓									
	2	✓									
	3	✓									
	4	✓									
	5	✓									
	6	✓									
	7	✓									
	8	✓									
	9	✓									
	10	✓									
	11	✓									
	12	✓									
	13	✓									
	14	✓									



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. 4274

SERIAL NUMBER 10/438,396	FILING OR 371(c) DATE 05/15/2003 RULE	CLASS 370	GROUP ART UNIT 2/12 2616 <i>crd</i>	ATTORNEY DOCKET NO. CISCP822
APPLICANTS Russell Gardo, Raleigh, NC; Praveen Bhagwatula, Rohnert Park, CA; Jimmy Ervin, Raleigh, NC; Charles Allen Carriker, Cary, NC; James Scott Alexander, Raleigh, NC;				
** CONTINUING DATA ***** NONE <i>crd</i>				
** FOREIGN APPLICATIONS ***** NONE <i>crd</i>				
IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** 07/08/2003				
Foreign Priority claimed ☐ yes ☒ no 35 USC 119 (a-d) conditions met ☐ yes ☒ no ☐ Met after Allowance Verified and Acknowledged <i>crd</i> Examiner's Signature Initials		STATE OR COUNTRY NC	SHEETS DRAWING 6	TOTAL CLAIMS 14 INDEPENDENT CLAIMS 2
ADDRESS 26541				
TITLE Inter-ring protection for shared packet rings				
FILING FEE RECEIVED 750	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	

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	0	(inter ring protection) NEAR (active node)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2006/10/30 12:58
S2	2	(inter ring protection) with (active node)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2006/10/30 11:15
S3	22	"ring interconnect node"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2006/10/30 12:27
S4	2	"ring interconnect link"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2006/10/30 12:18
S5	3	"ring interconnect node" active	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2006/10/30 12:44
S6	6	"inter ring protection"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2006/10/30 13:55
S7	0	"shared packet rings"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2006/10/30 13:55
S8	0	shared packet rings	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2006/10/30 13:55

EAST Search History

S9	506	shared packet rings	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	SAME	ON	2006/10/30 13:56
S10	134	shared packet rings	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	WITH	ON	2006/10/30 13:57
S11	65	(shared packet rings) and protection	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	WITH	ON	2006/10/30 14:08
S12	0	(shared packet rings) (protection) (node)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	WITH	ON	2006/10/30 13:58
S13	1	(shared packet rings) (protection)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	WITH	ON	2006/10/30 13:58
S14	0	"inter ring" "ring interconnect"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	WITH	ON	2006/10/30 14:09
S15	482	"inter ring"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	WITH	ON	2006/10/30 15:33
S16	66	"inter ring" node	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	WITH	ON	2006/10/30 14:09

EAST Search History

S17	11	"inter ring" network protection	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	WITH	ON	2006/10/30 15:36
S18	24	"inter ring" network node	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	WITH	ON	2006/10/30 15:53
S19	0	"inter ring" "shared packet"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	WITH	ON	2006/10/30 15:53
S20	3396	(shared packet) (inter ring)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2006/10/30 16:19
S21	0	(370/256.cls.).CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/11/01 16:37
S22	279	(370/256).CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/11/01 16:41
S23	1	370/256.cls. and "inter ring"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/01 16:53
S24	0	370/255.cls. and "inter ring"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/01 16:53

EAST Search History

S25	90	370/255.ccls. and "ring"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/01 16:53
S26	226	(370/223).CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/11/02 16:47
S27	103	370/223.ccls. AND protection	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/02 16:48
S28	23	370/223.ccls. AND protection AND inter	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/02 16:50
S29	0	370/223.ccls. AND "active node"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/02 16:50
S30	56	370/223.ccls. AND interconnect	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/02 16:50

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	27	root same rstp	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/08 08:51
S2	34	"root node" same packet same (remove or add)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/08 08:33
S3	3	"root node" with packet with (remove or add)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/08 08:37
S4	1	"root node" with active with (remove or add)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/08 08:39
S5	5	"root node" with active with packet	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/08 08:41
S6	2	("6463033").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/11/08 08:41
S7	5	("4947390" "5533016" "5923646" "6047331" "6061335").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2006/11/08 08:42
S8	7	"sub second recovery"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/08 08:56

EAST Search History

S9	858	interconnect same ring same node	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/08 09:01
S10	42	"interconnect ring" same node	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/08 09:01
S11	36	("interconnect ring" same node) and network	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/08 09:02
S12	13	("interconnect ring" same node) and protection	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/08 09:03
S13	0	((inter near ring) with protection) and (shared near packet near ring)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/08 11:08
S14	0	protection and (shared near packet near ring)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/08 11:08
S15	100	protection and (shared near ring)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/08 11:08
S16	30	((inter near ring) with protection)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/08 11:08

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	6	((inter near ring) adj protection)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/14 10:35
S2	0	((shared near packet) near ring) same protection	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/13 12:50
S3	28	(shared near ring) same protection	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/13 16:46
S4	2	("5159595").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/11/13 16:47
S5	2	("0009803").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/11/13 16:47
S6	6	("9709803").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/11/13 16:51
S7	102	(optical with (shared with protect\$7)) with ring	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/13 16:52
S8	27	(shared near ring) with protect\$7	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/13 16:52

EAST Search History

S9	36	(shared near ring) same protect\$7	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/14 09:22
S10	7	("2002/0003639").URPN.	USPAT	OR	ON	2006/11/14 09:34
S12	11	("5647035" "5751454" "5777761" "5886801" "6005694" "6046832" "6222653" "6246667" "6259837" "6331906" "6400476").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2006/11/14 09:46
S13	10	("5647035" "5751454" "5777761" "5886801" "6005694" "6046832" "6222653" "6246667" "6331906" "6400476").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2006/11/14 09:58
S14	0	(root near node) with RSTP	US-PGPUB; USPAT; USOCR	OR	ON	2006/11/14 11:18
S15	18	root with RSTP	US-PGPUB; USPAT; USOCR	OR	ON	2006/11/14 10:08
S16	0	(root with RSTP) same protection	US-PGPUB; USPAT; USOCR	OR	ON	2006/11/14 10:08
S17	1	(root with RSTP) and protection	US-PGPUB; USPAT; USOCR	OR	ON	2006/11/14 10:29
S18	0	("10438396").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/11/14 10:31
S19	6	("5761435" "5859959" "6304575"). PN.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/11/14 10:33
S20	5	(root near node) with (STP or RSTP)	US-PGPUB; USPAT; USOCR	OR	ON	2006/11/14 11:19
S21	5	(root near node) with (STP or RSTP) and forwarding	US-PGPUB; USPAT; USOCR	OR	ON	2006/11/14 11:22

EAST Search History

S22	1	(root near node) with (STP or RSTP) and ring	US-PGPUB; USPAT; USOCR	OR	ON	2006/11/14 11:25
S23	8	(shared near ring) with fail\$7	US-PGPUB; USPAT; USOCR	OR	ON	2006/11/14 11:25

