AO 120 (Rev. 08/10)

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

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

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

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
6:19-CV-00456	8/7/2019	Western District of Texas - Waco Division

PLAINTIFF	DEFENDANT
NextGen Innovations, LLC	54M 805 Nueces Holdings LLC et al

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	7925162		
2			
3			
4			
5			

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

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

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

DECISION/JUDGEMENT
See attached.

CLERK	(BY) DEPUTY CLERK	DATE
Jeannette J. Clack	Brianna Winter	2-14-2020

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

UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION

NEXTGEN INNOVATIONS, LLC, Plaintiff v. **54M 805 NUECES HOLDINGS LLC, 54M 805 NUECES INTERMEDIATE HOLDINGS LLC, 54M 805 NUECES GL LLC, AND 54M 805 NUECES LP,** Defendants	**Case No. 6:19-cv-00456-ADA** **JURY TRIAL DEMANDED**

NOTICE OF VOLUNTARY DISMISSAL WITHOUT PREJUDICE PURSUANT TO FEDERAL RULE OF CIVIL PROCEDURE 41(a)(1)(A)(i)

Plaintiff, NextGen Innovations, LLC, hereby dismisses this action without prejudice pursuant to Federal Rule of Civil Procedure 41(a)(1)(A)(i):

1. NextGen Innovations, LLC filed its Complaint in the above-titled action against 54M 805 Nueces Holdings LLC, 54M 805 Nueces Intermediate Holdings LLC, 54M 805 Nueces GL LLC, and 54M 805 Nueces LP on August 7, 2019.

2. 54M 805 Nueces Holdings LLC, 54M 805 Nueces Intermediate Holdings LLC, 54M 805 Nueces GL LLC, and 54M 805 Nueces LP have not served an answer or a motion for summary judgment in this action.

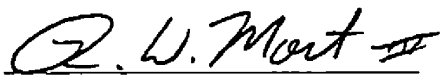
3. Federal Rule of Civil Procedure 41(a)(1)(A)(i) provides that a plaintiff may dismiss an action without a court order by filing a notice of dismissal before the opposing party serves either an answer or a motion for summary judgment.

4. Federal Rule of Civil Procedure 41(a)(1)(B) provides that such a dismissal is without prejudice.

5. Accordingly, NextGen Innovations, LLC hereby dismisses this action without prejudice pursuant to Federal Rule of Civil Procedure 41(a)(1)(A)(i).

Dated: November 19, 2019

Respectfully submitted,



Raymond W. Mort, III
Texas State Bar No. 00791308
raymort@austinlaw.com

THE MORT LAW FIRM, PLLC
100 Congress Ave, Suite 2000
Austin, Texas 78701
Tel/Fax: (512) 865-7950

ATTORNEYS FOR PLAINTIFF

Nokia of America Corporation
IPR2023-00960, Ex. 1002-2
Ex. 1002-2.003

AO 120 (Rev. 08/10)

TO:	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
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☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

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6:19-CV-00456	8/7/2019	Western District of Texas - Waco Division

PLAINTIFF	DEFENDANT
NextGen Innovations, LLC	54M 805 Nueces Holdings LLC et al.

PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 See attached		
2 7,925,162		
3		
4		
5		

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

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

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

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE
Jeannette J. Clack	Brianna Waite	8/7/2019

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

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/886,514	04/12/2011	7925162	UBI-005	8709

93749 7590 03/23/2011

Alexander Soto
7673 Hazard Center Dr.
San Diego, CA 92108

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 893 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 Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

Alexander I. Soto, San Diego, CA;
Walter G. Soto, San Clemente, CA;

Nokia of America Corporation
IPR2023-00960, Ex. 1002-2
Ex. 1002-2.005

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)

Alexander Soto
7673 Hazard Center Dr.
San Diego, CA 92108

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.
10/886,514	07/06/2004	Alexander I. Soto	UBI-005	8709

TITLE OF INVENTION:

Communication System and Method for an Optical Local Area Network

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	$755	$300	$1055	03/07/2011

EXAMINER	ART UNIT	CLASS-SUBCLASS
LI, SHI K	2613	398-066000

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 James Albert Ward
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 enclosed:

☒ Issue Fee

☒ Publication Fee (No small entity discount permitted)

☐ Advance Order - # of Copies _____

4b. Payment of Fee(s):

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

☒ ~~Payment by credit card. Form PTO-2038 is attached.~~ Paid Electronically.

☐ The Director is hereby authorized by charge the required fee(s), or credit any overpayment, to Deposit Account Number _____ .

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).

The Director of the USPTO is requested to apply the Issue Fee and Publication Fee (if any) or to re-apply any previously paid issue fee to the application identified above.
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 /Alexander Soto/ Date March 04, 2011

Typed or printed name Alexander Soto 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.

Nokia of America Corporation
IPR2023-00960, Ex. 1002-2
Ex. 1002-2.006

Electronic Patent Application Fee Transmittal

Application Number:	10886514
Filing Date:	06-Jul-2004
Title of Invention:	COMMUNICATION SYSTEM AND METHOD FOR AN OPTICAL LOCAL AREA NETWORK
First Named Inventor/Applicant Name:	Alexander I. Soto
Filer:	Alexander Ivan Soto
Attorney Docket Number:	UBI-005

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Utility Appl issue fee	2501	1	755	755
Publ. Fee- early, voluntary, or normal	1504	1	300	300

Nokia of America Corporation
IPR2023-00960, Ex. 1002-2
Ex. 1002-2.007

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

Electronic Acknowledgement Receipt

EFS ID:	9589393
Application Number:	10886514
International Application Number:	
Confirmation Number:	8709
Title of Invention:	COMMUNICATION SYSTEM AND METHOD FOR AN OPTICAL LOCAL AREA NETWORK
First Named Inventor/Applicant Name:	Alexander I. Soto
Customer Number:	93749
Filer:	Alexander Ivan Soto
Filer Authorized By:	
Attorney Docket Number:	UBI-005
Receipt Date:	04-MAR-2011
Filing Date:	06-JUL-2004
Time Stamp:	15:19:22
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$1055
RAM confirmation Number	1575
Deposit Account	
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)

Nokia of America Corporation
IPR2023-00960, Ex. 1002-2
Ex. 1002-2.009

1	Issue Fee Payment (PTO-85B)	UBI-005A_issue_fee_transmittal.pdf	101580 0e8edeb7505a493f80d8e4b8d3850acbe6857d3d	no	1
Warnings:					
Information:					
2	Fee Worksheet (PTO-875)	fee-info.pdf	31738 7c80e8513dacdc6ffb6834358094abb1fbb26e82	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	133318		

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

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

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

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

UNITED STATES PATENT AND TRADEMARK OFFICE

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

NOTICE OF ALLOWANCE AND FEE(S) DUE

93749 7590 12/06/2010

Alexander Soto
7673 Hazard Center Dr.
San Diego, CA 92108

EXAMINER	
LI, SHI K	
ART UNIT	PAPER NUMBER
2613	

DATE MAILED: 12/06/2010

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/886,514	07/06/2004	Alexander I. Soto	UBI-005	8709

TITLE OF INVENTION: COMMUNICATION SYSTEM AND METHOD FOR AN OPTICAL LOCAL AREA NETWORK

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	$755	$300	$0	$1055	03/07/2011

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.

PTOL-85 (Rev. 08/07) Approved for use through 08/31/2010.

Nokia of America Corporation
IPR2023-00960, Ex. 1002-2
Ex. 1002-2.011

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)

93749 7590 12/06/2010

Alexander Soto
7673 Hazard Center Dr.
San Diego, CA 92108

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.
10/886,514	07/06/2004	Alexander I. Soto	UBI-005	8709

TITLE OF INVENTION: COMMUNICATION SYSTEM AND METHOD FOR AN OPTICAL LOCAL AREA NETWORK

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	$755	$300	$0	$1055	03/07/2011

EXAMINER	ART UNIT	CLASS-SUBCLASS
LI, SHI K	2613	398-066000

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

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

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

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____

2 _____

3 _____

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

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

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

❑ Issue Fee

❑ Publication Fee (No small entity discount permitted)

❑ Advance Order - # of Copies _____

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

❑ A check is enclosed.

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

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

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

❑ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

❑ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

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

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

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

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

Nokia of America Corporation
IPR2023-00960, Ex. 1002-2
Ex. 1002-2.012

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.
10/886,514	07/06/2004	Alexander I. Soto	UBI-005	8709

93749 7590 12/06/2010

Alexander Soto
7673 Hazard Center Dr.
San Diego, CA 92108

EXAMINER	
LI, SHI K	
ART UNIT	PAPER NUMBER
2613	

DATE MAILED: 12/06/2010

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 893 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 893 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.

PTOL-85 (Rev. 08/07) Approved for use through 08/31/2010.

Nokia of America Corporation
IPR2023-00960, Ex. 1002-2
Ex. 1002-2.013

Notice of Allowability	Application No.	Applicant(s)	
	10/886,514	SOTO ET AL.	
	Examiner	Art Unit	
	Shi K. Li	2613	

-- 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 *decision of the BPAI mailed 29 September 2010*.

2. ☒ The allowed claim(s) is/are *77-109 and 111-132*.

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)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson'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
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☐ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

/Shi K. Li/
Primary Examiner, Art Unit 2613

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Ex. 1002-2.014

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10886514	SOTO ET AL.
	Examiner	Art Unit
	Li, Shi K	2613

✓	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	11/17/2006	04/30/2007	10/02/2007	12/03/2010					
	1	-	-	-	-					
	2	-	-	-	-					
	3	-	-	-	-					
	4	-	-	-	-					
	5	-	-	-	-					
	6	-	-	-	-					
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	32	-	-	-	-					
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	34	-	-	-	-					
	35	-	-	-	-					
	36	-	-	-	-					

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Ex. 1002-2.015

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10886514	SOTO ET AL.
	Examiner	Art Unit
	Li, Shi K	2613

✓	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	11/17/2006	04/30/2007	10/02/2007	12/03/2010					
	37	-	-	-	-					
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Ex. 1002-2.016

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10886514	SOTO ET AL.
	Examiner	**Art Unit**
	Li, Shi K	2613

✓	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	11/17/2006	04/30/2007	10/02/2007	12/03/2010					
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	105	✓	✓	✓	=					
	106	✓	✓	✓	=					
	107	✓	✓	✓	=					
	108	✓	✓	✓	=					

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Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10886514	SOTO ET AL.
	Examiner	**Art Unit**
	Li, Shi K	2613

✓	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	11/17/2006	04/30/2007	10/02/2007	12/03/2010					
	109	✓	✓	✓	=					
	110	✓	-	-	-					
	111	✓	✓	✓	=					
	112	✓	✓	✓	=					
	113	✓	✓	✓	=					
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	131	✓	✓	✓	=					
	132	✓	✓	✓	=					

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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10886514	SOTO ET AL.
	Examiner	Art Unit
	Li, Shi K	2613

SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES		
Search Notes	Date	Examiner
Updated search	11/17/2006	SK
Updated search	4/30/2007	SK
Updated search	10/2/2007	SK

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner
	See interference search history printout	12/3/2010	SK

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Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10886514	SOTO ET AL.
	Examiner	**Art Unit**
	Shi K Li	2613

ORIGINAL		INTERNATIONAL CLASSIFICATION	
CLASS	SUBCLASS	CLAIMED	NON-CLAIMED
398	60	H 0 4 B 10 / 20 (2006.0)	
CROSS REFERENCE(S)		H 0 4 J 14 / 00 (2006.01.01)	
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)		

☒ 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

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	55	
/Shi K Li/ Primary Examiner.Art Unit 2613	12/03/2010	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

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Ex. 1002-2.020

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S45	21	"398"/$.ccls. and @pd="20071002"	US-PGPUB; USPAT	OR	ON	2007/10/02 10:37
S46	7	"398"/$.ccls. and soto.in.	US-PGPUB; USPAT	OR	ON	2007/10/02 10:38
S47	123	LAN same (PON EPON)	US-PGPUB; USPAT	OR	ON	2008/08/01 08:17
S48	43	S47 and @ad<"20030703"	US-PGPUB; USPAT	OR	ON	2008/08/01 08:29
S49	254	(LAN (local adj area)) same (PON EPON (passive adj optical))	US-PGPUB; USPAT	OR	ON	2008/08/01 08:41
S50	119	S49 and @ad<"20030703"	US-PGPUB; USPAT	OR	ON	2008/08/01 08:41
S51	129	(LAN (local adj area)) with (PON EPON (passive adj optical))	US-PGPUB; USPAT	OR	ON	2008/08/01 08:45
S52	63	S51 and @ad<"20030703"	US-PGPUB; USPAT	OR	ON	2008/08/01 08:46
S53	8769	EPON	US-PGPUB; USPAT	OR	ON	2008/08/01 14:35
S56	6955	S53 and @ad<"20030703"	US-PGPUB; USPAT	OR	ON	2008/08/01 14:37
S57	120	S56 and passive and optical	US-PGPUB; USPAT	OR	ON	2008/08/01 14:37
S58	108798	"wide area network"	US-PGPUB; USPAT	OR	ON	2008/08/03 10:40
S59	488	S58 and "398"/$.ccls.	US-PGPUB; USPAT	OR	ON	2008/08/03 10:41

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S60	333	S59 and @ad<"20030703"	US-PGPUB; USPAT	OR	ON	2008/08/03 10:41
S61	226	S60 and (switch OXC)	US-PGPUB; USPAT	OR	ON	2008/08/03 10:41
S62	1	"6792207".pn. and (WAN (wide adj area))	US-PGPUB; USPAT	OR	ON	2008/08/03 12:38
S63	0	"6792207".pn. and (WAN (wide adj area)) and ((local adj area) LAN)	US-PGPUB; USPAT	OR	ON	2008/08/03 12:38

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	189	local adj area with optical.clm.	US-PGPUB; UPAD	OR	ON	2010/12/03 09:21
L2	5404	(control supervisory) adj (channel wavelength).clm.	US-PGPUB; UPAD	OR	ON	2010/12/03 09:21
L3	2	1 and 2	US-PGPUB; UPAD	OR	ON	2010/12/03 09:22

12/3/2010 9:22:54 AM
C:\Documents and Settings\SLi\My Documents\EAST\Workspaces\10_886514.wsp

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Ex. 1002-2.022

UNITED STATES PATENT AND TRADEMARK OFFICE

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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.
10/886,514	07/06/2004	Alexander I. Soto	UBI-005	8709

93749 7590 09/29/2010

Alexander Soto
7673 Hazard Center Dr.
San Diego, CA 92108

EXAMINER	
LI, SHI K	

ART UNIT	PAPER NUMBER
2613	

MAIL DATE	DELIVERY MODE
09/29/2010	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.

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ALEXANDER I. SOTO and WALTER G. SOTO

Appeal 2009-006986
Application 10/886,514
Technology Center 2600

Before KENNETH W. HAIRSTON, THOMAS S. HAHN,
and BRADLEY W. BAUMEISTER, *Administrative Patent Judges*.

HAIRSTON, *Administrative Patent Judge*.

DECISION ON APPEAL[1]

---

[1] The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, or for filing a request for rehearing, as recited in 37 C.F.R. § 41.52, begins to run from the "MAIL DATE" (paper delivery mode) or the "NOTIFICATION DATE" (electronic delivery mode) shown on the PTOL-90A cover letter attached to this decision.

STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134(a) from the Examiner's final rejection of claims 77 to 109, 111 to 119, and 121 to 132. Claims 1 to 76 and 110 have been canceled. We have jurisdiction under 35 U.S.C. § 6(b).[2]

We REVERSE.

Appellants' invention is concerned with an optical local area network (LAN) which includes a network manager (NM) and one or more local network clients (e.g., network client adapters (NCAs)) (Spec. ¶¶ [0002], [0013]; claims 77, 109, and 122). The NM at the head end of the optical LAN is a central transmission point and overall controlling device for the LAN, and the NCAs use communication logic and memory to respond to messages from the NM using a protocol (e.g., layer-1, layer-2, or layer-3 protocal) (Spec. ¶¶ [0004], [0006], [0008], [0010], [0022]-[0025], [0029], and [0030]). Preferably, the NCAs use a layer-2 protocol (Spec. ¶¶ [0008], [0010], and [0030]).

Claim 77, reproduced below with the disputed claim language emphasized, is representative of the subject matter on appeal:

---

[2] Claim 120 has not been rejected and is therefore not before us on appeal. Although claim 120 has been included by the Examiner on the cover sheet of the Final Rejection mailed October 11, 2007, and has been mistakenly included by Appellants in the Brief (*see* App. Br. 1 and 19), neither the Final Rejection nor the Answer (*see generally* Ans. 3-11) includes a rejection of claim 120 or any discussion as to the merits of 120. Accordingly, claim 120 (although depending from rejected claim 119) is not rejected and is thus not under our jurisdiction on appeal under 35 U.S.C. § 6(b).

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77. *An optical Local Area Network (LAN) of one or more local area network clients*, the optical LAN comprising:

a network manager for managing optical signals each incorporating both a control channel and a data channel in a single optical wavelength, including an optical interface having means for converting received optical signals to electrical signals and means for producing transmitted optical signals from electrical signals,

a plurality of optical ports,

a passive optical coupler coupled between the optical interface and the optical ports and having means for accepting received optical signals from and for distributing transmitted optical signals to the optical interface and the optical ports, and

a control module coupled to the optical interface and having means for receiving electrical signals from and for transmitting electrical signals to the optical interface;

a plurality of network client adapters including an optical interface having means for converting received optical signals to electrical signals and means for producing transmitted optical signals from electrical signals,

an optical port coupled to the optical interface, and

a control module having means for receiving electrical signals from and for transmitting electrical signals to the optical interface; and

a plurality of optical waveguides each coupled between one of the network client adapter optical ports and the network manager;

whereby the network manager can receive an optical signal incorporating both a control channel and a data channel in a single optical wavelength from any network client adapter, a network client adapter can

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receive an optical signal incorporating both a control channel and a data channel in a single optical wavelength from the network manager, and the network manager and network client adapters are in communication to facilitate sending and receiving data across the optical waveguides.

(Claim 77 (emphases added)).

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

Graves	US 5,029,333	July 2, 1991
Hale	US 5,572,349	Nov. 5, 1996
Abdelhamid	US 6,023,467	Feb. 8, 2000
Masucci	US 6,498,667 B1	Dec. 24, 2002
Adcox	US 2003/0236916 A1	Dec. 25, 2003 (filed Apr. 21, 2003)
Wang	US 2004/0052274 A1	Mar. 18, 2004 (filed Dec. 11, 2002)
Medina	US 6,778,399 B2	Aug. 17, 2004 (filed May 15, 2002)
Kuo	US 7,031,343 B1	Apr. 18, 2006 (filed Nov. 17, 2000)

The following obviousness rejections are before us for review:

(i) Claims 77, 82 to 87, 98, 100, 122, and 124 to 126 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Wang and Kuo.

(ii) Claims 78 to 81, 105 to 107, 109, 111, 112, 118, 119, 123, 128, and 129 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Wang and Kuo, further in view of Abdelhamid.

(iii) Claims 88 to 96, 99, and 101 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Wang and Kuo, further in view of Masucci.

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(iv) Claims 97 and 113 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Wang, Kuo, and Masucci, further in view of Graves.

(v) Claims 101 to 104, 113, 115 to 117, 130, and 131 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Wang and Kuo, further in view of Adcox.

(vi) Claims 108 and 132 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Wang and Kuo, further in view of Medina.

(vii) Claims 114 and 127 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Wang, Kuo, Masucci, and Graves, further in view of Hale.

(viii) Claim 121 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Wang, Kuo, and Abdelhamid, further in view of Medina.

In all of the rejections, the Examiner relies upon Wang as describing the feature common to each of independent claims 77, 109, and 122 of an optical point-to-multipoint network including an NM, one or more NCAs, and a plurality of optical waveguides (Ans. 3-5). The Examiner equates Wang's optical line terminal (OLT) to an NM, and Wang's optical network units (ONUs) to NCAs. The major premise underlying the rejections applying Wang is that the Examiner determines that Wang discloses or suggests an optical LAN recited in each of independent claims 77, 109, and 122, as opposed to a wide area network (WAN). However, the Examiner notably fails to assert in the rejections (*see* Ans. 3-11) that Wang's "point-to-multipoint network" is a LAN (Ans. 3). Instead, the Examiner reasons that LAN and passive optical networks (PONs) are not exclusive, and that a PON is suitable for a LAN and not suitable for a WAN (Ans. 13).

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In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the Examiner to establish a factual basis to support the legal conclusion of obviousness. *See In re Fine*, 837 F.2d 1071, 1073 (Fed. Cir. 1988). The Examiner's articulated reasoning in the rejection must possess a rational underpinning to support the legal conclusion of obviousness. *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006).

On the record before us, we find no supportive evidence for the Examiner's assertion (Ans. 3-6, 13) that Wang teaches or suggests an optical LAN. To the contrary, we are more persuaded by Appellants' argument (Reply Br. 3) that since Wang describes multiple customer premises (*see* Wang at ¶ [0006]), Wang does not disclose an optical LAN, but instead what is most likely an optical WAN. In our view, one of ordinary skill in the art would understand that a signal at an OLT at a headend would need to be amplified to communicate with a plurality of ONUs at customers' premises, thus making it a WAN. Wang says as much in paragraph [0006],

> [t]ypically, the network endpoints are at the central office or headend on one side, and the customer premises on the other side. In one common configuration, an optical line terminating (OLT) network device is located at the headend, and a plurality of optical network units (ONUs) are located at the customers' premises.

Although the Examiner is correct that Wang's point-to-multipoint network performs bandwidth allocation and dynamically manages bandwidth using known layer protocols, we agree with Appellants (Reply Br. 3) that PONs can be used in either LANs or WANs, and the fact remains that Wang discloses nothing concerning the disclosed network being a LAN as recited in claims 77 and 122.

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We are also persuaded by Appellants' argument (App. Br. 13) that Kuo's Figure 2, and element 200, serves to distinguish an OLT and ONU/ONT from an NM and NCA. In other words, the fact that Kuo's point-to-multipoint PON 200 is shown separate from head end 210 and customer premises 214 including a LAN (*see* Fig. 2; col. 2, ll. 30-60) is evidence that Figure 2 shows a WAN which is composed of LANs found at the customer premises' end. Notably, Kuo describes a broadband architecture in the form of a PON, which "facilitates broadband communications between an optical line terminal (OLT) and multiple remote optical network units (ONUs) over a purely passive optical distribution network" (col. 1, ll. 14-26). Thus, we agree with Appellants that Kuo does not disclose or suggest an optical LAN including an NM, one or more NCAs, and a plurality of optical waveguides as recited in claims 77, 109, and 122, or otherwise cure the deficiencies of Wang (App. Br. 13; Reply Br. 2-4).

Likewise, Abdelhamid does not disclose or suggest an optical LAN including an NM, one or more NCAs, and a plurality of optical waveguides as recited in claim 109, and fails to cure the deficiencies of Wang and Kuo with respect to claim 109 and its corresponding dependent claims.

In light of our findings with respect to Wang discussed *supra*, we are persuaded by Appellants' argument (App. Br. 12-14; Reply Br. 2-4) that Wang fails to teach or suggest an optical LAN including an NM, as recited in claims 77 and 122. Accordingly, we will not sustain the Examiner's rejection of claims 77 and 122, and claims 82 to 87, 98, 100, and 124 to 126 which depend therefrom. For similar reasons, we will not sustain the

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Ex. 1002-2.030

Examiner's rejection of claims 78 to 81, 105 to 107, 109, 111, 112, 118, 119, 123, 128, and 129.

Because none of the additionally applied references to Masucci, Graves, Adcox, Medina, and Hale cures the deficiencies of Wang, we will not sustain the Examiner's obviousness rejections of dependent claims 88 to 97, 99, 101 to 104, 108, 113 to 117, 121, 127, and 130 to 132, which ultimately depend from claims 77, 109, and 122, respectively.

In summary, we will not sustain the obviousness rejections of claims 77 to 109, 111 to 119, and 121 to 132 because (i) the Examiner has not established a factual basis to support the legal conclusion of obviousness (*see Fine*, 837 F.2d at 1073), and (ii) the Examiner's articulated reasoning (and namely the factual findings regarding Wang) in the rejections do not possess a rational underpinning to support the legal conclusion of obviousness. *KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398, 418 (2007).

The decision of the Examiner to reject claims 77 to 109, 111 to 119, and 121 to 132 is reversed.

REVERSED

KIS

Alexander Soto
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San Diego, CA 92108

Nokia of America Corporation
IPR2023-00960, Ex. 1002-2
Ex. 1002-2.031

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
10/886,514	07/06/2004	Alexander I. Soto	UBI-005

CONFIRMATION NO. 8709

93749
Alexander Soto
7673 Hazard Center Dr.
San Diego, CA 92108

POA ACCEPTANCE LETTER

OC000000041458534

Date Mailed: 05/05/2010

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 04/28/2010.

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

/skiflemariam/

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

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
10/886,514	07/06/2004	Alexander I. Soto	UBI-005

CONFIRMATION NO. 8709

POWER OF ATTORNEY NOTICE

50625
JAMES ALBERT WARD
6924 CAMINO PACHECO
SAN DIEGO, CA 92111

OC000000041458528

Date Mailed: 05/05/2010

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 04/28/2010.

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

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IPR2023-00960, Ex. 1002-2
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POWER OF ATTORNEY OR REVOCATION OF POWER OF ATTORNEY WITH A NEW POWER OF ATTORNEY AND CHANGE OF CORRESPONDENCE ADDRESS

Application Number	10/886,514
Filing Date	July 6, 2004
First Named Inventor	Alexander I. Soto et al.
Title	Communication system and method for an opti
Art Unit	2613
Examiner Name	Lee, Shi K
Attorney Docket Number	UBI-005

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

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I am the:

☒ Applicant/Inventor.

OR

☐ Assignee of record of the entire interest. See 37 CFR 3.71.
Statement under 37 CFR 3.73(b) (Form PTO/SB/96) submitted herewith or filed on _____.

SIGNATURE of Applicant or Assignee of Record

Signature		Date	04/24/2010
Name	Walter Soto	Telephone	949-923-5567
Title and Company			

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

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Application Number	10/886,514
Filing Date	July 6, 2004
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Title	Communication system and method for an opti
Art Unit	2613
Examiner Name	Lee, Shi K
Attorney Docket Number	UBI-005

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Signature		Date	04/24/2010
Name	Alexander Soto	Telephone	619-574-8607
Title and Company			

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EFS ID:	7509453
Application Number:	10886514
International Application Number:	
Confirmation Number:	8709
Title of Invention:	Communication system and method for an optical local area network
First Named Inventor/Applicant Name:	Alexander I. Soto
Customer Number:	50625
Filer:	James Albert Ward
Filer Authorized By:	
Attorney Docket Number:	UBI-005
Receipt Date:	28-APR-2010
Filing Date:	06-JUL-2004
Time Stamp:	17:23:20
Application Type:	Utility under 35 USC 111(a)

Payment information:

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Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	New_POA_UBI-005_27Apr10_.pdf	1097117 ec19631498f8243203ed4377b0e259938b0ec964	no	2

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/886,514	07/06/2004	Alexander I. Soto	UBI-005	8709

50625 7590 04/08/2009

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EXAMINER	
LI, SHI K	

ART UNIT	PAPER NUMBER
2613	

MAIL DATE	DELIVERY MODE
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Appeal No: 2009-6986
Application: 10/886,514
Appellant: Alexander I. Soto et al.

Board of Patent Appeals and Interferences
Docketing Notice

Application 10/886,514 was received from the Technology Center at the Board on December 17, 2008 and has been assigned Appeal No: 2009-6986.

A review of the file indicates that the following documents have been filed by appellant:

Appeal Brief filed on:	June 05, 2008
Reply Brief filed on:	October 07, 2008
Request for Hearing filed on:	NONE

In all future communications regarding this appeal, please include both the application number and the appeal number.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/886,514	07/06/2004	Alexander I. Soto	UBI-005	8709

50625 7590 12/03/2008

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APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR / PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.
10886514	7/6/2004	SOTO ET AL.	UBI-005

JAMES ALBERT WARD
6924 CAMINO PACHECO
SAN DIEGO, CA 92111

EXAMINER
Shi K.. Li

ART UNIT	PAPER
2613	20081128

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Commissioner for Patents

1. The reply brief filed 7 October 2008 has been entered and considered. The application has been forwarded to the Board of Patent Appeals and Interferences for decision on the appeal.

/Shi K. Li/
Primary Examiner, Art Unit 2613

PTO-90C (Rev.04-03)

BEFORE THE UNITED STATES PATENT AND TRADEMARK OFFICE BOARD OF APPEALS AND INTERFERENCES

In re Application of:
Alexander Soto et al.

Group Art Unit: **2613**

Patent Application No.: **10/886,514**

Filed on: **July 06, 2004**

Examiner: **Li, Shi K.**

For: **Communication System and Method For An Optical Local Area Network**

APPELLANTS' REPLY BRIEF PER 37 C.F.R. §41.41

Board of Patent Appeals and Interferences
Director for Patents and Trademarks
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Sir:

This document is submitted per 37 C.F.R. §41.41 in response to the Examiner's Answer mailed August 07, 2008, in which the Examiner responds to arguments made in Appellants' Appeal Brief filed on June 06, 2008. Appellants reply to Examiner's arguments as set forth below.

Respectfully submitted,

/James Albert Ward #34041/
James A. Ward

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October 07, 2008

Nokia of America Corporation
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Reply to Examiner's Arguments regarding claims 77, 82-87, 98, 100, 122 and 124-126

On page 13 of the Examiner's Answer, the Examiner responds to the Appellants' Appeal Brief by arguing that local area networks (LANs) and passive optical networks (PONs) are not exclusive terms. However, the Examiner then argues that PONs are exclusive to LANs because the passive nature of PON's implies a limited service area.

The Examiner apparently conflates "local" with "limited" but such reasoning is not persuasive for the following reasons. All known current forms of communication have a "limited" service area (even non-terrestrial radio communications are "limited" to a few thousand light-years in the neighborhood of our "local" group of stars). Even using active repeaters does not provide an "unlimited" service area because active repeaters amplify not just a signal but the noise that accumulates over distance and eventually overpowers the signal after it is boosted by too many repeaters. According to the Examiner's reasoning, all communications have a limited service area and thus are exclusive to local area networks; clearly an improper result that demonstrates the improper reasoning behind the Examiner's assertion above that PONs are inherently exclusive to LANs.

Moreover, the erroneous conclusion of this Examiner's argument can be summarized with the following statement:

> *"Therefore, PON is suitable for LAN and is not suitable for wide area network (WAN) at least with current technology."* (page 13, line 5-6)

Additionally, the Examiner cites to certain prior art references to argue that PONs can be LANs and quotes specifically from Modiano to evidence that the OLT/ONU based PON of Wang and Kuo are LANs. However, in doing so, the Examiner fails to establish the alleged equivalence of Wang's and Kuo's optical line terminal (OLT) and optical network unit (ONU) with Appellants' Network Manager (NM) and network client adapters (NCA) beyond citing the presence of a passive optical splitter in both cases.

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Ex. 1002-2.043

An OLT/ONU based PON network is a broadband access network with an OLT residing at a central office of a service provider and an ONU at a residential home or business. Generally speaking, for all access networks, there may be a router at the home or business having a port used to connect the home or business to the service provider's access network, which is typically labeled as a "WAN" port, and which the router generally provides with firewall protection. Therefore, broadband access networks are commonly characterized as WANs. All references cited by the Examiner that mention an OLT and ONU describe the OLT/ONU network has a broadband access network, such as Wang in paragraph [0006] on page 1 and Kuo col. 1, lines 16-23, when they are characterizing their OLTs and ONUs. Thus the Examiner's above argument for limiting PONs to LANs exclusive of WANs is not only illogical but contrary to the cited references relied upon by Examiner.

The quote referenced by the Examiner (page 13, lines 13-17) was intended by Modiano to merely distinguish PONs as point-to-multipoint networks (*e.g.,* broadcast star) as opposed to point-to-point networks with multiple point-to-point fiber links connecting the network endpoints. To find evidentiary proof in the Modiano quotation that the OLT/ONU network of Wang and Kuo is a LAN is to already presume that these OLT/ONU networks are LANs and Appellants have already shown that this is not the case. Regarding the Examiner's arguments about switches, it should be noted that passive optical splitters can be viewed as a switch in which optical signals entering any one port on one side of the splitter are replicated on all ports on the other side of the splitter. Thus, Examiner's arguments in regards to Modiano and Iannone *et al.* are not properly supported by the evidence and unpersuasive. PONs indeed can be used in LANs or WANs, they are not exclusive to LANs and an OLT/ONU based PON is characterized as a WAN by Wang and Kuo.

The Examiner characterized the reference Finn (N. Finn, "Compatibility Model for IEEE 802.3ah EPONs", Rev. 5, June 28, 2002) as another example of a PON-based LAN. However, this is not the case because Finn describes EPON as a broadband access network (consistent with Wang and Kuo) with an OLT at a service provider's central office and an ONU at a residence or business. Finn proposes **emulation modes** for EPON that can **emulate** a LAN (while EPON is still physically a broadband access network) so

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Ex. 1002-2.044

that, in theory, some existing Ethernet LAN devices or components or software stacks can be reused and thus lower the material cost of EPON. This was the motivation behind EPON, it was not to apply PON technology to LANs but the opposite, to leverage existing LAN technology and apply them to the broadband access networks which service providers have chosen to use PON technology for. While Finn attempts to keep the broadband access EPON standard compatible with the LAN Ethernet standard, Finn's proposals were apparently not technically feasible as EPON is not compatible with Ethernet despite its name. It should be noted that the Finn reference was never presented during prosecution and Appellants were never afforded opportunity to rebut it with evidence. The Examiner's proper avenue for asserting this reference is to reopen prosecution and the Appellants believe this reference should be barred from consideration during the Appeal process.

While the Examiner has argued that PON is exclusively a LAN technology and cannot possibly be implemented as a WAN, Appellants argue that this is not the case based on Examiner's cited references and the characterization of the WAN port commonly found on routers (especially those with built-in firewalls). Lacking the proper basis for this asserted mischaracterization of the PON, the Examiner as failed to state a proper *prima facie* case for obviousness and has made claim rejections that rely on an unsubstantiated and inaccurate conflation of Appellants' local area network manager (NM) with an OLT from the art and Appellants' local area network client adapters (NCA) with ONUs from the art.

Conclusion

For at least the reasons set forth above, the Appellant respectfully asserts that the cited references, taken alone or in combination, do not disclose the above-recited features of independent claims 77, 109 and 122 and therefore cannot properly render the recited subject matter obvious. As such, the Appellant respectfully requests that the Board overturn the pending Section 103 rejections and allow claims 77, 109 and 122 as well as the claims that depend there from.

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Ex. 1002-2.045

Electronic Acknowledgement Receipt

EFS ID:	4076317
Application Number:	10886514
International Application Number:	
Confirmation Number:	8709
Title of Invention:	Communication system and method for an optical local area network
First Named Inventor/Applicant Name:	Alexander I. Soto
Customer Number:	50625
Filer:	James Albert Ward
Filer Authorized By:	
Attorney Docket Number:	UBI-005
Receipt Date:	07-OCT-2008
Filing Date:	06-JUL-2004
Time Stamp:	23:20:34
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	Reply Brief Filed	Reply_Brief_UBI-005_07Oct08.pdf	103438 29d386774d3c4e8eb69beb90f6b39f7c70f2c135	no	4

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/886,514	07/06/2004	Alexander I. Soto	UBI-005	8709

50625 7590 08/07/2008

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LI, SHI K	

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APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR / PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.
10886514	7/6/2004	SOTO ET AL.	UBI-005

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ART UNIT	PAPER
2613	20080803

DATE MAILED:

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

Commissioner for Patents

Attached is an Examiner Answer in reponse to the appeal brief filed 6 June 2008 appealing from the Office action mailed 11 October 2007.

Also attached is a PTO-892, Notice of References Cited.

/Shi K. Li/
Primary Examiner, Art Unit 2613

PTO-90C (Rev.04-03)

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/886,514
Filing Date: July 06, 2004
Appellant(s): SOTO ET AL.

James A. Ward
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 6 June 2008 appealing from the Office action mailed 11 October 2007.

Nokia of America Corporation
IPR2023-00960, Ex. 1002-2
Ex. 1002-2.050

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is incorrect.

The amendment after final rejection filed on 10 December 2007 has not been entered.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

A substantially correct copy of appealed claim 122 appears on page 28 of the Appendix to the appellant's brief. The minor errors are as follows:

In line 9, "coupler~~.~~;" should read "coupler;"

In the last line, "LAN" should read "LAN hub".

(8) Evidence Relied Upon

2004/0052274 A1	Wang et al.	3-2004
7,031,343	Kuo et al.	4-2006
6,023,467	Abdelhamid et al.	2-2000
6,498,667	Masucci et al.	12-2002
5,029,333	Graves et al.	7-1991
2003/0236916 A1	Adcox et al.	12-2003
6,778,399 B2	Medina et al.	8-2004
5,572,349	Hale et al.	11-1996

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 77, 82-87, 98, 100, 122 and 124-126 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. (U.S. Patent Application Pub. 2004/0052274 A1) in view of Kuo et al. (U.S. Patent 7,031,343 B1).

Regarding claims 77 and 122, Wang et al. teaches in FIG. 1 a point-to-multipoint network comprising a optical line terminal (OLT), equivalent to network manager of instant claim, and a plurality of optical network units (ONU), equivalent to network client adapters of instant claim. FIG. 1 shows a splitter (equivalent to passive coupler of instant claim) for connecting an optical interface of the OLT to a plurality of optical ports, which are connected to the ONUs. Wang et al. teaches in FIG. 8 processor 30 with control logic 32 in the ONU and teaches in FIG. 9 processor 50 with control logic 52 in the OLT. Wang et al. teaches in FIG.3 through FIG. 7 that an optical signal has OAM/control timeslots and data timeslots. The difference between Wang et al. and the claimed invention is that Wang et al. does not teach

optical/electrical converters in the OLT and ONUs. Kuo et al. teaches in FIG. 9 and FIG. 10 optical transmitters and optical receivers. These devices provide conversion between optical signals and electrical signals, one of ordinary skill in the art would have been motivated to combine the teaching of Kuo et al. with the point-to-multipoint network of Wang et al. because signals can be more easily manipulated in electrical domain than in optical domain. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to include optical/electrical converters for concerting optical signals to electrical signals for manipulation and concerting electrical signals to optical signals for transmission, as taught by Kuo et al., in the point-to-multipoint network of Wang et al. because signals can be more easily manipulated in electrical domain than in optical domain.

Regarding claims 82 and 85, Wang et al. teaches in FIG. 3 through FIG. 7 time division multiplexing.

Regarding claims 83, 86 and 124-125, Wang et al. teaches in paragraph [0036] dynamic bandwidth management.

Regarding claims 84, 87 and 126, Wang et al. teaches in paragraph [0013] minimum bandwidth allocation.

Regarding claim 98, Kuo et al. teaches in FIG. 2 one or more local area network clients.

Regarding claim 100, Kuo et al. teaches in col. 5, line 42 that local area network client may include personal computers.

Claims 78-81,105-107, 109, 111-112, 118-119, 123 and 128-129 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. and Kuo et al. as applied to claims 77,

82-87, 98, 100, 122 and 124-126 above, and further in view of Abdelhamid et al. (U.S. Patent 6,023,467).

Regarding claims 78, 80, 109 and 123, Wang et al. and Kuo et al. have been discussed above in regard to claims 77, 82-87, 98, 100, 122 and 124-126. Wang et al. teaches in FIG. 8 protocol stack 38 and in FIG. 9 protocol stack 58. The difference between Wang et al. and Kuo et al. and the claimed invention is that Wang et al. and Kuo et al. do not teach the details of the protocol stack. It is understood that OAM is a layer 7 protocol according to OSI model and relies on lower layers, including layer 2 and layer 3, for operation. Furthermore, the Examiner cites Abdelhamid et al. for teaching details of the layer 2 and layer 3 protocols. Abdelhamid et al. teaches in FIG. 3 and FIG. 4 downstream and upstream frame structure for a passive optical network. One of ordinary skill in the art would have been motivated to combine the teaching of Abdelhamid et al. with the modified point-to-multipoint network of Wang et al. and Kuo et al. because the protocols of Abdelhamid et al. clearly define the frame structure and effective coordinate the ONUs. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the protocols of Abdelhamid et al. in the modified point-to-multipoint network of Wang et al. and Kuo et al. because the protocols of Abdelhamid et al. clearly define the frame structure and effective coordinate the ONUs.

Regarding claims 79 and 81, Abdelhamid et al. teaches in FIG. 3 and FIG. 4 FRAME/SYNC BYTES 86, ERROR CHECK 92 and ATM cell 100 which includes address and data.

Regarding claims 105-106, Abdelhamid et al. teaches in col. 5, lines 38-40 ranging.

Regarding claim 107, Abdelhamid et al. teaches in col. 5, lines 42-44 power tuning.

Regarding claim 111, Wang et al. teaches in paragraph [0036] dynamic bandwidth management.

Regarding claim 112, Wang et al. teaches in paragraph [0013] minimum bandwidth allocation.

Regarding claim 118, Kuo et al. teaches in col. 5, line 42 that local area network client may include personal computers.

Regarding claims 119 and 128-129, Abdelhamid et al. teaches in col. 5, lines 38-40 ranging.

Claims 88-96, 99 and 101 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. and Kuo et al. as applied to claims 77, 82-87, 98, 100, 122 and 124-126 above, and further in view of Masucci et al. (U.S. Patent 6,498,667 B1).

Wang et al. and Kuo et al. have been discussed above in regard to claims 77, 82-87, 98, 100, 122 and 124-126. Regarding claim 88, Wang et al. teaches in paragraph [0026] downstream traffic. The difference between Wang et al. and Kuo et al. and the claimed invention is that Wang et al. and Kuo et al. do not teach the details of the downstream traffic format. Masucci et al. teaches in FIG. 1 a PON with remote terminals 14 (equivalent to network client) and central terminal 12 (equivalent to network manager). The central terminal connects the remote terminals to wide area network via WAN interface such that remote terminals can receive application data from workstations, servers or other users located in another network. One of ordinary skill in the art would have been motivated to combine the teaching of Masucci et al. with the modified point-to-multipoint network of Wang et al. and Kuo et al. because the

frame structure of Masucci et al. supports the aggregation of multiple broadband services including voice, high speed data, video and image. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the frame structure of Masucci et al., in the modified point-to-multipoint network of Wang et al. and Kuo et al. because the frame structure of Masucci et al. supports the aggregation of multiple broadband services including voice, high speed data, video and image.

Regarding claim 89-90 and 93-94, Masucci et al. teaches in FIG. 3 frames and subframes.

Regarding claims 91 and 95, Masucci et al. teaches in FIG. 4 packet length field 228 and in FIG. 80AM&P header with length field 410.

Regarding claims 92 and 96, Masucci et al. teaches in FIG. 1 Ethernet MAC 30 and Ethernet PHY 32.

Regarding claim 99, Masucci et al. teaches in FIG. 1 that the remote terminals include Ethernet network interface 33 for local area network clients.

Regarding claim 101, Masucci et al. teaches in FIG. 1 switch 36.

Claims 97 and 113 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al., Kuo et al. and Masucci et al. as applied to claims 88-96, 99 and 101 above, and further in view of Graves et al. (U.S. Patent 5,029,333).

Wang et al., Kuo et al. and Masucci et al. have been discussed above in regard to claims 88-96, 99 and 101. The difference between Wang et al., Kuo et al. and Masucci et al. and the claimed invention is that Wang et al., Kuo et al. and Masucci et al. do not teach hairpinning upstream data. Graves et al. teaches in col. 6, lines 15-17 the idea of hairpinning and in FIG. 4

hairpin connection between upstream selector 72 and downstream selector 70. One of ordinary skill in the art would have been motivated to combine the teaching of Graves et al. with the modified point-to-multipoint network of Wang et al., Kuo et al. and Masucci et al. because hairpinning allows ONUs to communicate with each other. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to support hairpinning, as taught by Graves el al., in the modified point-to-multipoint network of Wang et al., Kuo et al. and Masucci et al. because hairpinning allows ONUs to communicate with each other.

Claims 101-104, 113, 115-117 and 130-131 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. and Kuo et al. as applied to claims 77, 82-87, 98, 100, 122 and 124-126 above, and further in view of Adcox et al. (U.S. patent Application Pub. 2003/0236916 A1).

Wang et al. and Kuo et al. have been discussed above in regard to claims 77, 82-87, 98, 100, 122 and 124-126. Regarding claim 101, the difference between Wang et al. and Kuo et al. and the claimed invention is that Wang et al. and Kuo et al. do not teach a switch interface. Adcox et al. teaches in FIG. 4 a PON wherein the headend (QOIU) 20A includes a switch interface for connecting to an Ethernet switch. One of ordinary skill in the art would have been motivated to combine the teaching of Adcox et al. with the modified point-to-multipoint network of Wang et al. and Kuo et al. because a switch allows the routing of traffic among the client users and reduces the traffic on each fiber. In other words, the switch allows each fiber to support more users or allows each user to have more bandwidth by eliminating traffic that is not designated for the users served by the fiber. Thus it would have been obvious to one of ordinary

skill in the art at the time the invention was made to interface to a switch, as taught by Adcox et al., in the modified point-to-multipoint network of Wang et al. and Kuo et al. because a switch eliminates traffic that is not designated for the users served by the fiber and, therefore, increases usable bandwidth.

Regarding claims 102-104, 113, 115-117 and 130-131, Adcox et al. teaches in FIG. 4 Ethernet switch. The Ethernet switch switches frames based on address and sends packets from one client to another client through the PON and sends packets from clients to users of other network through the PPPOE BRAS. On the client side, Adcox et al. teaches in FIG. 4 10BaseT Ethernet interface.

Claims 108 and 132 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. and Kuo et al. as applied to claims 77, 82-87, 98, 100, 122 and 124-126 above, and further in view of Medina et al. (U.S. Patent 6,778,399 B2).

Wang et al. and Kuo et al. have been discussed above in regard to claims 77, 82-87, 98, 100, 122 and 124-126. The difference between Wang et al. and Kuo et al. and the claimed invention is that Wang et al. and Kuo et al. do not teach the form factor of the optical ports. Medina et al. teaches in col. 1, lines 28-40 small form pluggable (SFP) transceiver multisource agreement (MSA) standard. One of ordinary skill in the art would have been motivated to combine the teaching of Medina et al. with the modified point-to-multipoint network of Wang et al. and Kuo et al. and use SFP type connector for the optical port because SFP has small form factor and allows high port density and, therefore, saves space. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use SFP for the optical

ports, as taught by Medina et al., in the modified point-to-multipoint network of Wang et al. and Kuo et al. because SFP has small form factor and allows high port density and, therefore, saves space.

Claims 114 and 127 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al., Kuo et al., Masucci et al. and Graves et al. as applied to claims 97 and 113 above, and further in view of Hale et al. (U.S. Patent 5,572,349).

Wang et al., Kuo et al., Masucci et al. and Graves et al. have been discussed above in regard to claims 97 and 113: The difference between Wang et al., Kuo et al., Masucci et al. and Graves et al. and the claimed invention is that Wang et al., Kuo et al., Masucci et al. and Graves et al. do not teach power leveling. Hale et al. teaches in FIG. 1 a passive optical network comprising an OLT and a plurality of ONUs. Hale et al. teaches in col. 5, lines 2-10 that the OLT transmits control signals to ONU to adjust launch power. One of ordinary skill in the art would have been motivated to combine the teaching of Hale et al. with the modified point-to-multipoint network of Wang et al., Kuo et al., Masucci et al. and Graves et al. because power leveling adjusts the launch power of each ONU such that the received signal from each of them is about the same power level and, therefore, optimizes performance. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide power leveling, as taught by Hale et al., in the modified point-to-multipoint network of Wang et al., Kuo et al., Masucci et al. and Graves et al. because power leveling adjusts the launch power of each ONU for optimal performance.

Claim 121 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al., Kuo et al. and Abdelhamid et al. as applied to claims 78-81,105-107, 109, 111-112 and 118 above, and further in view of Medina et al. (U.S. Patent 6,778,399 B2).

Wang et al., Kuo et al. and Abdelhamid et al. have been discussed above in regard to claims 78-81, 105-107, 109, 111-112 and 118. The difference between Wang et al., Kuo et al. and Abdelhamid et al. and the claimed invention is that Wang et al., Kuo et al. and Abdelhamid et al. do not teach the form factor of the optical ports. Medina et al. teaches in col. 1, lines 28-40 small form pluggable (SFP) transceiver multisource agreement (MSA) standard. One of ordinary skill in the art would have been motivated to combine the teaching of Medina et al. with the modified point-to-multipoint network of Wang et al., Kuo et al. and Abdelhamid et al. and use SFP type connector for the optical port because SFP has small form factor and allows high port density and, therefore, saves space. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use SFP for the optical ports, as taught by Medina et al., in the modified point-to-multipoint network of Wang et al., Kuo et al. and Abdelhamid et al. because SFP has small form factor and allows high port density and, therefore, saves space.

(10) Response to Argument

The Appellant argues on page 13 of the Brief:

In the Appellants' specification, the network manager (NM) is described as "[A] network manager in an optical local area network can provide switching functions of a hub, a switch, or a router" (page 2, paragraph 0014) and "[T]he NM (network manager) 100 acts as a central transmission point and an overall controlling device for the optical local area network" (page 2, paragraph 0023). The local area network client adapters (NCAs)

are clearly presented as adapters for clients of the local area network (LAN). Additionally, Appellants assert that these characterizations are also clear from a plain reading of Appellants' base claims. An inherent function of a hub in a LAN is to enable the LAN clients to communicate with each other. These descriptions of Appellants' local area network manager and network client adapters are neither consistent with nor a reasonable interpretation of an OLT and ONU to those skilled in the art. On the contrary, Examiner's cited art teaches that an OLT and ONU are part of a broadband access wide area network architecture, which cannot properly characterize a local area network architecture. Wide area networks (WANs) are well-understood to have inherent structural and functional differences from LANs; WANs and LANs are not mere fungible labels to add unnecessary complexity. Furthermore, Examiner's cited references explicitly and clearly distinguish the structure and function of a LAN from that of an OLT, ONU/ONT (Kuo in FIG. 2 element 200, note dotted line). The inherent structure and function of an OLT/ONU-based PON is to allow subscribers to connect to a service provider's network to receive services (e.g. high-speed internet, broadcast video, IPTV, etc.). In other words, the function of the OLT is to allow each ONU to communicate with the service provider's network with communications passing through the OLT; the OLT does not function as a hub routing communications from one ONU directly to another ONU so the ONUs can communicate with each other. Thus, (impermissible) hindsight guided by Appellants' claims provides the only apparent basis for Examiner's argument, which cannot support a proper prima facie case for obviousness. Examiner has not met the initial burden of factually supporting a prima facie showing of obviousness.

The Appellant's argument is not persuasive. The term "local area network" (LAN) and the term "passive optical network" (PON) are not exclusive. The term LAN implies that the area served by the network is limited to a geographical area. The term PON implies that there is no active element for boosting the power of the optical signal and therefore, its servicing area is also limited. Therefore, PON is suitable for LAN and is not suitable for wide area network (WAN), at least with the current technology.

While the Appellant correctly points out that WANs are well-understood to have inherent structural and functional differences from LANs, the Appellant fails to provide such structural differences in the Brief. Modiano of MIT Lincoln Laboratory (E. Modiano, "WDM-Based Packet Networks", IEEE Communications Magazine, March 1999) provides some insight of the distinction between LAN and WAN. Modiano teaches on page 130, right col., second paragraph:

> *The discussion of WDM-based packet networks can be divided into that of Local Area Networks (LANs) and "Wide" Area Networks (WANs). The primary distinction between the two is that the former consists of a shared broadcast medium (e.g., broadcast star), while the latter consists of multiple fiber links that are connected to each other using switches.*

This statement about the structural difference between WANs and LANs can be verified against instant application and the references. Instant application teaches in FIG. 1 a shared broadcast medium between the NM optical interface 108 and the optical splitter 116 and no switches between the network manager and network client adapters. Wang et al. teaches in FIG. 1 a shared broadcast medium between the OLT 12 and the passive splitter 14 and no switches

between the OLT and ONUs. Kuo et al. teaches in FIG. 1A a shared broadcast medium between OLT 102 and optical splitter 112 and no switches between and OLT and ONU. According to the teaching of Modiano, both PONs of Wang et al. and Kuo et al. are LANs, as well as instant application. This is in contrast with wide area networks, e.g., FIG. 1 of Iannone et al. (U.S. Patent 6,792,207 B2) wherein each node in the network contains switches as illustrate in FIG. 2 and FIG. 3 of Iannone et al. It is also noted that such structural difference between WAN and LAN is correctly recited in the claim language.

Furthermore, it is well known in the art that PONs can be used for local area networks. For example, Modiano et al. (E. Modiano, "Design and Analysis of an Asynchronous WDM Local Area Network Using a Master/Slave Scheduler", IEEE, 1999) teaches using a WDM PON as local area network. In fact, the development of high speed optical Ethernet support Ethernet PON that is suitable for local area network. For example, Finn (N. Finn, "Compatibility Model for IEEE 802.3ah EPONs", Rev. 5, June 28, 2002) describes protocols for EPON-based LAN.

The Examiner recognizes that USPTO personnel are to give claims their broadest reasonable interpretation in light of the supporting disclosure. In re Morris, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027-28 (Fed. Cir. 1997). Limitations appearing in the specification but not recited in the claim should not be read into the claim. E-Pass Techs., Inc. v. 3Com Corp., 343 F.3d 1364, 1369, 67 USPQ2d 1947, 1950 (Fed. Cir. 2003). Since the combination of the references contains all the limitations of the claim, except for the words "local area", and the fact that PONs are LANs or can be used for LANs, the claim is not patentable under 35 U.S.C. 103(a).

The Appellant argues on page 14 of the Brief:

To put the rejected claims in better form for consideration on appeal, Appellants filed an Amendment After Final Response on December 10, 2007 merely to insert the words "local area" at the existing "network manager" term (and thus shortened to "LAN manger") in base claim 77 and at the corresponding terms in the claims depending from claim 77. As the words "local area" and the term LAN both appear previously in the preamble of base claim 77 and throughout the Appellants' specification, such amendment cannot reasonably be said to substantively alter the scope of any claim. Applicants proposed the amendments in response to arguments in the Final Office Action mailed on October 11, 2007 in a good faith attempt to move the application forward by either overcoming the rejections or in better form for consideration on appeal. The proposed amendment explicates the implicit fact that Appellants' network manager (NM) is part of the function and structure of the Appellants' claimed optical LAN.

Nevertheless, the Examiner denied entry of the proposed claim Amendments After Final Response and, in the Advisory Action mailed on December 24, 2007, stated "[T]he amendment changes the scope of the claims and would require further consideration and or search. Furthermore, the term LAN manager is" not defined in instant specification." This appears unreasonable on its face. Appellants understand that entry of the proposed Amendment is not a matter of right (M.P.E.P. §714.13), Applicants respectfully suggest that entry may not be properly denied unreasonably. Examiner's denial of entry appears to be inconsistent with (and thus improper under) 37 C.F.R. §1.116(b)(2) or 37 C.F.R. §1.116(b)(3).

As Appellant has acknowledged, the entry of amendment after Final Action is not a matter of right. Since the amendment changes the scope of the claim, its entry has been denied.

The Appellant argues on page 15 of the Brief:

According to M.P.E.P. §2142, a prima facie case for obviousness requires a showing that the recited reference combination (of Wang, Kuo and Abdelhamid or Wang, Kuo, and Masucci) must teach or suggest all the claim limitations; and a teaching or suggestion to make the claimed combination and a reasonable expectation of success must both be found in the recited reference combination without importing information from Applicants' disclosure. Wang teaches using SONET over a PON and splitting SONET frames (which are synchronous, i.e. having specific period or frequency) into a number of channels wherein each channel is dedicated for communication for a specific ONU. Thus, Wang guarantees periodic transmission for each ONU with every frame. However, Abdelhamid suggests use of ATM protocol (col. 4) for operating the PON, which is an asynchronous protocol (i.e., non-specific period or frequency). Therefore, Examiner's stated motivation for combining the teachings of Abdelhamid with Wang and Kuo because "the protocols of Abdelhamid et al. clearly define the frame structure and effective coordinate the ONUs" (Final Office Action, page 4, lines 4-7) requires that Wang's fundamental operating principal be changed in order to support the stated motivation. Similarly, the Examiner's stated motivation for combining Masucci with Wang and Kuo is because "the frame structure of Masucci et al. supports the aggregation of multiple broadband services including voice, high speed data, video and image." (Final Office Action, page 6, lines 13-17) However, Applicants can find no teachings or

suggestion in Masucci to support Wang's method of guaranteed transmission for each ONU in every frame and therefore the Examiner's stated motivation imposes an external requirement that would render Wang's invention unsatisfactory for its intended purpose. Additionally, Appellants' network is not claimed to provide broadband services as it is a local area network.

In response, the Examiner recognizes the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See In re Keller, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). Furthermore, the Examiner cites Mauger (R. Mauger, "The Integration of ATM, SDH and PON Technology in the Access Network", Fourth IEE Conference on Telecommunications, 1993) to demonstrate that a person of ordinary skill is able to fit the teachings of multiple patents together like piece of a puzzle. Note that SDH is the European equivalent of SONET. The paper by Modiano cited above also teaches in FIG. 1 how ATM and SONET work together.

The Appellant argues on page 16 of the Brief:

Graves does not consider PONs, nor does Graves even mention or suggest an OLT or ONU at any time. Graves's network is an active optical network (e.g. active pedestal 12 in FIG. 2), not a PON. Examiner's stated motivation to combine Graves is "[b]ecause hairpinning allows ONUs" to communicate with each other." (Final Office Action, page 7, lines 15-18). Graves does not suggest such functionality and neither does Wan, Kuo or

Masucci. The only relevance Graves has to the Examiner's stated motivation is the keyword finding of 'hairpin' three times. Thus, Examiner appears to recite no basis for any reconstructions of Wang, Kuo and Masucci in view of Graves other than Appellants' claims, which is an improper hindsight reconstruction barred by the rule against improper hindsight rejections discussed in MPEP §§2142-3 and elsewhere.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See In re McLaughlin, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Furthermore, a combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results. KSR International Co. v. Teleflex Inc., 127 S. Ct. 1727, 82 USPQ2d 1385 (U.S. 2007).

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/S. K. L./

Primary Examiner, Art Unit 2613

Conferees:

/Jason Chan/

Supervisory Patent Examiner, Art Unit 2613

/Kenneth N Vanderpuye/

Supervisory Patent Examiner, Art Unit 2613

Notice of References Cited	Application/Control No. 10/886,514	Applicant(s)/Patent Under Reexamination SOTO ET AL.	
	Examiner Shi K. Li	Art Unit 2613	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-6,792,207 B2	09-2004	Iannone et al.	398/51
	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	E. Modiano, "WDM-Based Packet Networks", IEEE Communications Magazine, March 1999.
	V	E. Modiano, "Design and Analysis of an Asynchronous WDM Local Area Network Using a Master/Slave Scheduler", IEEE, 1999.
	W	N. Finn, "Compatibility Model for IEEE 802.3ah EPONs", Rev. 5, June 28, 2002.
	X	R. Mauger, "The Integration of ATM, SDH and PON Technology in the Access Network, Fourth IEE Conference on Telecommunications, 1993.

*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.

Nokia of America Corporation
IPR2023-00960, Ex. 1002-2
Ex. 1002-2.069

BEFORE THE UNITED STATES PATENT AND TRADEMARK OFFICE
BOARD OF APPEALS AND INTERFERENCES

In re Application of:
Alexander Soto et al.

Group Art Unit: **2613**

Patent Application No.: **10/886,514**

Filed on: **July 06, 2004**

Examiner: **Li, Shi K.**

For: **Communication System and Method For An Optical Local Area Network**

AMENDED APPELLANT'S BRIEF PER 37 C.F.R. §41.37(d)

BOARD OF PATENT APPEALS & INTERFERENCES
Director for Patents and Trademarks
PO Box 1450
Alexandria, VA 22313-4150

Sir:

This is an appeal from the Examiner of Group Art Unit 2613 rejecting claims 77-109 and 111-132, which are set forth in an APPENDIX hereto and which together comprise all claims remaining in the application. A Notice of Appeal was filed on January, 11, 2008 with a Pre-Appeal Brief Request For Review. The responsive Notice of Panel Decision from Pre-Appeal Brief Review was mailed on February 22, 2008. The Appeal Brief was submitted under 37 C.F.R. §1.17(a)(1) within a one-month extension of the March 22, 2008 Appeal Brief filing deadline and was rejected by the Notice of Non-Compliance with 37 C.F.R. §41.37(c) mailed on May 06, 2008. This Amended Appeal Brief is submitted under with 37 C.F.R. §41.37(d) within the June 06, 2008 filing deadline.

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I. REAL PARTY IN INTEREST

All rights in the above-identified pending U.S. Patent Application are owned by the named inventors, Alexander Soto and Walter Soto.

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II. RELATED APPEALS AND INTERFERENCES

There are no other prior or pending appeals, interferences or judicial proceedings known to Appellants or Appellants' legal representative that may be related to, be directly affected by or bear on the Board's decision in this appeal.

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III. STATUS OF CLAIMS

CLAIM	STATUS	CLAIM	STATUS
1-76	Canceled	105	Rejected & Appealed
77	Rejected & Appealed	106	Rejected & Appealed
78	Rejected & Appealed	107	Rejected & Appealed
79	Rejected & Appealed	108	Rejected & Appealed
80	Rejected & Appealed	109	Rejected & Appealed
81	Rejected & Appealed	110	Canceled
82	Rejected & Appealed	111	Rejected & Appealed
83	Rejected & Appealed	112	Rejected & Appealed
84	Rejected & Appealed	113	Rejected & Appealed
85	Rejected & Appealed	114	Rejected & Appealed
86	Rejected & Appealed	115	Rejected & Appealed
87	Rejected & Appealed	116	Rejected & Appealed
88	Rejected & Appealed	117	Rejected & Appealed
89	Rejected & Appealed	118	Rejected & Appealed
90	Rejected & Appealed	119	Rejected & Appealed
91	Rejected & Appealed	120	Rejected & Appealed
92	Rejected & Appealed	121	Rejected & Appealed
93	Rejected & Appealed	122	Rejected & Appealed
94	Rejected & Appealed	123	Rejected & Appealed
95	Rejected & Appealed	124	Rejected & Appealed
96	Rejected & Appealed	125	Rejected & Appealed
97	Rejected & Appealed	126	Rejected & Appealed
98	Rejected & Appealed	127	Rejected & Appealed
99	Rejected & Appealed	128	Rejected & Appealed
100	Rejected & Appealed	129	Rejected & Appealed
101	Rejected & Appealed	130	Rejected & Appealed
102	Rejected & Appealed	131	Rejected & Appealed
103	Rejected & Appealed	132	Rejected & Appealed
104	Rejected & Appealed		

Claims 1-56 were filed with the present application on July 6, 2004. Claims 1-56 were canceled and claims 57-76 were added by Amendment filed on August 1, 2005. Claims 57-76 were canceled and claims 77-132 were added by Amendment filed on February 18, 2006. Claim 122 was amended by Amendment filed on Sept. 11, 2006. Claim 110 was canceled by Amendment filed on February 13, 2007.

By Final Office Action mailed on October 11 2007, Examiner Li rejected claims 77, 82-87, 98, 100, 122 and 124-126 under 35 U.S.C. §103(a) for unpatentability over Wang in view of

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Kuo, rejected claims 78-81, 105-107, 109, 111-112, 118-119, 123 and 128-129 under 35 U.S.C. §103(a) for unpatentability over Wang and Kuo in further view of Abdelhamid, rejected claims 88-96, 99 and 101 under 35 U.S.C. §103(a) for unpatentability over Wang and Kuo in further view of Masucci, rejected claims 97 and 113 under 35 U.S.C. §103(a) for unpatentability over Wang, Kuo and Masucci in further view of Graves, rejected claims 101-104, 113, 115-117 and 130-131 under 35 U.S.C. §103(a) for unpatentability over Wang and Kuo in further view of Adcox, rejected claims 108 and 132 under 35 U.S.C. §103(a) for unpatentability over Wang and Kuo in further view of Medina, rejected claims 114 and 127 under 35 U.S.C. §103(a) for unpatentability over Wang, Kuo, Masucci and Graves in further view of Hale, and rejected claim 121 under 35 U.S.C. §103(a) for unpatentability over Wang, Kuo and Abdelhamid in further view of Medina.

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IV. STATUS OF AMENDMENTS

This appeal is taken from the sixth and Final Office action mailed October 11, 2007. By Advisory Office Action mailed on December 28, 2007, Examiner Li refused entry of a proposed Amendment After Final Action filed on December 10, 2007 for the purpose of putting the rejected claims in better form for consideration on appeal.

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V. SUMMARY OF THE CLAIMED SUBJECT MATTER

An optical local area network including a passive optical distribution fabric interconnecting one or more local area network clients with a network manager that provides the switching functions of a hub, switch or router (collectively referred to as a hub or the network manager). Passive optical distribution enables a reduction in the number of optical transceivers at the hub used to sustain the same number of local area network clients as compared to convention optical local area networks, thereby reducing the cost of the network.

In claim 77, the claimed optical local area network (LAN) is shown in **FIGs. 1, 6A, 6B, 6C, 7A, 7B, 7C, 7D, 8** and **9A-B** and is described from page 2 at line 103 to page 4 at line 48 and from page 5 at line 129 to page 7 at line 98. Referencing **FIG. 1** as an exemplary embodiment of the invention in claim 77, the optical local area network **50** includes a network manager (NM) **100** at the head end of a passive optical distribution fabric (ODF) **102** which is comprised of a plurality of optical fibers or waveguides **105**. The NM **100** acts as a central transmission point and an overall controlling device for the optical local area network **50**. On another end, the ODF **102** is terminated by a plurality of network client adapters (NCAs) **104A**, **104B**, **104C**. The NM **100** includes: a network management optical interface (NM Optical Interface) **108** block which converts optical signals to electrical signal and electrical signals to optical signals; a network management communication logic and memory (NM-CLM) **106** block which acts as a control module that performs various processing and scheduling functions of the NM **100** and is in electrical communication with the NM Optical Interface **108**, and an optical distribution fabric interface (ODF Interface) **110** block that includes an optical splitter or coupler **116** and a plurality of ODF Ports **117A**, **117B**, **117C**, etc and is in optical communication with the NM Optical Interface **108**. The NCAs **104** each include: a network client optical interface (NC Optical Interface) **122** block which converts optical signals to electrical signals and electrical signals to optical signals; a network client communication logic and memory (NCCLM) **120** block which acts as a control module that performs various functions associated with an NCA **104** and is in electrical communications with NC Optical Interface **122**, and an ODF port **124** which includes a optical fiber connection socket and is in optical communication with NC Optical Interface **122**.

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In claim 109, the method of operating the LAN is shown in **FIGs. 2, 3A-3B, 4** and **5** and is described from page 4 at line 50 to page 5 at line 127. Referring to **FIG. 2** as an exemplary embodiment of the invention, a schematic timing and framing diagram with both downstream **200** and upstream **224** communications according to an OSI layer 2 or layer 3 time division multiplexed protocol with both control (downstream header **204**, upstream header **226**) and data (downstream payload **206**, upstream payload **228**) channels on a same wavelength is shown. All NCAs receive the downstream **200** broadcast. Additionally, the upstream virtual frame **202** illustrates how the upstream **224** network period **218** is divided into time periods called slots and how the downstream **200** contains upstream slot allocation **216** information that is transmitted to the NCAs **104**. Table **220** and **222** illustrates information contained in the upstream slot allocation **216** and illustrate how a particular NCA **104** is assigned a segment of slots in the upstream to transmit for a particular upstream network period or frame. For example in table **220**, NCA **104A** with NC-ID NC 104A transmits from slot 0 to slot 5 and is illustrated in the upstream **224** as transmitting header **226** and payload **228** during this period as this corresponds to the numbered slots in the network period **218** above the upstream **224** transmission.

Additionally, **FIG. 4** is an exemplary flow diagram of the process by which NM **100** and NCAs **104** reach a normal operation state (NM normal operation state **408** and NCA normal operation state **422**, respectively) from a power on state (NM power on state **400** and NCA power on state **410**, respectively). Lastly, **FIG. 5** is an exemplary flow diagram of the process by which NCAs **104** align their transmissions to the network period **218**.

Finally, in claim 122, the claimed LAN is shown in **FIGs. 1, 6A-6C** and **7A-7D** and is described from page 2 at line 103 to page 4 at line 48 and from page 5 at line 129 to page 7 at line 34. Optical LAN hubs commonly found on the market require an optical transceiver for every port of the optical LAN. Again referencing **FIG. 1**, a method is illustrated in which the ODF ports **117A**, **117B**, **117C**, *etc*. serve as connections sites connecting fibers **105A**, **105B** **105C**, etc to the NM optical interface **108** via optical splitter **116**, wherein NM optical interface **108** serving as an optical transceiver. Thus the claimed LAN **50** does not require an optical transceiver at every port of the optical LAN hub (NM **100**) and thus the requisite number of optical transceivers for an optical LAN is reduced.

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VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether the subject matter of claims 77, 82-87, 98, 100, 122 and 124-126 would have been obvious in view of the combination of U.S. Patent Application No. 2004/0052274 filed by Wang *et al.* ("Wang") and U.S. Patent 7,031,343 filed by Kuo *et al.* ("Kuo") within the meaning of 35 U.S.C. §103(a); as held in the Final Office Action mailed on October 11, 2007.

Whether the subject matter of claims 78-81, 105-107, 109, 111-112, 118-119, 123 and 128-129 would have been obvious in view of the combination of U.S. Patent Application No. 2004/0052274 filed by Wang *et al.* ("Wang") and U.S. Patent 7,031,343 filed by Kuo *et al.* ("Kuo") in further view of U.S. Patent 6,023,467 filed by Abdelhamid *et al.* ("Abdelhamid") within the meaning of 35 U.S.C. §103(a) and whether the subject matter of claims 88-96, 99 and 101 would have been obvious in view of the combination of U.S. Patent Application No. 2004/0052274 filed by Wang *et al.* ("Wang") and U.S. Patent 7,031,343 filed by Kuo *et al.* ("Kuo") in further view of U.S. Patent 6,498,667 filed by Masucci *et al.* ("Masucci") within the meaning of 35 U.S.C. §103(a); as held in the Final Office Action mailed on October 11, 2007.

Whether the subject matter of claims 97 and 113 would have been obvious in view of the combination of U.S. Patent Application No. 2004/0052274 filed by Wang *et al.* ("Wang"), U.S. Patent 7,031,343 filed by Kuo *et al.* ("Kuo") and U.S. Patent 6,498,667 filed by Masucci *et al.* ("Masucci") in further view of U.S. Patent 5,029,333 filed by Graves *et al.* ("Graves") within the meaning of 35 U.S.C. §103(a); as held in the Final Office Action mailed on October 11, 2007.

Whether the subject matter of claims 101-104, 113, 115-117 and 130-131 would have been obvious in view of the combination of U.S. Patent Application No. 2004/0052274 filed by Wang *et al.* ("Wang") and U.S. Patent 7,031,343 filed by Kuo *et al.* ("Kuo") in further view of U.S. Patent Application No. 2003/0236916 filed by Adcox *et al.* ("Adcox") within the meaning of 35 U.S.C. §103(a); whether the subject matter of claims 108 and 132 would have been obvious in view of the combination of U.S. Patent Application No. 2004/0052274 filed by Wang *et al.* ("Wang") and U.S. Patent 7,031,343 filed by Kuo *et al.* ("Kuo") in further view of U.S. Pa-

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tent 6,778,399 filed by Medina *et al.* ("Medina") within the meaning of 35 U.S.C. §103(a); whether the subject matter of claims 114 and 127 would have been obvious in view of the combination of U.S. Patent Application No. 2004/0052274 filed by Wang *et al.* ("Wang"), U.S. Patent 7,031,343 filed by Kuo *et al.* ("Kuo"), U.S. Patent 6,498,667 filed by Masucci *et al.* ("Masucci") and U.S. Patent 5,029,333 filed by Graves *et al.* ("Graves") in further view of U.S. Patent 5,572,349 filed by Hale *et al.* ("Hale") within the meaning of 35 U.S.C. §103(a); and whether the subject matter of claim 121 would have been obvious in view of the combination of U.S. Patent Application No. 2004/0052274 filed by Wang *et al.* ("Wang"), U.S. Patent 7,031,343 filed by Kuo *et al.* ("Kuo") and U.S. Patent 6,023,467 filed by Abdelhamid *et al.* ("Abdelhamid") in further view of U.S. Patent 6,778,399 filed by Medina *et al.* ("Medina") within the meaning of 35 U.S.C. §103(a); as held in the Final Office Action mailed on October 11, 2007.

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VII. ARGUMENT AND DISCUSSION

The Examiner has failed to presented a valid *prima facie* case for the obviousness of claims 77, 82-87, 98, 100, 122 and 124-126 in view of the combination of Wang and Kuo within the meaning of 35 U.S.C. §103(a), in the Final Office Action mailed on October 11, 2007.

Examiner fails to state a proper *prima facie* case for the obviousness of claims 77, 82-87, 98, 100, 122 and 124-126 in view of the combination of Wang and Kuo under 35 U.S.C. §103(a). The legal concept of *prima facie* obviousness is a procedural tool of examination which applies broadly to all arts. It allocates who has the burden of going forward with production of evidence in each step of the examination process. See *In re Rinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); *In re Linter*, 458 F.2d 1013, 173 USPQ 560 (CCPA 1972); *In re Saunders*, 444 F.2d 599, 170 USPQ 213 (CCPA 1971); *In re Tiffin*, 443 F.2d 394, 170 USPQ 88 (CCPA 1971), *amended*, 448 F.2d 791, 171 USPQ 294 (CCPA 1971); *In re Warner*, 379 F.2d 1011, 154 USPQ 173 (CCPA 1967), *cert. denied*, 389 U.S. 1057 (1968) see also M.P.E.P. 2142. The Examiner bears the initial burden of factually supporting any prima facie conclusion of obviousness. If the Examiner does not produce a valid *prima facie* case, the appellants are under no obligation to submit evidence of nonobviousness to rebut the Examiner's findings.

During patent examination, the pending claims must be given an interpretation that is reasonable and consistent with the specification. See *In re Prater*, 162 U.S.P.Q. 541, 550-5 1 (C.C.P.A. 1969); *In re Morris*, 44 U.S.P.Q.2d 1023, 1027-28 (Fed. Cir. 1997); see also M.P.E.P. § 2111 (describing the standards for claim interpretation during prosecution). Indeed, the specification is "the primary basis for construing the claims." See *Phillips v. A WH Corp.*, 41 5 F.3d 1303, 13 15 (Fed. Cir. 2005) (citations omitted). It is usually dispositive. See *id*. Interpretation of the claims must also be consistent with the interpretation that those skilled in the art would reach. See *In re Cortright*, 49 U.S.P.Q.2d 1464, 1468 (Fed. Cir. 1999); see also M.P.E.P. §2111. That is, recitations of a claim must be read as they would be interpreted by those of ordinary skill in the art. See *Rexnord Corp. v. Laliram Corp.*, 60 U.S.P.Q.2d 1851, 1854 (Fed. Cir. 2001); see also M.P.E.P. § 2111.01.

The Examiner's rejections fail to meet these requirements because they rely on an unsupported and flawed conflation of Appellants' local area network manager (NM) with an optical

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line terminal (OLT) and Appellants' local area network client adapters (NCA) with optical networking units (ONU) (Final Office action page 2, section 2, paragraph 2, 1st sentence). The Examiner's conflation is presented without citation to support from the cited prior art and is unsupported by any reasonable interpretation of the Appellants' claims and specification.

In the Appellants' specification, the network manager (NM) is described as "*[A] network manager in an optical local area network can provide switching functions of a hub, a switch, or a router*" (page 2, paragraph 0014) and "*[T]he NM (network manager) 100 acts as a central transmission point and an overall controlling device for the optical local area network*" (page 2, paragraph 0023). The local area network client adapters (NCAs) are clearly presented as adapters for clients of the local area network (LAN). Additionally, Appellants assert that these characterizations are also clear from a plain reading of Appellants' base claims. An inherent function of a hub in a LAN is to enable the LAN clients to communicate with each other. These descriptions of Appellants' local area network manager and network client adapters are neither consistent with nor a reasonable interpretation of an OLT and ONU to those skilled in the art. On the contrary, Examiner's cited art teaches that an OLT and ONU are part of a broadband access wide area network architecture, which cannot properly characterize a local area network architecture. Wide area networks (WANs) are well-understood to have inherent structural and functional differences from LANs; WANs and LANs are not mere fungible labels to add unnecessary complexity. Furthermore, Examiner's cited references explicitly and clearly distinguish the structure and function of a LAN from that of an OLT, ONU/ONT (Kuo in FIG. 2 element 200, note dotted line). The inherent structure and function of an OLT/ONU-based PON is to allow subscribers to connect to a service provider's network to receive services (*e.g.* high-speed internet, broadcast video, IPTV, etc.). In other words, the function of the OLT is to allow each ONU to communicate with the service provider's network with communications passing through the OLT; the OLT does not function as a hub routing communications from one ONU directly to another ONU so the ONUs can communicate with each other. Thus, (impermissible) hindsight guided by Appellants' claims provides the only apparent basis for Examiner's argument, which cannot support a proper *prima facie* case for obviousness. Examiner has not met the initial burden of factually supporting a *prima facie* showing of obviousness.

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To put the rejected claims in better form for consideration on appeal, Appellants filed an Amendment After Final Response on December 10, 2007 merely to insert the words "local area" at the existing "network manager" term (and thus shortened to "LAN manger") in base claim 77 and at the corresponding terms in the claims depending from claim 77. As the words "local area" and the term LAN both appear previously in the preamble of base claim 77 and throughout the Appellants' specification, such amendment cannot reasonably be said to substantively alter the scope of any claim. Applicants proposed the amendments in response to arguments in the Final Office Action mailed on October 11, 2007 in a good faith attempt to move the application forward by either overcoming the rejections or in better form for consideration on appeal. The proposed amendment explicates the implicit fact that Appellants' network manager (NM) is part of the function and structure of the Appellants' claimed optical LAN.