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S6	2780	(370/216-228,244,250,252,256, 404-406.ccls.) and (active or work\$3 or primary or root) and (standby or protect\$3 or secondary)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/15 16:18
S8	796	(370/216-228,244,250,252,256, 404-406.ccls.) and (((active or work\$3 or primary or root) and (standby or protect\$3 or secondary)) same protection)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/27 07:46
S9	6	(370/216-228,244,250,252,256, 404-406.ccls.) and (((active or work\$3 or primary or root) and (standby or protect\$3 or secondary)) same (shared near ring))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/15 16:17
S10	21	(370/216-228,244,250,252,256, 404-406.ccls.) and (((active or work\$3 or primary or root) and (standby or protect\$3 or secondary)) same (inter near ring))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/15 16:49
S11	28	(370/216-228,244,250,252,256, 404-406.ccls.) and (((active or work\$3 or primary or root) and (standby or protect\$3 or secondary)) same ((inter or adjacent) near ring))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/17 16:50
S12	28	(370/216-228,244,250,252,256, 404-406.ccls.) and (((active or work\$3 or primary or root) and (peer or standby or protect\$3 or secondary)) same ((inter or adjacent) near ring))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/17 16:52
S13	611	(((active or work\$3 or primary or root) and (peer or standby or protect\$3 or secondary)) same ((inter or adjacent) near ring))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/17 16:52
S14	31	(((active or work\$3 or primary or root) and (peer or standby or protect\$3 or secondary)) same ((inter or adjacent) near ring)) and "370".clas.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/17 16:52

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S15	0	((inter or interconnect\$7 or shared or packet) near ring) same ((active or primary or forwarding or root) near (node or link)) same ((peer or interconnect\$7 or fail\$7 or standby or block\$3 or restor\$7) near (node or link)) same (flush near state)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/27 09:07
S16	0	((inter or interconnect\$7 or shared or packet) near ring) same ((active or primary or forwarding or root) near (node or link)) same ((peer or interconnect\$7 or fail\$7 or standby or block\$3 or restor\$7) near (node or link)) and (flush near state)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/27 13:33
S17	12	((inter or interconnect\$7 or shared or packet) near ring) same ((active or primary or forwarding or root) near (node or link)) same ((peer or interconnect\$7 or fail\$7 or standby or block\$3 or restor\$7) near (node or link))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/27 13:34
S18	155	((inter or interconnect\$7 or shared or packet) near ring) and((active or primary or forwarding or root) near (node or link)) and ((peer or interconnect\$7 or fail\$7 or standby or block\$3 or restor\$7) near (node or link))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/27 13:42
S19	2915	((inter or interconnect\$7 or shared or packet) near ring) and (active or primary or forwarding or root) and (peer or interconnect\$7 or fail\$7 or standby or block\$3 or restor\$7)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/27 13:43
S20	410	((inter or interconnect\$7 or shared or packet) near ring) same (active or primary or forwarding or root) same (peer or interconnect\$7 or fail\$7 or standby or block\$3 or restor\$7)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/27 13:45
S21	85	((inter or interconnect\$7 or shared or packet) near ring) same (active or primary or forwarding or root) same (peer or interconnect\$7 or fail\$7 or standby or block\$3 or restor\$7) and protection	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/27 13:47

EAST Search History

S22	143	((inter or interconnect\$7 or shared or packet) near ring) same (active or primary or forwarding or root) same (peer or interconnect\$7 or fail\$7 or standby or block\$3 or restor\$7) and (protection or failure or recovery)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/27 13:51
S23	157	((inter or interconnect\$7 or shared or packet) near ring) same (active or primary or forwarding or root or master) same (peer or interconnect\$7 or fail\$7 or standby or block\$3 or restor\$7) and (protection or failure or recovery)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/27 14:14
S24	8142	(370/216-228,244,250,252,256, 404-406.ccls.)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/27 16:17
S25	1850	(370/216-228,244,250,252,256, 404-406.ccls.) and ring\$1	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/27 16:17
S27	3689	(370/216-228.ccls.)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/27 16:18
S28	1107	(370/216-228.ccls.) and ring\$1	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/27 16:19
S29	466	(370/216-228.ccls.) and (ring\$1 with (multiple or inter or interconnected or shared or packet))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/27 16:21
S30	75	(370/216-228.ccls.) and (ring\$1 with (multiple or inter or interconnected or shared or packet) same (active or primary or forwarding or root) same (peer or interconnect\$7 or fail\$7 or standby or block\$3 or restor\$7))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/27 16:22

EAST Search History

S31	68	(370/216-228.ccls.) and (ring\$1 near5 (multiple or inter or interconnected or shared or packet) same (active or primary or forwarding or root) same (peer or interconnect\$7 or fail\$7 or standby or block\$3 or restor\$7))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/27 16:32
S32	27	(rstp same root)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/27 16:35
S33	20	(rstp with root)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/27 16:34
S34	39	(rstp and root)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/27 16:34
S35	27	S34 and S32	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/27 16:34
S36	379	(rstp or (spanning near tree near protocol) same root)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/27 16:36
S37	160	((rstp or (spanning near tree near protocol)) same root)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/27 16:39
S38	37	((rstp or (spanning near tree near protocol)) same root same active)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/27 16:42

EAST Search History

S39	44	((rstp or (spanning near tree near protocol)) same root same (active or forward\$7) same (block\$3 or remove))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/27 16:43
S40	44	US-7054264-\$.DID. OR US-6205562-\$.DID. OR US-6038678-\$.DID. OR US-5923643-\$.DID. OR US-6414881-\$.DID. OR US-5537418-\$.DID. OR US-5652758-\$.DID. OR US-5659781-\$.DID. OR US-6091705-\$.DID. OR US-6212161-\$.DID. OR US-6212161-\$.DID. OR US-6081538-\$.DID. OR US-5390164-\$.DID. OR US-5394389-\$.DID. OR US-5406549-\$.DID. OR US-5485578-\$.DID. OR US-5504747-\$.DID. OR US-5841989-\$.DID. OR US-6035340-\$.DID. OR US-5179548-\$.DID. OR US-5333267-\$.DID. OR US-5457683-\$.DID. OR US-5535213-\$.DID. OR US-5577204-\$.DID. OR US-5590124-\$.DID. OR US-5787082-\$.DID. OR US-5787081-\$.DID. OR US-5790524-\$.DID. OR US-5796744-\$.DID. OR US-5799015-\$.DID. OR US-5826028-\$.DID. OR US-5859975-\$.DID. OR US-5905869-\$.DID. OR US-6226111-\$.DID. OR US-6226111-\$.DID. OR US-7111130-\$.DID. OR US-4393497-\$.DID. OR US-4554659-\$.DID. OR US-4595255-\$.DID. OR US-4787082-\$.DID. OR US-4817088-\$.DID. OR US-4874218-\$.DID. OR US-5027342-\$.DID. OR US-5218604-\$.DID. OR US-5255268-\$.DID. OR US-5440540-\$.DID.	US-PGPUB; USPAT; USOCR	OR	ON	2006/11/28 08:12

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	45	((flush) same standby) and network	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/29 09:46
S2	65	((flush) same node) same active	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/29 09:46
S3	71	((flush) same node) same (active or standby)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/29 09:46
S4	57	((flush) same node) same (active or standby) and network	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/29 10:11
S5	0	((flush) same node) same (active or standby) same packet	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/29 10:12
S6	63	flush same (active or standby) same packet	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/29 10:12
S7	83	flush same remove same packet	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/29 10:36
S8	42	(flush same remove same packet) and (active or standby)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/29 10:43

EAST Search History

S9	2	(flush same remove same packet) same (active or standby)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/29 10:39
S10	5	(flush with remove with packet)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/29 11:20
S11	1	(dual with ring with interworking) same restoration	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/29 11:20
S12	14	(dual with ring with interworking) same protection	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/29 13:19
S13	1	(flush with packet) same (transition with node)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/29 13:33
S14	6	(flush with packet) same (transition)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/29 13:42
S15	22	(flush with packet) same (remove)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/29 13:44
S16	28	(flush with packet) same (standby or inactive or idle)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/29 13:48