Nevertheless, the Examiner denied entry of the proposed claim Amendments After Final Response and, in the Advisory Action mailed on December 24, 2007, stated "*[T]he amendment changes the scope of the claims and would require further consideration and or search. Furthermore, the term LAN manager is not defined in instant specification.*" This appears unreasonable on its face. Appellants understand that entry of the proposed Amendment is not a matter of right (M.P.E.P. §714.13), Applicants respectfully suggest that entry may not be properly denied unreasonably. Examiner's denial of entry appears to be inconsistent with (and thus improper under) 37 C.F.R. §1.116(b)(2) or 37 C.F.R. §1.116(b)(3).

Claims 82-87, 98, and 100 depend from base claim 77, claims 124-126 depend from base claim 122. If an independent claim is novel, then any claim depending there from is novel. *In re Fine,* 837 F.2d 1071, 5 USPQ.2d 1596 (Fed. Cir. 1988). Accordingly, for the reasons discussed above with respect to the base claims 77 and 122, the rejections of claims 82-87, 98, 100, and 124-126 are also improper.

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The Examiner has failed to presented valid *prima facie* cases for the obviousness of: claims 78-81, 105-107, 109, 111-112, 118-119, 123 and 128-129 in view of the combination of U.S. Patent Application No. 2004/0052274 filed by Wang *et al.* ("Wang") and U.S. Patent 7,031,343 filed by Kuo *et al.* ("Kuo") in further view of U.S. Patent 6,023,467 filed by Abdelhamid *et al.* ("Abdelhamid") within the meaning of 35 U.S.C. §103(a); and for the obviousness of claims 88-96, 99 and 101 in view of the combination of U.S. Patent Application No. 2004/0052274 filed by Wang *et al.* ("Wang") and U.S. Patent 7,031,343 filed by Kuo *et al.* ("Kuo") in further view of U.S. Patent 6,498,667 filed by Masucci *et al.* ("Masucci") within the meaning of 35 U.S.C. §103(a); in the Final Office Action mailed on October 11, 2007.

Examiner fails to state a proper *prima facie* case for the obviousness of claims 78-81, 105-107, 109, 111-112, 118-119, 123 and 128-129 in view of the combination of Wang, Kuo and Abdelhamid and fails to state a proper *prima facie* case for the obviousness of claims 88-96, 99 and 101 in view of Wang, Kuo and Masucci under 35 U.S.C. §103(a).

According to M.P.E.P. §2142, a *prima facie* case for obviousness requires a showing that the recited reference combination (of Wang, Kuo and Abdelhamid or Wang, Kuo, and Masucci) must teach or suggest **all** the claim limitations; and a teaching or suggestion to make the claimed combination and a reasonable expectation of success must both be found in the recited reference combination without importing information from Applicants' disclosure. Wang teaches using SONET over a PON and splitting SONET frames (which are synchronous, *i.e.* having specific period or frequency) into a number of channels wherein each channel is dedicated for communication for a specific ONU. Thus, Wang guarantees periodic transmission for each ONU with every frame. However, Abdelhamid suggests use of ATM protocol (col. 4) for operating the PON, which is an asynchronous protocol (*i.e.*, non-specific period or frequency). Therefore, Examiner's stated motivation for combining the teachings of Abdelhamid with Wang and Kuo because "*the protocols of Abdelhamid et al. clearly define the frame structure and effective coordinate the ONUs*" (Final Office Action, page 4, lines 4-7) requires that Wang's fundamental operating principal be changed in order to support the stated motivation. Similarly, the Examiner's stated motivation for combining Masucci with Wang and Kuo is because "*the frame structure of Masucci et al. supports the aggregation of multiple broadband services including voice, high speed data, video and image.*" (Final Office Action, page 6, lines 13-17) However, Applicants can find no teachings or suggestion in Masucci to support Wang's method of guaranteed transmission for each ONU in every frame and therefore the Examiner's stated motivation imposes an

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external requirement that would render Wang's invention unsatisfactory for its intended purpose. Additionally, Appellants' network is not claimed to provide broadband services as it is a local area network.

If the proposed modification would render the prior art invention (Wang) being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984) *See M.P.E.P. §2143.01(V).* Obviousness cannot be established by engaging in a hindsight reconstruction of the claimed invention using the Applicants' invention as a template and selecting elements from references to fill the gaps. *In re Gorman*, 933 F.2d 982, 986, 18 USPQ2d 1885, 1888 (Fed. Cir. 1991).

The Examiner has failed to presented a valid *prima facie* case for the obviousness of claims 97 and 113 in view of the combination of U.S. Patent Application No. 2004/0052274 filed by Wang et al. ("Wang"), U.S. Patent 7,031,343 filed by Kuo et al. ("Kuo") and U.S. Patent 6,498,667 filed by Masucci et al. ("Masucci") in further view of U.S. Patent 5,029,333 filed by Graves et al. ("Graves") within the meaning of 35 U.S.C. §103(a) in the Final Office Action mailed on October 11, 2007.

Examiner fails to state a proper *prima facie* case for the obviousness of claims 97 and 113 in view of the combination of Wang, Kuo, Masucci and Graves under 35 U.S.C. §103(a).

According to M.P.E.P. §2142, a *prima facie* case for obviousness requires a showing that the recited reference combination (of Wang, Kuo, Masucci and Graves) teach or suggest **all** claim limitations; and a teaching or suggestion to make the claimed combination and a reasonable expectation of success must both be found in the recited reference combination and not imported from Applicants' disclosure.

Graves does not consider PONs, nor does Graves even mention or suggest an OLT or ONU at any time. Graves's network is an active optical network (*e.g.* active pedestal **12** in **FIG. 2**), not a PON. Examiner's stated motivation to combine Graves is "*[b]ecause hairpinning allows ONUs to communicate with each other.*" (Final Office Action, page 7, lines 15-18). Graves does not suggest such functionality and neither does Wan, Kuo or Masucci. The only relevance Graves has to the Examiner's stated motivation is the keyword finding of "hairpin"

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three times. Thus, Examiner appears to recite no basis for any reconstructions of Wang, Kuo and Masucci in view of Graves other than Appellants' claims, which is an improper hindsight reconstruction barred by the rule against improper hindsight rejections discussed in MPEP §§2142-3 and elsewhere.

Furthermore, adding Graves to the combination of Wang, Kuo and Masucci with the Examiner's stated motivation to do so suggests that ONUs do not inherently communicate with each other and thus lends support to Appellants' arguments above in regard to claims 77, 82-87, 98, 100, 122 and 124-126.

The Examiner has failed to presented valid *prima facie* cases for the obviousness of: claims 101-104, 113, 115-117 and 130-131 in view of the combination of U.S. Patent Application No. 2004/0052274 filed by Wang *et al.* ("Wang") and U.S. Patent 7,031,343 filed by Kuo *et al.* ("Kuo") in further view of U.S. Patent Application No. 2003/0236916 filed by Adcox *et al.* ("Adcox") within the meaning of 35 U.S.C. §103(a); for the obviousness of claims 108 and 132 in view of the combination of U.S. Patent Application No. 2004/0052274 filed by Wang *et al.* ("Wang") and U.S. Patent 7,031,343 filed by Kuo *et al.* ("Kuo") in further view of U.S. Patent 6,778,399 filed by Medina *et al.* ("Medina") within the meaning of 35 U.S.C. §103(a); for the obviousness of claims 114 and 127 in view of the combination of U.S. Patent Application No. 2004/0052274 filed by Wang *et al.* ("Wang"), U.S. Patent 7,031,343 filed by Kuo *et al.* ("Kuo"), U.S. Patent 6,498,667 filed by Masucci *et al.* ("Masucci") and U.S. Patent 5,029,333 filed by Graves *et al.* ("Graves") in further view of U.S. Patent 5,572,349 filed by Hale *et al.* ("Hale") within the meaning of 35 U.S.C. §103(a); and for the obviousness of claim 121 in view of the combination of U.S. Patent Application No. 2004/0052274 filed by Wang *et al.* ("Wang"), U.S. Patent 7,031,343 filed by Kuo *et al.* ("Kuo") and U.S. Patent 6,023,467 filed by Abdelhamid *et al.* ("Abdelhamid") and in further view of U.S. Patent 6,778,399 filed by Medina *et al.* ("Medina") within the meaning of 35 U.S.C. §103(a); in the Final Office Action mailed on October 11, 2007.

Examiner fails to state a proper *prima facie* case for the obviousness of claims 101-104, 108, 113-117, 121, 127, and 130-132. Adcox neither considers nor suggests any of the claim elements that distinguish Applicants' claimed invention over Wang and Kuo for the reasons discussed above with respect to claims 77, 82-87, 98, 100, 122 and 124-126. Medina neither considers nor suggests any of the claim elements that distinguish Applicants' claimed invention over Wang and Kuo for the reasons discussed above with respect to claims 77, 82-87, 98, 100, 122

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and 124-126. Hale neither considers nor suggests any of the claim elements that distinguish Applicants' claimed invention over Wang, Kuo, Masucci and Graves for the reasons discussed above with respect to claims 77, 82-87, 98, 100, 122 and 124-126. Medina neither considers nor suggests any of the claim elements that distinguish Applicants' claimed invention over Wang, Kuo, Abdelhamid for the reasons discussed above with respect to claims 78-81, 105-107, 109, 111-112, 118-119, 123 and 128-129. Therefore, one skilled in the art would find therein no suggestion or motivation to combine these references and Examiner does not appear to recite any source for such suggestion other than Appellants' application.

Obviousness cannot be established by engaging in a hindsight reconstruction of the claimed invention using Applicants' invention as a template and selecting elements from references to fill the gaps. *In re Gorman*, 933 F.2d 982, 986, 18 USPQ2d 1885, 1888 (Fed. Cir. 1991).

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CONCLUSION AND SIGNATURE

For the foregoing reasons, the Board is requested to reverse the obviousness rejections of claims 77, 82-87, 98, 100, 122 and 124-126 over Wang and Kuo; the Board is requested to reverse the obviousness rejections of claims 97 and 113 over Wang, Kuo, Masucci and Graves; and the Board is requested to reverse the obviousness rejections of claims 78-81, 88-96, 99, 101-109, 111-112, 114-121, 123 and 127-132 over the foregoing recited reference combinations comprising Wang and Kuo.

The $255 fee required under 37 C.F.R. §41.20(b)(2) is tendered electronically herewith. The $60 fee required under 37 C.F.R. §1.17(a)(1) for an extension for response within the first month is tendered electronically herewith.

Respectfully submitted,

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April 22, 2007

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CLAIMS APPENDIX

1-76. (Canceled).

77. An optical Local Area Network (LAN) of one or more local area network clients, the optical LAN comprising:

a network manager for managing optical signals each incorporating both a control channel and a data channel in a single optical wavelength, including

an optical interface having means for converting received optical signals to electrical signals and means for producing transmitted optical signals from electrical signals,

a plurality of optical ports,

a passive optical coupler coupled between the optical interface and the optical ports and having means for accepting received optical signals from and for distributing transmitted optical signals to the optical interface and the optical ports, and

a control module coupled to the optical interface and having means for receiving electrical signals from and for transmitting electrical signals to the optical interface;

a plurality of network client adapters including

an optical interface having means for converting received optical signals to electrical signals and means for producing transmitted optical signals from electrical signals,

an optical port coupled to the optical interface, and

a control module having means for receiving electrical signals from and for transmitting electrical signals to the optical interface; and

a plurality of optical waveguides each coupled between one of the network client adapter optical ports and the network manager;

whereby the network manager can receive an optical signal incorporating both a control channel and a data channel in a single optical wavelength from any network client adapter, a network client adapter can receive an optical signal incorporating both a control channel and a data channel in a single optical wavelength from the network manager, and the network manager and network client adapters are in communication to facilitate sending and receiving data across the optical waveguides.

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78. The optical LAN of claim 77, wherein the network manager control module includes means for administering the received electrical signals and transmitted electrical signals conforming to an Open Systems Interconnection reference model (OSI) Layer 2 or Layer 3 protocol.

79. The optical LAN of claim 78, wherein the OSI Layer protocols includes means of representing address, synchronization, error control and data into frames or packets.

80. The optical LAN of claim 77, wherein ~~a~~ network client adapter control module includes means to administer the received electrical signals and transmitted electrical signals conforming to an OSI Layer-2 or Layer-3 protocol.

81. The optical LAN of claim 80, wherein the OSI Layer protocols includes means for representing address, synchronization, error control and data into frames or packets.

82. The optical LAN of claim 77, wherein a network manager control module includes means to transmit data according to a time division multiplexing scheme.

83. The optical LAN of claim 82, wherein the network manager control module includes means for dynamically scheduling or providing bandwidth allocations.

84. The optical LAN of claim 82, wherein the network manager control module includes means for scheduling or providing a minimum bandwidth allocation.

85. The optical LAN of claim 77, wherein the network manager control module includes means for receiving data according to a time division multiple access scheme.

86. The optical LAN of claim 85, wherein the network manager control module includes means for dynamically scheduling or providing bandwidth allocations.

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87. The optical LAN of claim 85, wherein the network manager control module includes means for scheduling or providing a minimum bandwidth allocation.

88. The optical LAN of claim 77, wherein the network manager includes means for transmitting downstream data from the network manager to a network client adapter in successive downstream frames over the optical waveguides, the downstream data including downstream packet data.

89. The optical LAN of claim 88, wherein each downstream frame includes a first number of downstream subframes, each downstream subframe including a second number of downstream slots of time, each downstream slot of time having one of a plurality of downstream formats.

90. The optical LAN of claim 89, wherein a downstream subframe further includes a downstream communication channel for communicating schedule or provisioning information for provisioning upstream slots of time to respective network client adapters.

91. The optical LAN of claim 88, wherein the downstream packet format for carrying downstream packet data includes a downstream packet header and a downstream packet payload; the downstream packet header including a field indicating length of the downstream packet payload.

92. The optical LAN of claim 91, wherein the downstream packet payload includes at least a portion of an Ethernet or Fibre Channel frame.

93. The optical LAN of claim 77, wherein a network client adapter includes means to transmit upstream data from the network client adapter to a network manager in respective upstream slots of time over the optical waveguides, the upstream slots of time forming essentially successive upstream frames, the upstream data including upstream packet data.

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94. The optical LAN of claim 93, wherein each upstream frame includes a first number of upstream subframes, each upstream subframe including a second number of upstream slots of time, each upstream slot of time having one of a plurality of upstream formats.

95. The optical LAN of claim 93, wherein the upstream packet format for carrying upstream packet data includes an upstream packet header and an upstream packet payload, wherein the upstream packet header includes a field for indicating an upstream packet payload length.

96. The optical LAN of claim 95, wherein the upstream packet payload includes at least a portion of an Ethernet or Fibre Channel frame.

97. The optical LAN of claim 93, wherein the network manager includes means for hairpinning upstream data to one or more network client adapters.

98. The optical LAN of claim 77, wherein a network client adapter further includes a network interface adapted to communicate electrically to one or more of the local area network clients.

99. The optical LAN of claim 98, wherein the network interface includes means for a Layer 2 or Layer 1 network interface protocol selected from the group consisting essentially of:

Ethernet and Fibre Channel protocols.

100. The optical LAN of claim 98, wherein the network clients are selected from the group consisting essentially of:

a workstation, a personal computer, a disk storage array, a server, a switch, and a router.

101. The optical LAN of claim 77, wherein the network manager further includes a switch interface adapted to communicate electrically to an OSI Layer 2 or Layer 3 switch device.

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102. The optical LAN of claim 101, wherein the switch interface includes means for implementing a Layer 2 or Layer 1 switch interface protocol selected from the group consisting essentially of:

Ethernet and Fibre Channel protocols.

103. The optical LAN of claim 101, wherein the switch device is selected from the group consisting essentially of:

an Ethernet media access controller (MAC) device and a Fibre Channel FC-2 service device.

104. The optical LAN of claim 101, wherein the network manager includes means for transmitting at least a portion of the received data to the switch device.

105. The optical LAN of claim 77, wherein the network manager includes means for determining a message response delay between the network manager and a network client adapter.

106. The optical LAN of claim 105, wherein a network client adapter includes means for adjusting transmission timing responsive to the message response delay between the network manager and a network client adapter.

107. The optical LAN of claim 77, wherein the network manager includes means for adjusting the optical transmit power of a network client adapter to a predetermined level in response to a received message.

108. The optical LAN of claim 77, wherein the form factors of the optical ports are selected from the group consisting essentially of:

the optical Multi-Source Agreements (MSA) specifications, including XFP, XENPAK, XPAK, and SFP.

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109. A method for operating an optical local area network (LAN) including a network hub having an optical transceiver coupled to passive optical coupler that is also coupled to a plurality of optical ports and including a plurality of network terminals each coupled to a network hub optical port by means of at least one of a plurality of optical waveguides, the method comprising the steps of:

accepting information from both a control channel and a data channel on a single wavelength at the network hub;

communicating the information between the network hub and a network terminal in accordance with an OSI layer 2 or layer 3 protocol~~.~~;

managing the communications at the network hub;

transmitting the information from the network hub to all network terminals in a broadcast time division multiplexed process;

transmitting the information from a network terminal to the network hub in a time division multiple access process; and

providing bandwidth allocation for the information transfers at the network hub.

110. (Canceled)

111. The method of claim 109, wherein the bandwidth allocation includes dynamic bandwidth allocation.

112. The method of claim 109, wherein the bandwidth allocation includes a minimum bandwidth allocation.

113. The method of claim 109, further comprising the unordered steps of:

(a) transmitting an incoming optical signal representing data frames from a first network terminal to one of the plurality of network hub optical ports over at least one of the optical waveguides;

(b) accepting the incoming optical signal from one of the network hub optical ports;

(c) converting the incoming optical signal to a first electrical signal representing the

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optical signal data;

(d) processing the first electrical signal according to an OSI Layer-2 protocol to produce a first processed electrical signal representing physical address, synchronization, error control, flow control and data;

(e) converting the first processed electrical signal to a broadcast optical signal responsive to the physical address, synchronization, error control, flow control and data;

(f) transmitting the broadcast optical signal to a passive optical coupler; and

(g) distributing the broadcast optical signal from the passive optical coupler to each of the plurality of hub optical ports; and

(h) accepting the broadcast optical signal at a plurality of the network terminals.

114. The method of claim 113, further comprising the unordered steps of:

(b.1) measuring the incoming optical signal power level at the network hub;

(b.2) determining a desired network terminal optical transmission power level adjustment from the measured optical signal power level;

(e.1) adding data representing the desired network terminal optical transmission power level adjustment to the broadcast optical signal; and

(h.1) adjusting the optical transmission power level at one of the network terminals responsive to acceptance of the broadcast optical signal.

115. The method of claim 113, further comprising the steps of:

(d.1) coupling the first electrical signal to a device that processes the first electrical signal according to an OSI layer-3 protocol to produce logical address, network routing, network segmentation and traffic control data.

116. The method of claim 113, further comprising the steps of:

(h.1) converting the received broadcast optical signal transmission to a second electrical signal representing data frames in a receiving network terminal;

(h.2) selecting a data frame within the second electrical signal associated with the receiving network terminal; and

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(h.3) adapting data in the selected frame for transmission over a network interface having a Layer 2 or Layer 1 network interface protocol selected from the group consisting essentially of:

the Ethernet and Fibre Channel protocols.

117. The method of claim 113, further comprising the steps of:

(i.1) converting the incoming optical signal to a third electrical signal representing data frames in the network hub;

(i.2) selecting a data frame within the third electrical signal; and

(i.3) adapting data in the selected frame for transmission over a switch interface having a Layer 2 or Layer 1 switch interface protocol selected from the group consisting essentially of:

the Ethernet and Fibre Channel protocols.

118. The method of claim 109, wherein one or more of the network terminals are selected from the group consisting essentially of:

a workstation, a personal computer, a disk storage array, a server, a switch, and a router.

119. The method of claim 109, further comprising the step of:

determining a response time delay at the network hub, including the steps of

(a) transmitting a message from the network hub to a network terminal,

(b) processing the message at the network terminal,

(c) transmitting a return message from the network terminal, and

(d) receiving the return message at the network hub.

120. The method of claim 119, further comprising the steps of:

(a) transmitting a representation of the determined response time delay to the network terminal; and

(b) adjusting the transmission timing of the network terminal in reaction to the received representation of the determined response time delay.

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121. The method claim 109, wherein the form factor of the optical ports is selected from the group consisting essentially of:

the optical Multi-Source Agreements (MSA) specifications including XFP, XENPAK, XPAK, and SFP.

122. A method for reducing the number of optical transceivers in a hub of an optical local area network, comprising:

coupling an optical transceiver or optical module to a passive optical coupler; and

coupling the passive optical coupler to a plurality of optical ports; and

distributing transmitted optical signals incorporating both a control channel and a data channel in a single wavelength from the optical transceiver to each of the optical ports through the passive optical coupler; and

combining received optical signals from each optical port to the optical transceiver through the passive optical coupler.;

whereby the optical ports serve as a connection site that connects an external optical waveguide to the internal optical transceiver through the passive optical coupler, thereby reducing the requisite number of optical transceivers in an optical LAN.

123. The method of claim 122, further comprising the steps of:

producing a first electrical signal representing the received optical signal;

producing a transmitted optical signal representing a second electrical signal; and

processing the first and second electric signals in accordance with an OSI Layer 2 or Layer 3 protocol.

124. The method of claim 122, further comprising the steps of:

managing network communications at the network hub;

transmitting data from the network hub to a network terminal in a broadcast time division multiplexed manner;

transmitting data from the network terminal to the network hub in a time division multiple access manner; and

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provisioning bandwidth allocation for all network communications at the network hub.

125. The method of claim 124, wherein the bandwidth allocation includes dynamic bandwidth allocation.

126. The method of claim 124, wherein the bandwidth allocation includes a minimum bandwidth allocation.

127. The method of claim 124, further comprising the steps of:

measuring the received optical signal power level at the network hub;

determining a desired network terminal optical transmission power level adjustment from the measured optical signal power level;

adding data representing the desired network terminal optical transmission power level adjustment to the transmitted data from the network hub to the network terminal; and

adjusting the optical transmission power level at the network terminal responsive to acceptance of the transmitted data.

128. The method of claim 124, further comprising the step of:

determining a delay response time at the network hub, including the steps of

(a) transmitting a message from the network hub to a network terminal;

(b) processing of the message by the network terminal;

(c) transmitting a return message at the network terminal; and

(d) receiving the return message at the network hub.

129. The method of claim 128, further comprising the steps of:

(a) transmitting a representation of the determined response time delay to the network terminal; and

(b) adjusting the transmission timing of the network terminal in reaction to the received representation of the determined response time delay.

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130. The method of claim 122, further comprising:

converting the received optical signal to a third electrical signal representing data frames in the network hub;

selecting a data frame within the third electrical signal; and

adapting data in the selected frame for transmission over a switch interface having a Layer 2 or Layer 1 switch interface protocol selected from the group consisting essentially of:

the Ethernet and Fibre Channel protocols.

131. The method of claim 130, further comprising:

receiving a fourth electrical signal at the switch interface;

converting the fourth electrical signal to an optical signal; and

transmitting the optical signal to a network terminal.

132. The method of claim 122, wherein the form factor of the optical ports is selected from the group consisting essentially of:

the optical Multi-Source Agreements (MSA) specifications including XFP, XENPAK, XPAK, and SFP.

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Ex. 1002-2.099

Electronic Acknowledgement Receipt

EFS ID:	3420463
Application Number:	10886514
International Application Number:	
Confirmation Number:	8709
Title of Invention:	Communication system and method for an optical local area network
First Named Inventor/Applicant Name:	Alexander I. Soto
Customer Number:	50625
Filer:	James Albert Ward
Filer Authorized By:	
Attorney Docket Number:	UBI-005
Receipt Date:	06-JUN-2008
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Time Stamp:	22:38:40
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1	Appeal Brief Filed	Amended_Appeal_Brief_UBI-005_06Jun08.pdf	182289 2877aa14de02a62b9842fc1a5656fd24fd4bd674	no	30

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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.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/886,514	07/06/2004	Alexander I. Soto	UBI-005	8709

50625 7590 05/06/2008

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EXAMINER	
ART UNIT	PAPER NUMBER

DATE MAILED: 05/06/2008

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

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Ex. 1002-2.102

Notification of Non-Compliant Appeal Brief (37 CFR 41.37)	Application No.	Applicant(s)	
	10/886,514	SOTO ET AL.	
	Examiner	Art Unit	
	Shi Li	2613	

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

The Appeal Brief filed on *22 April 2008* is defective for failure to comply with one or more provisions of 37 CFR 41.37.

To avoid dismissal of the appeal, applicant must file anamended brief or other appropriate correction (see MPEP 1205.03) within **ONE MONTH or THIRTY DAYS** from the mailing date of this Notification, whichever is longer. **EXTENSIONS OF THIS TIME PERIOD MAY BE GRANTED UNDER 37 CFR 1.136.**

1. ☐ The brief does not contain the items required under 37 CFR 41.37(c), or the items are not under the proper heading or in the proper order.

2. ☐ The brief does not contain a statement of the status of all claims, (e.g., rejected, allowed, withdrawn, objected to, canceled), or does not identify the appealed claims (37 CFR 41.37(c)(1)(iii)).

3. ☐ At least one amendment has been filed subsequent to the final rejection, and the brief does not contain a statement of the status of each such amendment (37 CFR 41.37(c)(1)(iv)).

4. ☒ (a) The brief does not contain a concise explanation of the subject matter defined in each of the independent claims involved in the appeal, referring to the specification by page and line number and to the drawings, if any, by reference characters; and/or (b) the brief fails to: (1) identify, for each independent claim involved in the appeal and for each dependent claim argued separately, every means plus function and step plus function under 35 U.S.C. 112, sixth paragraph, and/or (2) set forth the structure, material, or acts described in the specification as corresponding to each claimed function with reference to the specification by page and line number, and to the drawings, if any, by reference characters (37 CFR 41.37(c)(1)(v)).

5. ☐ The brief does not contain a concise statement of each ground of rejection presented for review (37 CFR 41.37(c)(1)(vi))

6. ☐ The brief does not present an argument under a separate heading for each ground of rejection on appeal (37 CFR 41.37(c)(1)(vii)).

7. ☐ The brief does not contain a correct copy of the appealed claims as an appendix thereto (37 CFR 41.37(c)(1)(viii)).

8. ☐ The brief does not contain copies of the evidence submitted under 37 CFR 1.130, 1.131, or 1.132 or of any other evidence entered by the examiner **and relied upon by appellant in the appeal**, along with a statement setting forth where in the record that evidence was entered by the examiner, as an appendix thereto (37 CFR 41.37(c)(1)(ix)).

9. ☐ The brief does not contain copies of the decisions rendered by a court or the Board in the proceeding identified in the Related Appeals and Interferences section of the brief as an appendix thereto (37 CFR 41.37(c)(1)(x)).

10. ☒ Other (including any explanation in support of the above items):

(4)IN SECTION V Summary of the Claimed Subject Matter: The brief does identify each independent claim involved in the appeal but does not refer independent claim(s) (77,109 and 122) seperately to the specification by page and line number, and to the drawing, if any, by reference characters to show where the support for the subject matter defined in each claim can be located..

Everett R Williams

EVERETT R. WILLIAMS
PATENT APPEAL CENTER SPECIALIST

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Ex. 1002-2.103

BEFORE THE UNITED STATES PATENT AND TRADEMARK OFFICE
BOARD OF APPEALS AND INTERFERENCES

In re Application of:
Alexander Soto et al.

Group Art Unit: **2613**

Patent Application No.: **10/886,514**

Filed on: **July 06, 2004**

Examiner: **Li, Shi K.**

For: **Communication System and Method For An Optical Local Area Network**

APPELLANT'S BRIEF PER 37 C.F.R. §41.37

BOARD OF PATENT APPEALS & INTERFERENCES
Director for Patents and Trademarks
PO Box 1450
Alexandria, VA 22313-4150

Sir:

This is an appeal from the Examiner of Group Art Unit 2613 rejecting claims 77-109 and 111-132, which are set forth in an APPENDIX hereto and which together comprise all claims remaining in the application. A Notice of Appeal was filed on January, 11, 2008 with a Pre-Appeal Brief Request For Review. The responsive Notice of Panel Decision from Pre-Appeal Brief Review was mailed on February 22, 2008. This Appeal Brief is submitted under 37 C.F.R. §1.17(a)(1) within a one-month extension of the March 22, 2008 Appeal Brief filing deadline.

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	EVIDENCE APPENDIX	None
	RELATED PROCEEDINGS APPENDIX	None

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I. REAL PARTY IN INTEREST

All rights in the above-identified pending U.S. Patent Application are owned by the named inventors, Alexander Soto and Walter Soto.

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Ex. 1002-2.106

II. RELATED APPEALS AND INTERFERENCES

There are no other prior or pending appeals, interferences or judicial proceedings known to Appellants or Appellants' legal representative that may be related to, be directly affected by or bear on the Board's decision in this appeal.

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Ex. 1002-2.107

III. STATUS OF CLAIMS

CLAIM	STATUS	CLAIM	STATUS
1-76	Canceled	105	Rejected & Appealed
77	Rejected & Appealed	106	Rejected & Appealed
78	Rejected & Appealed	107	Rejected & Appealed
79	Rejected & Appealed	108	Rejected & Appealed
80	Rejected & Appealed	109	Rejected & Appealed
81	Rejected & Appealed	110	Canceled
82	Rejected & Appealed	111	Rejected & Appealed
83	Rejected & Appealed	112	Rejected & Appealed
84	Rejected & Appealed	113	Rejected & Appealed
85	Rejected & Appealed	114	Rejected & Appealed
86	Rejected & Appealed	115	Rejected & Appealed
87	Rejected & Appealed	116	Rejected & Appealed
88	Rejected & Appealed	117	Rejected & Appealed
89	Rejected & Appealed	118	Rejected & Appealed
90	Rejected & Appealed	119	Rejected & Appealed
91	Rejected & Appealed	120	Rejected & Appealed
92	Rejected & Appealed	121	Rejected & Appealed
93	Rejected & Appealed	122	Rejected & Appealed
94	Rejected & Appealed	123	Rejected & Appealed
95	Rejected & Appealed	124	Rejected & Appealed
96	Rejected & Appealed	125	Rejected & Appealed
97	Rejected & Appealed	126	Rejected & Appealed
98	Rejected & Appealed	127	Rejected & Appealed
99	Rejected & Appealed	128	Rejected & Appealed
100	Rejected & Appealed	129	Rejected & Appealed
101	Rejected & Appealed	130	Rejected & Appealed
102	Rejected & Appealed	131	Rejected & Appealed
103	Rejected & Appealed	132	Rejected & Appealed
104	Rejected & Appealed		

Claims 1-56 were filed with the present application on July 6, 2004. Claims 1-56 were canceled and claims 57-76 were added by Amendment filed on August 1, 2005. Claims 57-76 were canceled and claims 77-132 were added by Amendment filed on February 18, 2006. Claim 122 was amended by Amendment filed on Sept. 11, 2006. Claim 110 was canceled by Amendment filed on February 13, 2007.

By Final Office Action mailed on October 11 2007, Examiner Li rejected claims 77, 82-87, 98, 100, 122 and 124-126 under 35 U.S.C. §103(a) for unpatentability over Wang in view of

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Kuo, rejected claims 78-81, 105-107, 109, 111-112, 118-119, 123 and 128-129 under 35 U.S.C. §103(a) for unpatentability over Wang and Kuo in further view of Abdelhamid, rejected claims 88-96, 99 and 101 under 35 U.S.C. §103(a) for unpatentability over Wang and Kuo in further view of Masucci, rejected claims 97 and 113 under 35 U.S.C. §103(a) for unpatentability over Wang, Kuo and Masucci in further view of Graves, rejected claims 101-104, 113, 115-117 and 130-131 under 35 U.S.C. §103(a) for unpatentability over Wang and Kuo in further view of Adcox, rejected claims 108 and 132 under 35 U.S.C. §103(a) for unpatentability over Wang and Kuo in further view of Medina, rejected claims 114 and 127 under 35 U.S.C. §103(a) for unpatentability over Wang, Kuo, Masucci and Graves in further view of Hale, and rejected claim 121 under 35 U.S.C. §103(a) for unpatentability over Wang, Kuo and Abdelhamid in further view of Medina.

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IV. STATUS OF AMENDMENTS

This appeal is taken from the sixth and Final Office action mailed October 11, 2007. By Advisory Office Action mailed on December 28, 2007, Examiner Li refused entry of a proposed Amendment After Final Action filed on December 10, 2007 for the purpose of putting the rejected claims in better form for consideration on appeal.

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V. SUMMARY OF THE CLAIMED SUBJECT MATTER

An optical local area network including a passive optical distribution fabric interconnecting one or more local area network clients with a network manager that provides the switching functions of a hub, switch or router (collectively referred to as a hub or the network manager). Passive optical distribution enables a reduction in the number of optical transceivers at the hub used to sustain the same number of local area network clients as compared to convention optical local area networks, thereby reducing the cost of the network.

In claims 77, 109 and 122 the claimed optical local area network (LAN) is shown in **FIGs. 1, 6A, 6B, 6C, 7A, 7B, 7C, 7D** and **8** and described on page 2 line 103 to page 4 line 48 and page 5 line 129 to page 7 line 68. An optical local area network **50** includes a network manager (NM) **100** at the head end of a passive optical distribution fabric (ODF) **102** which is comprised of a plurality of optical fibers or waveguides **105**. The NM **100** acts as a central transmission point and an overall controlling device for the optical local area network **50**. On another end, the ODF **102** is terminated by a plurality of network client adapters (NCAs) **104A**, **104B**, **104C**.

The NM **100** includes: a network management optical interface (NM Optical Interface) **108** block which converts optical signals to electrical signal and electrical signals to optical signals; a network management communication logic and memory (NM-CLM) **106** block which acts as a control module that performs various processing and scheduling functions of the NM **100** and is in electrical communication with the NM Optical Interface **108**, and an optical distribution fabric interface (ODF Interface) **110** block that includes an optical splitter or coupler **116** and a plurality of ODF Ports **117A**, **117B**, **117C**, etc and is in optical communication with the NM Optical Interface **108**.

The NCAs **104** each include: a network client optical interface (NC Optical Interface) **122** block which converts optical signals to electrical signals and electrical signals to optical signals; a network client communication logic and memory (NCCLM) **120** block which acts as a control module that performs various functions associated with an NCA **104** and is in electrical communications with NC Optical Interface **122**, and an ODF port **124** which includes a optical fiber connection socket and is in optical communication with NC Optical Interface **122**.

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VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether the subject matter of claims 77, 82-87, 98, 100, 122 and 124-126 would have been obvious in view of the combination of U.S. Patent Application No. 2004/0052274 filed by Wang *et al.* ("Wang") and U.S. Patent 7,031,343 filed by Kuo *et al.* ("Kuo") within the meaning of 35 U.S.C. §103(a); as held in the Final Office Action mailed on October 11, 2007.

Whether the subject matter of claims 78-81, 105-107, 109, 111-112, 118-119, 123 and 128-129 would have been obvious in view of the combination of U.S. Patent Application No. 2004/0052274 filed by Wang *et al.* ("Wang") and U.S. Patent 7,031,343 filed by Kuo *et al.* ("Kuo") in further view of U.S. Patent 6,023,467 filed by Abdelhamid *et al.* ("Abdelhamid") within the meaning of 35 U.S.C. §103(a) and whether the subject matter of claims 88-96, 99 and 101 would have been obvious in view of the combination of U.S. Patent Application No. 2004/0052274 filed by Wang *et al.* ("Wang") and U.S. Patent 7,031,343 filed by Kuo *et al.* ("Kuo") in further view of U.S. Patent 6,498,667 filed by Masucci *et al.* ("Masucci") within the meaning of 35 U.S.C. §103(a); as held in the Final Office Action mailed on October 11, 2007.

Whether the subject matter of claims 97 and 113 would have been obvious in view of the combination of U.S. Patent Application No. 2004/0052274 filed by Wang *et al.* ("Wang"), U.S. Patent 7,031,343 filed by Kuo *et al.* ("Kuo") and U.S. Patent 6,498,667 filed by Masucci *et al.* ("Masucci") in further view of U.S. Patent 5,029,333 filed by Graves *et al.* ("Graves") within the meaning of 35 U.S.C. §103(a); as held in the Final Office Action mailed on October 11, 2007.

Whether the subject matter of claims 101-104, 113, 115-117 and 130-131 would have been obvious in view of the combination of U.S. Patent Application No. 2004/0052274 filed by Wang *et al.* ("Wang") and U.S. Patent 7,031,343 filed by Kuo *et al.* ("Kuo") in further view of U.S. Patent Application No. 2003/0236916 filed by Adcox *et al.* ("Adcox") within the meaning of 35 U.S.C. §103(a); whether the subject matter of claims 108 and 132 would have been obvious in view of the combination of U.S. Patent Application No. 2004/0052274 filed by Wang *et al.* ("Wang") and U.S. Patent 7,031,343 filed by Kuo *et al.* ("Kuo") in further view of U.S. Pa-

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tent 6,778,399 filed by Medina *et al.* ("Medina") within the meaning of 35 U.S.C. §103(a); whether the subject matter of claims 114 and 127 would have been obvious in view of the combination of U.S. Patent Application No. 2004/0052274 filed by Wang *et al.* ("Wang"), U.S. Patent 7,031,343 filed by Kuo *et al.* ("Kuo"), U.S. Patent 6,498,667 filed by Masucci *et al.* ("Masucci") and U.S. Patent 5,029,333 filed by Graves *et al.* ("Graves") in further view of U.S. Patent 5,572,349 filed by Hale *et al.* ("Hale") within the meaning of 35 U.S.C. §103(a); and whether the subject matter of claim 121 would have been obvious in view of the combination of U.S. Patent Application No. 2004/0052274 filed by Wang *et al.* ("Wang"), U.S. Patent 7,031,343 filed by Kuo *et al.* ("Kuo") and U.S. Patent 6,023,467 filed by Abdelhamid *et al.* ("Abdelhamid") in further view of U.S. Patent 6,778,399 filed by Medina *et al.* ("Medina") within the meaning of 35 U.S.C. §103(a); as held in the Final Office Action mailed on October 11, 2007.

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VII. ARGUMENT AND DISCUSSION

The Examiner has failed to presented a valid *prima facie* case for the obviousness of claims 77, 82-87, 98, 100, 122 and 124-126 in view of the combination of Wang and Kuo within the meaning of 35 U.S.C. §103(a), in the Final Office Action mailed on October 11, 2007.

Examiner fails to state a proper *prima facie* case for the obviousness of claims 77, 82-87, 98, 100, 122 and 124-126 in view of the combination of Wang and Kuo under 35 U.S.C. §103(a). The legal concept of *prima facie* obviousness is a procedural tool of examination which applies broadly to all arts. It allocates who has the burden of going forward with production of evidence in each step of the examination process. See *In re Rinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); *In re Linter*, 458 F.2d 1013, 173 USPQ 560 (CCPA 1972); *In re Saunders*, 444 F.2d 599, 170 USPQ 213 (CCPA 1971); *In re Tiffin*, 443 F.2d 394, 170 USPQ 88 (CCPA 1971), *amended*, 448 F.2d 791, 171 USPQ 294 (CCPA 1971); *In re Warner*, 379 F.2d 1011, 154 USPQ 173 (CCPA 1967), *cert. denied*, 389 U.S. 1057 (1968) see also M.P.E.P. 2142. The Examiner bears the initial burden of factually supporting any prima facie conclusion of obviousness. If the Examiner does not produce a valid *prima facie* case, the appellants are under no obligation to submit evidence of nonobviousness to rebut the Examiner's findings.

During patent examination, the pending claims must be given an interpretation that is reasonable and consistent with the specification. See *In re Prater*, 162 U.S.P.Q. 541, 550-5 1 (C.C.P.A. 1969); *In re Morris*, 44 U.S.P.Q.2d 1023, 1027-28 (Fed. Cir. 1997); see also M.P.E.P. § 2111 (describing the standards for claim interpretation during prosecution). Indeed, the specification is "the primary basis for construing the claims." See *Phillips v. A WH Corp.*, 41 5 F.3d 1303, 13 15 (Fed. Cir. 2005) (citations omitted). It is usually dispositive. See *id*. Interpretation of the claims must also be consistent with the interpretation that those skilled in the art would reach. See *In re Cortright*, 49 U.S.P.Q.2d 1464, 1468 (Fed. Cir. 1999); see also M.P.E.P. §2111. That is, recitations of a claim must be read as they would be interpreted by those of ordinary skill in the art. See *Rexnord Corp. v. Laliram Corp.*, 60 U.S.P.Q.2d 1851, 1854 (Fed. Cir. 2001); see also M.P.E.P. § 2111.01.

The Examiner's rejections fail to meet these requirements because they rely on an unsupported and flawed conflation of Appellants' local area network manager (NM) with an optical

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line terminal (OLT) and Appellants' local area network client adapters (NCA) with optical networking units (ONU) (Final Office action page 2, section 2, paragraph 2, 1st sentence). The Examiner's conflation is presented without citation to support from the cited prior art and is unsupported by any reasonable interpretation of the Appellants' claims and specification.

In the Appellants' specification, the network manager (NM) is described as "*[A] network manager in an optical local area network can provide switching functions of a hub, a switch, or a router*" (page 2, paragraph 0014) and "*[T]he NM (network manager) 100 acts as a central transmission point and an overall controlling device for the optical local area network*" (page 2, paragraph 0023). The local area network client adapters (NCAs) are clearly presented as adapters for clients of the local area network (LAN). Additionally, Appellants assert that these characterizations are also clear from a plain reading of Appellants' base claims. An inherent function of a hub in a LAN is to enable the LAN clients to communicate with each other. These descriptions of Appellants' local area network manager and network client adapters are neither consistent with nor a reasonable interpretation of an OLT and ONU to those skilled in the art. On the contrary, Examiner's cited art teaches that an OLT and ONU are part of a broadband access wide area network architecture, which cannot properly characterize a local area network architecture. Wide area networks (WANs) are well-understood to have inherent structural and functional differences from LANs; WANs and LANs are not mere fungible labels to add unnecessary complexity. Furthermore, Examiner's cited references explicitly and clearly distinguish the structure and function of a LAN from that of an OLT, ONU/ONT (Kuo in FIG. 2 element 200, note dotted line). The inherent structure and function of an OLT/ONU-based PON is to allow subscribers to connect to a service provider's network to receive services (*e.g.* high-speed internet, broadcast video, IPTV, etc.). In other words, the function of the OLT is to allow each ONU to communicate with the service provider's network with communications passing through the OLT; the OLT does not function as a hub routing communications from one ONU directly to another ONU so the ONUs can communicate with each other. Thus, (impermissible) hindsight guided by Appellants' claims provides the only apparent basis for Examiner's argument, which cannot support a proper *prima facie* case for obviousness. Examiner has not met the initial burden of factually supporting a *prima facie* showing of obviousness.

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To put the rejected claims in better form for consideration on appeal, Appellants filed an Amendment After Final Response on December 10, 2007 merely to insert the words "local area" at the existing "network manager" term (and thus shortened to "LAN manger") in base claim 77 and at the corresponding terms in the claims depending from claim 77. As the words "local area" and the term LAN both appear previously in the preamble of base claim 77 and throughout the Appellants' specification, such amendment cannot reasonably be said to substantively alter the scope of any claim. Applicants proposed the amendments in response to arguments in the Final Office Action mailed on October 11, 2007 in a good faith attempt to move the application forward by either overcoming the rejections or in better form for consideration on appeal. The proposed amendment explicates the implicit fact that Appellants' network manager (NM) is part of the function and structure of the Appellants' claimed optical LAN.

Nevertheless, the Examiner denied entry of the proposed claim Amendments After Final Response and, in the Advisory Action mailed on December 24, 2007, stated "*[T]he amendment changes the scope of the claims and would require further consideration and or search. Furthermore, the term LAN manager is not defined in instant specification.*" This appears unreasonable on its face. Appellants understand that entry of the proposed Amendment is not a matter of right (M.P.E.P. §714.13), Applicants respectfully suggest that entry may not be properly denied unreasonably. Examiner's denial of entry appears to be inconsistent with (and thus improper under) 37 C.F.R. §1.116(b)(2) or 37 C.F.R. §1.116(b)(3).

Claims 82-87, 98, and 100 depend from base claim 77, claims 124-126 depend from base claim 122. If an independent claim is novel, then any claim depending there from is novel. *In re Fine,* 837 F.2d 1071, 5 USPQ.2d 1596 (Fed. Cir. 1988). Accordingly, for the reasons discussed above with respect to the base claims 77 and 122, the rejections of claims 82-87, 98, 100, and 124-126 are also improper.

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The Examiner has failed to presented valid *prima facie* cases for the obviousness of: claims 78-81, 105-107, 109, 111-112, 118-119, 123 and 128-129 in view of the combination of U.S. Patent Application No. 2004/0052274 filed by Wang *et al.* ("Wang") and U.S. Patent 7,031,343 filed by Kuo *et al.* ("Kuo") in further view of U.S. Patent 6,023,467 filed by Abdelhamid *et al.* ("Abdelhamid") within the meaning of 35 U.S.C. §103(a); and for the obviousness of claims 88-96, 99 and 101 in view of the combination of U.S. Patent Application No. 2004/0052274 filed by Wang *et al.* ("Wang") and U.S. Patent 7,031,343 filed by Kuo *et al.* ("Kuo") in further view of U.S. Patent 6,498,667 filed by Masucci *et al.* ("Masucci") within the meaning of 35 U.S.C. §103(a); in the Final Office Action mailed on October 11, 2007.

Examiner fails to state a proper *prima facie* case for the obviousness of claims 78-81, 105-107, 109, 111-112, 118-119, 123 and 128-129 in view of the combination of Wang, Kuo and Abdelhamid and fails to state a proper *prima facie* case for the obviousness of claims 88-96, 99 and 101 in view of Wang, Kuo and Masucci under 35 U.S.C. §103(a).

According to M.P.E.P. §2142, a *prima facie* case for obviousness requires a showing that the recited reference combination (of Wang, Kuo and Abdelhamid or Wang, Kuo, and Masucci) must teach or suggest **all** the claim limitations; and a teaching or suggestion to make the claimed combination and a reasonable expectation of success must both be found in the recited reference combination without importing information from Applicants' disclosure. Wang teaches using SONET over a PON and splitting SONET frames (which are synchronous, *i.e.* having specific period or frequency) into a number of channels wherein each channel is dedicated for communication for a specific ONU. Thus, Wang guarantees periodic transmission for each ONU with every frame. However, Abdelhamid suggests use of ATM protocol (col. 4) for operating the PON, which is an asynchronous protocol (*i.e.*, non-specific period or frequency). Therefore, Examiner's stated motivation for combining the teachings of Abdelhamid with Wang and Kuo because "*the protocols of Abdelhamid et al. clearly define the frame structure and effective coordinate the ONUs*" (Final Office Action, page 4, lines 4-7) requires that Wang's fundamental operating principal be changed in order to support the stated motivation. Similarly, the Examiner's stated motivation for combining Masucci with Wang and Kuo is because "*the frame structure of Masucci et al. supports the aggregation of multiple broadband services including voice, high speed data, video and image.*" (Final Office Action, page 6, lines 13-17) However, Applicants can find no teachings or suggestion in Masucci to support Wang's method of guaranteed transmission for each ONU in every frame and therefore the Examiner's stated motivation imposes an

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external requirement that would render Wang's invention unsatisfactory for its intended purpose. Additionally, Appellants' network is not claimed to provide broadband services as it is a local area network.

If the proposed modification would render the prior art invention (Wang) being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984) *See M.P.E.P. §2143.01(V).* Obviousness cannot be established by engaging in a hindsight reconstruction of the claimed invention using the Applicants' invention as a template and selecting elements from references to fill the gaps. *In re Gorman*, 933 F.2d 982, 986, 18 USPQ2d 1885, 1888 (Fed. Cir. 1991).

The Examiner has failed to presented a valid *prima facie* case for the obviousness of claims 97 and 113 in view of the combination of U.S. Patent Application No. 2004/0052274 filed by Wang et al. ("Wang"), U.S. Patent 7,031,343 filed by Kuo et al. ("Kuo") and U.S. Patent 6,498,667 filed by Masucci et al. ("Masucci") in further view of U.S. Patent 5,029,333 filed by Graves et al. ("Graves") within the meaning of 35 U.S.C. §103(a) in the Final Office Action mailed on October 11, 2007.

Examiner fails to state a proper *prima facie* case for the obviousness of claims 97 and 113 in view of the combination of Wang, Kuo, Masucci and Graves under 35 U.S.C. §103(a).

According to M.P.E.P. §2142, a *prima facie* case for obviousness requires a showing that the recited reference combination (of Wang, Kuo, Masucci and Graves) teach or suggest **all** claim limitations; and a teaching or suggestion to make the claimed combination and a reasonable expectation of success must both be found in the recited reference combination and not imported from Applicants' disclosure.

Graves does not consider PONs, nor does Graves even mention or suggest an OLT or ONU at any time. Graves's network is an active optical network (*e.g.* active pedestal **12** in **FIG. 2**), not a PON. Examiner's stated motivation to combine Graves is "*[b]ecause hairpinning allows ONUs to communicate with each other.*" (Final Office Action, page 7, lines 15-18). Graves does not suggest such functionality and neither does Wan, Kuo or Masucci. The only relevance Graves has to the Examiner's stated motivation is the keyword finding of "hairpin"

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three times. Thus, Examiner appears to recite no basis for any reconstructions of Wang, Kuo and Masucci in view of Graves other than Appellants' claims, which is an improper hindsight reconstruction barred by the rule against improper hindsight rejections discussed in MPEP §§2142-3 and elsewhere.

Furthermore, adding Graves to the combination of Wang, Kuo and Masucci with the Examiner's stated motivation to do so suggests that ONUs do not inherently communicate with each other and thus lends support to Appellants' arguments above in regard to claims 77, 82-87, 98, 100, 122 and 124-126.

The Examiner has failed to presented valid *prima facie* cases for the obviousness of: claims 101-104, 113, 115-117 and 130-131 in view of the combination of U.S. Patent Application No. 2004/0052274 filed by Wang *et al.* ("Wang") and U.S. Patent 7,031,343 filed by Kuo *et al.* ("Kuo") in further view of U.S. Patent Application No. 2003/0236916 filed by Adcox *et al.* ("Adcox") within the meaning of 35 U.S.C. §103(a); for the obviousness of claims 108 and 132 in view of the combination of U.S. Patent Application No. 2004/0052274 filed by Wang *et al.* ("Wang") and U.S. Patent 7,031,343 filed by Kuo *et al.* ("Kuo") in further view of U.S. Patent 6,778,399 filed by Medina *et al.* ("Medina") within the meaning of 35 U.S.C. §103(a); for the obviousness of claims 114 and 127 in view of the combination of U.S. Patent Application No. 2004/0052274 filed by Wang *et al.* ("Wang"), U.S. Patent 7,031,343 filed by Kuo *et al.* ("Kuo"), U.S. Patent 6,498,667 filed by Masucci *et al.* ("Masucci") and U.S. Patent 5,029,333 filed by Graves *et al.* ("Graves") in further view of U.S. Patent 5,572,349 filed by Hale *et al.* ("Hale") within the meaning of 35 U.S.C. §103(a); and for the obviousness of claim 121 in view of the combination of U.S. Patent Application No. 2004/0052274 filed by Wang *et al.* ("Wang"), U.S. Patent 7,031,343 filed by Kuo *et al.* ("Kuo") and U.S. Patent 6,023,467 filed by Abdelhamid *et al.* ("Abdelhamid") and in further view of U.S. Patent 6,778,399 filed by Medina *et al.* ("Medina") within the meaning of 35 U.S.C. §103(a); in the Final Office Action mailed on October 11, 2007.

Examiner fails to state a proper *prima facie* case for the obviousness of claims 101-104, 108, 113-117, 121, 127, and 130-132. Adcox neither considers nor suggests any of the claim elements that distinguish Applicants' claimed invention over Wang and Kuo for the reasons discussed above with respect to claims 77, 82-87, 98, 100, 122 and 124-126. Medina neither considers nor suggests any of the claim elements that distinguish Applicants' claimed invention over Wang and Kuo for the reasons discussed above with respect to claims 77, 82-87, 98, 100, 122

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and 124-126. Hale neither considers nor suggests any of the claim elements that distinguish Applicants' claimed invention over Wang, Kuo, Masucci and Graves for the reasons discussed above with respect to claims 77, 82-87, 98, 100, 122 and 124-126. Medina neither considers nor suggests any of the claim elements that distinguish Applicants' claimed invention over Wang, Kuo, Abdelhamid for the reasons discussed above with respect to claims 78-81, 105-107, 109, 111-112, 118-119, 123 and 128-129. Therefore, one skilled in the art would find therein no suggestion or motivation to combine these references and Examiner does not appear to recite any source for such suggestion other than Appellants' application.

Obviousness cannot be established by engaging in a hindsight reconstruction of the claimed invention using Applicants' invention as a template and selecting elements from references to fill the gaps. *In re Gorman*, 933 F.2d 982, 986, 18 USPQ2d 1885, 1888 (Fed. Cir. 1991).

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CONCLUSION AND SIGNATURE

For the foregoing reasons, the Board is requested to reverse the obviousness rejections of claims 77, 82-87, 98, 100, 122 and 124-126 over Wang and Kuo; the Board is requested to reverse the obviousness rejections of claims 97 and 113 over Wang, Kuo, Masucci and Graves; and the Board is requested to reverse the obviousness rejections of claims 78-81, 88-96, 99, 101-109, 111-112, 114-121, 123 and 127-132 over the foregoing recited reference combinations comprising Wang and Kuo.

The $255 fee required under 37 C.F.R. §41.20(b)(2) is tendered electronically herewith. The $60 fee required under 37 C.F.R. §1.17(a)(1) for an extension for response within the first month is tendered electronically herewith.

Respectfully submitted,

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CLAIMS APPENDIX

1-76. (Canceled).

77. An optical Local Area Network (LAN) of one or more local area network clients, the optical LAN comprising:

a network manager for managing optical signals each incorporating both a control channel and a data channel in a single optical wavelength, including

an optical interface having means for converting received optical signals to electrical signals and means for producing transmitted optical signals from electrical signals,

a plurality of optical ports,

a passive optical coupler coupled between the optical interface and the optical ports and having means for accepting received optical signals from and for distributing transmitted optical signals to the optical interface and the optical ports, and

a control module coupled to the optical interface and having means for receiving electrical signals from and for transmitting electrical signals to the optical interface;

a plurality of network client adapters including

an optical interface having means for converting received optical signals to electrical signals and means for producing transmitted optical signals from electrical signals,

an optical port coupled to the optical interface, and

a control module having means for receiving electrical signals from and for transmitting electrical signals to the optical interface; and

a plurality of optical waveguides each coupled between one of the network client adapter optical ports and the network manager;

whereby the network manager can receive an optical signal incorporating both a control channel and a data channel in a single optical wavelength from any network client adapter, a network client adapter can receive an optical signal incorporating both a control channel and a data channel in a single optical wavelength from the network manager, and the network manager and network client adapters are in communication to facilitate sending and receiving data across the optical waveguides.

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78. The optical LAN of claim 77, wherein the network manager control module includes means for administering the received electrical signals and transmitted electrical signals conforming to an Open Systems Interconnection reference model (OSI) Layer 2 or Layer 3 protocol.

79. The optical LAN of claim 78, wherein the OSI Layer protocols includes means of representing address, synchronization, error control and data into frames or packets.

80. The optical LAN of claim 77, wherein ~~a~~ network client adapter control module includes means to administer the received electrical signals and transmitted electrical signals conforming to an OSI Layer-2 or Layer-3 protocol.

81. The optical LAN of claim 80, wherein the OSI Layer protocols includes means for representing address, synchronization, error control and data into frames or packets.

82. The optical LAN of claim 77, wherein a network manager control module includes means to transmit data according to a time division multiplexing scheme.

83. The optical LAN of claim 82, wherein the network manager control module includes means for dynamically scheduling or providing bandwidth allocations.

84. The optical LAN of claim 82, wherein the network manager control module includes means for scheduling or providing a minimum bandwidth allocation.

85. The optical LAN of claim 77, wherein the network manager control module includes means for receiving data according to a time division multiple access scheme.

86. The optical LAN of claim 85, wherein the network manager control module includes means for dynamically scheduling or providing bandwidth allocations.

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87. The optical LAN of claim 85, wherein the network manager control module includes means for scheduling or providing a minimum bandwidth allocation.

88. The optical LAN of claim 77, wherein the network manager includes means for transmitting downstream data from the network manager to a network client adapter in successive downstream frames over the optical waveguides, the downstream data including downstream packet data.

89. The optical LAN of claim 88, wherein each downstream frame includes a first number of downstream subframes, each downstream subframe including a second number of downstream slots of time, each downstream slot of time having one of a plurality of downstream formats.

90. The optical LAN of claim 89, wherein a downstream subframe further includes a downstream communication channel for communicating schedule or provisioning information for provisioning upstream slots of time to respective network client adapters.

91. The optical LAN of claim 88, wherein the downstream packet format for carrying downstream packet data includes a downstream packet header and a downstream packet payload; the downstream packet header including a field indicating length of the downstream packet payload.

92. The optical LAN of claim 91, wherein the downstream packet payload includes at least a portion of an Ethernet or Fibre Channel frame.

93. The optical LAN of claim 77, wherein a network client adapter includes means to transmit upstream data from the network client adapter to a network manager in respective upstream slots of time over the optical waveguides, the upstream slots of time forming essentially successive upstream frames, the upstream data including upstream packet data.

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94. The optical LAN of claim 93, wherein each upstream frame includes a first number of upstream subframes, each upstream subframe including a second number of upstream slots of time, each upstream slot of time having one of a plurality of upstream formats.

95. The optical LAN of claim 93, wherein the upstream packet format for carrying upstream packet data includes an upstream packet header and an upstream packet payload, wherein the upstream packet header includes a field for indicating an upstream packet payload length.

96. The optical LAN of claim 95, wherein the upstream packet payload includes at least a portion of an Ethernet or Fibre Channel frame.

97. The optical LAN of claim 93, wherein the network manager includes means for hairpinning upstream data to one or more network client adapters.

98. The optical LAN of claim 77, wherein a network client adapter further includes a network interface adapted to communicate electrically to one or more of the local area network clients.

99. The optical LAN of claim 98, wherein the network interface includes means for a Layer 2 or Layer 1 network interface protocol selected from the group consisting essentially of:

Ethernet and Fibre Channel protocols.

100. The optical LAN of claim 98, wherein the network clients are selected from the group consisting essentially of:

a workstation, a personal computer, a disk storage array, a server, a switch, and a router.

101. The optical LAN of claim 77, wherein the network manager further includes a switch interface adapted to communicate electrically to an OSI Layer 2 or Layer 3 switch device.

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102. The optical LAN of claim 101, wherein the switch interface includes means for implementing a Layer 2 or Layer 1 switch interface protocol selected from the group consisting essentially of:

Ethernet and Fibre Channel protocols.

103. The optical LAN of claim 101, wherein the switch device is selected from the group consisting essentially of:

an Ethernet media access controller (MAC) device and a Fibre Channel FC-2 service device.

104. The optical LAN of claim 101, wherein the network manager includes means for transmitting at least a portion of the received data to the switch device.

105. The optical LAN of claim 77, wherein the network manager includes means for determining a message response delay between the network manager and a network client adapter.

106. The optical LAN of claim 105, wherein a network client adapter includes means for adjusting transmission timing responsive to the message response delay between the network manager and a network client adapter.

107. The optical LAN of claim 77, wherein the network manager includes means for adjusting the optical transmit power of a network client adapter to a predetermined level in response to a received message.

108. The optical LAN of claim 77, wherein the form factors of the optical ports are selected from the group consisting essentially of:

the optical Multi-Source Agreements (MSA) specifications, including XFP, XENPAK, XPAK, and SFP.

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109. A method for operating an optical local area network (LAN) including a network hub having an optical transceiver coupled to passive optical coupler that is also coupled to a plurality of optical ports and including a plurality of network terminals each coupled to a network hub optical port by means of at least one of a plurality of optical waveguides, the method comprising the steps of:

accepting information from both a control channel and a data channel on a single wavelength at the network hub;

communicating the information between the network hub and a network terminal in accordance with an OSI layer 2 or layer 3 protocol~~.~~;

managing the communications at the network hub;

transmitting the information from the network hub to all network terminals in a broadcast time division multiplexed process;

transmitting the information from a network terminal to the network hub in a time division multiple access process; and

providing bandwidth allocation for the information transfers at the network hub.

110. (Canceled)

111. The method of claim 109, wherein the bandwidth allocation includes dynamic bandwidth allocation.

112. The method of claim 109, wherein the bandwidth allocation includes a minimum bandwidth allocation.

113. The method of claim 109, further comprising the unordered steps of:

(a) transmitting an incoming optical signal representing data frames from a first network terminal to one of the plurality of network hub optical ports over at least one of the optical waveguides;

(b) accepting the incoming optical signal from one of the network hub optical ports;

(c) converting the incoming optical signal to a first electrical signal representing the

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optical signal data;

(d) processing the first electrical signal according to an OSI Layer-2 protocol to produce a first processed electrical signal representing physical address, synchronization, error control, flow control and data;

(e) converting the first processed electrical signal to a broadcast optical signal responsive to the physical address, synchronization, error control, flow control and data;

(f) transmitting the broadcast optical signal to a passive optical coupler; and

(g) distributing the broadcast optical signal from the passive optical coupler to each of the plurality of hub optical ports; and

(h) accepting the broadcast optical signal at a plurality of the network terminals.

114. The method of claim 113, further comprising the unordered steps of:

(b.1) measuring the incoming optical signal power level at the network hub;

(b.2) determining a desired network terminal optical transmission power level adjustment from the measured optical signal power level;

(e.1) adding data representing the desired network terminal optical transmission power level adjustment to the broadcast optical signal; and

(h.1) adjusting the optical transmission power level at one of the network terminals responsive to acceptance of the broadcast optical signal.

115. The method of claim 113, further comprising the steps of:

(d.1) coupling the first electrical signal to a device that processes the first electrical signal according to an OSI layer-3 protocol to produce logical address, network routing, network segmentation and traffic control data.

116. The method of claim 113, further comprising the steps of:

(h.1) converting the received broadcast optical signal transmission to a second electrical signal representing data frames in a receiving network terminal;

(h.2) selecting a data frame within the second electrical signal associated with the receiving network terminal; and

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(h.3) adapting data in the selected frame for transmission over a network interface having a Layer 2 or Layer 1 network interface protocol selected from the group consisting essentially of:

the Ethernet and Fibre Channel protocols.

117. The method of claim 113, further comprising the steps of:

(i.1) converting the incoming optical signal to a third electrical signal representing data frames in the network hub;

(i.2) selecting a data frame within the third electrical signal; and

(i.3) adapting data in the selected frame for transmission over a switch interface having a Layer 2 or Layer 1 switch interface protocol selected from the group consisting essentially of:

the Ethernet and Fibre Channel protocols.

118. The method of claim 109, wherein one or more of the network terminals are selected from the group consisting essentially of:

a workstation, a personal computer, a disk storage array, a server, a switch, and a router.

119. The method of claim 109, further comprising the step of:

determining a response time delay at the network hub, including the steps of

(a) transmitting a message from the network hub to a network terminal,

(b) processing the message at the network terminal,

(c) transmitting a return message from the network terminal, and

(d) receiving the return message at the network hub.

120. The method of claim 119, further comprising the steps of:

(a) transmitting a representation of the determined response time delay to the network terminal; and

(b) adjusting the transmission timing of the network terminal in reaction to the received representation of the determined response time delay.

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121. The method claim 109, wherein the form factor of the optical ports is selected from the group consisting essentially of:

the optical Multi-Source Agreements (MSA) specifications including XFP, XENPAK, XPAK, and SFP.

122. A method for reducing the number of optical transceivers in a hub of an optical local area network, comprising:

coupling an optical transceiver or optical module to a passive optical coupler; and

coupling the passive optical coupler to a plurality of optical ports; and

distributing transmitted optical signals incorporating both a control channel and a data channel in a single wavelength from the optical transceiver to each of the optical ports through the passive optical coupler; and

combining received optical signals from each optical port to the optical transceiver through the passive optical coupler.;

whereby the optical ports serve as a connection site that connects an external optical waveguide to the internal optical transceiver through the passive optical coupler, thereby reducing the requisite number of optical transceivers in an optical LAN.

123. The method of claim 122, further comprising the steps of:

producing a first electrical signal representing the received optical signal;

producing a transmitted optical signal representing a second electrical signal; and

processing the first and second electric signals in accordance with an OSI Layer 2 or Layer 3 protocol.

124. The method of claim 122, further comprising the steps of:

managing network communications at the network hub;

transmitting data from the network hub to a network terminal in a broadcast time division multiplexed manner;

transmitting data from the network terminal to the network hub in a time division multiple access manner; and

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provisioning bandwidth allocation for all network communications at the network hub.

125. The method of claim 124, wherein the bandwidth allocation includes dynamic bandwidth allocation.

126. The method of claim 124, wherein the bandwidth allocation includes a minimum bandwidth allocation.

127. The method of claim 124, further comprising the steps of:

measuring the received optical signal power level at the network hub;

determining a desired network terminal optical transmission power level adjustment from the measured optical signal power level;

adding data representing the desired network terminal optical transmission power level adjustment to the transmitted data from the network hub to the network terminal; and

adjusting the optical transmission power level at the network terminal responsive to acceptance of the transmitted data.

128. The method of claim 124, further comprising the step of:

determining a delay response time at the network hub, including the steps of

(a) transmitting a message from the network hub to a network terminal;

(b) processing of the message by the network terminal;

(c) transmitting a return message at the network terminal; and

(d) receiving the return message at the network hub.

129. The method of claim 128, further comprising the steps of:

(a) transmitting a representation of the determined response time delay to the network terminal; and

(b) adjusting the transmission timing of the network terminal in reaction to the received representation of the determined response time delay.

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130. The method of claim 122, further comprising:

converting the received optical signal to a third electrical signal representing data frames in the network hub;

selecting a data frame within the third electrical signal; and

adapting data in the selected frame for transmission over a switch interface having a Layer 2 or Layer 1 switch interface protocol selected from the group consisting essentially of:

the Ethernet and Fibre Channel protocols.

131. The method of claim 130, further comprising:

receiving a fourth electrical signal at the switch interface;

converting the fourth electrical signal to an optical signal; and

transmitting the optical signal to a network terminal.

132. The method of claim 122, wherein the form factor of the optical ports is selected from the group consisting essentially of:

the optical Multi-Source Agreements (MSA) specifications including XFP, XENPAK, XPAK, and SFP.

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Ex. 1002-2.132

Electronic Patent Application Fee Transmittal

Application Number:	10886514
Filing Date:	06-Jul-2004
Title of Invention:	Communication system and method for an optical local area network
First Named Inventor/Applicant Name:	Alexander I. Soto
Filer:	James Albert Ward
Attorney Docket Number:	UBI-005
Filed as Small Entity	

Utility Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Filing a brief in support of an appeal	2402	1	255	255
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

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Ex. 1002-2.133

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension - 1 month with $0 paid	2251	1	60	60
Miscellaneous:				
		Total in USD ($)		**315**

Electronic Acknowledgement Receipt

EFS ID:	3193418
Application Number:	10886514
International Application Number:	
Confirmation Number:	8709
Title of Invention:	Communication system and method for an optical local area network
First Named Inventor/Applicant Name:	Alexander I. Soto
Customer Number:	50625
Filer:	James Albert Ward
Filer Authorized By:	
Attorney Docket Number:	UBI-005
Receipt Date:	22-APR-2008
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File Listing:

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1	Appeal Brief Filed	Appeal_Brief_UBI-005_22Apr08.pdf	251603 44b90275b181bdff25a90166d2bd373486bfb2d1	no	29
Warnings:					
Information:					
2	Fee Worksheet (PTO-06)	fee-info.pdf	8318 fe780fca5c65a0e4ef2c6a7864f19ad340632b4d	no	2
Warnings:					
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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.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/886,514	07/06/2004	Alexander I. Soto	UBI-005	8709

50625 7590 02/22/2008

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EXAMINER	
LI, SHI K	

ART UNIT	PAPER NUMBER
2613	

MAIL DATE	DELIVERY MODE
02/22/2008	PAPER

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

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

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Ex. 1002-2.137

Application Number	Application/Control No.	Applicant(s)/Patent under Reexamination	
	10/886,514	SOTO ET AL.	
	Shi K Li	Art Unit 2613	

Document Code - AP.PRE.DEC

Notice of Panel Decision from Pre-Appeal Brief Review

This is in response to the Pre-Appeal Brief Request for Review filed 1/11/08.

1. ☐ **Improper Request** – The Request is improper and a conference will not be held for the following reason(s):

☐ The Notice of Appeal has not been filed concurrent with the Pre-Appeal Brief Request.
☐ The request does not include reasons why a review is appropriate.
☐ A proposed amendment is included with the Pre-Appeal Brief request.
☐ Other:

The time period for filing a response continues to run from the receipt date of the Notice of Appeal or from the mail date of the last Office communication, if no Notice of Appeal has been received.

2. ☒ **Proceed to Board of Patent Appeals and Interferences** – A Pre-Appeal Brief conference has been held. The application remains under appeal because there is at least one actual issue for appeal. Applicant is required to submit an appeal brief in accordance with 37 CFR 41.37. The time period for filing an appeal brief will be reset to be one month from mailing this decision, or the balance of the two-month time period running from the receipt of the notice of appeal, whichever is greater. Further, the time period for filing of the appeal brief is extendible under 37 CFR 1.136 based upon the mail date of this decision or the receipt date of the notice of appeal, as applicable.

☒ The panel has determined the status of the claim(s) is as follows:
Claim(s) allowed: _____.
Claim(s) objected to: _____.
Claim(s) rejected: *77-109 and 111-132*.
Claim(s) withdrawn from consideration: _____.

3. ☐ **Allowable application** – A conference has been held. The rejection is withdrawn and a Notice of Allowance will be mailed. Prosecution on the merits remains closed. No further action is required by applicant at this time.

4. ☐ **Reopen Prosecution** – A conference has been held. The rejection is withdrawn and a new Office action will be mailed. No further action is required by applicant at this time.

All participants:

(1) *Jason Chan*.

(2) *Shi K Li*.

(3) *Reinhard Eisenzopf*.

(4)_____.

SHI K. LI
PRIMARY PATENT EXAMINER

U.S. Patent and Trademark Office

Part of Paper No. 20080220

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Ex. 1002-2.138

Doc Code: AP.PRE.REQ

PTO/SB/33 (07-05)
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PRE-APPEAL BRIEF REQUEST FOR REVIEW

Docket Number (Optional): UBI-005

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 AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450" [37 CFR 1.8(a)]

on _____

Signature _____

Typed or printed name _____

Application Number	Filed
10/886,514	July 06, 2004

First Named Inventor: Alexander I. Soto et al.

Art Unit	Examiner
2613	Li, Shi K.

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).
Note: No more than five (5) pages may be provided.

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)
- [X] attorney or agent of record. Registration number 34,041.
- [ ] attorney or agent acting under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34 _____

/James Albert Ward 34,041/
Signature

James Albert Ward
Typed or printed name

949-748-6760
Telephone number

January 11, 2008
Date

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 35 U.S.C. 132. 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, 1.14 and 41.6. 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 AF, 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.

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Ex. 1002-2.139

Remarks in Support of Pre-Appeal Brief Request for Review

Discussion of the Patentability of Claims 77, 82-87, 98, 100, 122 and 124-126: In the final office action mailed on Oct. 11, 2007, Examiner rejected claims 77, 82-87, 98, 100, 122 and 124-126 under 35 U.S.C. §103(a) for unpatentability over U.S. Pat. Appl. No. 2004/0052274 filed by Wang *et al.* ("Wang") in view of U.S. Pat. No. 7,031,343 issued to Kuo *et al.* ("Kuo"). Applicants respectfully traverse these rejections for at least the following reasons.

Examiner fails to state a proper *prima facie* case for the obviousness of claims 77, 82-87, 98, 100, 122 and 124-126 in view of the combination of Wang and Kuo under 35 U.S.C. §103(a). During patent examination, the pending claims must be given an interpretation that is *reasonable* and *consistent* with the specification. *See In re Prater*, 162 U.S.P.Q. 541, 550-5 1 (C.C.P.A. 1969); *In re Morris*, 44 U.S.P.Q.2d 1023, 1027-28 (Fed. Cir. 1997); see also M.P.E.P. § 2111 (describing the standards for claim interpretation during prosecution). Indeed, the *specification* is "the primary basis for construing the claims." *See Phillips v. A WH Corp.*, 41 5 F.3d 1303, 13 15 (Fed. Cir. 2005) (citations omitted). It is usually dispositive. *See id.* Interpretation of the claims must also be consistent with the interpretation that those skilled in the art would reach. *See In re Cortright*, 49 U.S.P.Q.2d 1464, 1468 (Fed. Cir. 1999); see also M.P.E.P. §2111. That is, recitations of a claim must be read as they would be interpreted by those of ordinary skill in the art. *See Rexnord Corp. v. Laliram Corp.*, 60 U.S.P.Q.2d 1851, 1854 (Fed. Cir. 2001); see also M.P.E.P. § 2111.01.

The Examiner's rejections fail to meet these requirements because they rely on a flawed and unsupported conflation of Applicants' local area network manager with an optical line terminal (OLT) and Applicants' local area network client adapters with optical networking units (ONU) (Final Office action page 2, section 2, paragraph 2, 1st sentence). The Examiner's rejection is presented without support from the cited prior art and without reasonable interpretation of the Applicants' claims and specification.

In the Applicants' specification, the network manager is described as *"[A] network manager in an optical local area network can provide switching functions of a hub, a switch, or a router*" (page 2, paragraph 0014) and *"[T]he NM (network manager)* ***100*** *acts as a central transmission point and an overall controlling device for the optical local area network*" (page 2, paragraph 0023). The local area network client adapters are clearly presented as adapters for

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clients of the local area network (LAN). Additionally, Applicants assert that this characterization is also clear from a plain reading of Applicants' base claims. These descriptions of Applicants' network manager and network client adapters are neither consistent with nor a reasonable interpretation of an OLT and ONU to those skilled in the art. On the contrary, Examiner's cited art teaches that an OLT and ONU are part of a broadband access network architecture, which cannot characterize or suggest a local area network architecture. Furthermore, Examiner's cited references explicitly and clearly distinguish the structure and function of a LAN and that of an OLT, ONU/ONT (Kuo in FIG. 2 element **200**, note dotted line). The inherent structure and function of an OLT/ONU based PON is to allow subscribers to connect to a service provider's network to receive services (*e.g.* high-speed internet, broadcast video, IPTV, etc.) and not to network with the subscriber's neighbor next door directly. Thus (impermissible) hindsight guided by Applicants' claims provides the only apparent basis for Examiner's argument, which cannot support a proper *prima facie* case for obviousness. Examiner has not met the initial burden of factually supporting a *prima facie* conclusion of obviousness.

Additionally, in the Advisory Action mailed on Dec. 28, 2007, Examiner states that "*[T]he Applicant argues that none of the Examiner's cited references provide any suggestion that an OLT, ONU and a LAN are the same. The Examiner does not say that OLT, ONU and LAN are the same. However, the Examiner recognizes that the claimed LAN structure has no structural difference from the cited prior art references.*" Applicants understand this to mean that the Examiner agrees that no explicit basis is recited for his rejections in the prior art, which appear to arise from an inconsistent interpretation of Applicants' claims that one skilled in the art would interpret as overly broad and unreasonable.

Finally, in the Amendment After Final Response filed on Dec. 10, 2007, Applicants filed claims amended to merely add the words "local area" to the existing "network manager" term (and thus shortened to "LAN manger") in base claim 77 and the corresponding terms in the claims depending from claim 77. The terms "local area" and LAN appear previously in the preamble of claim 77 and throughout the Applicants' specification and cannot reasonably be said to substantively alter any claim. Applicants proposed the amendments in response to arguments in the Final Office Action mailed on October 11, 2007 in a good faith attempt to overcome the rejections and place the Applicants' application in condition for allowance or in better form for appeal.

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The Examiner on Dec. 24, 2007 denied entry of the Applicants' claim amendments and in the Advisory Action stated "*[T]he amendment changes the scope of the claims and would require further consideration and or search. Furthermore, the term LAN manager is not defined in instant specification.*" This again appears unreasonable on its face. Applicants understand that entry of the proposed Amendment is not a matter of right (M.P.E.P. §714.13) Applicants respectfully suggest that entry may not be properly denied unreasonably. Examiner's denial of entry appears to be inconsistent with (and thus improper under) 37 C.F.R. §1.116(b)(2) or 37 C.F.R. §1.116(b)(3).

Discussion of the Patentability of Claims 78-81, 88-96, 99, 101, 105-107, 109, 111-112, 118-119, 123 and 128-129: Examiner further rejects claims 78-81, 105-107, 109, 111-112, 118-119, 123 and 128-129 under 35 U.S.C. §103(a) for unpatentability over Wang *et al.* and Kuo *et al.* in further view of U.S. Patent No. 6,023,467 issued to Abdelhamid *et al*. ("Abdelhamid"). Examiner further rejected claims 88-96, 99 and 101 under 35 U.S.C. §103(a) for unpatentability over Wang *et al* in view of Kuo *et al.* and in further view of U.S. Patent No. 6,498,667 issued to Masucci *et al.* ("Masucci"). Applicants respectfully traverse these rejections for at least the following reasons.