EAST Search History

S17	175	((flush with packet) same (forward\$3 or active or work\$3 or primary))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/29 13:49
S18	149	((flush with packet) same (forward\$3 or active or work\$3 or primary)) and network	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/29 13:49
S19	74	((flush with packet) same (forward\$3 or active or primary)) and network	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/29 13:53
S20	97	((flush with packet) same (forward\$3 or active or primary))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/29 13:52
S21	29	((flush with packet) same (active or primary)) and network	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/29 13:55
S22	8	((flush with packet) with(active or primary)) and network	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/29 14:08
S23	0	((flush with packet) with standby) and network	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/29 14:08
S24	0	(flush with standby with node) and network	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/29 14:09

EAST Search History

S25	2	(flush with standby with node)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/29 15:12
S26	2	("7054264").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/11/29 15:12
S28	7678	flush with state	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/30 09:02
S29	1081	(flush with state) and network	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/30 09:02
S30	17	((flush with state) same remove) and network	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/30 09:06
S31	80	((flush with state) same node) and network	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/30 09:06
S32	2	("20030165119").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/11/30 13:52
S33	0	root with remove with add with packet	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/30 13:54

EAST Search History

S34	9	root with remove with packet	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/30 13:58
S35	58	(root or master) with remove with packet	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/30 15:18
S36	0	S34 not S35	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/30 13:58
S37	2	("7054264").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/11/30 15:22
S38	28	(flush\$7 with node) same remove	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/30 16:36
S39	40	(flush\$7 with packet) same remove	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/30 16:44
S40	3	(node with state with retain\$7) same restoration	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/30 16:46
S41	5	(node same (state with retain\$7)) same restoration	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/30 16:47

EAST Search History

S42	10	(node same (state with (retain\$7 or retention))) same restoration	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/11/30 16:47
S43	2	(node with flush) same remov\$3 same packet	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/12/05 08:51
S44	5	((active or work\$3 or primary) with flush) same remov\$3 same packet	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/12/05 08:53
S45	20	flush with remov\$3 with packet	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/12/05 08:56
S46	0	flush with remov\$3 with packet with ring	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/12/05 08:56
S47	0	flush with remov\$3 with packet same ring	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/12/05 08:56
S48	5	flush with remove with packet	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/12/05 16:53

PLUS Search Results for S/N 10438396, Searched Wed Nov 08 08:26:13 EST 2006
The Patent Linguistics Utility System (PLUS) is a USPTO automated search system for U.S. Patents from 1971 to the present PLUS is a query-by-example search system which produces a list of patents that are most closely related linguistically to the application searched. This search was prepared by the staff of the Scientific and Technical Information Center, SIRA.

7054264 89	5440540 77
20030021226 89	
6205562 85	
6038678 85	
5923643 84	
6414881 84	
20040109418 80	
5537418 78	
5652758 78	
5659781 78	
6091705 78	
6212161 78	
6212161 78	
6081538 78	
5390164 78	
5394389 78	
5406549 78	
5485578 78	
5504747 78	
5841989 78	
6035340 78	
5179548 77	
5333267 77	
5457683 77	
5535213 77	
5577204 77	
5590124 77	
5787082 77	
5787081 77	
5790524 77	
5796744 77	
5799015 77	
5826028 77	
5859975 77	
5905869 77	
6226111 77	
6226111 77	
7111130 77	
20050276274 77	
20060184750 77	
4393497 77	
4554659 77	
4595255 77	
4787082 77	
4817088 77	
4874218 77	
5027342 77	
5218604 77	
5255268 77	

PLUS Search Results for S/N 10438396, Searched Wed Nov 08 08:26:13 EST 2006
The Patent Linguistics Utility System (PLUS) is a USPTO automated search system for U.S. Patents from 1971 to the present PLUS is a query-by-example search system which produces a list of patents that are most closely related linguistically to the application searched. This search was prepared by the staff of the Scientific and Technical Information Center, SIRA.

7054264 89	5440540 77
20030021226 89	
6205562 85	
6038678 85	
5923643 84	
6414881 84	
20040109418 80	
5537418 78	
5652758 78	
5659781 78	
6091705 78	
6212161 78	
6212161 78	
6081538 78	
5390164 78	
5394389 78	
5406549 78	
5485578 78	
5504747 78	
5841989 78	
6035340 78	
5179548 77	
5333267 77	
5457683 77	
5535213 77	
5577204 77	
5590124 77	
5787082 77	
5787081 77	
5790524 77	
5796744 77	
5799015 77	
5826028 77	
5859975 77	
5905869 77	
6226111 77	
6226111 77	
7111130 77	
20050276274 77	
20060184750 77	
4393497 77	
4554659 77	
4595255 77	
4787082 77	
4817088 77	
4874218 77	
5027342 77	
5218604 77	
5255268 77	

0280

PATENT

2

CERTIFICATE OF MAILING
I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on May 30, 2003.
Signed: Kimberly Badiei
Kimberly Badiei



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: GARDO, Russell et al.

Application No.: 10/438,396

Filed: May 15, 2003

For: INTER-RING PROTECTION FOR SHARED PACKET RINGS

Atty. Docket No.: CISC822

Examiner: Unassigned

Group: Unassigned

Date: May 30, 2003

INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR §§1.56 AND 1.97(c)

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

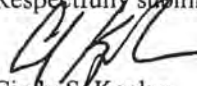
Dear Sir:

The references listed in the attached PTO Form 1449, copies of which are attached, may be material to examination of the above-identified patent application. Applicants submit these references in compliance with their duty of disclosure pursuant to 37 CFR §§1.56 and 1.97. The Examiner is requested to make these references of official record in this application.

This Information Disclosure Statement is not to be construed as a representation that a search has been made, that additional information material to the examination of this application does not exist, or that these references indeed constitute prior art.

This Information Disclosure Statement is being filed within three (3) months of the filing date of the above-referenced application. Accordingly, it is believed that no fees are due in connection with the filing of this Information Disclosure Statement. However, if it is determined that any fees are due, the Commissioner is hereby authorized to charge such fees to Deposit Account 50-1652 (Order No. CISC822).

Respectfully submitted,


Cindy S. Kaplan
Reg. No. 40,043

RITTER, LANG & KAPLAN LLP
12930 Saratoga Ave., Suite D1
Saratoga, CA 95070
(408) 446-8690



Form 1449 (Modified)

**Information Disclosure
Statement By Applicant**

(Use Several Sheets if Necessary)

Atty Docket No. CISC822
 Application No.: 10/438396
 Inventor GARDO, Russell et al.
 Group Unassigned
 Filing Date May 15, 2003

U.S. Patent Documents

Examiner Initial	No.	Patent No.	Date	Patentee	Class	Sub-Class	Filing Date
	A	5,761,435	06/1998	Fukuda et al.	395	200.68	3/10/1995
	B	5,859,959	01/1999	Kimball et al.	395	182.02	4/29/1996
	C	6,304,575	10/2001	Carroll et al.	370	408	8/31/1998

Foreign Patent or Published Foreign Patent Application

Examiner Initial	No.	Document No.	Publication Date	Country or Patent Office	Class	Sub-class	Translation	
							Yes	No

Other Documents

Examiner Initial	No.	Author, Title, Date, Place (e.g. Journal) of Publication

Examiner	Date Considered

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

05/15/03
JC971 U.S. PTO

05.16.03 0438396 .051503

UTILITY PATENT APPLICATION TRANSMITTAL (New Nonprovisional Applications Under 37 CFR § 1.53(b))	Attorney Docket No. CISCP822
---	--

TO THE ASSISTANT COMMISSIONER FOR PATENTS:

Transmitted herewith is the patent application of () application identifier or (X) first named inventor, Russell Gardo, entitled INTER-RING PROTECTION FOR SHARED PACKET RINGS, for a(n):

- (X) Original Patent Application.
- () Continuing Application (prior application not abandoned):
() Continuation () Divisional () Continuation-in-part (CIP)
of prior Application No. _____, filed _____.
- () Please insert (or replace the previous claim of priority) after the title of the application "This is a
() Continuation () Divisional () Continuation-in-part (CIP)
of Application No. _____, filed _____, which is hereby incorporated by reference."
- () This application claims the benefit of U.S. Provisional Application
No. _____, filed _____.