Examiner fails to state a proper *prima facie* case for the obviousness of claims 78-81, 105-107, 109, 111-112, 118-119, 123 and 128-129 in view of the combination of Wang, Kuo and Abdelhamid and for the obviousness of claims 88-96, 99 and 101 in view of Wang, Kuo and Masucci under 35 U.S.C. §103(a). According to M.P.E.P. §2142, a *prima facie* case for obviousness requires a showing that the combination of Wang, Kuo and Abdelhamid or Wang, Kuo, and Masucci must teach or suggest all the claim limitations; and a teaching or suggestion to make the claimed combination and a reasonable expectation of success must both be found in the combination of Wang, Kuo and Abdelhamid and in the combination of Wang, Kuo and Masucci without importing information from Applicants' disclosure. Wang teaches using SONET over a PON and splitting SONET frames (which are synchronous, *i.e.* having specific period or frequency) into a number of channels wherein each channel is dedicated for communication for a specific ONU. Thus, Wang guarantees periodic transmission for each ONU with every frame. However, Abdelhamid suggests use of ATM protocol (col. 4) for operating the PON, which is an asynchronous protocol. Therefore, Examiner's stated motivation of combining the teaching of Abdelhamid with Wang and Kuo because "*the protocols of Abdelhamid et al. clearly define the*

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frame structure and effective coordinate the ONUs" requires changes to Wang's fundamental operating principal to support such motivation. Similarly, the Examiner's stated motivation for combining Masucci with Wang and Kuo is to "*use the frame structure of Masucci et al., in the modified point-to-multipoint network of Wang et al and Kuo et al.*" However, Applicants can find no teachings or suggestion in Masucci to support Wang's method of guaranteed transmission for each ONU in every frame and therefore the Examiners stated motivation would render Wang unsatisfactory for its intended purpose.

If the proposed modification would render the prior art invention (Wang) being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984) *See M.P.E.P. §2143.01(V).* Obviousness cannot be established by engaging in a hindsight reconstruction of the claimed invention using the Applicants' invention as a template and selecting elements from references to fill the gaps. *In re Gorman*, 933 F.2d 982, 986, 18 USPQ2d 1885, 1888 (Fed. Cir. 1991).

Discussion of the Patentability of Claims 97 and 113: Examiner further rejects claims 97 and 113 under 35 U.S.C. §103(a) for unpatentability over Wang *et al* in view of Kuo *et al.* and Masucci *et al.* and in further view of U.S. Patent No. 5,029,333 issued to Graves *et al.* ("Graves"). Applicants respectfully traverse these rejections for at least the following reason.

Examiner fails to state a proper *prima facie* case for the obviousness of claims 97 and 113 in view of the combination of Wang, Kuo, Masucci and Graves under 35 U.S.C. §103(a). According to M.P.E.P. §2142, a *prima facie* case for obviousness requires a showing that the combination of Wang, Kuo, Masucci and Graves teach or suggest **all** claim limitations; and a teaching or suggestion to make the claimed combination and a reasonable expectation of success must both be found in Wang, Kuo and Masucci in view of Graves and not imported from Applicants' disclosure. Graves does not consider PONs, nor does Graves even mention or suggest an OLT or ONU at any time. Examiner's stated motivation to combine Graves is *"[b]ecause hairpinning allows ONUs to communicate with each other.*" Graves does not suggest such functionality and neither does Wan, Kuo or Masucci. Thus, Examiner appears to recite no basis for any reconstructions of Wang, Kuo and Masucci in view of Graves other than Applicants' claims, which is an improper hindsight reconstruction barred by the rule against improper hindsight rejections discussed in MPEP §§2142-3 and elsewhere.

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Discussion of the Patentability of Claims 101-104, 108, 113-117, 121, 127, and 130-132: Examiner further rejects claims 101-104, 113, 115-117 and 130-131 under 35 U.S.C. §103(a) for unpatentability over Wang *et al* in view of Kuo *et al.* and in further view of U.S. Patent Application Pub. 2003/0236916 filed by Adcox *et al.* ("Adcox"). Examiner further rejects claims 108 and 132 under 35 U.S.C. §103(a) for unpatentability over Wang *et al.* in view of Kuo *et al.* (Kuo) and in further view of U.S. Patent No. 6,778,399 issued to Medina *et al.* ("Medina"). Examiner further rejects claims 114 and 127 under 35 U.S.C. §103(a) for unpatentability over Wang *et al.* in view of Kuo *et al.* and Masucci *et al.* and Graves *et al.* and in further view of U.S. Patent No. 5,572,349 issued to Hale *et al.* ("Hale"). Examiner further rejects claim 114 under 35 U.S.C. §103(a) for unpatentability over Wang *et al.* in view of Kuo *et al.* and Abdelhamid *et al.* in further view of Medina. Applicants respectfully traverse these rejections for at least the following reasons.

Examiner fails to state a proper *prima facie* case for the obviousness of claims 101-104, 108, 113-117, 121, 127, and 130-132. Adcox neither considers nor suggests any of the claim elements that distinguish Applicants' claimed invention over Wang and Kuo for the reasons discussed above with respect to claims 77, 82-87, 98, 100, 122 and 124-126. Medina neither considers nor suggests any of the claim elements that distinguish Applicants' claimed invention over Wang and Kuo for the reasons discussed above with respect to claims 77, 82-87, 98, 100, 122 and 124-126. Hale neither considers nor suggests any of the claim elements that distinguish Applicants' claimed invention over Wang, Kuo, Masucci and Graves for the reasons discussed above with respect to claims 77, 82-87, 98, 100, 122 and 124-126. Medina neither considers nor suggests any of the claim elements that distinguish Applicants' claimed invention over Wang, Kuo, Abdelhamid for the reasons discussed above with respect to claims 78-81, 105-107, 109, 111-112, 118-119, 123 and 128-129. Therefore one skilled in the art would find therein no suggestion or motivation to combine these references and Examiner does not appear to recite any other source for such suggestion.

Obviousness cannot be established by engaging in a hindsight reconstruction of the claimed invention using Applicants' invention as a template and selecting elements from references to fill the gaps. *In re Gorman*, 933 F.2d 982, 986, 18 USPQ2d 1885, 1888 (Fed. Cir. 1991).

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IPR2023-00960, Ex. 1002-2
Ex. 1002-2.144

Electronic Patent Application Fee Transmittal

Application Number:	10886514
Filing Date:	06-Jul-2004
Title of Invention:	Communication system and method for an optical local area network
First Named Inventor/Applicant Name:	Alexander I. Soto
Filer:	James Albert Ward
Attorney Docket Number:	UBI-005
Filed as Small Entity	

Utility Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Notice of appeal	2401	1	255	255
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

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Ex. 1002-2.145

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
			Total in USD ($)	**255**

Electronic Acknowledgement Receipt

EFS ID:	2708480
Application Number:	10886514
International Application Number:	
Confirmation Number:	8709
Title of Invention:	Communication system and method for an optical local area network
First Named Inventor/Applicant Name:	Alexander I. Soto
Customer Number:	50625
Filer:	James Albert Ward
Filer Authorized By:	
Attorney Docket Number:	UBI-005
Receipt Date:	11-JAN-2008
Filing Date:	06-JUL-2004
Time Stamp:	23:37:18
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$255
RAM confirmation Number	4014
Deposit Account	
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes) /Message Digest	Multi Part /.zip	Pages (if appl.)

1	Notice of Appeal Filed	Notice_of_Appeal_UBI-005_11Jan08.pdf	40675 8877157ebab3ca1b35768c8119a3739c07edd5fa	no	1
Warnings:					
Information:					
2	Pre-Brief Conference request	Pre-Appeal_Brief_Request_For_Review_UBI-005_11Jan08.pdf	82124 2827c5631b169826b244f09926396ae8049ccd64	no	6
Warnings:					
Information:					
3	Fee Worksheet (PTO-06)	fee-info.pdf	8138 bfc56fec083d033915441 3bb95fbe9a126687555	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	130937	

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.

PTO/SB/31 (01-08)
Approved for use through 01/31/2008. 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 displays a valid OMB control number.

NOTICE OF APPEAL FROM THE EXAMINER TO THE BOARD OF PATENT APPEALS AND INTERFERENCES

Docket Number (Optional): UBI-005

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" [37 CFR 1.8(a)]
on _____

Signature _____

Typed or printed name _____

In re Application of: Soto et al.

Application Number	Filed
10/886,514	July 06, 2004

For: Communication System and Method For An Optical Local Area Network

Art Unit	Examiner
2613	Li, Shi K.

Applicant hereby **appeals** to the Board of Patent Appeals and Interferences from the last decision of the examiner.

The fee for this Notice of Appeal is (37 CFR 41.20(b)(1)) $ 510

[X] Applicant claims small entity status. See 37 CFR 1.27. Therefore, the fee shown above is reduced by half, and the resulting fee is: $ 255

[ ] A check in the amount of the fee is enclosed.

[X] Payment by credit card. ~~Form PTO-2038 is attached.~~ Paid electronically.

[ ] The Director has already been authorized to charge fees in this application to a Deposit Account. I have enclosed a duplicate copy of this sheet.

[ ] The Director is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. _____ . I have enclosed a duplicate copy of this sheet.

[ ] A petition for an extension of time under 37 CFR 1.136(a) (PTO/SB/22) is 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.

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)

[X] attorney or agent of record. Registration number 34,041.

[ ] attorney or agent acting under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34. _____

/James Albert Ward #34,041/
Signature

James Albert Ward
Typed or printed name

949-748-6760
Telephone number

January 11, 2008
Date

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 41.31. 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, 1.14 and 41.6. 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.

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Ex. 1002-2.149

UNITED STATES PATENT AND TRADEMARK OFFICE

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www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/886,514	07/06/2004	Alexander I. Soto	UBI-005	8709

50625 7590 12/28/2007

JAMES ALBERT WARD
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EXAMINER	
LI, SHI K	

ART UNIT	PAPER NUMBER
2613	

MAIL DATE	DELIVERY MODE
12/28/2007	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.

Nokia of America Corporation
IPR2023-00960, Ex. 1002-2
Ex. 1002-2.150

Advisory Action Before the Filing of an Appeal Brief	Application No. 10/886,514	Applicant(s) SOTO ET AL.	
	Examiner Shi K. Li	Art Unit 2613	

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

THE REPLY FILED 10 December 2007 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1. ☒ The reply was filed after a final rejection, but prior to or on the same day as filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:
   a) ☐ The period for reply expires _____months from the mailing date of the final rejection.
   b) ☒ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.

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

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

NOTICE OF APPEAL

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

AMENDMENTS

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

   NOTE: *See Continuation Sheet*. (See 37 CFR 1.116 and 41.33(a)).

4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).
5. ☐ Applicant's reply has overcome the following rejection(s): _____.
6. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
7. ☒ For purposes of appeal, the proposed amendment(s): a) ☒ will not be entered, or b) ☐ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.
   The status of the claim(s) is (or will be) as follows:
   Claim(s) allowed: _____.
   Claim(s) objected to: _____.
   Claim(s) rejected: *77-109 and 111-132*.
   Claim(s) withdrawn from consideration: _____.

AFFIDAVIT OR OTHER EVIDENCE

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

REQUEST FOR RECONSIDERATION/OTHER

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

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Ex. 1002-2.151

Continuation of 3. NOTE: The amendment changes the scope of the claims and would require further consideration and/or search. Furthermore, the term LAN manager is not defined in instant specification.

Continuation of 11. does NOT place the application in condition for allowance because: The Applicant argues that none of the Examiner's cited references provide any suggestion that an OLT, ONU and a LAN are the same. The Examiner does not say that OLT, ONU and LAN are the same. However, the Examiner recognizes that the claimed LAN structure has no structural difference from the cited prior art references.

The Applicant argues that Abdelhamid suggests use of ATM protocol for operating the PON while Wang teaches of SONET. The major difference between a synchronous and asynchronous communication protocols is at the physical level. They both contain frames with various fields.

The Applicant argues that the proposed modification of combining the teaching of Masucci et al. with Wang et al. and Kuo et al. would change the principle of operation of the prior art invention being modified. The Examiner disagrees. The Examiner recognizes that modification would always change or enhance the prior art. However, since Wang, Kuo and Masucci et al. all deal with data communications, the combination would not change the principle of operation which is sending data from one place to other places. The Applicant argues that ONUs are, by design, not allowed to communicate with each other. First, the Examiner unaware of any rules that forbid ONUs from communicating with each other. One of ordinary skill in the art can design an ONU that does not communicate with other ONUs; one of ordinary skill in the art can also design an ONU that communicate with other ONUs. As the Applicant admits, whether an ONU can communicate with other ONUs is by design and not an inherent property, and therefore can be changed or modified..

SHI K. LI
PRIMARY PATENT EXAMINER

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Ex. 1002-2.152

Do not enter 12/24/2007

PATENTS
Docket No. UBI-005

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:
Alexander I. Soto et al.

Group Art Unit: **2613**

Patent Application No.: **10/886,514**

Filed on: **July 06, 2004**

Examiner: **Li, Shi K.**

For: **Communication System and Method For An Optical Local Area Network**

Commissioner for Patents
Mail Stop Amendment
PO Box 1450
Alexandria, VA 22313-4150

AMENDMENT AFTER FINAL REJECTION PER 37 C.F.R. §1.116(b)(2)

In response to the Final Office Action mailed on October 11, 2007, Applicants respectfully request entry of the following Amendment presenting rejected claims in better form for consideration on appeal.

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Ex. 1002-2.153

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:
Alexander I. Soto et al.

Group Art Unit: **2613**

Patent Application No.: **10/886,514**

Filed on: **July 06, 2004**

Examiner: **Li, Shi K.**

For: **Communication System and Method For An Optical Local Area Network**

Commissioner for Patents
Mail Stop Amendment
PO Box 1450
Alexandria, VA 22313-4150

AMENDMENT AFTER FINAL REJECTION PER 37 C.F.R. §1.116(b)(2)

In response to the Final Office Action mailed on October 11, 2007, Applicants respectfully request entry of the following Amendment presenting rejected claims in better form for consideration on appeal.

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IPR2023-00960, Ex. 1002-2
Ex. 1002-2.154

AMENDMENTS TO THE CLAIMS

Kindly enter the claim amendments as set forth in the following claim listing presented in accordance with 37 C.F.R. §1.121(c)(1):

Complete Listing of Claims:

1-76. (Canceled).

77. (Currently Amended) An optical Local Area Network (LAN) of one or more LAN ~~local area network~~ clients, the optical LAN comprising:

a LAN ~~network~~ manager for managing optical signals each incorporating both a LAN control channel and a LAN data channel in a single optical wavelength, including

an optical interface having means for converting received optical signals to electrical signals and means for producing transmitted optical signals from electrical signals,

a plurality of optical ports,

a passive optical coupler coupled between the optical interface and the optical ports and having means for accepting received optical signals from and for distributing transmitted optical signals to the optical interface and the optical ports, and

a control module coupled to the optical interface and having means for receiving electrical signals from and for transmitting electrical signals to the optical interface;

a plurality of LAN ~~network~~ client adapters including

an optical interface having means for converting received optical signals to electrical signals and means for producing transmitted optical signals from electrical signals,

an optical port coupled to the optical interface, and

a control module having means for receiving electrical signals from and for transmitting electrical signals to the optical interface; and

a plurality of optical waveguides each coupled between one of the LAN ~~network~~ client adapter optical ports and the LAN ~~network~~ manager;

whereby the LAN ~~network~~ manager can receive an optical signal incorporating both a LAN control channel and a LAN data channel in a single optical wavelength from any LAN

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Ex. 1002-2.155

~~network~~ client adapter, a LAN ~~network~~ client adapter can receive an optical signal incorporating both a LAN control channel and a LAN data channel in a single optical wavelength from the LAN ~~network~~ manager, and the LAN ~~network~~ manager and LAN ~~network~~ client adapters are in communication to facilitate sending and receiving LAN data across the optical waveguides.

78. (Currently Amended) The optical LAN of claim 77, wherein the LAN ~~network~~ manager control module includes means for administering the received electrical signals and transmitted electrical signals conforming to an Open Systems Interconnection reference model (OSI) Layer 2 or Layer 3 protocol.

79. (Previously presented) The optical LAN of claim 78, wherein the OSI Layer protocols includes means of representing address, synchronization, error control and data into frames or packets.

80. (Currently Amended) The optical LAN of claim 77, wherein the ~~a~~ LAN ~~network~~ client adapter control module includes means to administer the received electrical signals and transmitted electrical signals conforming to an OSI Layer-2 or Layer-3 protocol.

81. (Previously presented) The optical LAN of claim 80, wherein the OSI Layer protocols includes means for representing address, synchronization, error control and data into frames or packets.

82. (Currently Amended) The optical LAN of claim 77, wherein a LAN ~~network~~ manager control module includes means to transmit data according to a time division multiplexing scheme.

83. (Currently Amended) The optical LAN of claim 82, wherein the LAN ~~network~~ manager control module includes means for dynamically scheduling or providing bandwidth allocations.

84. (Currently Amended) The optical LAN of claim 82, wherein the LAN ~~network~~ manager control module includes means for scheduling or providing a minimum bandwidth allocation.

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85. (Currently Amended) The optical LAN of claim 77, wherein the LAN ~~network~~ manager control module includes means for receiving data according to a time division multiple access scheme.

86. (Currently Amended) The optical LAN of claim 85, wherein the LAN ~~network~~ manager control module includes means for dynamically scheduling or providing bandwidth allocations.

87. (Currently Amended) The optical LAN of claim 85, wherein the LAN ~~network~~ manager control module includes means for scheduling or providing a minimum bandwidth allocation.

88. (Currently Amended) The optical LAN of claim 77, wherein the LAN ~~network~~ manager includes means for transmitting downstream data from the LAN ~~network~~ manager to a LAN ~~network~~ client adapter in successive downstream frames over the optical waveguides, the downstream data including downstream packet data.

89. (Previously presented) The optical LAN of claim 88, wherein each downstream frame includes a first number of downstream subframes, each downstream subframe including a second number of downstream slots of time, each downstream slot of time having one of a plurality of downstream formats.

90. (Currently Amended) The optical LAN of claim 89, wherein a downstream subframe further includes a downstream communication channel for communicating schedule or provisioning information for provisioning upstream slots of time to respective LAN ~~network~~ client adapters.

91. (Previously presented) The optical LAN of claim 88, wherein the downstream packet format for carrying downstream packet data includes a downstream packet header and a downstream packet payload; the downstream packet header including a field indicating length of the downstream packet payload.

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Ex. 1002-2.157

92. (Previously presented) The optical LAN of claim 91, wherein the downstream packet payload includes at least a portion of an Ethernet or Fibre Channel frame.

93. (Currently Amended) The optical LAN of claim 77, wherein the LAN ~~a network~~ client adapter includes means to transmit upstream data from the LAN ~~network~~ client adapter to a LAN ~~network~~ manager in respective upstream slots of time over the optical waveguides, the upstream slots of time forming essentially successive upstream frames, the upstream data including upstream packet data.

94. (Previously presented) The optical LAN of claim 93, wherein each upstream frame includes a first number of upstream subframes, each upstream subframe including a second number of upstream slots of time, each upstream slot of time having one of a plurality of upstream formats.

95. (Previously presented) The optical LAN of claim 93, wherein the upstream packet format for carrying upstream packet data includes an upstream packet header and an upstream packet payload, wherein the upstream packet header includes a field for indicating an upstream packet payload length.

96. (Previously presented) The optical LAN of claim 95, wherein the upstream packet payload includes at least a portion of an Ethernet or Fibre Channel frame.

97. (Currently Amended) The optical LAN of claim 93, wherein the LAN ~~network~~ manager includes means for hairpinning upstream data to one or more LAN ~~network~~ client adapters.

98. (Currently Amended) The optical LAN of claim 77, wherein the LAN ~~a network~~ client adapter further includes a network interface adapted to communicate electrically to one or more of the local area network clients.

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Ex. 1002-2.158

99. (Previously presented) The optical LAN of claim 98, wherein the network interface includes means for a Layer 2 or Layer 1 network interface protocol selected from the group consisting essentially of:

Ethernet and Fibre Channel protocols.

100. (Currently Amended) The optical LAN of claim 98, wherein the local area network clients are selected from the group consisting essentially of:

a workstation, a personal computer, a disk storage array, a server, a switch, and a router.

101. (Currently Amended) The optical LAN of claim 77, wherein the LAN ~~network~~ manager further includes a switch interface adapted to communicate electrically to an OSI Layer 2 or Layer 3 switch device.

102. (Previously presented) The optical LAN of claim 101, wherein the switch interface includes means for implementing a Layer 2 or Layer 1 switch interface protocol selected from the group consisting essentially of:

Ethernet and Fibre Channel protocols.

103. (Previously presented) The optical LAN of claim 101, wherein the switch device is selected from the group consisting essentially of:

an Ethernet media access controller (MAC) device and a Fibre Channel FC-2 service device.

104. (Currently Amended) The optical LAN of claim 101, wherein the LAN ~~network~~ manager includes means for transmitting at least a portion of the received data to the switch device.

105. (Currently Amended) The optical LAN of claim 77, wherein the LAN ~~network~~ manager includes means for determining a message response delay between the LAN ~~network~~ manager and a LAN ~~network~~ client adapter.

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106. (Currently Amended) The optical LAN of claim 105, wherein the LAN ~~a network~~ client adapter includes means for adjusting transmission timing responsive to the message response delay between the LAN ~~network~~ manager and the LAN ~~a network~~ client adapter.

107. (Currently Amended) The optical LAN of claim 77, wherein the LAN ~~network~~ manager includes means for adjusting the optical transmit power of a LAN ~~network~~ client adapter to a predetermined level in response to a received message.

108. (Previously presented) The optical LAN of claim 77, wherein the form factors of the optical ports are selected from the group consisting essentially of:

the optical Multi-Source Agreements (MSA) specifications, including XFP, XENPAK, XPAK, and SFP.

109. (Previously Presented) A method for operating an optical local area network (LAN) including a network hub having an optical transceiver coupled to passive optical coupler that is also coupled to a plurality of optical ports and including a plurality of network terminals each coupled to a network hub optical port by means of at least one of a plurality of optical waveguides, the method comprising the steps of:

accepting information from both a control channel and a data channel on a single wavelength at the network hub;

communicating the information between the network hub and a network terminal in accordance with an OSI layer 2 or layer 3 protocol~~.~~;

managing the communications at the network hub;

transmitting the information from the network hub to all network terminals in a broadcast time division multiplexed process;

transmitting the information from a network terminal to the network hub in a time division multiple access process; and

providing bandwidth allocation for the information transfers at the network hub.

110. (Canceled)

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111. (Previously Presented) The method of claim 109, wherein the bandwidth allocation includes dynamic bandwidth allocation.

112. (Previously Presented) The method of claim 109, wherein the bandwidth allocation includes a minimum bandwidth allocation.

113. (Previously presented) The method of claim 109, further comprising the unordered steps of:

(a) transmitting an incoming optical signal representing data frames from a first network terminal to one of the plurality of network hub optical ports over at least one of the optical waveguides;

(b) accepting the incoming optical signal from one of the network hub optical ports;

(c) converting the incoming optical signal to a first electrical signal representing the optical signal data;

(d) processing the first electrical signal according to an OSI Layer-2 protocol to produce a first processed electrical signal representing physical address, synchronization, error control, flow control and data;

(e) converting the first processed electrical signal to a broadcast optical signal responsive to the physical address, synchronization, error control, flow control and data;

(f) transmitting the broadcast optical signal to a passive optical coupler; and

(g) distributing the broadcast optical signal from the passive optical coupler to each of the plurality of hub optical ports; and

(h) accepting the broadcast optical signal at a plurality of the network terminals.

114. (Previously presented) The method of claim 113, further comprising the unordered steps of:

(b.1) measuring the incoming optical signal power level at the network hub;

(b.2) determining a desired network terminal optical transmission power level adjustment from the measured optical signal power level;

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(e.1) adding data representing the desired network terminal optical transmission power level adjustment to the broadcast optical signal; and

(h.1) adjusting the optical transmission power level at one of the network terminals responsive to acceptance of the broadcast optical signal.

115. (Previously presented) The method of claim 113, further comprising the steps of:

(d.1) coupling the first electrical signal to a device that processes the first electrical signal according to an OSI layer-3 protocol to produce logical address, network routing, network segmentation and traffic control data.

116. (Previously presented) The method of claim 113, further comprising the steps of:

(h.1) converting the received broadcast optical signal transmission to a second electrical signal representing data frames in a receiving network terminal;

(h.2) selecting a data frame within the second electrical signal associated with the receiving network terminal; and

(h.3) adapting data in the selected frame for transmission over a network interface having a Layer 2 or Layer 1 network interface protocol selected from the group consisting essentially of:

the Ethernet and Fibre Channel protocols.

117. (Previously presented) The method of claim 113, further comprising the steps of:

(i.1) converting the incoming optical signal to a third electrical signal representing data frames in the network hub;

(i.2) selecting a data frame within the third electrical signal; and

(i.3) adapting data in the selected frame for transmission over a switch interface having a Layer 2 or Layer 1 switch interface protocol selected from the group consisting essentially of:

the Ethernet and Fibre Channel protocols.

118. (Previously presented) The method of claim 109, wherein one or more of the network terminals are selected from the group consisting essentially of:

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a workstation, a personal computer, a disk storage array, a server, a switch, and a router.

119. (Previously presented) The method of claim 109, further comprising the step of:

determining a response time delay at the network hub, including the steps of

(a) transmitting a message from the network hub to a network terminal,

(b) processing the message at the network terminal,

(c) transmitting a return message from the network terminal, and

(d) receiving the return message at the network hub.

120. (Previously presented) The method of claim 119, further comprising the steps of:

(a) transmitting a representation of the determined response time delay to the network terminal; and

(b) adjusting the transmission timing of the network terminal in reaction to the received representation of the determined response time delay.

121. (Previously presented) The method claim 109, wherein the form factor of the optical ports is selected from the group consisting essentially of:

the optical Multi-Source Agreements (MSA) specifications including XFP, XENPAK, XPAK, and SFP.

122. (Previously Presented) A method for reducing the number of optical transceivers in a hub of an optical local area network, comprising:

coupling an optical transceiver or optical module to a passive optical coupler; and

coupling the passive optical coupler to a plurality of optical ports; and

distributing transmitted optical signals incorporating both a control channel and a data channel in a single wavelength from the optical transceiver to each of the optical ports through the passive optical coupler; and

combining received optical signals from each optical port to the optical transceiver through the passive optical coupler~~.~~;

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whereby the optical ports serve as a connection site that connects an external optical waveguide to the internal optical transceiver through the passive optical coupler, thereby reducing the requisite number of optical transceivers in an optical LAN.

123. (Previously presented) The method of claim 122, further comprising the steps of:

producing a first electrical signal representing the received optical signal;

producing a transmitted optical signal representing a second electrical signal; and

processing the first and second electric signals in accordance with an OSI Layer 2 or Layer 3 protocol.

124. (Previously presented) The method of claim 122, further comprising the steps of:

managing network communications at the network hub;

transmitting data from the network hub to a network terminal in a broadcast time division multiplexed manner;

transmitting data from the network terminal to the network hub in a time division multiple access manner; and

provisioning bandwidth allocation for all network communications at the network hub.

125. (Previously presented) The method of claim 124, wherein the bandwidth allocation includes dynamic bandwidth allocation.

126. (Previously presented) The method of claim 124, wherein the bandwidth allocation includes a minimum bandwidth allocation.

127. (Previously presented) The method of claim 124, further comprising the steps of:

measuring the received optical signal power level at the network hub;

determining a desired network terminal optical transmission power level adjustment from the measured optical signal power level;

adding data representing the desired network terminal optical transmission power level adjustment to the transmitted data from the network hub to the network terminal; and

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adjusting the optical transmission power level at the network terminal responsive to acceptance of the transmitted data.

128. (Previously presented) The method of claim 124, further comprising the step of:

determining a delay response time at the network hub, including the steps of

(a) transmitting a message from the network hub to a network terminal;

(b) processing of the message by the network terminal;

(c) transmitting a return message at the network terminal; and

(d) receiving the return message at the network hub.

129. (Previously presented) The method of claim 128, further comprising the steps of:

(a) transmitting a representation of the determined response time delay to the network terminal; and

(b) adjusting the transmission timing of the network terminal in reaction to the received representation of the determined response time delay.

130. (Previously presented) The method of claim 122, further comprising:

converting the received optical signal to a third electrical signal representing data frames in the network hub;

selecting a data frame within the third electrical signal; and

adapting data in the selected frame for transmission over a switch interface having a Layer 2 or Layer 1 switch interface protocol selected from the group consisting essentially of:

the Ethernet and Fibre Channel protocols.

131. (Previously presented) The method of claim 130, further comprising:

receiving a fourth electrical signal at the switch interface;

converting the fourth electrical signal to an optical signal; and

transmitting the optical signal to a network terminal.

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132. (Previously presented) The method of claim 122, wherein the form factor of the optical ports is selected from the group consisting essentially of:

the optical Multi-Source Agreements (MSA) specifications including XFP, XENPAK, XPAK, and SFP.

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REMARKS

Introduction: This is an Amendment and Response After Final Rejection per 37 C.F.R. §1.116(b)(2). Applicants herewith amend claims 77-78, 80, 82-88, 90, 93, 97-98, 100-101, and 104-107 to correct several inadvertent informalities and to present the rejected claims in better form for consideration on appeal. Claims 77-109 and 111-132 remain in the application, comprising 3 independent claims and 52 dependent claims, and this amendment requires no additional fees. Applicants respectfully request entry of the amendment and reconsideration of the rejections of claims 77-109 and 111-132 as amended.

Discussion of the Patentability of Claims 77, 82-87, 98, 100, 122 and 124-126: In the final office action mailed on Oct. 11, 2007, Examiner rejected claims 77, 82-87, 98, 100, 122 and 124-126 under 35 U.S.C. §103(a) for unpatentability over U.S. Pat. Appl. No. 2004/0052274 filed by Wang *et al.* ("Wang") in view of U.S. Pat. No. 7,031,343 issued to Kuo *et al.* ("Kuo"). Applicants amend claims 77, 82-87, 98, and 100 to more particularly describe and claim that which Applicants' consider to be the invention.

In the Response to Arguments section of the office action, Examiner states that Applicants' claims lack structural difference over the prior art. Applicants amend base claim 77 and related dependent claims 82-87, 98 and 100 to make explicit the existing implicit structural limitation of an optical local area network (LAN). No substantive changes are made. Basis for the amendment may be found in base claim 122, which includes the optical LAN limitation in both preamble and the body.

If Examiner argues there is no structural difference between an optical LAN and an OLT and ONU/ONT, then Applicants respectfully disagree and refer to the large body of international as well as IEEE specifications and published papers suggesting otherwise. Additionally, none of the Examiner's cited references provide any suggestion that an OLT, ONU and a LAN are the same. On the contrary, the cited references differentiate between a LAN and the OLT, ONU/ONT (Kuo in FIG. 2 element **200**, note dotted line). Thus (impermissible) hindsight guided by Applicants' claims provides the only apparent basis for such an argument, which cannot support a proper *prima facie* case for obviousness.

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Accordingly, Applicants respectfully suggest that the combination of Wang and Kuo references fail to state a proper *prima facie* case for the obviousness of claims 77, 82-87, 98, 100, 122 and 124-126, as amended, because the combination does not include all elements of Applicants' claimed invention and Applicants respectfully request reconsideration and withdrawal of these 35 U.S.C. §103(a) rejections of claims 77, 82-87, 98, and 100, as amended, and claims 122 and 124-126.

Discussion of the Patentability of Claims 78-81, 105-107, 109, 111-112, 118-119, 123 and 128-129: Examiner further rejects claims 78-81, 105-107, 109, 111-112, 118-119, 123 and 128-129 under 35 U.S.C. §103(a) for unpatentability over Wang *et al.* and Kuo *et al.* in further view of U.S. Patent No. 6,023,467 issued to Abdelhamid *et al.* ("Abdelhamid"). Applicants amend claims 78, 80, and 105-107 to more particularly describe and claim that which Applicants consider to be the invention.

For reasons mentioned above in the discussion of claims 77, 82-87, 98, 100, 122 and 124-126, Applicants amend related dependent claims 78, 80, and 105-107 to make explicit the existing implicit structural limitations of an optical local area network (LAN). No substantive changes are made. Basis for the amendment may be found in base claim 109, which includes an optical LAN (comprising a network hub and a plurality of network terminals) in the preamble and language in the body of the claim defining a method of operation of said network hub and plurality of network terminals.

Additionally, Examiner states that *"[I]t is understood that OAM is a layer 7 protocol according to the OSI model and relies on lower layers, including layer 2 and layer 3, for operation.*" Applicants respectfully disagree. OAM is the management of layer 1 and layer 2 and at best can be described as layer 3. Furthermore, Abdelhamid suggests use of ATM protocol (col. 4) for operating the PON while Wang teaches use of SONET (paragraph 0014-0015, 0023). ATM protocol is asynchronous while SONET is a synchronous protocol as indicated by the first letter of the respective acronyms. Therefore, Examiner's stated motivation of combining the teaching of Abdelhamid with Wang and Kuo because "*the protocols of Abdelhamied et al. clearly define the frame structure and effective coordinate the ONUs*" requires changes to the

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principal operation of Wang and Kuo. When the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified (Wang, Kuo), then the teachings of the references (Abdelhamid) are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959).

Accordingly, Applicants respectfully suggest that the combination of Wang, Kuo and Abdelhamid references fails to state a proper *prima facie* case for the obviousness of claims 78-81, 105-107, 109, 111-112, 118-119, 123 and 128-129, as amended, because the combination is neither suggested nor motivated in the prior art and does not include all elements of Applicants' claimed invention. Applicants respectfully request reconsideration and withdrawal of these 35 U.S.C. §103(a) rejections of claims 78-81, and 105-107, as amended, and claims 109, 111-112, 118-119, 123 and 128-129.

Discussion of the Patentability of Claims 88-96, 99 and 101: Examiner further rejected claims 88-96, 99 and 101 under 35 U.S.C. §103(a) for unpatentability over Wang *et al* in view of Kuo *et al.* and in further view of U.S. Patent No. 6,498,667 issued to Masucci *et al.* ("Masucci"). Applicants amend claims 88, 90, 93 and 101 to more particularly describe and claim that which Applicants consider to be the invention.

For reasons mentioned above in the discussion of claims 77, 82-87, 98, 100, 122 and 124-126, Applicants amend related dependent claims 88, 90, 93 and 101 to make explicit the existing implicit structural limitations of an optical local area network (LAN). No substantive changes are made.

Additionally, Examiner's stated the motivation for combining Masucci with Wang and Kuo is to "*use the frame structure of Masucci et al., in the modified point-to-multipoint network of Wang et al and Kuo et al. because the frame structure of Masucci et al. supports the aggregation of multiple broadband services including voice, high speed data, video and image*". Applicants note that Wang and Kuo each respectively suggest their own different protocols and therefore the proposed modification of using the unique Masucci protocol would alter the principal of operation of Wang and Kuo. When the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified (Wang, Kuo),

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then the teachings of the references (Masucci) are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959)

Accordingly, Applicants respectfully suggest that the combination of Wang, Kuo and Masucci references fails to state a proper *prima facie* case for the obviousness of claims 88-96, 99 and 101, as amended, , because the combination is neither suggested nor motivated in the prior art and does not include all elements of Applicants' claimed invention. Applicants respectfully request reconsideration and withdrawal of these 35 U.S.C. §103(a) rejections of claims 88-96, 99 and 101, as amended.

Discussion of the Patentability of Claims 97 and 113: Examiner further rejects claims 97 and 113 under 35 U.S.C. §103(a) for unpatentability over Wang *et al* in view of Kuo *et al.* and Masucci *et al.* and in further view of U.S. Patent No. 5,029,333 issued to Graves *et al*. ("Graves"). Applicants amend claim 97 to more particularly describe and claim that which Applicants consider to be the invention.

For reasons mentioned above in the discussion of claims 77, 82-87, 98, 100, 122 and 124-126, Applicants amend related dependent claim 97 to make explicit the existing implicit structural limitations of an optical local area network (LAN). No substantive changes are made.

Additionally, in the Response to Arguments, Examiner states that "*the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art*". As mentioned in earlier Remarks, Graves does not consider a PON. Nor does Graves even mention or suggest an OLT or ONU at any time. Examiner's stated motivation to combine Graves is *"[b]ecause hairpinning allows ONUs to communicate with each other*". Graves does not suggest such functionality and neither does Wan, Kuo or Masucci. Furthermore, those skilled in the arts are aware that ONUs are, by design, not allowed to communicated with each other. Thus, Examiner appears to recite no basis for any reconstructions of Wang, Kuo and Masucci in view of Graves, other than that guided by Applicants' claims, which is an improper hindsight reconstruction barred by the rule against improper hindsight rejections discussed in MPEP §§2142-3 and elsewhere. Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or moti-

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vation to do so. *In re Kahn*, 441 F.3d 977, 986, 78 USPQ2d 1329, 1335 (Fed. Cir. 2006). Obviousness cannot be established by engaging in a hindsight reconstruction of the claimed invention using the Applicants' invention as a template and selecting elements from references to fill the gaps. *In re Gorman*, 933 F.2d 982, 986, 18 USPQ2d 1885, 1888 (Fed. Cir. 1991).

Accordingly, Applicants respectfully suggest that the combination of Wang, Kuo, Masucci and Graves references fails to state a proper *prima facie* case for the obviousness of claims 97, as amended, and 113 because the combination does not include all elements of Applicants' claimed invention and Applicants respectfully request reconsideration and withdrawal of these 35 U.S.C. §103(a) rejections of claim 97, as amended, and claim 113.

Discussion of the Patentability of Claims 101-104, 113, 115-117 and 130-131: Examiner further rejects claims 101-104, 113, 115-117 and 130-131 under 35 U.S.C. §103(a) for unpatentability over Wang *et al* in view of Kuo *et al.* and in further view of U.S. Patent Application Pub. 2003/0236916 filed by Adcox *et al.* ("Adcox"). Applicants amend claims 101 and 104 to more particularly describe and claim that which Applicants consider to be the invention.

For reasons mentioned above in the discussion of claims 77, 82-87, 98, 100, 122 and 124-126, Applicants amend related dependent claims 101 and 104 to make explicit the existing implicit structural limitations of an optical local area network (LAN). No substantive changes are made.

Obviousness cannot be established by engaging in a hindsight reconstruction of the claimed invention using the Applicants' invention as a template and selecting elements from references to fill the gaps. *In re Gorman*, 933 F.2d 982, 986, 18 USPQ2d 1885, 1888 (Fed. Cir. 1991).

Additionally, Applicants note that the rejected claims differ structurally from Adcox because of the well-known structural differences between a LAN and an OLT, ONU based PON as taught by Adcox in FIG. 1-4, 10-11, and 17.

Accordingly, Applicants respectfully suggest that the combination of Wang, Kuo and Adcox fails to state a proper *prima facie* case for the obviousness of claims 101-104, as amended, and claims 113, 115-117 and 130-131 because the reference combination does not in-

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clude all elements of Applicants' claimed invention. Applicants respectfully request reconsideration and withdrawal of these 35 U.S.C. §103(a) rejections of claims 101-104, as amended, and claims 113, 115-117 and 130-131.

Discussion of the Patentability of Claims 108 and 132: Examiner further rejects claims 108 and 132 under 35 U.S.C. §103(a) for unpatentability over Wang *et al.* in view of Kuo *et al.* (Kuo) and in further view of U.S. Patent No. 6,778,399 issued to Medina *et al.* ("Medina"). Applicants respectfully traverse these rejections for the following reasons. Medina neither considers nor suggests any teachings sufficient to disclose the above-described distinction of Applicants' claimed invention and the combination of the Wang and Kuo references.