Enclosed are:

- (X) Specification; 18 Total Pages. (X) Drawing(s); 6 Total Sheets.
- (X) Oath or Declaration:
(X) A Newly Executed Combined Declaration and Power of Attorney:
(X) Signed. () Unsigned. () Partially Signed.
- () A Copy from a Prior Application for Continuation/Divisional (37 CFR § 1.63(d)).
() Signed Statement Deleting Inventor(s) Named in the Prior Application. (37 CFR § 163(d)(2)).
- () Power of Attorney. (X) Return Receipt Postcard.
- () Associate Power of Attorney. (X) A Check in the amount of \$790.00 for the Filing Fee.
- () Preliminary Amendment. () Information Disclosure Statement and Form PTO-1449.
- () A Duplicate Copy of this Form for Processing Fee Against Deposit Account.
- () A Certified Copy of Priority Documents (if foreign priority is claimed).
- ✓(X) Assignment and Assignment Recordation Cover Sheet
- () Statement(s) of Status as a Small Entity.
- () Statement(s) of Status as a Small Entity Filed in Prior Application, Status Still Proper and Desired.
- (X) Other: NonPublication Request

CLAIMS AS FILED				
FOR	NO. FILED	NO. EXTRA	RATE	FEE
Total Claims	14	0	\$18.00	\$ 0.00
Independent Claims	2	0	\$84.00	\$ 0.00
Assignment Recording Fee				\$40.00
Basic Filing Fee				\$750.00
Total Filing Fee				\$ 790.00

At any time during the pendency of this application, please charge any fees required or credit any overpayment to Deposit Account No. 50-1652 (Order No. CISCP822).

Respectfully submitted,

By: [Signature]
Cindy Kaplan, Reg. No. 40,043

Date: May 15, 2003

Correspondence Address:
Customer No. 26541
RITTER, LANG & KAPLAN LLP
12930 Saratoga Ave., Suite D1
Saratoga, CA 95070
Phone: 408-446-8690
Fax: 408-446-8691

I hereby certify that this is being deposited with the U.S. Postal Service "Express Mail Post Office to Addressee" service under 37 CFR § 1.10 on the date indicated below and is addressed to:

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

By: [Signature]
Typed Name: Jack L. Limper

Express Mail Label No.: EV338317856US
Date of Deposit: May 15, 2003

JC971 U.S. PTO
10/438396
05/15/03

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the application of:	)	Attorney Docket No. CISC822
	)	
GARDO, Russell et al.	)	Examiner: Unassigned
	)	
Application No: Unassigned	)	Art Unit: Unassigned
	)	
Filed: May 15, 2003	)	
	)	
Title: INTER-RING PROTECTION FOR	)	
SHARED PACKET RINGS	)	

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR § 1.10 on the dated indicated and addressed to: Mail Stop PATENT APPLICATION, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on May 15, 2003.

Signed: _____

Jack L. Emper

REQUEST FOR CERTIFICATION
UNDER 35 U.S.C. 122(b)(2)(B)(i)

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

Dear Sir:

I hereby certify that the invention disclosed in the attached application has not and will not be the subject of an application filed in another country, or under a multilateral agreement, that requires publication at eighteen months after filing. I hereby request that the attached application not be published under 35 U.S.C. 122(b).

Respectfully submitted,



Cindy S. Kaplan
 Reg. No. 40,043

RITTER, LANG & KAPLAN LLP
 12930 Saratoga Ave., Suite D1
 Saratoga, CA 95070
 (408) 446-8690

Attorney Docket No.: CISC822

Attorney Docket No. CISC822

APPLICATION FOR UNITED STATES PATENT
INTER-RING PROTECTION FOR SHARED PACKET RINGS

By Inventors:

Russell Gardo
9228 Shallcross Way
Raleigh, NC 27617
(A Citizen of United States)

Praveen Bhagwatula
287 Enterprise Dr
Rohnert Park, CA 94928
(A Citizen of India)

Jimmy Ervin
11804 Canonero Place
Raleigh, NC 27613
(A Citizen of United States)

Charles Allen Carriker
206 Rutherglen Drive
Cary, NC 27511
(A Citizen of United States)

James Scott Alexander
2113 Katesbridge Lane
Raleigh, NC 27614
(A Citizen of United States)

Assignee: Cisco Technology, Inc.
170 W. Tasman Drive
San Jose, CA 95134

Entity: Large

RITTER, LANG & KAPLAN LLP
12930 Saratoga Ave., Suite D1
Saratoga, CA 95070
(408) 446-8690

There is, therefore, a need for a mechanism to interconnect two shared packet rings with redundant interconnect nodes which provide optimal bandwidth across rings and sub-second recovery for link or node failures.

SUMMARY OF THE INVENTION

A method for providing inter-ring protection in shared packet rings includes identifying an active node which is connected to a ring interconnect node on the same ring as the active node and connected to a peer node on a different
5 ring with a ring interconnecting link. When the active node is in active mode and receives notification of a failure of the ring interconnecting link or peer node, the active node sends a message to the ring interconnect node so that the ring interconnect node switches from standby mode to active mode. The active node is then changed to standby mode.

10 In one embodiment, the active node is identified using RSTP. The active node preferably only adds or removes packets to or from the ring when it is in active mode. The active node may enter a flush state prior to entering standby mode to flush any packets which are in process when the node transitions from active to standby mode. During flush state, packets that were put onto the ring by
15 the active node are removed. The ring interconnect link preferably has the same bandwidth as the ring of the active node and peer node.

The above is a brief description of some deficiencies in the prior art and advantages of the present invention. Other features, advantages, and

embodiments of the invention will be apparent to those skilled in the art from the following description, drawings, and claims.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a diagram illustrating an exemplary shared packet ring.

5 Fig. 2 is a diagram illustrating a core shared packet ring connected to two access shared packet rings.

Fig. 3 is a diagram illustrating details of two devices of the rings of Fig. 2.

Fig. 4 is a block diagram showing four ring-interconnect nodes.

10 Fig. 5 is a flowchart illustrating a process for switching to backup upon an active link, node or card failure.

Fig. 6 is a system block diagram of a computer system that can be utilized to execute software of an embodiment of the present invention.

Corresponding reference characters indicate corresponding parts throughout the several views of the drawings.

DETAILED DESCRIPTION OF THE INVENTION

The following description is presented to enable one of ordinary skill in the art to make and use the invention. Descriptions of specific embodiments and applications are provided only as examples and various modifications will be readily apparent to those skilled in the art. The general principles described herein may be applied to other embodiments and applications without departing from the scope of the invention. Thus, the present invention is not to be limited to the embodiments shown, but is to be accorded the widest scope consistent with the principles and features described herein. For purpose of clarity, details relating to technical material that is known in the technical fields related to the invention have not been described in detail.

The present invention operates in the context of a data communication network including multiple network elements. The network may be a packet based optical network that uses Ethernet data layer at speeds of 10 Gb/s (or above or below 10 Gb/s), both over high speed point-to-point circuits (i.e., dark fiber) and over WDM. However, it is to be understood that the system may be used with media types different than those described herein, without departing from the scope of the invention. A network element may be, for example, a terminal

multiplexer, an add-drop multiplexer (ADM), an optical crossconnect (OXC), a signal regenerator, router, switch, or other optical node interface.

A system and method of the present invention provide interconnection between two shared packet rings with redundant interconnect nodes which generally provide optimal bandwidth across rings and sub-second recovery for link or node failures.

Fig. 1 illustrates an exemplary shared packet ring 10. The ring 10 is made up of two or more nodes 12 (thirteen shown) attached with point-to-point connections to form a circle. The primary path is shown connecting adjacent nodes 12. Each node 12 has two connections, one to each adjacent node on the ring 10. A node is defined herein as an attachment point on the ring where packets are added, removed, passed, or forwarded. A node may be, for example, a network bridge, router, or other such device. A single connection between two nodes where the state of connection is known is a point-to-point connection. At least some of the nodes 12 on the ring 10 include add/drop interfaces 14.

As described in detail below, the system may be used where two nodes from one ring connect to two nodes from another ring and the shared packet ring technology utilizes a type of node ID to identify each node on the ring. For example, Fig. 2 shows a core shared packet ring 20 interconnected with two access shared packet rings 22, 24. Each ring includes a plurality of nodes 12 with

at least some of the nodes having add/drop interfaces 14. Since only active nodes add or remove packets to or from the ring and a node does not forward a packet onto the same ring from which it received the packet, loops do not occur between rings.

5 Fig. 3 illustrates details of two interconnect nodes 26 of Fig. 2. The interconnect nodes 26 are shown in Fig. 2 with a circle drawn around the nodes. As shown in Fig. 3, each interconnect node 26 includes a pair of cards, each having west ingress and egress ports and east ingress and egress ports. For purpose of explanation, the cards on one node are labeled A and C and the cards
10 on the other node are labeled B and D. One pair of cards (A and C or B and D) is considered the active pair. The other is the standby pair. Cards A and B have the same SPR node ID and cards C and D have the same SPR node ID. As described in detail below, active link, node, or card failures cause a switchover to back up to occur.

15 As discussed above, the system described herein uses an active/standby model, where both interconnect nodes operate as one entity on the ring, with one of the nodes being active while the other is operating in standby mode. Control messages are exchanged among the ring-interconnect nodes during link or node failures for faster convergence. The state set by these messages takes precedence
20 over the state set by RSTP running on these nodes. RSTP is only used to

determine the initial active and standby states of the ring-interconnect nodes and also provide additional reliability for convergence in case the control messages are not delivered.

Ring packet headers are replaced when a packet traverses the interconnect nodes 26 of two rings. The system is thus decoupled from any specific shared packet ring mechanism. Furthermore, flushing of learned entries is not required in the interconnect nodes for ring-interconnect failures because these entries do not become invalid when the node that was active becomes the standby node. Learned entries do not become invalid in regular nodes (i.e., nodes that are not interconnect nodes) because both interconnect nodes act as a single entity on the ring. The interconnect nodes do not have to be adjacent on the ring. Regular nodes may reside between them.

Fig. 4 is a block diagram illustrating a ring-interconnect which is used in the following example. Nodes 1 and 3 are on the same ring and are ring-interconnect nodes. Nodes 2 and 4 are on the same ring and are also ring-interconnect nodes. The ring-interconnect link preferably has the same bandwidth as that of the rings it interconnects so that the ring-interconnect link can carry full ring bandwidth of traffic between the rings. In the diagram of Fig. 4, the ring-interconnect links are node 1-to-node 2 and node 3-to-node 4. The node ID used on node 1 and node 3 is the same. Also, node 2 and node 4 share the same node

ID. RSTP parameters are configured such that one of the ring-interconnect links is a blocking link.

The following describes the logic used to determine which nodes are active and which are standby. A node is active when its interconnect link is up and forwarding, its link onto the local ring is up and forwarding, and its ring-interconnect peer has no blocked ports. A node is in standby mode when its ring-interconnect link is down or blocked, its link onto the local ring is down or blocked, or when its ring interconnect peer has blocked ports.

When a node is in standby mode it does not add or remove any packets from the ring. It merely transmits all packets it receives from one side of the ring to the other. When a node transitions from active to standby, it goes through a flush state for a short time. The flush state is needed to flush any packets that are in process when a node transitions from active to standby mode. The reason that this is needed is because both interconnect nodes can be in standby mode for brief periods of time. In the flush state, the node removes any packets that it put onto the ring and does not add new packets to the ring (i.e., packets received from the other ring).

To avoid duplication of packets during transient states, where both the nodes on the ring are in standby mode, the ring header that is added to the packet includes a field that identifies which physical node added the packet to the ring.

If the packet goes around the ring and comes back to the node that physically added it to the ring, the packet is removed from the ring.

Each node has two RSTP port path costs: 1) default port path cost; and 2) standby port path cost. Default port path cost has a lower path cost than the standby port path cost. When either a port goes to blocking or the link goes down, the following process (shown in flowchart of Fig. 5) is performed to provide a rapid recovery.

Each node comes online with the default port path cost on all of the ports participating in RSTP (step 50). RSTP is run among the four ring-interconnect nodes (e.g., nodes 1, 2, 3, 4 of Fig. 4) to elect one of the nodes as a root node and block one of the ring links (step 52). Two of the nodes that satisfy the criteria for active nodes become the active nodes. For example, if node 1 is the root node, nodes 1 and 2 are the active nodes on their rings. The node which has a blocked port and its ring-interconnect peer are the standby nodes (e.g., nodes 3 and 4). The port path cost of the blocked port is changed to the standby port path cost.

When node 1 detects that its ring-interconnect link has gone down it marks itself as the standby node (step 54). A special message is sent to node 3. Similarly, when node 2 detects that its ring-interconnect link has gone down, it sets the port path cost of the failed link to standby port path cost so it is an unpreferred path, marks itself as a standby node, and sends a special message to

node 4 (step 56). Upon receiving the message at node 3 from its peer on the same ring, the node forwards a copy of the message onto its ring-interconnect link (step 58). Node 3 also marks itself as the active node on that ring and promotes the port path cost of its blocked port to default port path cost and marks it as forwarding (step 60). Upon receiving the message from its ring-interconnect peer node 3, node 4 marks its ring-interconnect link as forwarding and marks itself as the active node (step 62).

When a node detects that its ring-interconnect link is restored, no specific action needs to be taken. Since the port path cost of this link has been set to the standby port path cost, making it an unpreferred path, spanning tree retains its topology, and nodes 1 and 2 remain as the standby nodes, while 3 and 4 continue to be the active nodes. Thus, the active nodes do not change during a link restore scenario and there is no traffic hit.

The invention described herein may be implemented in dedicated hardware, microcode, software, or photonic (optical) logic. Fig. 6 shows a system block diagram of computer system 84 that may be used as a router or host or used to execute software of an embodiment of the invention. The computer system 84 includes memory 88 which can be utilized to store and retrieve software programs incorporating computer code that implements aspects of the invention, data for use with the invention, and the like. Exemplary computer readable storage media

include CD-ROM, floppy disk, tape, flash memory, system memory, and hard drive. Additionally, a data signal embodied in a carrier wave (e.g., in a network including the Internet) may be the computer readable storage medium. Computer system 84 further includes subsystems such as a central processor 86, fixed storage 90 (e.g., hard drive), removable storage 92 (e.g., CD-ROM drive), and one or more network interfaces 94. Other computer systems suitable for use with the invention may include additional or fewer subsystems. For example, computer system 84 may include more than one processor 86 (i.e., a multi-processor system) or a cache memory.

The system bus architecture of computer system 84 is represented by arrows 96 in Fig. 6. However, these arrows are only illustrative of one possible interconnection scheme serving to link the subsystems. For example, a local bus may be utilized to connect the central processor 86 to the system memory 88. Computer system 84 shown in Fig. 6 is only one example of a computer system suitable for use with the invention. Other computer architectures having different configurations of subsystems may also be utilized. Communication between computers within the network is made possible with the use of communication protocols, which govern how computers exchange information over a network.