Obviousness cannot be established by engaging in a hindsight reconstruction of the claimed invention using the Applicants' invention as a template and selecting elements from references to fill the gaps. *In re Gorman*, 933 F.2d 982, 986, 18 USPQ2d 1885, 1888 (Fed. Cir. 1991).

Accordingly, Applicants respectfully suggest that the combination of Wang, Kuo and Medina references fails to state a proper *prima facie* case for the obviousness of claims 108, as amended, and claim 132 because the combination does not include all elements of Applicants' claimed invention and Applicants respectfully request reconsideration and withdrawal of these 35 U.S.C. §103(a) rejections of claim 108, as amended and claim 132.

Discussion of the Patentability of Claims 114 and 127: Examiner further rejects claims 114 and 127 under 35 U.S.C. §103(a) for unpatentability over Wang *et al.* in view of Kuo *et al.* and Masucci *et al.* and Graves *et al.* and in further view of U.S. Patent No. 5,572,349 issued to Hale *et al.* ("Hale"). Applicants respectfully traverse these rejections for the following reasons. Medina neither considers nor suggests any teachings sufficient to disclose the above-described distinction of Applicants' claimed invention and the combination of the Wang, Kuo, Masucci and Graves references.

Obviousness cannot be established by engaging in a hindsight reconstruction of the claimed invention using the Applicants' invention as a template and selecting elements from ref-

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erences to fill the gaps. *In re Gorman*, 933 F.2d 982, 986, 18 USPQ2d 1885, 1888 (Fed. Cir. 1991).

Accordingly, Applicants respectfully suggest that the combination of Wang, Kuo, Masucci, Graves and Hale references fails to state a proper *prima facie* case for the obviousness of claims 114 and 127 because the combination does not include all elements of Applicants' claimed invention and Applicants respectfully request reconsideration and withdrawal of these 35 U.S.C. §103(a) rejections of claims 114 and 127.

Discussion of the Patentability of Claim 121: Examiner further rejects claim 114 under 35 U.S.C. §103(a) for unpatentability over Wang *et al.* in view of Kuo *et al.* and Abdelhamid *et al.* in further view of Medina. Applicants respectfully traverse this rejection for the following reasons. Medina neither considers nor suggests any teachings sufficient to disclose the above-described distinction of Applicants' claimed invention and the combination of the Wang, Kuo and Abdelhamid references.

Obviousness cannot be established by engaging in a hindsight reconstruction of the claimed invention using the Applicants' invention as a template and selecting elements from references to fill the gaps. *In re Gorman*, 933 F.2d 982, 986, 18 USPQ2d 1885, 1888 (Fed. Cir. 1991).

Accordingly, Applicants respectfully suggest that the combination of Wang, Kuo, Abdelhamid and Medina references fails to state a proper *prima facie* case for the obviousness of claim 121 because the combination does not include all elements of Applicants' claimed invention and Applicants respectfully request reconsideration and withdrawal of this 35 U.S.C. §103(a) rejection of claim 121.

Conclusion: Applicants submit this Amendment After Final Rejection to place this application in better form for appeal. No substantive changes are made to the claims. This Amendment is necessary for clarification of the issues for consideration on appeal and was not earlier presented because Applicants believed that the prior response(s) placed this application in condition for allowance, for at least the reasons set forth in those response(s). Accordingly, entry

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of the present Amendment, as an earnest attempt to advance prosecution and/or to reduce the number of issues, is requested under 37 C.F.R. §1.116.

Finally, favorable reconsideration of the application, as amended, is respectfully requested. No fees are required for this Amendment.

Respectfully submitted,

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December 10, 2007

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Electronic Acknowledgement Receipt

EFS ID:	2572842
Application Number:	10886514
International Application Number:	
Confirmation Number:	8709
Title of Invention:	Communication system and method for an optical local area network
First Named Inventor/Applicant Name:	Alexander I. Soto
Customer Number:	50625
Filer:	James Albert Ward
Filer Authorized By:	
Attorney Docket Number:	UBI-005
Receipt Date:	10-DEC-2007
Filing Date:	06-JUL-2004
Time Stamp:	22:27:19
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	Amendment After Final	After_Final_Amendment_UBI-005_10Dec07.pdf	140329 9e08feed85b5736a997e397ab093643d7c850b82	no	21

Warnings:	
Information:	

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Ex. 1002-2.175

Total Files Size (in bytes):	140329

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.

PTO/SB/06 (07-06)
Approved for use through 1/31/2007. OMB 0651-0032
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.

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number	Filing Date	☐ To be Mailed
10/886,514	07/06/2004	

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY ☒ RATE ($)	SMALL ENTITY ☒ FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY FEE ($)
☐ 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), (i), 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))	56 minus 20 =	* 36	X $9 =	324	OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	5 minus 3 =	* 2	X $43 =	86		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	410		TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	12/10/2007	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 55	Minus	** 55	= 0	X $25 =	0	OR	X $ =	
	Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X $105 =	0	OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE	0	OR	TOTAL ADD'L FEE	

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)	OR	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:
Theresa Lindsay

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.

Nokia of America Corporation
IPR2023-00960, Ex. 1002-2
Ex. 1002-2.177

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/886,514	07/06/2004	Alexander I. Soto	UBI-005	8709

50625 7590 10/11/2007

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EXAMINER	
LI, SHI K	

ART UNIT	PAPER NUMBER
2613	

MAIL DATE	DELIVERY MODE
10/11/2007	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.

Nokia of America Corporation
IPR2023-00960, Ex. 1002-2
Ex. 1002-2.178

Office Action Summary	Application No.	Applicant(s)	
	10/886,514	SOTO ET AL.	
	Examiner	Art Unit	
	Shi K. Li	2613	

-- 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 *07 August 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) *77-109 and 111-132* 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) *77-109 and 111-132* 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: _____.

Nokia of America Corporation
IPR2023-00960, Ex. 1002-2
Ex. 1002-2.179

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 77, 82-87, 98, 100, 122 and 124-126 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. (U.S. Patent Application Pub. 2004/0052274 A1) in view of Kuo et al. (U.S. Patent 7,031,343 B1).

Regarding claims 77 and 122, Wang et al. teaches in FIG. 1 a point-to-multipoint network comprising a optical line terminal (OLT), equivalent to network manager of instant claim, and a plurality of optical network units (ONU), equivalent to network client adapters of instant claim. FIG. 1 shows a splitter (equivalent to passive coupler of instant claim) for connecting an optical interface of the OLT to a plurality of optical ports, which are connected to the ONUs. Wang et al. teaches in FIG. 8 processor 30 with control logic 32 in the ONU and teaches in FIG. 9 processor 50 with control logic 52 in the OLT. Wang et al. teaches in FIG.3 through FIG. 7 that an optical signal has OAM/control timeslots and data timeslots. The difference between Wang et al. and the claimed invention is that Wang et al. does not teach optical/electrical converters in the OLT and ONUs. Kuo et al. teaches in FIG. 9 and FIG. 10 optical transmitters and optical receivers. These devices provide conversion between optical signals and electrical signals, one of ordinary skill in the art would have been motivated to combine the teaching of Kuo et al. with the point-to-multipoint network of Wang et al. because signals can be more easily manipulated in electrical domain than in optical domain. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to

include optical/electrical converters for concerting optical signals to electrical signals for manipulation and concerting electrical signals to optical signals for transmission, as taught by Kuo et al., in the point-to-multipoint network of Wang et al. because signals can be more easily manipulated in electrical domain than in optical domain.

Regarding claims 82 and 85, Wang et al. teaches in FIG. 3 through FIG. 7 time division multiplexing.

Regarding claims 83, 86 and 124-125, Wang et al. teaches in paragraph [0036] dynamic bandwidth management.

Regarding claims 84, 87 and 126, Wang et al. teaches in paragraph [0013] minimum bandwidth allocation.

Regarding claim 98, Kuo et al. teaches in FIG. 2 one or more local area network clients.

Regarding claim 100, Kuo et al. teaches in col. 5, line 42 that local area network client may include personal computers.

3. Claims 78-81,105-107, 109, 111-112, 118-119, 123 and 128-129 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. and Kuo et al. as applied to claims 77, 82-87, 98, 100, 122 and 124-126 above, and further in view of Abdelhamid et al. (U.S. Patent 6,023,467).

Regarding claims 78, 80, 109 and 123, Wang et al. and Kuo et al. have been discussed above in regard to claims 77, 82-87, 98, 100, 122 and 124-126. Wang et al. teaches in FIG. 8 protocol stack 38 and in FIG. 9 protocol stack 58. The difference between Wang et al. and Kuo et al. and the claimed invention is that Wang et al. and Kuo et al. do not teach the details of the protocol stack. It is understood that OAM is a layer 7 protocol according to OSI model and

relies on lower layers, including layer 2 and layer 3, for operation. Furthermore, the Examiner cites Abdelhamid et al. for teaching details of the layer 2 and layer 3 protocols. Abdelhamid et al. teaches in FIG. 3 and FIG. 4 downstream and upstream frame structure for a passive optical network. One of ordinary skill in the art would have been motivated to combine the teaching of Abdelhamid et al. with the modified point-to-multipoint network of Wang et al. and Kuo et al. because the protocols of Abdelhamid et al. clearly define the frame structure and effective coordinate the ONUs. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the protocols of Abdelhamid et al. in the modified point-to-multipoint network of Wang et al. and Kuo et al. because the protocols of Abdelhamid et al. clearly define the frame structure and effective coordinate the ONUs.

Regarding claims 79 and 81, Abdelhamid et al. teaches in FIG. 3 and FIG. 4 FRAME/SYNC BYTES 86, ERROR CHECK 92 and ATM cell 100 which includes address and data.

Regarding claims 105-106, Abdelhamid et al. teaches in col. 5, lines 38-40 ranging.

Regarding claim 107, Abdelhamid et al. teaches in col. 5, lines 42-44 power tuning.

Regarding claim 111, Wang et al. teaches in paragraph [0036] dynamic bandwidth management.

Regarding claim 112, Wang et al. teaches in paragraph [0013] minimum bandwidth allocation.

Regarding claim 118, Kuo et al. teaches in col. 5, line 42 that local area network client may include personal computers.

Regarding claims 119 and 128-129, Abdelhamid et al. teaches in col. 5, lines 38-40 ranging.

4. Claims 88-96, 99 and 101 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. and Kuo et al. as applied to claims 77, 82-87, 98, 100, 122 and 124-126 above, and further in view of Masucci et al. (U.S. Patent 6,498,667 B1).

Wang et al. and Kuo et al. have been discussed above in regard to claims 77, 82-87, 98, 100, 122 and 124-126. Regarding claim 88, Wang et al. teaches in paragraph [0026] downstream traffic. The difference between Wang et al. and Kuo et al. and the claimed invention is that Wang et al. and Kuo et al. do not teach the details of the downstream traffic format. Masucci et al. teaches in FIG. 1 a PON with remote terminals 14 (equivalent to network client) and central terminal 12 (equivalent to network manager). The central terminal connects the remote terminals to wide area network via WAN interface such that remote terminals can receive application data from workstations, servers or other users located in another network. One of ordinary skill in the art would have been motivated to combine the teaching of Masucci et al. with the modified point-to-multipoint network of Wang et al. and Kuo et al. because the frame structure of Masucci et al. supports the aggregation of multiple broadband services including voice, high speed data, video and image. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the frame structure of Masucci et al., in the modified point-to-multipoint network of Wang et al. and Kuo et al. because the frame structure of Masucci et al. supports the aggregation of multiple broadband services including voice, high speed data, video and image.

Regarding claim 89-90 and 93-94, Masucci et al. teaches in FIG. 3 frames and subframes.

Regarding claims 91 and 95, Masucci et al. teaches in FIG. 4 packet length field 228 and in FIG. 80AM&P header with length field 410.

Regarding claims 92 and 96, Masucci et al. teaches in FIG. 1 Ethernet MAC 30 and Ethernet PHY 32.

Regarding claim 99, Masucci et al. teaches in FIG. 1 that the remote terminals include Ethernet network interface 33 for local area network clients.

Regarding claim 101, Masucci et al. teaches in FIG. 1 switch 36.

5. Claims 97 and 113 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al., Kuo et al. and Masucci et al. as applied to claims 88-96, 99 and 101 above, and further in view of Graves et al. (U.S. Patent 5,029,333).

Wang et al., Kuo et al. and Masucci et al. have been discussed above in regard to claims 88-96, 99 and 101. The difference between Wang et al., Kuo et al. and Masucci et al. and the claimed invention is that Wang et al., Kuo et al. and Masucci et al. do not teach hairpinning upstream data. Graves et al. teaches in col. 6, lines 15-17 the idea of hairpinning and in FIG. 4 hairpin connection between upstream selector 72 and downstream selector 70. One of ordinary skill in the art would have been motivated to combine the teaching of Graves et al. with the modified point-to-multipoint network of Wang et al., Kuo et al. and Masucci et al. because hairpinning allows ONUs to communicate with each other. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to support hairpinning, as taught by Graves el al., in the modified point-to-multipoint network of Wang et al., Kuo et al. and Masucci et al. because hairpinning allows ONUs to communicate with each other.

6. Claims 101-104, 113, 115-117 and 130-131 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. and Kuo et al. as applied to claims 77, 82-87, 98, 100, 122 and 124-126 above, and further in view of Adcox et al. (U.S. patent Application Pub. 2003/0236916 A1).

Wang et al. and Kuo et al. have been discussed above in regard to claims 77, 82-87, 98, 100, 122 and 124-126. Regarding claim 101, the difference between Wang et al. and Kuo et al. and the claimed invention is that Wang et al. and Kuo et al. do not teach a switch interface. Adcox et al. teaches in FIG. 4 a PON wherein the headend (QOIU) 20A includes a switch interface for connecting to an Ethernet switch. One of ordinary skill in the art would have been motivated to combine the teaching of Adcox et al. with the modified point-to-multipoint network of Wang et al. and Kuo et al. because a switch allows the routing of traffic among the client users and reduces the traffic on each fiber. In other words, the switch allows each fiber to support more users or allows each user to have more bandwidth by eliminating traffic that is not designated for the users served by the fiber. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to interface to a switch, as taught by Adcox et al., in the modified point-to-multipoint network of Wang et al. and Kuo et al. because a switch eliminates traffic that is not designated for the users served by the fiber and, therefore, increases usable bandwidth.

Regarding claims 102-104, 113, 115-117 and 130-131, Adcox et al. teaches in FIG. 4 Ethernet switch. The Ethernet switch switches frames based on address and sends packets from one client to another client through the PON and sends packets from clients to users of other

network through the PPPOE BRAS. On the client side, Adcox et al. teaches in FIG. 4 10BaseT Ethernet interface.

7. Claims 108 and 132 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. and Kuo et al. as applied to claims 77, 82-87, 98, 100, 122 and 124-126 above, and further in view of Medina et al. (U.S. Patent 6,778,399 B2).

Wang et al. and Kuo et al. have been discussed above in regard to claims 77, 82-87, 98, 100, 122 and 124-126. The difference between Wang et al. and Kuo et al. and the claimed invention is that Wang et al. and Kuo et al. do not teach the form factor of the optical ports. Medina et al. teaches in col. 1, lines 28-40 small form pluggable (SFP) transceiver multisource agreement (MSA) standard. One of ordinary skill in the art would have been motivated to combine the teaching of Medina et al. with the modified point-to-multipoint network of Wang et al. and Kuo et al. and use SFP type connector for the optical port because SFP has small form factor and allows high port density and, therefore, saves space. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use SFP for the optical ports, as taught by Medina et al., in the modified point-to-multipoint network of Wang et al. and Kuo et al. because SFP has small form factor and allows high port density and, therefore, saves space.

8. Claims 114 and 127 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al., Kuo et al., Masucci et al. and Graves et al. as applied to claims 97 and 113 above, and further in view of Hale et al. (U.S. Patent 5,572,349).

Wang et al., Kuo et al., Masucci et al. and Graves et al. have been discussed above in regard to claims 97 and 113: The difference between Wang et al., Kuo et al., Masucci et al. and

Graves et al. and the claimed invention is that Wang et al., Kuo et al., Masucci et al. and Graves et al. do not teach power leveling. Hale et al. teaches in FIG. 1 a passive optical network comprising an OLT and a plurality of ONUs. Hale et al. teaches in col. 5, lines 2-10 that the OLT transmits control signals to ONU to adjust launch power. One of ordinary skill in the art would have been motivated to combine the teaching of Hale et al. with the modified point-to-multipoint network of Wang et al., Kuo et al., Masucci et al. and Graves et al. because power leveling adjusts the launch power of each ONU such that the received signal from each of them is about the same power level and, therefore, optimizes performance. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide power leveling, as taught by Hale et al., in the modified point-to-multipoint network of Wang et al., Kuo et al., Masucci et al. and Graves et al. because power leveling adjusts the launch power of each ONU for optimal performance.

9. Claim 121 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al., Kuo et al. and Abdelhamid et al. as applied to claims 78-81,105-107, 109, 111-112 and 118 above, and further in view of Medina et al. (U.S. Patent 6,778,399 B2).

Wang et al., Kuo et al. and Abdelhamid et al. have been discussed above in regard to claims 78-81, 105-107, 109, 111-112 and 118. The difference between Wang et al., Kuo et al. and Abdelhamid et al. and the claimed invention is that Wang et al., Kuo et al. and Abdelhamid et al. do not teach the form factor of the optical ports. Medina et al. teaches in col. 1, lines 28-40 small form pluggable (SFP) transceiver multisource agreement (MSA) standard. One of ordinary skill in the art would have been motivated to combine the teaching of Medina et al. with the modified point-to-multipoint network of Wang et al., Kuo et al. and Abdelhamid et al. and use

SFP type connector for the optical port because SFP has small form factor and allows high port density and, therefore, saves space. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use SFP for the optical ports, as taught by Medina et al., in the modified point-to-multipoint network of Wang et al., Kuo et al. and Abdelhamid et al. because SFP has small form factor and allows high port density and, therefore, saves space.

Response to Arguments

10. Applicant's arguments filed 7 August 2007 have been fully considered but they are not persuasive.

The Applicant argues that the Examiner has conflated Applicants' network manager with an optical line terminal and Applicants' network client adapter with an optical network unit. The Examiner disagrees. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. A claim containing a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987).

In response to applicant's argument regarding claims 97 and 113, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shi K. Li whose telephone number is 571 272-3031. The examiner can normally be reached on Monday-Friday (7:30 a.m. - 4:30 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571 272-3022. 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.

skl
2 October 2007

Shi K. Li
Primary Patent Examiner

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10886514	SOTO ET AL.
	Examiner	Art Unit
	Li, Shi K	2613

✓	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	11/17/2006	04/30/2007	10/02/2007						
	1	-	-	-						
	2	-	-	-						
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	36	-	-	-						

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Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10886514	SOTO ET AL.
	Examiner	Art Unit
	Li, Shi K	2613

✓	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	11/17/2006	04/30/2007	10/02/2007						
	37	-	-	-						
	38	-	-	-						
	39	-	-	-						
	40	-	-	-						
	41	-	-	-						
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	72	-	-	-						

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Ex. 1002-2.192

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10886514	SOTO ET AL.
	Examiner	Art Unit
	Li, Shi K	2613

✓	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	11/17/2006	04/30/2007	10/02/2007						
	73	-	-	-						
	74	-	-	-						
	75	-	-	-						
	76	-	-	-						
	77	✓	✓	✓						
	78	✓	✓	✓						
	79	✓	✓	✓						
	80	✓	✓	✓						
	81	✓	✓	✓						
	82	✓	✓	✓						
	83	✓	✓	✓						
	84	✓	✓	✓						
	85	✓	✓	✓						
	86	✓	✓	✓						
	87	✓	✓	✓						
	88	✓	✓	✓						
	89	✓	✓	✓						
	90	✓	✓	✓						
	91	✓	✓	✓						
	92	✓	✓	✓						
	93	✓	✓	✓						
	94	✓	✓	✓						
	95	✓	✓	✓						
	96	✓	✓	✓						
	97	✓	✓	✓						
	98	✓	✓	✓						
	99	✓	✓	✓						
	100	✓	✓	✓						
	101	✓	✓	✓						
	102	✓	✓	✓						
	103	✓	✓	✓						
	104	✓	✓	✓						
	105	✓	✓	✓						
	106	✓	✓	✓						
	107	✓	✓	✓						
	108	✓	✓	✓						

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Ex. 1002-2.193

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10886514	SOTO ET AL.
	Examiner	Art Unit
	Li, Shi K	2613

✓	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	11/17/2006	04/30/2007	10/02/2007						
	109	✓	✓	✓						
	110	✓	-	-						
	111	✓	✓	✓						
	112	✓	✓	✓						
	113	✓	✓	✓						
	114	✓	✓	✓						
	115	✓	✓	✓						
	116	✓	✓	✓						
	117	✓	✓	✓						
	118	✓	✓	✓						
	119	✓	✓	✓						
	120	✓	✓	✓						
	121	✓	✓	✓						
	122	✓	✓	✓						
	123	✓	✓	✓						
	124	✓	✓	✓						
	125	✓	✓	✓						
	126	✓	✓	✓						
	127	✓	✓	✓						
	128	✓	✓	✓						
	129	✓	✓	✓						
	130	✓	✓	✓						
	131	✓	✓	✓						
	132	✓	✓	✓						

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Ex. 1002-2.194

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10886514	SOTO ET AL.
	Examiner	Art Unit
	Li, Shi K	2613

SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES		
Search Notes	Date	Examiner
Updated search	11/17/2006	SK
Updated search	4/30/2007	SK
Updated search	10/2/2007	SK

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

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Ex. 1002-2.195

	PATENTS **Docket No. UBI-005**
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE	
In re Application of: **Alexander I. Soto et al.**	Group Art Unit: **2613**
Patent Application No.: **10/886,514**	
Filed on: **July 06, 2004**	Examiner: **Li, Shi K.**
For: **Communication System and Method For An Optical Local Area Network**	

Commissioner for Patents
Mail Stop Amendment
PO Box 1450
Alexandria, VA 22313-4150

AMENDMENT AND RESPONSE PER 37 C.F.R. §1.111

Responsive to the Office Action mailed on May 07, 2007, please enter the following Amendment and Response in the above-entitled Patent Application.

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REMARKS

Discussion of the Patentability of Claims 77, 82-87, 98, 100, 122 and 124-126: In the office action mailed on May 7, 2007, Examiner rejected claims 77, 82-87, 98, 100, 122 and 124-126 under 35 U.S.C. §103(a) for unpatentability over U.S. Pat. Appl. No. 2004/0052274 filed by Wang *et al*. ("Wang") in view of U.S. Pat. No. 7,031,343 issued to Kuo *et al.* ("Kuo"). Applicants respectfully traverse these rejections for the following reasons.

Examiner appears to have again conflated Applicants' network manager with an optical line terminal (OLT) and appears to have conflated Applicants' network client adapter with an optical network unit (ONU) for broadband access passive optical networks (PONs). Applicants respectfully assert that such characterizations are unknown to those skilled in the optical signal arts, who generally appreciate the functional and technical distinction between an optical access network (OAN) and an optical local area network.

OLT and ONU are well-known technical terms commonly used to describe terminals or nodes in broadband access PONs. "OLT" is commonly used to denominate the service provider's endpoint of an OAN PON that resides in the telco central office or cable company head end. The OLT is responsible for carrier class management and operation of the OAN PON. The OLT provides the interface between the OAN PON and the service provider's backbone network. "ONU" is commonly used to denominate a unit located near a subscriber (*e.g.* side of the house, neighborhood service box) for providing the optical-to-electrical (O-E) and electrical-to-optical (E-O) signal conversion between the OAN PON fiber and the copper wires that reach to homes and offices. "ONU" is commonly used to denominate a unit that terminates the OAN PON and presents a native service interface to the subscriber, such as a Digital Subscriber Loop (DSL or xDSL) towards the subscriber. The ONU known in the art typically requires a separate subscriber unit for providing native subscriber services such as telephony, Ethernet data, or video, to the subscriber. Wang's use of the terms OLT and ONU and specification, as cited in paragraph 0006, are consistent with the above commonly-understood definitions, as is

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Kuo's use of the terms in, for example, col. 1 lines 13-25.

"Optical local area network" is commonly used to denominate a computer network covering a small geographic area, such as a single home, office, or small group of buildings in which network clients communicate with other network clients. Applicants' claims and specifications clearly limit the invention to local area networks, which are not suggested by OAN devices and terminology alone absent hindsight or unmotivated conflation of concepts. Applicants' network manager and network clients are conceptually distinct from an OLT or ONU because of these differences in function and application.

Moreover, Wang and Kuo appear to teach away from the Applicants' invention at Wang paragraph 0006 and at Kuo col. 1 lines 13-25 and **FIG. 2**. Kuo's **FIG. 2** clearly separates and distinguishes the access PON **200** (note the dotted line) containing OLT **202** and ONU **204** from the LAN **214**. Kuo's **FIG. 2** evidences the distinction of Applicants' invention over Wang, Kuo and the prior art.

Accordingly, Applicants respectfully suggest that the combination of Wang and Kuo references fail to state a proper *prima facie* case for the obviousness of claims 77, 82-87, 98, 100, 122 and 124-126 because, among other reasons, the combination does not include all elements of Applicants' claimed invention and Applicants respectfully request reconsideration and withdrawal of these 35 U.S.C. §103(a) rejections of claims 77, 82-87, 98, 100, 122 and 124-126.

Discussion of the Patentability of Claims 78-81, 105-107, 109, 111-112, 118-119, 123 and 128-129: Examiner further rejects claims 78-81, 105-107, 109, 111-112, 118-119, 123 and 128-129 under 35 U.S.C. §103(a) for unpatentability over Wang *et al.* and Kuo *et al.* in further view of U.S. Patent No. 6,023,467 issued to Abdelhamid *et al.* ("Abdelhamid"). Applicants respectfully traverse these rejections for the following reasons. Abdelhamid neither considers nor suggests any teachings sufficient to disclose the above-described distinction of Applicants' claimed invention and the combination of the Wang and Kuo references. Moreover, Abdelhamid appears to teach away from the utility of Applicants' claimed invention for local area networks.

Accordingly, Applicants respectfully suggest that the combination of Wang, Kuo

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and Abdelhamid references fails to state a proper *prima facie* case for the obviousness of claims 78-81, 105-107, 109, 111-112, 118-119, 123 and 128-129 because, among other reasons, the combination does not include all elements of Applicants' claimed invention and Applicants respectfully request reconsideration and withdrawal of these 35 U.S.C. §103(a) rejections of claims 78-81, 105-107, 109, 111-112, 118-119, 123 and 128-129.

Discussion of the Patentability of Claims 88-96, 99 and 101: Examiner further rejected claims 88-96, 99 and 101 under 35 U.S.C. §103(a) for unpatentability over Wang *et al* in view of Kuo *et al.* and in further view of U.S. Patent No. 6,498,667 issued to Masucci *et al.* ("Masucci"). Applicants respectfully traverse these rejections for the following reasons. Masucci neither considers nor suggests any teachings sufficient to disclose the above-described distinction of Applicants' claimed invention and the combination of the Wang and Kuo references. Moreover, Masucci appears to teach away from the utility of Applicants' claimed invention for local area networks.

Accordingly, Applicants respectfully suggest that the combination of Wang, Kuo and Masucci references fails to state a proper *prima facie* case for the obviousness of claims 88-96, 99 and 101 because, among other reasons, the combination does not include all elements of Applicants' claimed invention and Applicants respectfully request reconsideration and withdrawal of these 35 U.S.C. §103(a) rejections of claims 88-96, 99 and 101.

Discussion of the Patentability of Claims 97 and 113: Examiner further rejected claims 97 and 113 under 35 U.S.C. §103(a) for unpatentability over Wang *et al* in view of Kuo *et al.* and Masucci *et al.* and in further view of U.S. Patent No. 5,029,333 issued to Graves *et al*. ("Graves"). Applicants respectfully traverse these rejections for the following reasons. Graves neither considers nor suggests any teachings sufficient to disclose the above-described distinction of Applicants' claimed invention and the combination of the Wang, Kuo and Masucci references.

Graves network as shown in FIG. 4 and cited by the Examiner is not a PON. While Graves FIG. 2 discloses use of a passive splitter, there are active elements (e.g.

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active pedestals **12**) in Graves network and the passive splitter is merely used to breakout the fiber to multiple channels for a single subscriber. Additionally Graves uses SONET which is a point-to-point protocol. Wang, Kuo and Masucci suggest use of a point-to-multipoint protocol and thus Graves teaches away from Wang, Kuo and Masucci.

Moreover, Examiner suggests Graves to be motivated to allow communication among ONUs, although ONUs are, by industry-specification, not allowed to communicate with each other. Reference is made to, for example, the ITU G.983 (BPON), ITU G.984 (GPON) and IEEE 802.3ah (EPON) specifications, which define the ONU known in the art. An OLT cannot even be aware of the addressing used by subscribers to perform such a feat because those protocols and devices are beyond the capability or boundary of the OAN PON itself. When subscribers do communicate with one another, such communication is facilitated by the service provider's backbone network or the Internet Backbone and does not involve the OAN PON other than to enable communication between the subscriber and the service provider's backbone network or the Internet Backbone. Communication among Applicants' network client adaptors is inherent to Applicants' claimed invention as embodied in Applicants' local area network claims because such intercommunication is the primary function and use of a local area network as it is known in the art.

Accordingly, Applicants respectfully suggest that the combination of Wang, Kuo, Masucci and Graves references fails to state a proper *prima facie* case for the obviousness of claims 97 and 113because, among other reasons, the combination does not include all elements of Applicants' claimed invention and Applicants respectfully request reconsideration and withdrawal of these 35 U.S.C. §103(a) rejections of claims 97 and 113.

Discussion of the Patentability of Claims 101-104, 113, 115-117 and 130-131: Examiner further rejected claims 101-104, 113, 115-117 and 130-131 under 35 U.S.C. §103(a) for unpatentability over Wang *et al* in view of Kuo *et al.* and in further view of U.S. Patent Application Pub. 2003/0236916 filed by Adcox *et al.* ("Adcox"). Applicants respectfully traverse these rejections for the following reasons. Adcox neither considers nor suggests any teachings sufficient to disclose the above-described distinction of Ap-

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plicants' claimed invention and the combination of the Wang and Kuo references.

Accordingly, Applicants respectfully suggest that the combination of Wang, Kuo and Adcox references fails to state a proper *prima facie* case for the obviousness of claims 101-104, 113, 115-117 and 130-131 because, among other reasons, the combination does not include all elements of Applicants' claimed invention and Applicants respectfully request reconsideration and withdrawal of these 35 U.S.C. §103(a) rejections of claims 101-104, 113, 115-117 and 130-131.

Discussion of the Patentability of Claims 108 and 132: Examiner further rejected claims 108 and 132 under 35 U.S.C. §103(a) for unpatentability over Wang *et al.* in view of Kuo *et al.* (Kuo) and in further view of U.S. Patent No. 6,778,399 issued to Medina *et al.* ("Medina"). Applicants respectfully traverse these rejections for the following reasons. Medina neither considers nor suggests any teachings sufficient to disclose the above-described distinction of Applicants' claimed invention and the combination of the Wang and Kuo references.

Accordingly, Applicants respectfully suggest that the combination of Wang, Kuo and Medina references fails to state a proper *prima facie* case for the obviousness of claims 108 and 132 because, among other reasons, the combination does not include all elements of Applicants' claimed invention and Applicants respectfully request reconsideration and withdrawal of these 35 U.S.C. §103(a) rejections of claims 108 and 132.

Discussion of the Patentability of Claims 114 and 127: Examiner further rejected claims 114 and 127 under 35 U.S.C. §103(a) for unpatentability over Wang *et al.* in view of Kuo *et al.* and Masucci *et al.* and Graves *et al.* and in further view of U.S. Patent No. 5,572,349 issued to Hale *et al.* ("Hale"). Applicants respectfully traverse these rejections for the following reasons. Medina neither considers nor suggests any teachings sufficient to disclose the above-described distinction of Applicants' claimed invention and the combination of the Wang, Kuo, Masucci and Graves references.

Accordingly, Applicants respectfully suggest that the combination of Wang, Kuo, Masucci, Graves and Hale references fails to state a proper *prima facie* case for the obvi-

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Ex. 1002-2.201

ousness of claims 114 and 127 because, among other reasons, the combination does not include all elements of Applicants' claimed invention and Applicants respectfully request reconsideration and withdrawal of these 35 U.S.C. §103(a) rejections of claims 114 and 127.

Discussion of the Patentability of Claim 121: Examiner further rejects claim 114 under 35 U.S.C. §103(a) for unpatentability over Wang *et al.* in view of Kuo *et al.* and Abdelhamid *et al.* in further view of Medina. Applicants respectfully traverse this rejection for the following reasons. Medina neither considers nor suggests any teachings sufficient to disclose the above-described distinction of Applicants' claimed invention and the combination of the Wang, Kuo and Abdelhamid references.

Accordingly, Applicants respectfully suggest that the combination of Wang, Kuo, Abdelhamid and Medina references fails to state a proper *prima facie* case for the obviousness of claim 121 because, among other reasons, the combination does not include all elements of Applicants' claimed invention and Applicants respectfully request reconsideration and withdrawal of this 35 U.S.C. §103(a) rejection of claim 121.

Conclusion: Applicants respectfully request re-examination and reconsideration of the application in view of the above remarks.

Respectfully submitted,

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Ex. 1002-2.202

Electronic Acknowledgement Receipt

EFS ID:	2059149
Application Number:	10886514
International Application Number:	
Confirmation Number:	8709
Title of Invention:	Communication system and method for an optical local area network
First Named Inventor/Applicant Name:	Alexander I. Soto
Customer Number:	50625
Filer:	James Albert Ward
Filer Authorized By:	
Attorney Docket Number:	UBI-005
Receipt Date:	07-AUG-2007
Filing Date:	06-JUL-2004
Time Stamp:	23:12:07
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	Amendment - After Non-Final Rejection	Response_UBI-005_07Aug07.pdf	99093 c963b66142bd149322f07407d31fa85552e725b4	no	7
Warnings:					

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Ex. 1002-2.203

Information:	
Total Files Size (in bytes):	99093

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.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/886,514	07/06/2004	Alexander I. Soto	UBI-005	8709

50625 7590 05/07/2007

JAMES ALBERT WARD
1 WATERWAY
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EXAMINER	
LI, SHI K	

ART UNIT	PAPER NUMBER
2613	

MAIL DATE	DELIVERY MODE
05/07/2007	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.

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Ex. 1002-2.205

Office Action Summary	Application No.	Applicant(s)	
	10/886,514	SOTO ET AL.	
	Examiner	Art Unit	
	Shi K. Li	2613	

-- 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 *09 March 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) *77-109 and 111-132* 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) *77-109 and 111-132* 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: _____.

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Ex. 1002-2.206

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9 March 2007 has been entered.

Claim Rejections - 35 USC § 103

2. 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 negatived by the manner in which the invention was made.

3. Claims 77, 82-87, 98, 100, 122 and 124-126 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. (U.S. Patent Application Pub. 2004/0052274 A1) in view of Kuo et al. (U.S. Patent 7,031,343 B1).

Regarding claims 77 and 122, Wang et al. teaches in FIG. 1 a point-to-multipoint network comprising a optical line terminal (OLT), equivalent to network manager of instant claim, and a plurality of optical network units (ONU), equivalent to network client adapters of instant claim. FIG. 1 shows a splitter (equivalent to passive coupler of instant claim) for connecting an optical interface of the OLT to a plurality of optical ports, which are connected to the ONUs. Wang et al. teaches in FIG. 8 processor 30 with control logic 32 in the ONU and teaches in FIG. 9 processor 50 with control logic 52 in the OLT. Wang et al. teaches in FIG. 3

through FIG. 7 that an optical signal has OAM/control timeslots and data timeslots. The difference between Wang et al. and the claimed invention is that Wang et al. does not teach optical/electrical converters in the OLT and ONUs. Kuo et al. teaches in FIG. 9 and FIG. 10 optical transmitters and optical receivers. These devices provide conversion between optical signals and electrical signals. One of ordinary skill in the art would have been motivated to combine the teaching of Kuo et al. with the point-to-multipoint network of Wang et al. because signals can be more easily manipulated in electrical domain than in optical domain. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to include optical/electrical converters for concerting optical signals to electrical signals for manipulation and concerting electrical signals to optical signals for transmission, as taught by Kuo et al., in the point-to-multipoint network of Wang et al. because signals can be more easily manipulated in electrical domain than in optical domain.

Regarding claims 82 and 85, Wang et al. teaches in FIG. 3 through FIG. 7 time division multiplexing.

Regarding claims 83, 86 and 124-125, Wang et al. teaches in paragraph [0036] dynamic bandwidth management.

Regarding claims 84, 87 and 126, Wang et al. teaches in paragraph [0013] minimum bandwidth allocation.

Regarding claim 98, Kuo et al. teaches in FIG. 2 one or more local area network clients.

Regarding claim 100, Kuo et al. teaches in col. 5, line 42 that local area network client may include personal computers.

4. Claims 78-81, 105-107, 109, 111-112, 118-119, 123 and 128-129 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. and Kuo et al. as applied to claims 77, 82-87, 98, 100, 122 and 124-126 above, and further in view of Abdelhamid et al. (U.S. Patent 6,023,467).

Regarding claims 78, 80, 109 and 123; Wang et al. and Kuo et al. have been discussed above in regard to claims 77, 82-87, 98, 100, 122 and 124-126. Wang et al. teaches in FIG. 8 protocol stack 38 and in FIG. 9 protocol stack 58. The difference between Wang et al. and Kuo et al. and the claimed invention is that Wang et al. and Kuo et al. do not teach the details of the protocol stack. It is understood that OAM is a layer 7 protocol according to OSI model and relies on lower layers, including layer 2 and layer 3, for operation. Furthermore, the Examiner cites Abdelhamid et al. for teaching details of the layer 2 and layer 3 protocols. Abdelhamid et al. teaches in FIG. 3 and FIG. 4 downstream and upstream frame structure for a passive optical network. One of ordinary skill in the art would have been motivated to combine the teaching of Abdelhamid et al. with the modified point-to-multipoint network of Wang et al. and Kuo et al. because the protocols of Abdelhamid et al. clearly define the frame structure and effective coordinate the ONUs. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the protocols of Abdelhamid et al. in the modified point-to-multipoint network of Wang et al. and Kuo et al. because the protocols of Abdelhamid et al. clearly define the frame structure and effective coordinate the ONUs.

Regarding claims 79 and 81, Abdelhamid et al. teaches in FIG. 3 and FIG. 4 FRAME/SYNC BYTES 86, ERROR CHECK 92 and ATM cell 100 which includes address and data.

Regarding claims 105-106, Abdelhamid et al. teaches in col. 5, lines 38-40 ranging.

Regarding claim 107, Abdelhamid et al. teaches in col. 5, lines 42-44 power tuning.

Regarding claim 111, Wang et al. teaches in paragraph [0036] dynamic bandwidth management.

Regarding claim 112, Wang et al. teaches in paragraph [0013] minimum bandwidth allocation.

Regarding claim 118, Kuo et al. teaches in col. 5, line 42 that local area network client may include personal computers.

Regarding claims 119 and 128-129, Abdelhamid et al. teaches in col. 5, lines 38-40 ranging.