As can be observed from the foregoing, the system described herein provides numerous advantages. For example, spanning tree protocol needs to be

run only among the ring-interconnect nodes. Also, sub-second convergence during link or node failures is provided along with zero packet loss during link restore or node recovery scenarios. The system does not require any periodic, intensive protocol among the ring-interconnect nodes for synchronization.

5 Although the present invention has been described in accordance with the embodiments shown, one of ordinary skill in the art will readily recognize that there could be variations made to the embodiments without departing from the scope of the present invention. Accordingly, it is intended that all matter
10 contained in the above description and shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

CLAIMS

WHAT IS CLAIMED IS:

1. A method for providing inter-ring protection in shared packet rings, the method comprising:

5 identifying an active node connected to a ring interconnect node on the same ring as the active node and connected to a peer node on a different ring with a ring interconnecting link which is in a forwarding mode;

receiving at the active node, notification of a failure of the ring interconnecting link or the peer node;

10 sending a message from the active node to the ring interconnect node on the same ring as the active node so that the ring interconnect node switches from standby mode to active mode; and

changing the active node to standby mode.

15 2. The method of claim 1 wherein identifying the active node comprises utilizing RSTP to identify a root node.

3. The method of claim 2 wherein the root node adds or removes packets to or from the ring only when it is in active mode.

5 4. The method of claim 1 wherein sending a message from the active node to the ring interconnect node comprises changing the status of a ring interconnect link of the ring interconnect node from blocked to forwarding.

10 5. The method of claim 1 wherein changing the active node to the standby mode comprises changing a port path cost of the active node.

6. The method of claim 1 further comprising receiving a message at the active node that the failed link or node is restored.

15 7. The method of claim 6 wherein the nodes retain their states when the failed link or node is restored.

8. The method of claim 1 further comprising changing the active node to a flush state prior to entering the standby mode.

9. The method of claim 8 further comprising removing packets put onto the ring by the active node while the active node is in the flush state.

5 10. The method of claim 1 wherein the ring interconnect link has generally the same bandwidth as the ring of the active node.

11. A computer program product for preventing loops in a ring topology of a computer network, the product comprising:

10 code that identifies an active node connected to a ring interconnect node on the same ring as the active node and connected to a peer node on a different ring with a ring interconnecting link which is in a forwarding mode;

code that receives notification of a failure of the ring interconnecting link or the peer node;

15 code that sends a message from the active node to the ring interconnect node on the same ring as the active node so that the ring interconnect node switches from standby mode to active mode;

code that changes the active node to standby mode; and

a computer-readable storage medium for storing the codes.

12. The product of claim 11 further comprising code that receives a message at the active node that the failed link or node is restored.

13. The product of claim 11 further comprising code that changes the active node to a flush state prior to entering the standby mode.

14. The product of claim 11 wherein the ring interconnect link has generally the same bandwidth as the ring of the active node.

10

INTER-RING PROTECTION FOR SHARED PACKET RINGS

ABSTRACT OF THE DISCLOSURE

A method for providing inter-ring protection in shared packet rings includes identifying an active node which is connected to a ring interconnect node on the same ring as the active node and connected to a peer node on a different ring with a ring interconnecting link. When the active node is in active mode and receives notification of a failure of the ring interconnecting link or peer node, the active node sends a message to the ring interconnect node so that the ring interconnect node switches from standby mode to active mode. The active node is then changed to standby mode.

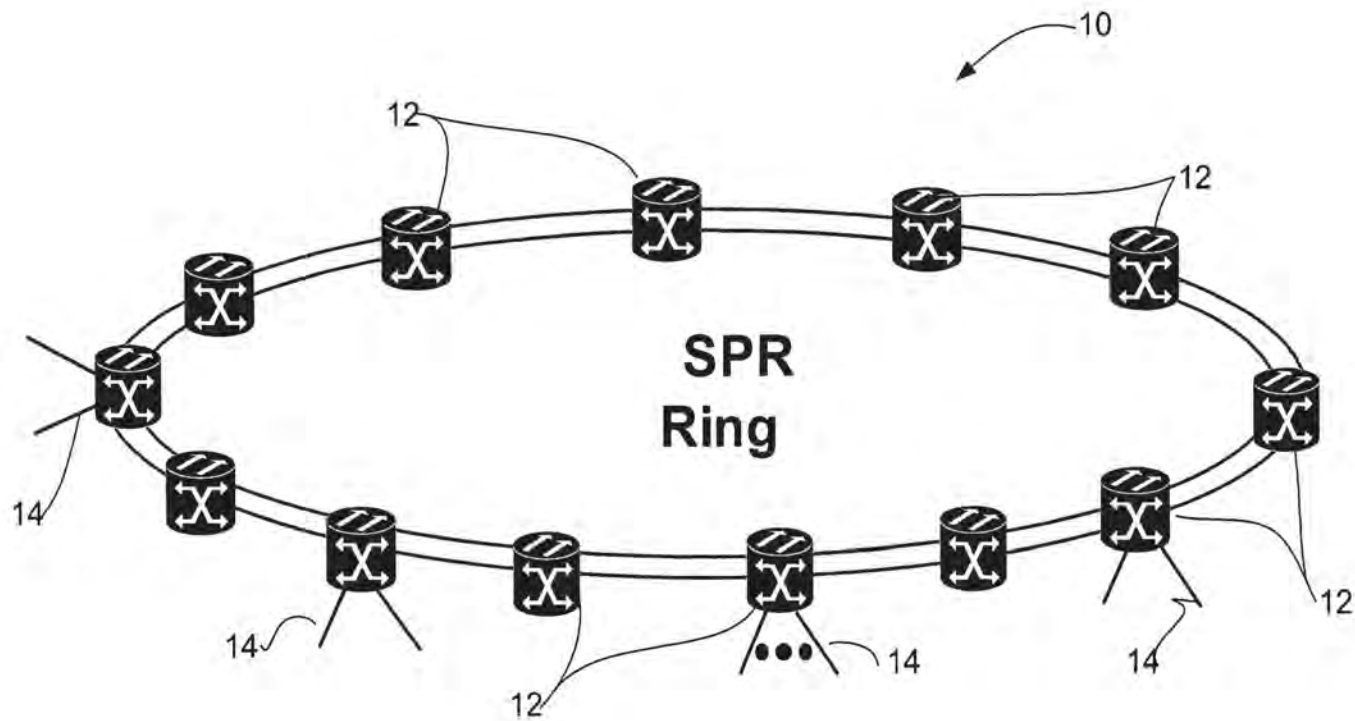


FIG. 1

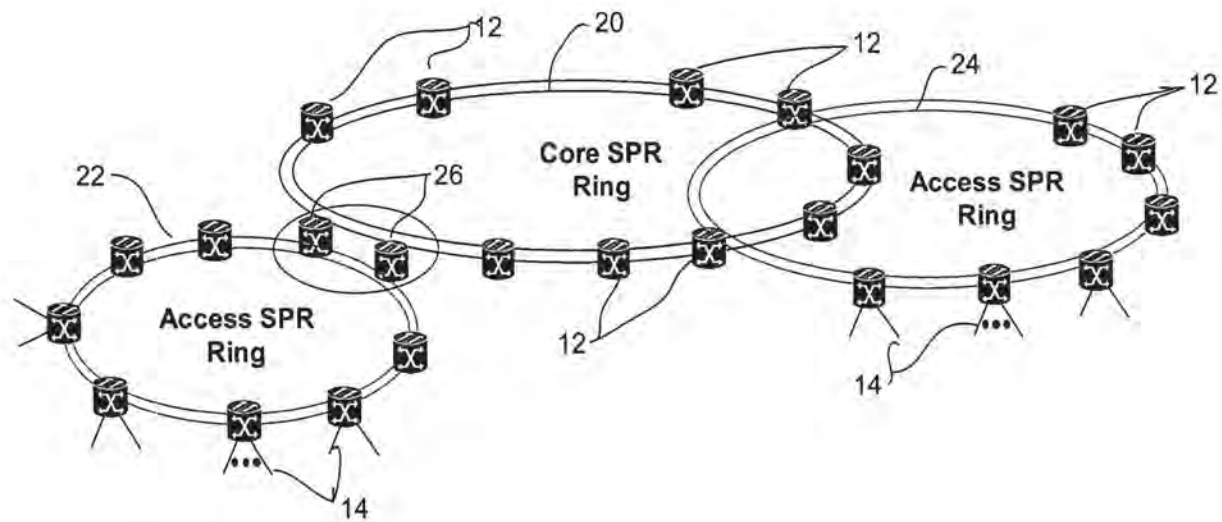


FIG. 2

3/6

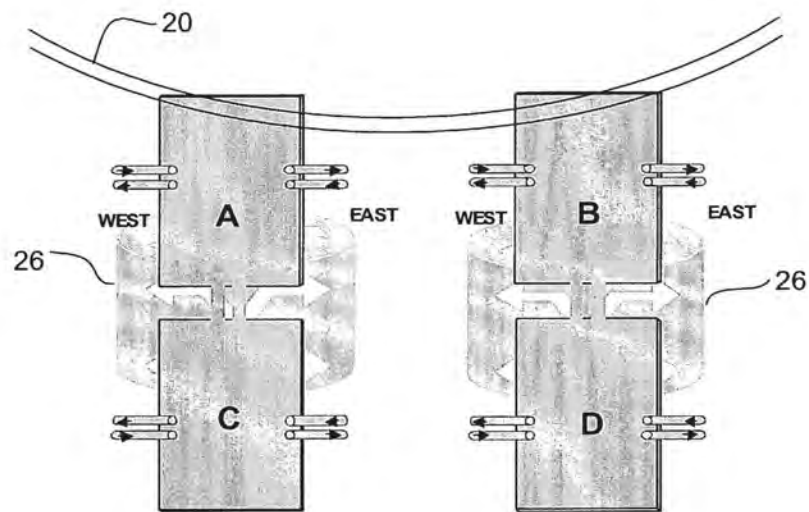


FIG. 3

4/6

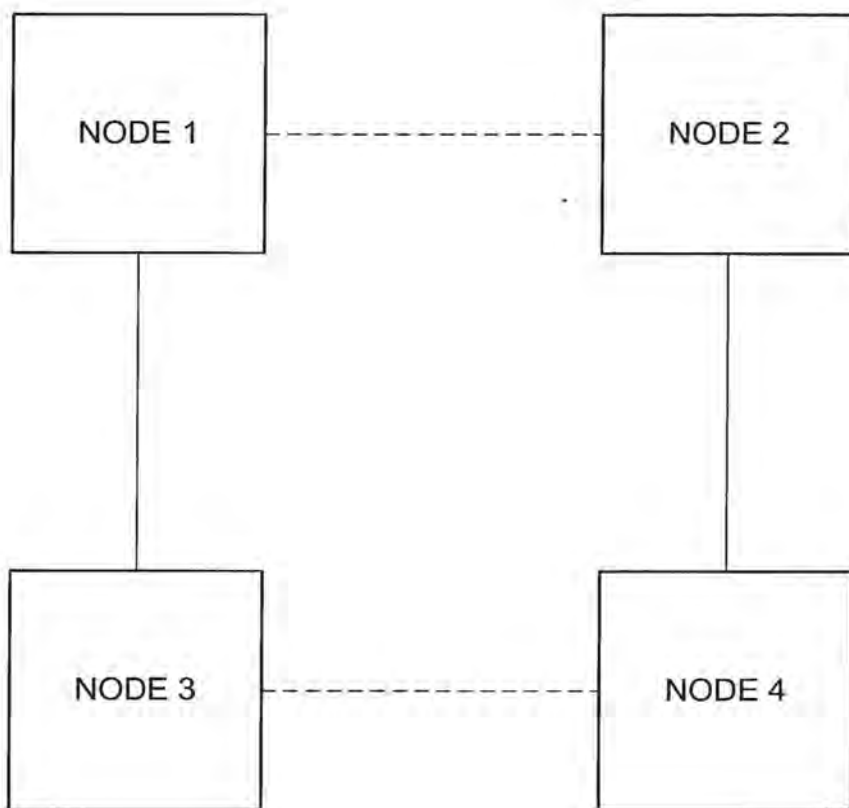


FIG. 4

5/6

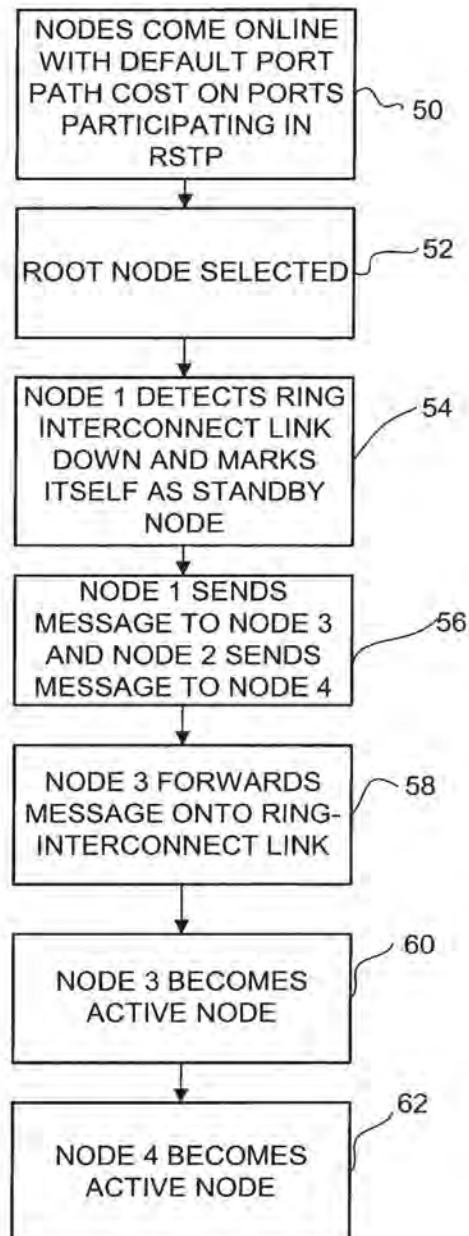


FIG. 5

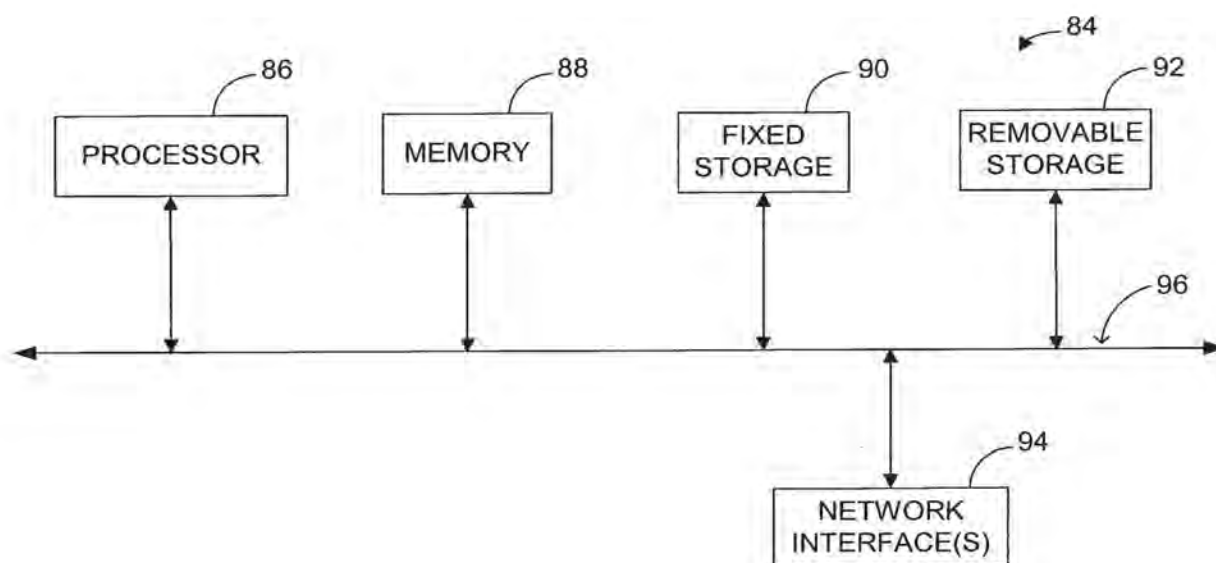


FIG. 6

DECLARATION AND POWER OF ATTORNEY FOR ORIGINAL U.S. PATENT APPLICATION

Attorney's Docket No. CISC822

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 that 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: **INTER-RING PROTECTION FOR SHARED PACKET RINGS**, the specification of which,

- (check one)
1. ☒ is attached hereto.
 2. ☐ was filed on _____ as
U.S. Application No. _____
and was amended on _____.
 3. ☐ was filed on _____ as
International PCT Application No. _____
and was amended on _____.

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 examination of this application in accordance with Title 37, CFR § 1.56.

I hereby claim foreign priority benefits under Title 35, United States code, § 119(a)-(d) or § 365(b) of any foreign application(s) for patent or inventor's certificate, or § 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have identified below, by checking the box, any foreign application for patent or inventor's certificate, or PCT International application having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s)

Priority Benefits Claimed?

_____	_____	_____	
(Appl. No.)	(Country)	(Filing Date)	☐ Yes ☐ No
_____	_____	_____	
(Appl. No.)	(Country)	(Filing Date)	☐ Yes ☐ No

I hereby claim the benefit under 35 U.S.C. § 119(e) of any United States provisional application(s) listed below:

Prior Provisional Application(s)

_____	_____
(Application No.)	(Filing Date)
_____	_____
(Application No.)	(Filing Date)

Atty. Dkt. No. CISC822
Client Reference No.: 7036

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s), or § 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application:

Prior U.S. Application(s)

_____ (Application No.)	_____ (Filing Date)	_____ (Status - patented, pending, abandoned)
_____ (Application No.)	_____ (Filing Date)	_____ (Status - patented, pending, abandoned)

And I hereby appoint the law firm of Ritter, Lang & Kaplan LLP, including: **Michael J. Ritter (Reg. No. 36,653); Dan H. Lang (Reg. No. 38,531); Cindy S. Kaplan (Reg. No. 40,043); Peggy A. Su (Reg. No. 41,336); and Gary T. Aka (Reg. No. 29,038)** as my principal attorneys to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

Please Direct all Correspondence To: **Customer No. 26541**
Ritter, Lang & Kaplan LLP
12930 Saratoga Ave., Suite D1
Saratoga, CA 95070

Direct Telephone Calls To: **Cindy S. Kaplan at telephone number (408) 446-8695**

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 issuing thereon.

Typewritten Full Name of
 Sole or First Inventor: RUSSELL GARDO Citizenship: US
 Inventor's signature: *Russell Gardo* Date of Signature: 5/12/2003
 Address: (City) Raleigh (State/Country) North Carolina/USA
 Post Office Address: 9228 Shallcross Way, Raleigh, North Carolina 27617 USA

Typewritten Full Name of
 Sole or Second Inventor: PRAVEEN BHAGWATULA Citizenship: INDIA
 Inventor's signature: _____ Date of Signature: _____
 Address: (City) Rohnert Park (State/Country) California/USA
 Post Office Address: 287 Enterprise Drive, Rohnert Park, California 94928 USA