5. Claims 88-96, 99 and 101 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. and Kuo et al. as applied to claims 77, 82-87, 98, 100, 122 and 124-126 above, and further in view of Masucci et al. (U.S. Patent 6,498,667 B1).

Wang et al. and Kuo et al. have been discussed above in regard to claims 77, 82-87, 98, 100, 122 and 124-126. Regarding claim 88, Wang et al. teaches in paragraph [0026] downstream traffic. The difference between Wang et al. and Kuo et al. and the claimed invention is that Wang et al. and Kuo et al. do not teach the details of the downstream traffic format. Masucci et al. teaches in FIG. 1 a PON with remote terminals 14 (equivalent to network client) and central terminal 12 (equivalent to network manager). The central terminal connects the remote terminals to wide area network via WAN interface such that remote terminals can receive application data from workstations, servers or other users located in another network. One of ordinary skill in the art would have been motivated to combine the teaching of Masucci et

al. with the modified point-to-multipoint network of Wang et al. and Kuo et al. because the frame structure of Masucci et al. supports the aggregation of multiple broadband services including voice, high speed data, video and image. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the frame structure of Masucci et al., in the modified point-to-multipoint network of Wang et al. and Kuo et al. because the frame structure of Masucci et al. supports the aggregation of multiple broadband services including voice, high speed data, video and image.

Regarding claim 89-90 and 93-94, Masucci et al. teaches in FIG. 3 frames and subframes.

Regarding claims 91 and 95, Masucci et al. teaches in FIG. 4 packet length field 228 and in FIG. 8 OAM&P header with length field 410.

Regarding claims 92 and 96, Masucci et al. teaches in FIG. 1 Ethernet MAC 30 and Ethernet PHY 32.

Regarding claim 99, Masucci et al. teaches in FIG. 1 that the remote terminals include Ethernet network interface 33 for local area network clients.

Regarding claim 101, Masucci et al. teaches in FIG. 1 switch 36.

6. Claims 97 and 113 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al., Kuo et al. and Masucci et al. as applied to claims 88-96, 99 and 101 above, and further in view of Graves et al. (U.S. Patent 5,029,333).

Wang et al., Kuo et al. and Masucci et al. have been discussed above in regard to claims 88-96, 99 and 101. The difference between Wang et al., Kuo et al. and Masucci et al. and the claimed invention is that Wang et al., Kuo et al. and Masucci et al. do not teach hairpinning upstream data. Graves et al. teaches in col. 6, lines 15-17 the idea of hairpinning and in FIG. 4

hairpin connection between upstream selector 72 and downstream selector 70. One of ordinary skill in the art would have been motivated to combine the teaching of Graves et al. with the modified point-to-multipoint network of Wang et al., Kuo et al. and Masucci et al. because hairpinning allows ONUs to communicate with each other. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to support hairpinning, as taught by Graves et al., in the modified point-to-multipoint network of Wang et al., Kuo et al. and Masucci et al. because hairpinning allows ONUs to communicate with each other.

7. Claims 101-104, 113, 115-117 and 130-131 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. and Kuo et al. as applied to claims 77, 82-87, 98, 100, 122 and 124-126 above, and further in view of Adcox et al. (U.S. Patent Application Pub. 2003/0236916 A1).

Wang et al. and Kuo et al. have been discussed above in regard to claims 77, 82-87, 98, 100, 122 and 124-126. Regarding claim 101, the difference between Wang et al. and Kuo et al. and the claimed invention is that Wang et al. and Kuo et al. do not teach a switch interface. Adcox et al. teaches in FIG. 4 a PON wherein the headend (QOIU) 20A includes a switch interface for connecting to an Ethernet switch. One of ordinary skill in the art would have been motivated to combine the teaching of Adcox et al. with the modified point-to-multipoint network of Wang et al. and Kuo et al. because a switch allows the routing of traffic among the client users and reduces the traffic on each fiber. In other words, the switch allows each fiber to support more users or allows each user to have more bandwidth by eliminating traffic that is not designated for the users served by the fiber. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to interface to a switch, as taught by Adcox et

al., in the modified point-to-multipoint network of Wang et al. and Kuo et al. because a switch eliminates traffic that is not designated for the users served by the fiber and, therefore, increases usable bandwidth.

Regarding claims 102-104, 113, 115-117 and 130-131, Adcox et al. teaches in FIG. 4 Ethernet switch. The Ethernet switch switches frames based on address and sends packets from one client to another client through the PON and sends packets from clients to users of other network through the PPPOE BRAS. On the client side, Adcox et al. teaches in FIG. 4 10BaseT Ethernet interface.

8. Claims 108 and 132 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. and Kuo et al. as applied to claims 77, 82-87, 98, 100, 122 and 124-126 above, and further in view of Medina et al. (U.S. Patent 6,778,399 B2).

Wang et al. and Kuo et al. have been discussed above in regard to claims 77, 82-87, 98, 100, 122 and 124-126. The difference between Wang et al. and Kuo et al. and the claimed invention is that Wang et al. and Kuo et al. do not teach the form factor of the optical ports. Medina et al. teaches in col. 1, lines 28-40 small form pluggable (SFP) transceiver multisource agreement (MSA) standard. One of ordinary skill in the art would have been motivated to combine the teaching of Medina et al. with the modified point-to-multipoint network of Wang et al. and Kuo et al. and use SFP type connector for the optical port because SFP has small form factor and allows high port density and, therefore, saves space. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use SFP for the optical ports, as taught by Medina et al., in the modified point-to-multipoint network of Wang et al. and

Kuo et al. because SFP has small form factor and allows high port density and, therefore, saves space.

9. Claims 114 and 127 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al., Kuo et al., Masucci et al. and Graves et al. as applied to claims 97 and 113 above, and further in view of Hale et al. (U.S. Patent 5,572,349).

Wang et al., Kuo et al., Masucci et al. and Graves et al. have been discussed above in regard to claims 97 and 113. The difference between Wang et al., Kuo et al., Masucci et al. and Graves et al. and the claimed invention is that Wang et al., Kuo et al., Masucci et al. and Graves et al. do not teach power leveling. Hale et al. teaches in FIG. 1 a passive optical network comprising an OLT and a plurality of ONUs. Hale et al. teaches in col. 5, lines 2-10 that the OLT transmits control signals to ONU to adjust launch power. One of ordinary skill in the art would have been motivated to combine the teaching of Hale et al. with the modified point-to-multipoint network of Wang et al., Kuo et al., Masucci et al. and Graves et al. because power leveling adjusts the launch power of each ONU such that the received signal from each of them is about the same power level and, therefore, optimizes performance. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide power leveling, as taught by Hale et al., in the modified point-to-multipoint network of Wang et al., Kuo et al., Masucci et al. and Graves et al. because power leveling adjusts the launch power of each ONU for optimal performance.

10. Claim 121 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al., Kuo et al. and Abdelhamid et al. as applied to claims 78-81, 105-107, 109, 111-112 and 118 above, and further in view of Medina et al. (U.S. Patent 6,778,399 B2).

Wang et al., Kuo et al. and Abdelhamid et al. have been discussed above in regard to claims 78-81, 105-107, 109, 111-112 and 118. The difference between Wang et al., Kuo et al. and Abdelhamid et al. and the claimed invention is that Wang et al., Kuo et al. and Abdelhamid et al. do not teach the form factor of the optical ports. Medina et al. teaches in col. 1, lines 28-40 small form pluggable (SFP) transceiver multisource agreement (MSA) standard. One of ordinary skill in the art would have been motivated to combine the teaching of Medina et al. with the modified point-to-multipoint network of Wang et al., Kuo et al. and Abdelhamid et al. and use SFP type connector for the optical port because SFP has small form factor and allows high port density and, therefore, saves space. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use SFP for the optical ports, as taught by Medina et al., in the modified point-to-multipoint network of Wang et al., Kuo et al. and Abdelhamid et al. because SFP has small form factor and allows high port density and, therefore, saves space.

Response to Arguments

11. Applicant's arguments with respect to claims 77-109 and 111-132 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shi K. Li whose telephone number is 571 272-3031. The examiner can normally be reached on Monday-Friday (7:30 a.m. - 4:30 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571 272-3022. 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.

skl
30 April 2007

SKL

Shi K. Li
Patent Examiner

Notice of References Cited	Application/Control No. 10/886,514	Applicant(s)/Patent Under Reexamination SOTO ET AL.	
	Examiner Shi K. Li	Art Unit 2613	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-5,029,333	07-1991	Graves et al.	370/490
*	B	US-6,023,467 A	02-2000	Abdelhamid et al.	370/236.2
*	C	US-7,031,343 B1	04-2006	Kuo et al.	370/473
*	D	US-2004/0052274 A1	03-2004	Wang et al.	370/468
	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.

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Ex. 1002-2.217

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10886514	SOTO ET AL.
	Examiner	Art Unit
	Li, Shi K	2613

SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES		
Search Notes	Date	Examiner
Updated search	11/17/2006	SK
Updated search	4/30/2007	SK

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

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Ex. 1002-2.218

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10886514	SOTO ET AL.
	Examiner	Art Unit
	Li, Shi K	2613

✓	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	11/17/2006	04/30/2007							
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Ex. 1002-2.219

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10886514	SOTO ET AL.
	Examiner	Art Unit
	Li, Shi K	2613

✓	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								
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Ex. 1002-2.220

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10886514	SOTO ET AL.
	Examiner	Art Unit
	Li, Shi K	2613

✓	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								
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	76	-	-							
	77	✓	✓							
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	105	✓	✓							
	106	✓	✓							
	107	✓	✓							
	108	✓	✓							

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Ex. 1002-2.221

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10886514	SOTO ET AL.
	Examiner	Art Unit
	Li, Shi K	2613

✓	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	11/17/2006	04/30/2007							
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	110	✓	-							
	111	✓	✓							
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	129	✓	✓							
	130	✓	✓							
	131	✓	✓							
	132	✓	✓							

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EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S153	226	ONU and OLT and (electric electrical)	US-PGPUB; USPAT	OR	ON	2007/04/24 15:24
S154	97	S153 and @ad<"20030703"	US-PGPUB; USPAT	OR	ON	2007/04/24 16:01
S157	259	"398"/$.ccls. and hub and address	US-PGPUB; USPAT	OR	ON	2007/04/26 07:47
S158	190	S157 and @ad<"20030703"	US-PGPUB; USPAT	OR	ON	2007/04/26 08:57
S165	34	("6023467").URPN.	USPAT	OR	ON	2007/04/30 08:42
S176	19258	hairpin$4	US-PGPUB; USPAT	OR	ON	2007/04/30 10:24
S177	15	S176 and "398"/$.ccls.	US-PGPUB; USPAT	OR	ON	2007/04/30 10:26
S178	71	S176 and "370"/$.ccls.	US-PGPUB; USPAT	OR	ON	2007/04/30 10:35
S179	250	S176 and (PON (passive adj optical))	US-PGPUB; USPAT	OR	ON	2007/04/30 10:37
S180	6	S176 and (passive adj optical)	US-PGPUB; USPAT	OR	ON	2007/04/30 10:37

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Ex. 1002-2.223

	PATENTS **Docket No. UBI-005**
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE	
In re Application of: **Alexander I. Soto et al.**	Group Art Unit: **2633**
Patent Application No.: **10/886,514**	
Filed on: **July 06, 2004**	Examiner: **Li, Shi K.**
For: **Communication System and Method For An Optical Local Area Network**	

Commissioner for Patents
Mail Stop Amendment
PO Box 1450
Alexandria, VA 22313-4150

RESUBMISSION OF CORRECTED CLAIM LISTING
PER 37 C.F.R. §1.121(c)(1)

Responsive to the Notice of Non-Compliant Amendment (37 C.F.R. §1.121) mailed on March 06, 2007, the following claim listing, originally submitted with the Request for Continued Examination dated February 13, 2006 and now corrected to conform to 37 C.F.R. §1.121(c)(1), is resubmitted for entry in the above-entitled Patent Application.

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Ex. 1002-2.224

AMENDMENTS TO THE CLAIMS (CORRECTED)

Kindly enter the claim amendments as set forth in the following claim listing presented in accordance with 37 C.F.R. §1.121(c)(1):

1-76. (Canceled).

77. (Currently Amended) An optical Local Area Network (LAN) of one or more local area network clients, the optical LAN comprising:

a network manager <u>for managing optical signals each incorporating both a control channel and a data channel in a single optical wavelength,</u> including

an optical interface having means for converting received optical signals to electrical signals and means for producing transmitted optical signals from electrical signals,

a plurality of optical ports,

a passive optical coupler coupled between the optical interface and the optical ports and having means for accepting received optical signals from and for distributing transmitted optical signals to the optical interface and the optical ports, and

a control module coupled to the optical interface and having means for receiving electrical signals from and for transmitting electrical signals to the optical interface;

a plurality of network client adapters including

an optical interface having means for converting received optical signals to electrical signals and means for producing transmitted optical signals from electrical signals,

an optical port coupled to the optical interface, and

a control module having means for receiving electrical signals from and for transmitting electrical signals to the optical interface; and

a plurality of optical waveguides each coupled between one of the network client adapter optical ports and the network manager;

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whereby the network manager can receive an optical signal incorporating both a control channel and a data channel in a single optical wavelength from any network client adapter, a network client adapter can receive an optical signal incorporating both a control channel and a data channel in a single optical wavelength from the network manager, and the network manager and network client adapters are in communication to facilitate sending and receiving data across the optical waveguides.

78. (Previously presented) The optical LAN of claim 77, wherein the network manager control module includes means for administering the received electrical signals and transmitted electrical signals conforming to an Open Systems Interconnection reference model (OSI) Layer 2 or Layer 3 protocol.

79. (Previously presented) The optical LAN of claim 78, wherein the OSI Layer protocols includes means of representing address, synchronization, error control and data into frames or packets.

80. (Previously presented) The optical LAN of claim 77, wherein a network client adapter control module includes means to administer the received electrical signals and transmitted electrical signals conforming to an OSI Layer-2 or Layer-3 protocol.

81. (Previously presented) The optical LAN of claim 80, wherein the OSI Layer protocols includes means for representing address, synchronization, error control and data into frames or packets.

82. (Previously presented) The optical LAN of claim 77, wherein a network manager control module includes means to transmit data according to a time division multiplexing scheme.

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83. (Previously presented) The optical LAN of claim 82, wherein the network manager control module includes means for dynamically scheduling or providing bandwidth allocations.

84. (Previously presented) The optical LAN of claim 82, wherein the network manager control module includes means for scheduling or providing a minimum bandwidth allocation.

85. (Previously presented) The optical LAN of claim 77, wherein the network manager control module includes means for receiving data according to a time division multiple access scheme.

86. (Previously presented) The optical LAN of claim 85, wherein the network manager control module includes means for dynamically scheduling or providing bandwidth allocations.

87. (Previously presented) The optical LAN of claim 85, wherein the network manager control module includes means for scheduling or providing a minimum bandwidth allocation.

88. (Previously presented) The optical LAN of claim 77, wherein the network manager includes means for transmitting downstream data from the network manager to a network client adapter in successive downstream frames over the optical waveguides, the downstream data including downstream packet data.

89. (Previously presented) The optical LAN of claim 88, wherein each downstream frame includes a first number of downstream subframes, each downstream subframe including a second number of downstream slots of time, each downstream slot of time having one of a plurality of downstream formats.

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90. (Previously presented) The optical LAN of claim 89, wherein a downstream subframe further includes a downstream communication channel for communicating schedule or provisioning information for provisioning upstream slots of time to respective network client adapters.

91. (Previously presented) The optical LAN of claim 88, wherein the downstream packet format for carrying downstream packet data includes a downstream packet header and a downstream packet payload; the downstream packet header including a field indicating length of the downstream packet payload.

92. (Previously presented) The optical LAN of claim 91, wherein the downstream packet payload includes at least a portion of an Ethernet or Fibre Channel frame.

93. (Previously presented) The optical LAN of claim 77, wherein a network client adapter includes means to transmit upstream data from the network client adapter to a network manager in respective upstream slots of time over the optical waveguides, the upstream slots of time forming essentially successive upstream frames, the upstream data including upstream packet data.

94. (Previously presented) The optical LAN of claim 93, wherein each upstream frame includes a first number of upstream subframes, each upstream subframe including a second number of upstream slots of time, each upstream slot of time having one of a plurality of upstream formats.

95. (Previously presented) The optical LAN of claim 93, wherein the upstream packet format for carrying upstream packet data includes an upstream packet header and an upstream packet payload, wherein the upstream packet header includes a field for indicating an upstream packet payload length.

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96. (Previously presented) The optical LAN of claim 95, wherein the upstream packet payload includes at least a portion of an Ethernet or Fibre Channel frame.

97. (Previously presented) The optical LAN of claim 93, wherein the network manager includes means for hairpinning upstream data to one or more network client adapters.

98. (Previously presented) The optical LAN of claim 77, wherein a network client adapter further includes a network interface adapted to communicate electrically to one or more of the local area network clients.

99. (Previously presented) The optical LAN of claim 98, wherein the network interface includes means for a Layer 2 or Layer 1 network interface protocol selected from the group consisting essentially of:

Ethernet and Fibre Channel protocols.

100. (Previously presented) The optical LAN of claim 98, wherein the network clients are selected from the group consisting essentially of:

a workstation, a personal computer, a disk storage array, a server, a switch, and a router.

101. (Previously presented) The optical LAN of claim 77, wherein the network manager further includes a switch interface adapted to communicate electrically to an OSI Layer 2 or Layer 3 switch device.

102. (Previously presented) The optical LAN of claim 101, wherein the switch interface includes means for implementing a Layer 2 or Layer 1 switch interface protocol selected from the group consisting essentially of:

Ethernet and Fibre Channel protocols.

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103. (Previously presented) The optical LAN of claim 101, wherein the switch device is selected from the group consisting essentially of:

an Ethernet media access controller (MAC) device and a Fibre Channel FC-2 service device.

104. (Previously presented) The optical LAN of claim 101, wherein the network manager includes means for transmitting at least a portion of the received data to the switch device.

105. (Previously presented) The optical LAN of claim 77, wherein the network manager includes means for determining a message response delay between the network manager and a network client adapter.

106. (Previously presented) The optical LAN of claim 105, wherein a network client adapter includes means for adjusting transmission timing responsive to the message response delay between the network manager and a network client adapter.

107. (Previously presented) The optical LAN of claim 77, wherein the network manager includes means for adjusting the optical transmit power of a network client adapter to a predetermined level in response to a received message.

108. (Previously presented) The optical LAN of claim 77, wherein the form factors of the optical ports are selected from the group consisting essentially of:

the optical Multi-Source Agreements (MSA) specifications, including XFP, XENPAK, XPAK, and SFP.

109. (Currently Amended) A method for operating an optical local area network (LAN) including a network hub having an optical transceiver coupled to ~~an internal~~ passive optical coupler that is also coupled to a plurality of optical ports and including a plurality of

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Ex. 1002-2.230

network terminals each coupled to a network hub optical port by means of at least one of a plurality of optical waveguides, the method comprising the steps of:

accepting information from both a control channel and a data channel on a single wavelength at the network hub; ~~and~~

communicating the information between the network hub and a network terminal in accordance with an OSI layer 2 or layer 3 protocol ~~.~~;

managing the communications at the network hub;

transmitting the information from the network hub to all network terminals in a broadcast time division multiplexed process;

transmitting the information from a network terminal to the network hub in a time division multiple access process; and

providing bandwidth allocation for the information transfers at the network hub.

110. (Canceled)

111. (Currently Amended) The method of claim 1~~0~~09, wherein the bandwidth allocation includes dynamic bandwidth allocation.

112. (Currently Amended) The method of claim 1~~0~~09, wherein the bandwidth allocation includes a minimum bandwidth allocation.

113. (Previously presented) The method of claim 109, further comprising the unordered steps of:

(a) transmitting an incoming optical signal representing data frames from a first network terminal to one of the plurality of network hub optical ports over at least one of the optical waveguides;

(b) accepting the incoming optical signal from one of the network hub optical ports;

(c) converting the incoming optical signal to a first electrical signal representing the optical signal data;

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Ex. 1002-2.231

(d) processing the first electrical signal according to an OSI Layer-2 protocol to produce a first processed electrical signal representing physical address, synchronization, error control, flow control and data;

(e) converting the first processed electrical signal to a broadcast optical signal responsive to the physical address, synchronization, error control, flow control and data;

(f) transmitting the broadcast optical signal to a passive optical coupler; and

(g) distributing the broadcast optical signal from the passive optical coupler to each of the plurality of hub optical ports; and

(h) accepting the broadcast optical signal at a plurality of the network terminals.

114. (Previously presented) The method of claim 113, further comprising the unordered steps of:

(b.1) measuring the incoming optical signal power level at the network hub;

(b.2) determining a desired network terminal optical transmission power level adjustment from the measured optical signal power level;

(e.1) adding data representing the desired network terminal optical transmission power level adjustment to the broadcast optical signal; and

(h.1) adjusting the optical transmission power level at one of the network terminals responsive to acceptance of the broadcast optical signal.

115. (Previously presented) The method of claim 113, further comprising the steps of:

(d.1) coupling the first electrical signal to a device that processes the first electrical signal according to an OSI layer-3 protocol to produce logical address, network routing, network segmentation and traffic control data.

116. (Previously presented) The method of claim 113, further comprising the steps of:

(h.1) converting the received broadcast optical signal transmission to a second electrical signal representing data frames in a receiving network terminal;

(h.2) selecting a data frame within the second electrical signal associated with

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Ex. 1002-2.232

the receiving network terminal; and

(h.3) adapting data in the selected frame for transmission over a network interface having a Layer 2 or Layer 1 network interface protocol selected from the group consisting essentially of:

the Ethernet and Fibre Channel protocols.

117. (Previously presented) The method of claim 113, further comprising the steps of:

(i.1) converting the incoming optical signal to a third electrical signal representing data frames in the network hub;

(i.2) selecting a data frame within the third electrical signal; and

(i.3) adapting data in the selected frame for transmission over a switch interface having a Layer 2 or Layer 1 switch interface protocol selected from the group consisting essentially of:

the Ethernet and Fibre Channel protocols.

118. (Previously presented) The method of claim 109, wherein one or more of the network terminals are selected from the group consisting essentially of:

a workstation, a personal computer, a disk storage array, a server, a switch, and a router.

119. (Previously presented) The method of claim 109, further comprising the step of:

determining a response time delay at the network hub, including the steps of

(a) transmitting a message from the network hub to a network terminal,

(b) processing the message at the network terminal,

(c) transmitting a return message from the network terminal, and

(d) receiving the return message at the network hub.

120. (Previously presented) The method of claim 119, further comprising the steps of:

(a) transmitting a representation of the determined response time delay to the network terminal; and

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Ex. 1002-2.233

(b) adjusting the transmission timing of the network terminal in reaction to the received representation of the determined response time delay.

121. (Previously presented) The method claim 109, wherein the form factor of the optical ports is selected from the group consisting essentially of:

the optical Multi-Source Agreements (MSA) specifications including XFP, XENPAK, XPAK, and SFP.

122. (Currently Amended) A method for reducing the number of optical transceivers in a hub of an optical local area network, comprising:

coupling an optical transceiver or optical module to a passive optical coupler; and

coupling the passive optical coupler to a plurality of optical ports; and

distributing transmitted optical signals incorporating both a control channel and a data channel in a single wavelength from the optical transceiver to each of the optical ports through the passive optical coupler; and

combining received optical signals from each optical port to the optical transceiver through the passive optical coupler.;

whereby the optical ports serve as a connection site that connects an external optical waveguide to the internal optical transceiver through the ~~internal~~ passive optical coupler, thereby reducing the requisite number of optical transceivers in an optical LAN hub ~~by the number of optical ports minus one~~.

123. (Previously presented) The method of claim 122, further comprising the steps of:

producing a first electrical signal representing the received optical signal;

producing a transmitted optical signal representing a second electrical signal; and

processing the first and second electric signals in accordance with an OSI Layer 2 or Layer 3 protocol.

124. (Previously presented) The method of claim 122, further comprising the steps of:

managing network communications at the network hub;

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Ex. 1002-2.234

transmitting data from the network hub to a network terminal in a broadcast time division multiplexed manner;

transmitting data from the network terminal to the network hub in a time division multiple access manner; and

provisioning bandwidth allocation for all network communications at the network hub.

125. (Previously presented) The method of claim 124, wherein the bandwidth allocation includes dynamic bandwidth allocation.

126. (Previously presented) The method of claim 124, wherein the bandwidth allocation includes a minimum bandwidth allocation.

127. (Previously presented) The method of claim 124, further comprising the steps of:

measuring the received optical signal power level at the network hub;

determining a desired network terminal optical transmission power level adjustment from the measured optical signal power level;

adding data representing the desired network terminal optical transmission power level adjustment to the transmitted data from the network hub to the network terminal; and

adjusting the optical transmission power level at the network terminal responsive to acceptance of the transmitted data.

128. (Previously presented) The method of claim 124, further comprising the step of:

determining a delay response time at the network hub, including the steps of

(a) transmitting a message from the network hub to a network terminal;

(b) processing of the message by the network terminal;

(c) transmitting a return message at the network terminal; and

(d) receiving the return message at the network hub.

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Ex. 1002-2.235

129. (Previously presented) The method of claim 128, further comprising the steps of:

(a) transmitting a representation of the determined response time delay to the network terminal; and

(b) adjusting the transmission timing of the network terminal in reaction to the received representation of the determined response time delay.

130. (Previously presented) The method of claim 122, further comprising:

converting the received optical signal to a third electrical signal representing data frames in the network hub;

selecting a data frame within the third electrical signal; and

adapting data in the selected frame for transmission over a switch interface having a Layer 2 or Layer 1 switch interface protocol selected from the group consisting essentially of:

the Ethernet and Fibre Channel protocols.

131. (Previously presented) The method of claim 130, further comprising:

receiving a fourth electrical signal at the switch interface;

converting the fourth electrical signal to an optical signal; and

transmitting the optical signal to a network terminal.

132. (Previously presented) The method of claim 122, wherein the form factor of the optical ports is selected from the group consisting essentially of:

the optical Multi-Source Agreements (MSA) specifications including XFP, XENPAK, XPAK, and SFP.

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Ex. 1002-2.236

REMARKS

This is a resubmission of the claim listing originally submitted with the Request for Continued Examination dated February 13, 2006 and now corrected to conform to 37 C.F.R. §1.121(c)(1) in response to the Notice of Non-Compliant Amendment (37 C.F.R. §1.121) mailed on March 06, 2007. Applicants respectfully request examination and re-consideration of claims 77-109 and 111-132 as amended. The requisite $395 fee per 37 C.F.R. §1.17(e) was submitted with the Request for Continued Examination dated February 13, 2006.

Respectfully submitted,

/James Albert Ward #34014/

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Ex. 1002-2.237

Electronic Acknowledgement Receipt

EFS ID:	1581722
Application Number:	10886514
International Application Number:	
Confirmation Number:	8709
Title of Invention:	Communication system and method for an optical local area network
First Named Inventor/Applicant Name:	Alexander I. Soto
Customer Number:	50625
Filer:	James Albert Ward
Filer Authorized By:	
Attorney Docket Number:	UBI-005
Receipt Date:	09-MAR-2007
Filing Date:	06-JUL-2004
Time Stamp:	22:37:51
Application Type:	Utility

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)	Multi Part /.zip	Pages (if appl.)
1	Supplemental Response or Supplemental Amendment	RCE_Corrected_Claim_Listing_UBI-005_09Mar07.pdf	97394	no	14
Warnings:					

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Ex. 1002-2.238

Information:	
Total Files Size (in bytes):	97394

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.

PTO/SB/06 (12-04)
Approved for use through 7/31/2006. OMB 0651-0032
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.

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 10/886,514

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY FEE ($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))							
SEARCH FEE (37 CFR 1.16(k), (l), or (m))							
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))							
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	x =		OR	x =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	x =			x =	
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
			TOTAL			TOTAL	

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

APPLICATION AS AMENDED – PART II

AMENDMENT A — 3/9/07

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 55	Minus	** 56	=	x =		OR	x =	
Independent (37 CFR 1.16(h))	* 3	Minus	*** 3	=	x =		OR	x =	
Application Size Fee (37 CFR 1.16(s))							OR		
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

AMENDMENT B

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)	OR	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))					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

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

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

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

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IPR2023-00960, Ex. 1002-2
Ex. 1002-2.240

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/886,514	07/06/2004	Alexander I. Soto	UBI-005	8709

50625 7590 03/06/2007

JAMES ALBERT WARD
1 WATERWAY
IRVINE, CA 92614

EXAMINER	
ART UNIT	PAPER NUMBER

DATE MAILED: 03/06/2007

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

PTO-90C (Rev. 10/03)

Notice of Non-Compliant Amendment (37 CFR 1.121)	Application No. 10886514	Applicant(s)	
	Examiner	Art Unit	

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

The amendment document filed on 2-13-07 is considered non-compliant because it has failed to meet the requirements of 37 CFR 1.121 or 1.4. In order for the amendment document to be compliant, correction of the following item(s) is required.

THE FOLLOWING MARKED (X) ITEM(S) CAUSE THE AMENDMENT DOCUMENT TO BE NON-COMPLIANT:

- ☐ 1. Amendments to the specification:
  - ☐ A. Amended paragraph(s) do not include markings.
  - ☐ B. New paragraph(s) should not be underlined.
  - ☐ C. Other _____.
- ☐ 2. Abstract:
  - ☐ A. Not presented on a separate sheet. 37 CFR 1.72.
  - ☐ B. Other _____.
- ☐ 3. Amendments to the drawings:
  - ☐ A. The drawings are not properly identified in the top margin as "Replacement Sheet," "New Sheet," or "Annotated Sheet" as required by 37 CFR 1.121(d).
  - ☐ B. The practice of submitting proposed drawing correction has been eliminated. Replacement drawings showing amended figures, without markings, in compliance with 37 CFR 1.84 are required.
  - ☐ C. Other _____.
- ☑ 4. Amendments to the claims:
  - ☑ A. A complete listing of all of the claims is not present.
  - ☐ B. The listing of claims does not include the text of all pending claims (including withdrawn claims)
  - ☐ C. Each claim has not been provided with the proper status identifier, and as such, the individual status of each claim cannot be identified. Note: the status of every claim must be indicated after its claim number by using one of the following status identifiers: (Original), (Currently amended), (Canceled), (Previously presented), (New), (Not entered), (Withdrawn) and (Withdrawn-currently amended).
  - ☐ D. The claims of this amendment paper have not been presented in ascending numerical order.
  - ☑ E. Other: Claims 1-76 are not mentioned.
- ☐ 5. The amendment is unsigned or not signed in accordance with 37 CFR 1.4.

For further explanation of the amendment format required by 37 CFR 1.121, see MPEP § 714 and the USPTO website at http://www.uspto.gov/web/offices/pac/dapp/opla/preognotice/officeflyer.pdf .

TIME PERIODS FOR FILING A REPLY TO THIS NOTICE:

1. Applicant is given **no new time period** if the non-compliant amendment is an after-final amendment or an amendment filed after allowance. If applicant wishes to resubmit the non-compliant after-final amendment with corrections, the **entire corrected amendment** must be resubmitted within the time period set forth in the final Office action.
2. Applicant is given **one month**, or thirty (30) days, whichever is longer, from the mail date of this notice to supply the **corrected section** of the non-compliant amendment in compliance with 37 CFR 1.121 or 1.4, if the non-compliant amendment is one of the following: a preliminary amendment, a non-final amendment (including a submission for a request for continued examination (RCE) under 37 CFR 1.114), a supplemental amendment filed within a suspension period under 37 CFR 1.103(a) or (c), and an amendment filed in response to a *Quayle* action.

Extensions of time are available under 37 CFR 1.136(a) only if the non-compliant amendment is a non-final amendment or an amendment filed in response to a *Quayle* action.
Failure to timely respond to this notice will result in:
Abandonment of the application if the non-compliant amendment is a non-final amendment or an amendment filed in response to a *Quayle* action; or
Non-entry of the amendment if the non-compliant amendment is a preliminary amendment or supplemental amendment.

Rebecca A. Backus — 571-272-0996

Legal Instruments Examiner (LIE) — Telephone No.

PATENT APPLICATION FEE DETERMINATION RECORD
Effective October 1, 2003

Application or Docket Number: 10886514

CLAIMS AS FILED - PART I

	(Column 1)	(Column 2)
TOTAL CLAIMS 56		
FOR	NUMBER FILED	NUMBER EXTRA
TOTAL CHARGEABLE CLAIMS	56 minus 20=	* 36
INDEPENDENT CLAIMS	5 minus 3 =	* 2
MULTIPLE DEPENDENT CLAIM PRESENT		☐

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

SMALL ENTITY TYPE ☐		OR	OTHER THAN SMALL ENTITY	
RATE	FEE		RATE	FEE
BASIC FEE	385.00	OR	BASIC FEE	770.00
XS 9=		OR	X$18=	648
X43=		OR	X86=	172
+145=		OR	+290=	
TOTAL		OR	TOTAL	1590

2/13/07

CLAIMS AS AMENDED - PART II

AMENDMENT A	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	* 55	Minus	** 56	= 0
Independent	* 3	Minus	*** 5	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X43=		OR	X86=	
+145=		OR	+290=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

AMENDMENT B	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X43=		OR	X86=	
+145=		OR	+290=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

AMENDMENT C	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X43=		OR	X86=	
+145=		OR	+290=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

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

10/886514

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IPR2023-00960, Ex. 1002-2
Ex. 1002-2.243

PTO/SB/30 (09-06)
Approved for use through 03/31/2007. OMB 0651-0031
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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	10/886,514
Filing Date	July 06, 2004
First Named Inventor	Soto, Alexander
Art Unit	2633
Examiner Name	Li, Shi K.
Attorney Docket Number	UBI-005

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.

   a. ☐ The Director is hereby authorized to charge the following fees, any underpayment of fees, or credit any overpayments, to Deposit Account No. _____. I have enclosed a duplicate copy of this sheet.

      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 $ _____ enclosed

   c. ☑ Payment by credit card (Form PTO-2038 enclosed) Fee paid electronically herewith.

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	/James Albert Ward #34014/	Date	Feburary 13, 2007
Name (Print/Type)	James A. Ward	Registration No.	34,041

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			
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Ex. 1002-2.244

Electronic Patent Application Fee Transmittal

Application Number:	10886514
Filing Date:	06-Jul-2004
Title of Invention:	Communication system and method for an optical local area network
First Named Inventor/Applicant Name:	Alexander I. Soto
Filer:	James Albert Ward
Attorney Docket Number:	UBI-005
Filed as Small Entity	

Utility Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

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Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Request for continued examination	2801	1	395	395
		Total in USD ($)		**395**

Electronic Acknowledgement Receipt

EFS ID:	1514065
Application Number:	10886514
International Application Number:	
Confirmation Number:	8709
Title of Invention:	Communication system and method for an optical local area network
First Named Inventor/Applicant Name:	Alexander I. Soto
Customer Number:	50625
Filer:	James Albert Ward
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Attorney Docket Number:	UBI-005
Receipt Date:	13-FEB-2007
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Application Type:	Utility

Payment information:

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RAM confirmation Number	980
Deposit Account	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)	Multi Part /.zip	Pages (if appl.)

1	Amendment Submitted/Entered with Filing of CPA/RCE	RCE_Prelim_Amend_UBI-005_13Feb07.pdf	133311	no	19
Warnings:					
Information:					
2	Request for Continued Examination (RCE)	RCE_Transmittal_UBI-005_13Feb07.pdf	185949	no	1
Warnings:					
This is not a USPTO supplied RCE SB30 form.					
Information:					
3	Fee Worksheet (PTO-06)	fee-info.pdf	8168	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	327428		

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New Applications Under 35 U.S.C. 111
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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.

	PATENTS **Docket No. UBI-005**
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE	
In re Application of: **Alexander I. Soto et al.**	Group Art Unit: **2633**
Patent Application No.: **10/886,514**	
Filed on: **July 06, 2004**	Examiner: **Li, Shi K.**
For: **Communication System and Method For An Optical Local Area Network**	

Commissioner for Patents
Mail Stop Amendment
PO Box 1450
Alexandria, VA 22313-4150

PRELIMINARY AMENDMENT PER 37 C.F.R. §1.114(c)

Responsive to the Final Office Action mailed on November 22, 2006 and in connection with the attached Request for Continued Examination, please enter the following Preliminary Amendment in the above-entitled Patent Application.

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AMENDMENTS TO THE CLAIMS

Kindly enter the claim amendments as set forth in the following claim listing presented in accordance with 37 C.F.R. §1.121(c)(1):

77. (Currently Amended) An optical Local Area Network (LAN) of one or more local area network clients, the optical LAN comprising:

a network manager for managing optical signals each incorporating both a control channel and a data channel in a single optical wavelength, including

an optical interface having means for converting received optical signals to electrical signals and means for producing transmitted optical signals from electrical signals,

a plurality of optical ports,

a passive optical coupler coupled between the optical interface and the optical ports and having means for accepting received optical signals from and for distributing transmitted optical signals to the optical interface and the optical ports, and

a control module coupled to the optical interface and having means for receiving electrical signals from and for transmitting electrical signals to the optical interface;

a plurality of network client adapters including

an optical interface having means for converting received optical signals to electrical signals and means for producing transmitted optical signals from electrical signals,

an optical port coupled to the optical interface, and

a control module having means for receiving electrical signals from and for transmitting electrical signals to the optical interface; and

a plurality of optical waveguides each coupled between one of the network client adapter optical ports and the network manager;

whereby the network manager can receive an optical signal incorporating both a control channel and a data channel in a single optical wavelength from any network client

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adapter, a network client adapter can receive an optical signal incorporating both a control channel and a data channel in a single optical wavelength from the network manager, and the network manager and network client adapters are in communication to facilitate sending and receiving data across the optical waveguides.

78. (Previously presented) The optical LAN of claim 77, wherein the network manager control module includes means for administering the received electrical signals and transmitted electrical signals conforming to an Open Systems Interconnection reference model (OSI) Layer 2 or Layer 3 protocol.

79. (Previously presented) The optical LAN of claim 78, wherein the OSI Layer protocols includes means of representing address, synchronization, error control and data into frames or packets.

80. (Previously presented) The optical LAN of claim 77, wherein a network client adapter control module includes means to administer the received electrical signals and transmitted electrical signals conforming to an OSI Layer-2 or Layer-3 protocol.

81. (Previously presented) The optical LAN of claim 80, wherein the OSI Layer protocols includes means for representing address, synchronization, error control and data into frames or packets.

82. (Previously presented) The optical LAN of claim 77, wherein a network manager control module includes means to transmit data according to a time division multiplexing scheme.

83. (Previously presented) The optical LAN of claim 82, wherein the network manager control module includes means for dynamically scheduling or providing bandwidth allocations.

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84. (Previously presented) The optical LAN of claim 82, wherein the network manager control module includes means for scheduling or providing a minimum bandwidth allocation.

85. (Previously presented) The optical LAN of claim 77, wherein the network manager control module includes means for receiving data according to a time division multiple access scheme.

86. (Previously presented) The optical LAN of claim 85, wherein the network manager control module includes means for dynamically scheduling or providing bandwidth allocations.

87. (Previously presented) The optical LAN of claim 85, wherein the network manager control module includes means for scheduling or providing a minimum bandwidth allocation.