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s), or § 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application:

Prior U.S. Application(s)

_____ (Application No.)	_____ (Filing Date)	_____ (Status - patented, pending, abandoned)
_____ (Application No.)	_____ (Filing Date)	_____ (Status - patented, pending, abandoned)

And I hereby appoint the law firm of Ritter, Lang & Kaplan LLP, including: **Michael J. Ritter** (Reg. No. 36,653); **Dan H. Lang** (Reg. No. 38,531); **Cindy S. Kaplan** (Reg. No. 40,043); **Peggy A. Su** (Reg. No. 41,336); and **Gary T. Aka** (Reg. No. 29,038) as my principal attorneys to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

Please Direct all Correspondence To:

Customer No. 26541

Ritter, Lang & Kaplan LLP
12930 Saratoga Ave., Suite D1
Saratoga, CA 95070

Direct Telephone Calls To:

Cindy S. Kaplan at telephone number (408) 446-8695

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 issuing thereon.

Typewritten Full Name of
Sole or First Inventor: RUSSELL GARDO Citizenship: US

Inventor's signature: _____ Date of Signature: _____

Address: (City) Raleigh (State/Country) North Carolina/USA

Post Office Address: 9228 Shallcross Way, Raleigh, North Carolina 27617 USA

Typewritten Full Name of
Sole or Second Inventor: PRAVEEN BHAGWATULA Citizenship: INDIA

Inventor's signature: *Praveen* Date of Signature: 5/13/03

Address: (City) Rohnert Park (State/Country) California/USA

Post Office Address: 287 Enterprise Drive, Rohnert Park, California 94928 USA

10438396 .051503

Typewritten Full Name of
Sole or Third Inventor:

JIMMY ERVIN

Citizenship: US

Inventor's signature:

Jimmy Ervin

Date of Signature: 5-12-03

Address: (City)

Raleigh

(State/Country) North Carolina/USA

Post Office Address:

11804 Canonero Place, Raleigh, North Carolina 27613 USA

Typewritten Full Name of
Sole or Fourth Inventor:

CHARLES ALLEN CARRIKER

Citizenship: US

Inventor's signature:

Charles Allen Carriker

Date of Signature: 5-12-03

Address: (City)

Cary

(State/Country) North Carolina/USA

Post Office Address:

206 Rutherglen Drive, Cary, North Carolina 27511 USA

Typewritten Full Name of
Sole or Fifth Inventor:

JAMES SCOTT ALEXANDER

Citizenship: US

Inventor's signature:

James Scott Alexander

Date of Signature: 5-12-03

Address: (City)

Raleigh

(State/Country) North Carolina/USA

Post Office Address:

2113 Katesbridge Lane, Raleigh, North Carolina 27614 USA

PATENT APPLICATION SERIAL NO. _____

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

05/19/2003 WASFAW1 00000029 10438396

01 FC:1001

750.00 0P

PTO-1556
(5/87)

PATENT APPLICATION FEE DETERMINATION RECORD
Effective January 1, 2003

Application or Docket Number

C15CP822

CLAIMS AS FILED - PART I

	(Column 1)	(Column 2)
TOTAL CLAIMS	14	
FOR	NUMBER FILED	NUMBER EXTRA
TOTAL CHARGEABLE CLAIMS	14 minus 20 = *	
INDEPENDENT CLAIMS	2 minus 3 = *	
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		RATE	FEE
BASIC FEE	375.00	OR	BASIC FEE	750.00
X\$ 9=		OR	X\$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL		OR	TOTAL	750

SMALL ENTITY

OR

OTHER THAN SMALL ENTITY

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X\$ 9=		OR	X\$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X\$ 9=		OR	X\$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X\$ 9=		OR	X\$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	