88. (Previously presented) The optical LAN of claim 77, wherein the network manager includes means for transmitting downstream data from the network manager to a network client adapter in successive downstream frames over the optical waveguides, the downstream data including downstream packet data.

89. (Previously presented) The optical LAN of claim 88, wherein each downstream frame includes a first number of downstream subframes, each downstream subframe including a second number of downstream slots of time, each downstream slot of time having one of a plurality of downstream formats.

90. (Previously presented) The optical LAN of claim 89, wherein a downstream subframe further includes a downstream communication channel for communicating schedule or provisioning information for provisioning upstream slots of time to respective network client adapters.

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91. (Previously presented) The optical LAN of claim 88, wherein the downstream packet format for carrying downstream packet data includes a downstream packet header and a downstream packet payload; the downstream packet header including a field indicating length of the downstream packet payload.

92. (Previously presented) The optical LAN of claim 91, wherein the downstream packet payload includes at least a portion of an Ethernet or Fibre Channel frame.

93. (Previously presented) The optical LAN of claim 77, wherein a network client adapter includes means to transmit upstream data from the network client adapter to a network manager in respective upstream slots of time over the optical waveguides, the upstream slots of time forming essentially successive upstream frames, the upstream data including upstream packet data.

94. (Previously presented) The optical LAN of claim 93, wherein each upstream frame includes a first number of upstream subframes, each upstream subframe including a second number of upstream slots of time, each upstream slot of time having one of a plurality of upstream formats.

95. (Previously presented) The optical LAN of claim 93, wherein the upstream packet format for carrying upstream packet data includes an upstream packet header and an upstream packet payload, wherein the upstream packet header includes a field for indicating an upstream packet payload length.

96. (Previously presented) The optical LAN of claim 95, wherein the upstream packet payload includes at least a portion of an Ethernet or Fibre Channel frame.

97. (Previously presented) The optical LAN of claim 93, wherein the network manager includes means for hairpinning upstream data to one or more network client adapters.

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98. (Previously presented) The optical LAN of claim 77, wherein a network client adapter further includes a network interface adapted to communicate electrically to one or more of the local area network clients.

99. (Previously presented) The optical LAN of claim 98, wherein the network interface includes means for a Layer 2 or Layer 1 network interface protocol selected from the group consisting essentially of:

Ethernet and Fibre Channel protocols.

100. (Previously presented) The optical LAN of claim 98, wherein the network clients are selected from the group consisting essentially of:

a workstation, a personal computer, a disk storage array, a server, a switch, and a router.

101. (Previously presented) The optical LAN of claim 77, wherein the network manager further includes a switch interface adapted to communicate electrically to an OSI Layer 2 or Layer 3 switch device.

102. (Previously presented) The optical LAN of claim 101, wherein the switch interface includes means for implementing a Layer 2 or Layer 1 switch interface protocol selected from the group consisting essentially of:

Ethernet and Fibre Channel protocols.

103. (Previously presented) The optical LAN of claim 101, wherein the switch device is selected from the group consisting essentially of:

an Ethernet media access controller (MAC) device and a Fibre Channel FC-2 service device.

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104. (Previously presented) The optical LAN of claim 101, wherein the network manager includes means for transmitting at least a portion of the received data to the switch device.

105. (Previously presented) The optical LAN of claim 77, wherein the network manager includes means for determining a message response delay between the network manager and a network client adapter.

106. (Previously presented) The optical LAN of claim 105, wherein a network client adapter includes means for adjusting transmission timing responsive to the message response delay between the network manager and a network client adapter.

107. (Previously presented) The optical LAN of claim 77, wherein the network manager includes means for adjusting the optical transmit power of a network client adapter to a predetermined level in response to a received message.

108. (Previously presented) The optical LAN of claim 77, wherein the form factors of the optical ports are selected from the group consisting essentially of:

the optical Multi-Source Agreements (MSA) specifications, including XFP, XENPAK, XPAK, and SFP.

109. (Currently Amended) A method for operating an optical local area network (LAN) including a network hub having an optical transceiver coupled to ~~an internal~~ passive optical coupler that is also coupled to a plurality of optical ports and including a plurality of network terminals each coupled to a network hub optical port by means of at least one of a plurality of optical waveguides, the method comprising the steps of:

accepting information <u>from both a control channel and a data channel on a single wavelength</u> at the network hub; ~~and~~

communicating <u>the</u> information between the network hub and a network terminal in accordance with an OSI layer 2 or layer 3 protocol~~.~~<u>;</u>

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managing the communications at the network hub;

transmitting the information from the network hub to all network terminals in a broadcast time division multiplexed process;

transmitting the information from a network terminal to the network hub in a time division multiple access process; and

providing bandwidth allocation for the information transfers at the network hub.

110. (Canceled)

111. (Currently Amended) The method of claim 1~~0~~09, wherein the bandwidth allocation includes dynamic bandwidth allocation.

112. (Currently Amended) The method of claim 1~~0~~09, wherein the bandwidth allocation includes a minimum bandwidth allocation.

113. (Previously presented) The method of claim 109, further comprising the unordered steps of:

(a) transmitting an incoming optical signal representing data frames from a first network terminal to one of the plurality of network hub optical ports over at least one of the optical waveguides;

(b) accepting the incoming optical signal from one of the network hub optical ports;

(c) converting the incoming optical signal to a first electrical signal representing the optical signal data;

(d) processing the first electrical signal according to an OSI Layer-2 protocol to produce a first processed electrical signal representing physical address, synchronization, error control, flow control and data;

(e) converting the first processed electrical signal to a broadcast optical signal responsive to the physical address, synchronization, error control, flow control and data;

(f) transmitting the broadcast optical signal to a passive optical coupler; and

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(g) distributing the broadcast optical signal from the passive optical coupler to each of the plurality of hub optical ports; and

(h) accepting the broadcast optical signal at a plurality of the network terminals.

114. (Previously presented) The method of claim 113, further comprising the unordered steps of:

(b.1) measuring the incoming optical signal power level at the network hub;

(b.2) determining a desired network terminal optical transmission power level adjustment from the measured optical signal power level;

(e.1) adding data representing the desired network terminal optical transmission power level adjustment to the broadcast optical signal; and

(h.1) adjusting the optical transmission power level at one of the network terminals responsive to acceptance of the broadcast optical signal.

115. (Previously presented) The method of claim 113, further comprising the steps of:

(d.1) coupling the first electrical signal to a device that processes the first electrical signal according to an OSI layer-3 protocol to produce logical address, network routing, network segmentation and traffic control data.

116. (Previously presented) The method of claim 113, further comprising the steps of:

(h.1) converting the received broadcast optical signal transmission to a second electrical signal representing data frames in a receiving network terminal;

(h.2) selecting a data frame within the second electrical signal associated with the receiving network terminal; and

(h.3) adapting data in the selected frame for transmission over a network interface having a Layer 2 or Layer 1 network interface protocol selected from the group consisting essentially of:

the Ethernet and Fibre Channel protocols.

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117. (Previously presented) The method of claim 113, further comprising the steps of:

(i.1) converting the incoming optical signal to a third electrical signal representing data frames in the network hub;

(i.2) selecting a data frame within the third electrical signal; and

(i.3) adapting data in the selected frame for transmission over a switch interface having a Layer 2 or Layer 1 switch interface protocol selected from the group consisting essentially of:

the Ethernet and Fibre Channel protocols.

118. (Previously presented) The method of claim 109, wherein one or more of the network terminals are selected from the group consisting essentially of:

a workstation, a personal computer, a disk storage array, a server, a switch, and a router.

119. (Previously presented) The method of claim 109, further comprising the step of:

determining a response time delay at the network hub, including the steps of

(a) transmitting a message from the network hub to a network terminal,

(b) processing the message at the network terminal,

(c) transmitting a return message from the network terminal, and

(d) receiving the return message at the network hub.

120. (Previously presented) The method of claim 119, further comprising the steps of:

(a) transmitting a representation of the determined response time delay to the network terminal; and

(b) adjusting the transmission timing of the network terminal in reaction to the received representation of the determined response time delay.

121. (Previously presented) The method claim 109, wherein the form factor of the optical ports is selected from the group consisting essentially of:

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the optical Multi-Source Agreements (MSA) specifications including XFP, XENPAK, XPAK, and SFP.

122. (Currently Amended) A method for reducing the number of optical transceivers in a hub of an optical local area network, comprising:

coupling an optical transceiver or optical module to a passive optical coupler; and

coupling the passive optical coupler to a plurality of optical ports; and

distributing transmitted optical signals incorporating both a control channel and a data channel in a single wavelength from the optical transceiver to each of the optical ports through the passive optical coupler; and

combining received optical signals from each optical port to the optical transceiver through the passive optical coupler.;

whereby the optical ports serve as a connection site that connects an external optical waveguide to the internal optical transceiver through the ~~internal~~ passive optical coupler, thereby reducing the requisite number of optical transceivers in an optical LAN hub ~~by the number of optical ports minus one~~.

123. (Previously presented) The method of claim 122, further comprising the steps of:

producing a first electrical signal representing the received optical signal;

producing a transmitted optical signal representing a second electrical signal; and

processing the first and second electric signals in accordance with an OSI Layer 2 or Layer 3 protocol.

124. (Previously presented) The method of claim 122, further comprising the steps of:

managing network communications at the network hub;

transmitting data from the network hub to a network terminal in a broadcast time division multiplexed manner;

transmitting data from the network terminal to the network hub in a time division multiple access manner; and

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provisioning bandwidth allocation for all network communications at the network hub.

125. (Previously presented) The method of claim 124, wherein the bandwidth allocation includes dynamic bandwidth allocation.

126. (Previously presented) The method of claim 124, wherein the bandwidth allocation includes a minimum bandwidth allocation.

127. (Previously presented) The method of claim 124, further comprising the steps of:

measuring the received optical signal power level at the network hub;

determining a desired network terminal optical transmission power level adjustment from the measured optical signal power level;

adding data representing the desired network terminal optical transmission power level adjustment to the transmitted data from the network hub to the network terminal; and

adjusting the optical transmission power level at the network terminal responsive to acceptance of the transmitted data.

128. (Previously presented) The method of claim 124, further comprising the step of:

determining a delay response time at the network hub, including the steps of

(a) transmitting a message from the network hub to a network terminal;

(b) processing of the message by the network terminal;

(c) transmitting a return message at the network terminal; and

(d) receiving the return message at the network hub.

129. (Previously presented) The method of claim 128, further comprising the steps of:

(a) transmitting a representation of the determined response time delay to the network terminal; and

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(b) adjusting the transmission timing of the network terminal in reaction to the received representation of the determined response time delay.

130. (Previously presented) The method of claim 122, further comprising:

converting the received optical signal to a third electrical signal representing data frames in the network hub;

selecting a data frame within the third electrical signal; and

adapting data in the selected frame for transmission over a switch interface having a Layer 2 or Layer 1 switch interface protocol selected from the group consisting essentially of:

the Ethernet and Fibre Channel protocols.

131. (Previously presented) The method of claim 130, further comprising:

receiving a fourth electrical signal at the switch interface;

converting the fourth electrical signal to an optical signal; and

transmitting the optical signal to a network terminal.

132. (Previously presented) The method of claim 122, wherein the form factor of the optical ports is selected from the group consisting essentially of:

the optical Multi-Source Agreements (MSA) specifications including XFP, XENPAK, XPAK, and SFP.

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REMARKS

Introduction: This is a preliminary amendment submitted with a Request for Continued Examination per 35 C.F.R. §1.114. Applicants herewith cancel claim 110 and amend claims 77, 109, 111-112 and 122 to better describe and claim that which Applicants consider to be the invention. Claims 77-109 and 111-132 remain in the application. Applicants respectfully request examination and reconsideration of claims 77-109 and 111-132.

Discussion of the Rejections of Claims 122-132: In the Office Action mailed on November 22, 2006, Examiner rejects claims 122-132 under 35 U.S.C. §112 as containing subject matter which was not described in the specification in such a way as to reasonably convey how to practice the invention to one skilled in the art at the time the application was filed. Examiner states that: "*Instant specification teaches on page 5, lines 20-22 that an advantage of instant invention is that the number of optical transceivers is reduced. However, nowhere does instant specification teach how to reduce the number of optical transceivers...*". Applicants respectfully traverse these rejections for the following reasons.

Reduction of the requisite numbers of optical transceivers is an inherent advantage of the claimed invention, as may be readily appreciated by those skilled in the arts in view of the teachings in the specification and claims. Those skilled in the art know that the common optical LAN hubs/switches in the marketplace are marketed and sold by the speed of the optical ports and the number of optical ports (*e.g.* a 10GB Ethernet 4-port XFP switch, or a 48-port SFP Gigabit Ethernet switch line card). Typically, these hubs/switches are sold with empty optical ports (i.e. without optical transceivers) because (1) customers may not use all available optical ports at the time of purchase and (2) optical transceivers are expensive. Additionally, Ethernet is the common protocol used for optical LANs so the hubs/switches and optical transceivers commonly conform to the IEEE 802.3z (Gigabit) or IEEE 802.3ae (10GbE) standards. These are point-to-point links. So an 8-port SFP Gigabit Ethernet hub accordingly requires 8 optical transceivers - one transceiver in each port - to communicate with 8

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network terminal clients over 8 optical fiber links. And a 16-port SFP Gigabit Ethernet switch requires 16 optical transceivers to communication with 16 network clients, and so on. Each network client needs a corresponding optical transceiver at the hub/switch for communication. Those skilled in the art may readily recognize this as common to many products sold in the marketplace on the filing date of the present application.

In the specification, Applicants describe and illustrate a system and method to communicate over an optical LAN wherein a hub or switch can communicate with a plurality of network terminals with an optical transceiver and thus reduce cost. The rejected part of claim 122: *"whereby the optical ports serve as a connection site that connects an external optical waveguide to the internal optical transceiver through the passive optical coupler, thereby reducing the requisite number of optical transceivers in an optical LAN hub"* describes an inherent consequence of the teachings found throughout the specification (particularly Figs. 1, 6A, 6B, 6C, 7A, 7B, 7C, 7D and 8), which is an advantage of the invention leading to reduced costs.

Accordingly, Applicants respectfully suggest that these considerations and the amendments to claims 122-132 overcome the basis for the rejections and request reconsideration and withdrawal of these 35 U.S.C. §112 rejections of claims 122-132, as amended.

Discussion of the Patentability of Claims 77-83, 85-86, 105-106, 109-111, 119-120, 122-125 and 128-129: In the Office Action mailed on November 22, 2006, Examiner rejects claims 77-83, 85-86, 105-106, 109-111, 119-120, 122-125 and 128-129 under 35 U.S.C. §103(a) for unpatentability over an IEEE paper by Modiano *et al.* (Modiano) in view of U.S. Patent No. 6,788,833 issued to Brisson *et al.* (Brisson). Applicants cancel claim 110 herewith and amend claims 77, 109, 111 and 122 to better describe and claim that which Applicants consider to be the invention. Basis for the amended claims may be found in original claims and throughout the specifications and drawings (specifically FIG. 2, 3A and 3B).

Applicants respectfully suggest that these amendments overcome the basis for the 35 U.S.C. §103(a) rejections of base claims 77, 109, 111 and 122 and all claims

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depending therefrom, which include 78-83, 85-86, 105-106, 119-120, 123-125 and 128-129. The combination of Modiano and Brisson does not anticipate every element of Applicants' claimed invention. Base claim 77, as amended, includes the limitation "*incorporating both a control channel and a data channel in a single optical wavelength*" and base claim 109, as amended, includes the limitation "*information from both a control channel and a data channel on a single wavelength.*" Base claim 122, as amended, includes the limitation "*optical signals incorporating both a control channel and a data channel in a single wavelength*". Modiano in Fig. 1 clearly teaches that the control channel and data channel are separated to different wavelengths. Each data channel is further separated to different wavelengths from each client terminal. Such separation is integral to the operation of the Medium Access Protocol discussed by the Modiano paper.

Also, Applicants respectfully suggest that any proposed modification or combination of Modiano and some prior art to combine control and data channels on a same wavelength would necessarily change the "principle of operation" of the Modiano network upon such modification. Any such modification or combination of Modiano and some prior art would therefore be insufficient to support a proper *prima facie* case for obviousness of base claims 77, 109 and 122. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959).

Accordingly, Applicants respectfully request reconsideration and withdrawal of these 35 U.S.C. §103(b) rejections of claims 77-83, 85-86, 105-106, 109-111, 119-120, 122-125 and 128-129, as amended.

Discussion of the Patentability of Claims 84, 87, 112 and 126: In the Office Action mailed on November 22, 2006, Examiner further rejects claims 84, 87, 112 and 126 under 35 U.S.C. §103(a) for unpatentability over Modiano and Brisson in further view of U.S. Patent Appl. Pub. No. 2003/0227926 filed by Ramamurthy *et al.* (Ramamurthy).

Applicants herewith amend claim 112 to better describe and claim that which Applicants consider to be the invention. Applicants respectfully suggest that this amendment and the amendments to base claims77, 109 and 122 overcome the basis for

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the 35 U.S.C. §103(b) rejections of claims 84, 87, 112 and 126, which depend therefrom.

Accordingly, Applicants respectfully request reconsideration and withdrawal of these 35 U.S.C. §103(b) rejections of claims 84, 87, 112 and 126, as amended.

Discussion of the Patentability of Claims 88-99 and 101: In the Office Action mailed on November 22, 2006, Examiner further rejects claims 88-99 and 101 under 35 U.S.C. §103(a) for unpatentability over Modiano and Brisson in further view of U.S. Patent No. 6,498,667 issued to Masucci *et al.* (Masucci).

Applicants respectfully suggest that the amendment to base claim 77 overcomes the basis for these 35 U.S.C. §103(b) rejections of claims 88-99 and 101, which depend therefrom.

Accordingly, Applicants respectfully request reconsideration and withdrawal of these 35 U.S.C. §103(b) rejections of claims 88-99 and 101, as amended.

Discussion of the Patentability of Claims 98-100, 113, 115 and 118: In the Office Action mailed on November 22, 2006, Examiner rejects claims 98-100, 113, 115 and 118 under 35 U.S.C. §103(a) for unpatentability over Modiano and Brisson in further view of U.S. Patent No. 6,970,461 issued to Unitt *et al.* (Unitt).

Applicants respectfully suggest that the amendments to base claims 77 and 109 overcome the basis for these 35 U.S.C. §103(b) rejections of claims 98-100, 113, 115 and 118, which depend therefrom.

Accordingly, Applicants respectfully request reconsideration and withdrawal of these 35 U.S.C. §103(b) rejections of claims 98-100, 113, 115 and 118, as amended.

Discussion of the Patentability of Claims 101-104, 113, 115-117 and 130-131: In the Office Action mailed on November 22, 2006, Examiner rejects claims 101-104, 113, 115-117 and 130-131 under 35 U.S.C. §103(a) for unpatentability over Modiano and Brisson in further view of U.S. Patent Appl. Pub. No. 2003/0236916 filed by Adcox *et al.* (Adcox).

Applicants respectfully suggest that the amendments to base claims 77, 109 and

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122 overcome the basis for these 35 U.S.C. §103(b) rejections of claims 101-104, 113, 115-117 and 130-131, which depend therefrom.

Accordingly, Applicants respectfully request reconsideration and withdrawal of these 35 U.S.C. §103(b) rejections of claims 101-104, 113, 115-117 and 130-131, as amended.

Discussion of the Patentability of Claims 107 and 127: In the Office Action mailed on November 22, 2006, Examiner rejects claims 107 and 127 under 35 U.S.C. §103(a) for unpatentability over Modiano and Brisson in further view of U.S. Patent No. 5,572,349 issued to Hale e*t al.* (Hale).

Applicants respectfully suggest that the amendments to base claims 77 and 109 overcome the basis for these 35 U.S.C. §103(b) rejections of claims 107 and 127, which depend therefrom.

Accordingly, Applicants respectfully request reconsideration and withdrawal of these 35 U.S.C. §103(b) rejections of claims 107 and 127, as amended.

Discussion of the Patentability of Claims 108, 121 and 132: In the Office Action mailed on November 22, 2006, Examiner rejects claims 108, 121 and 132 under 35 U.S.C. §103(a) for unpatentability over Modiano and Brisson in further view of U.S. Patent No. 6,778,399 issued to Medina e*t al.* (Medina).

Applicants respectfully suggest that the amendments to base claims 77, 109 and 122 overcome the basis for these 35 U.S.C. §103(b) rejections of claims 108, 121 and 132, which depend therefrom.

Accordingly, Applicants respectfully request reconsideration and withdrawal of these 35 U.S.C. §103(b) rejections of claims 108, 121 and 132, as amended.

Discussion of the Patentability of Claims 114: In the Office Action mailed on November 22, 2006, Examiner rejects claim 114 under 35 U.S.C. §103(a) for unpatentability over Modiano, Brisson and Adcox in further view of Hale.

Applicants respectfully suggest that the amendment to base claim 109 overcomes

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Ex. 1002-2.266

the basis for this 35 U.S.C. §103(b) rejection of claim 114, which depends therefrom.

Accordingly, Applicants respectfully request reconsideration and withdrawal of this 35 U.S.C. §103(b) rejection of claim 114, as amended.

Conclusion: Applicants respectfully request examination of the application as amended. A Request for Continued Examination and the requisite $395 fee per 37 C.F.R. §1.17(e) is submitted herewith.

Respectfully submitted,

/James Albert Ward #34014/

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Ex. 1002-2.267

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/886,514	07/06/2004	Alexander I. Soto	17740-007001	8709

50625 7590 01/17/2007

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IRVINE, CA 92614

EXAMINER	
LI, SHI K	

ART UNIT	PAPER NUMBER
2613	

MAIL DATE	DELIVERY MODE
01/17/2007	PAPER

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

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Ex. 1002-2.268

54

Interview Summary	Application No.	Applicant(s)	
	10/886,514	SOTO ET AL.	
	Examiner	Art Unit	
	Shi K. Li	2613	

All participants (applicant, applicant's representative, PTO personnel):

(1) *Shi K. Li*.

(2) *James A. Ward*.

(3)*Alexander I. Soto*.

(4)*Walter G. Soto*. .

Date of Interview: *10 January 2007*.

Type: a)☒ Telephonic b)☐ Video Conference
c)☐ Personal [copy given to: 1)☐ applicant 2)☐ applicant's representative]

Exhibit shown or demonstration conducted: d)☐ Yes e)☒ No.
If Yes, brief description: _____.

Claim(s) discussed: *77, etc*.

Identification of prior art discussed: *Modiano et al. and Brisson et al. as cited in Office Action*.

Agreement with respect to the claims f)☐ was reached. g)☐ was not reached. h)☒ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: *See Continuation Sheet*.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN A NON-EXTENDABLE PERIOD OF THE LONGER OF ONE MONTH OR THIRTY DAYS FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

Shi K. Li

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.

Examiner's signature, if required

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Ex. 1002-2.269

Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record
A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews
Paragraph (b)
In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.
All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:
- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:
1) A brief description of the nature of any exhibit shown or any demonstration conducted,
2) an identification of the claims discussed,
3) an identification of the specific prior art discussed,
4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
5) a brief identification of the general thrust of the principal arguments presented to the examiner,
   (The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
6) a general indication of any other pertinent matters discussed, and
7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

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Ex. 1002-2.270

Continuation of Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: The Applicant requests the Examiner to clarify how Modiano et al. and Brisson et al. are combined. Specifically, where the E/O and O/E are incooperated into Modiano et al. The Examiner explained that the O/E and E/O are incooperated into the scheduler/controller of FIG. 1 of Modiano et al. for processing the control wavelength. The Applicant asks where the broadcast star located in Modiano et al. The Examiner points to FIG. 1 of Modiano et al. as suggesting that the broadcast star located within the HUB of FIG. 1. The Applicants asks whether the claim language of claim 77 indicates that the passive optical coupler is within the network manager. The Examiner explains that it is conceptual as where a line or box is drawn for considering certain elements as inside or outside a system. The Applicant asks whether combining control and data in a single wavelength would overcome Modiano et al. The Examiner responds by saying that it requires further study and also reminds the Applicant to make sure that any amendment should not introduce new subject matters that are not supported by the specification as originally filed.

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Ex. 1002-2.271

PTOL-413A (09-06)
Approved for use through 03/31/2007. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Applicant Initiated Interview Request Form

Application No.: 10/886,514 First Named Applicant: Alex Soto
Examiner: Li, Shi K. Art Unit: 2613 Status of Application: Pending

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DEC 20 2006

Tentative Participants:
(1) Alex Soto, Inventor (2) James Ward, Attorney
(3) Examiner S. Li (4)

Proposed Date of Interview: January 08, 2007 **Proposed Time:** 1:00PM **(AM/PM)**
Please confirm appointment with Attorney by email to jim@jward.org

Type of Interview Requested:
(1) [X] Telephonic (2) [ ] Personal (3) [ ] Video Conference

Exhibit To Be Shown or Demonstrated: [ ] YES [X] NO
If yes, provide brief description:

Issues To Be Discussed

Issues (Rej., Obj., etc)	Claims/ Fig. #s	Prior Art	Discussed	Agreed	Not Agreed
(1)			[ ]	[ ]	[ ]
(2)			[ ]	[ ]	[ ]
(3)			[ ]	[ ]	[ ]
(4)			[ ]	[ ]	[ ]

[1] Continuation Sheet Attached

Brief Description of Arguments to be Presented:
Applicant will present additional arguments in support of the traverse of recent claim rejections.

An interview was conducted on the above-identified application on _____.
NOTE: This form should be completed by applicant and submitted to the examiner in advance of the interview (see MPEP § 713.01).
This application will not be delayed from issue because of applicant's failure to submit a written record of this interview. Therefore, applicant is advised to file a statement of the substance of this interview (37 CFR 1.133(b)) as soon as possible.

James A Ward
Applicant/Applicant's Representative Signature

Examiner/SPE Signature

James Albert Ward
Typed/Printed Name of Applicant or Representative

34,041
Registration Number, if applicable

This collection of information is required by 37 CFR 1.133. 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 21 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.
If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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IPR2023-00960, Ex. 1002-2
Ex. 1002-2.272

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Applicant Initiated Interview Request Form
Continuation Sheet

Issues To Be Discussed

Issues	Claims	Prior Art	Discussed	Agreed	Not Agreed
1.) Rej.	77-83, 85-86, 105-106, 109-111, 119-120, 122-125 and 128-129	Modiano et al. in view of Brisson et al.	[ ]	[ ]	[ ]
2.) Rej.	84, 87, 112, 126	Modiano et al. in view of Brisson et al. and Ramamurthy et al.	[ ]	[ ]	[ ]
3.) Rej.	88-99 and 101	Modiano et al. in view of Brisson et al. and Masucci et al.	[ ]	[ ]	[ ]
4.) Rej.	98-100, 113, 115 and 118	Modiano et al. and Brisson et al. in view of Unitt et al.	[ ]	[ ]	[ ]
5.) Rej.	101-104, 113, 115-117 and 130-131	Modiano et al. and Brisson et al. in view of Adcox et al.	[ ]	[ ]	[ ]
6.) Rej.	107 and 127	Modiano et al and Brisson et al. in view of Hale et al.	[ ]	[ ]	[ ]
7.) Rej.	108, 121, 132	Modiano et al. and Brisson et al. in view of Medina et al.	[ ]	[ ]	[ ]
8.) Rej.	114	Modiano et al. and Brisson et al. and Adcox et al. in view of Hale et al.	[ ]	[ ]	[ ]

PAGE 2/2 * RCVD AT 12/20/2006 4:47:18 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-3/17 * DNIS:2738300 * CSID:949-748-6762 * DURATION (mm-ss):01-24

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Ex. 1002-2.273

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/886,514	07/06/2004	Alexander I. Soto	17740-007001	8709

50625 7590 11/22/2006

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IRVINE, CA 92614

EXAMINER	
LI, SHI K	

ART UNIT	PAPER NUMBER
2613	

DATE MAILED: 11/22/2006

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

PTO-90C (Rev. 10/03)

Office Action Summary	Application No.	Applicant(s)	
	10/886,514	SOTO ET AL.	
	Examiner	Art Unit	
	Shi K. Li	2613	

-- 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 September 2006*.

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) *77-132* 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) *77-132* 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: _____.

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IPR2023-00960, Ex. 1002-2
Ex. 1002-2.275

DETAILED ACTION

Claim Rejections - 35 USC § 112

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

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

2. Claims 122-132 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 122 recites the limitation "thereby reducing the requisite number of optical transceivers in an optical LAN hub by the number of optical ports minus one" in lines 11-12 of the claim. However, the specification as originally filed does not describe the limitation in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Instant specification teaches on page 5, lines 20-22 that an advantage of instant invention is that the number of optical transceivers is reduced. However, nowhere does instant specification teach how to reduce the number of optical transceivers and nowhere does instant specification quantify the number of transceiver to be reduced.

3. 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.

4. Claims 122-132 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 122 recites the limitation "thereby reducing the requisite number of optical transceivers in an optical LAN hub by the number of optical ports minus one" in lines 11-12 of the claim. Since the claim does not recite a reference number, the limitation is unclear.

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 77-83, 85-86, 105-106, 109-111, 119-120, 122-125 and 128-129 are rejected under 35 U.S.C. 103(a) as being unpatentable over Modiano et al. (E. Modiano et al., "A Novel Medium Access Control Protocol for WDM-Based LAN's and Access Networks Using a Master/Slave Scheduler", Journal of Lightwave Technology, Vol. 18, No. 4, April 2000) in view of Brisson et al. (U.S. Patent 6,788,833 B1).

Regarding claims 77 and 122, Modiano et al. discloses in FIG. 1 a local area network (LAN) including a hub (equivalent to network manager of instant claim) and a plurality of optical terminals (equivalent to network client adapters of instant claim). The hub is coupled to the optical terminals via an optical star coupler with a plurality of ports and fibers. Modiano et al. teaches in p. 461, right col., 4th paragraph that the LAN uses an unslotted MAC protocol. MAC protocol corresponds to layer 2 (link layer) of the OSI reference model. The hub receives signals (scheduling requests) from the optical terminals, processes the signals and broadcasts the processed signal to the optical terminals. The difference between Modiano et al. and the claimed

invention is that Modiano et al. does not teach converters for converting incoming optical signal to an electrical signal and converter for converting the processed electrical signal to optical signal. However, Modiano et al. suggests in p. 461, right col., last paragraph to use application specific integrated circuit (ASIC) for the scheduler. Also, it is well known in the art that most computers and processors process data in electrical domain. For example, Brisson et al. teaches in FIG. 1 an optical LAN. Brisson et al. teaches in FIG. 2 receiver for each node including O/E converter (photodetector) for converting optical signal to electrical signal.

One of ordinary skill in the art would have been motivated to combine the teaching of Brisson et al. with the scheduler based network of Modiano et al. because technology for processing signals in electrical domain is mature and processor for processing signals in electrical domain is widely available and inexpensive. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to include O/E converter for converting optical signals into electrical signals for processing and include E/O converter for converting processed electrical signals into optical signals for transmitting, as taught by Brisson et al., in the scheduler based network of Modiano et al. because technology for processing signals in electrical domain is mature and processor for processing signals in electrical domain is widely available and inexpensive. Brisson et al. also teaches in FIG. 2 a passive star coupler 110 which shows the details of the broadcast star of Modiano et al. (the circle with the Σ sign in FIG. 1 of Modiano et al.).

Regarding claims 78, 80, 109 and 123, Modiano et al. teaches to use an unslotted Aloha protocol for the control channel (see p. 462, right col., first paragraph). Aloha is a network layer (ISO layer-3) protocol.

Regarding claims 79 and 81, Applicant admitted in the remarks dated 18 February 2006 that combining address, synchronization, error control and data into frame or packet is standard layer-2 and layer 3 protocols that are well known in the art.

Regarding claims 82, 110 and 124, Modiano et al. teaches a time division multiplexing scheme.

Regarding claims 83, 111 and 125, Modiano et al. teaches that scheduling is based on client request, therefore bandwidth is dynamically allocated.

Regarding claim 85-86, Modiano et al. teaches to use an unslotted Aloha protocol for the control channel (see p. 462, right col., first paragraph). Aloha is a time division multiple access scheme. Modiano et al. teaches that scheduling is based on client request, therefore bandwidth is dynamically allocated.

Regarding claims 105-106, 119-120 and 128-129, Modiano et al. teaches on page 463, left col., Section A the use of ranging.

7. Claims 84, 87, 112 and 126 are rejected under 35 U.S.C. 103(a) as being unpatentable over Modiano et al. and Brisson et al. as applied to claims 77-83, 85-86, 105-106, 109-111, 119-120, 122-125 and 128-129 above, and further in view of Ramamurthy et al. (U.S. Patent Application Pub. 2003/0227926 A1).

Modiano et al. and Brisson et al. have been discussed above in regard to claims 77-83, 85-86, 105-106, 109-111, 119-120, 122-125 and 128-129. The difference between Modiano et al. and Brisson et al. and the claimed invention is that Modiano et al. and Brisson et al. do not teach bandwidth (slots) allocation that provides minimum bandwidth. Ramamurthy et al. teaches in paragraph [0018] to reserve bandwidth so that a minimum bandwidth is guaranteed.

One of ordinary skill in the art would have been motivated to combine the teaching of Ramamurthy et al. with the modified scheduler based network of Modiano et al. and Brisson et al. because minimum bandwidth ensures each node can send top priority data. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to reserve slots for each node for guaranteeing a minimum bandwidth, as taught by Ramamurthy et al., in the modified scheduler based network of Modiano et al. and Brisson et al. because minimum bandwidth ensures each node can send top priority data.

8. Claims 88-99 and 101 are rejected under 35 U.S.C. 103(a) as being unpatentable over Modiano et al. and Brisson et al. as applied to claims 77-83, 85-86, 105-106, 109-111, 119-120, 122-125 and 128-129 above, and further in view of Masucci et al. (U.S. Patent 6,498,667 B1).

Modiano et al. and Brisson et al. have been discussed above in regard to claims 77-83, 85-86, 105-106, 109-111, 119-120, 122-125 and 128-129. Regarding claim 88, Modiano et al. teaches sending scheduling packets to the optical terminals. Therefore, the combination of Modiano et al. and Brisson et al. teaches sending packets to network client adapter. In case Applicant argues or amends the claim such that packet data means payload/application data, the Examiner includes Masucci et al. for teaching sending downstream application data. Masucci et al. teaches in FIG. 1 a PON with remote terminals 14 (equivalent to network client) and central terminal 12 (equivalent to network manager). The central terminal connects the remote terminals to wide area network via WAN interface such that remote terminals can receive application data from workstations, servers or other users located in another network. One of ordinary skill in the art would have been motivated to combine the teaching of Masucci et al. with the modified optical LAN of Modiano et al. and Brisson et al. because Modiano et al. teaches in the abstract

that an important application for the optical LAN is in optical access networks and a connection to WAN via an access network allows users communicate with servers and users located in other networks. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to connect network clients to other networks via the hub, as taught by Masucci et al., in the modified optical LAN of Modiano et al. and Brisson et al. because connection to WAN via an access network allows users communicate with servers and users located in other networks.

Regarding claims 89-90 and 93-94, Masucci et al. teaches in FIG. 3 frame and subframes.

Regarding claims 91 and 95, Masucci et al. teaches in FIG. 4 packet length field 228 and in FIG. 8 OAM&P header with length field 410.

Regarding claims 92 and 96, Masucci et al. teaches in FIG. 1 Ethernet MAC 30 and Ethernet PHY 32.

Regarding claim 97, Modiano et al. teaches in FIG. 1 hairpinning.

Regarding claim 98-99, Masucci et al. teaches in FIG. 1 that the remote terminals include network interface 33 for local area network clients.

Regarding claim 101, Masucci et al. teaches in FIG. 1 switch 36.

9. Claims 98-100, 113, 115 and 118 are rejected under 35 U.S.C. 103(a) as being unpatentable over Modiano et al. and Brisson et al. as applied to claims 77-83, 85-86, 105-106, 109-111, 119-120, 122-125 and 128-129 above, and further in view of Unitt et al. (U.S. Patent 6,970,461 B1).

Modiano et al. and Brisson et al. have been discussed above in regard to claims 77-83, 85-86, 105-106, 109-111, 119-120, 122-125 and 128-129. Regarding claims 98-100, the

difference between Modiano et al. and Brisson et al. and the claimed invention is that Modiano et al. and Brisson et al. do not teach a network interface. Unitt et al. teaches in FIG. 1 a PON comprising OLT (equivalent to network manager) and ONU (equivalent to network client adapter). Unitt et al. teaches in FIG. 2 that ONU includes an Ethernet switch for connecting to PC and set top box (STB). One of ordinary skill in the art would have been motivated to combine the teaching of Unitt et al. with the modified optical LAN of Modiano et al. and Brisson et al. because a Ethernet switch allows several pieces of equipment to share a same ONU and reduces network deployment cost. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a network interface such as a Ethernet switch, as taught by Unitt et al., in the modified optical LAN of Modiano et al. and Brisson et al. because a Ethernet switch allows several pieces of equipment to share a same ONU and reduces network deployment cost.

10. Claims 101-104, 113, 115-117 and 130-131 are rejected under 35 U.S.C. 103(a) as being unpatentable over Modiano et al. and Brisson et al. as applied to claims 77-83, 85-86, 105-106, 109-111, 119-120, 122-125 and 128-129 above, and further in view of Adcox et al. (U.S. Patent Application Pub. 2003/0236916 A1).

Modiano et al. and Brisson et al. have been discussed above in regard to claims 77-83, 85-86, 105-106, 109-111, 119-120, 122-125 and 128-129. Regarding claim 101, the difference between Modiano et al. and Brisson et al. and the claimed invention is that Modiano et al. and Brisson et al. do not teach a switch interface. Adcox et al. teaches in FIG. 4 a PON wherein the headend (QOIU) 20A includes a switch interface for connecting to an Ethernet switch. One of ordinary skill in the art would have been motivated to combine the teaching of Adcox et al. with

the modified optical LAN of Modiano et al. and Brisson et al. because a switch allows the routing of traffic among the client users and reduces the traffic on each fiber. In other words, the switch allows each fiber to support more users or allows each user to have more bandwidth by eliminating traffic that is not designated for the users served by the fiber. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to interface to a switch, as taught by Adcox et al., in the modified optical LAN of Modiano et al. and Brisson et al. because a switch eliminates traffic that is not designated for the users served by the fiber and, therefore, increases usable bandwidth.

Regarding claims 102-104, 113, 115-117 and 130-131, Adcox et al. teaches in FIG. 4 Ethernet switch. The Ethernet switch switches frames based on address and sends packets from one client to another client through the PON and sends packets from clients to users of other network through the PPPOE BRAS. On the client side, Adcox et al. teaches in FIG. 4 10BaseT Ethernet interface.

11. Claims 107 and 127 are rejected under 35 U.S.C. 103(a) as being unpatentable over Modiano et al. and Brisson et al. as applied to claims 77-83, 85-86, 105-106, 109-111, 119-120, 122-125 and 128-129 above, and further in view of Hale et al. (U.S. Patent 5,572,349).

Modiano et al. and Brisson et al. have been discussed above in regard to claims 77-83, 85-86, 105-106, 109-111, 119-120, 122-125 and 128-129. The difference between Modiano et al. and Brisson et al. and the claimed invention is that Modiano et al. and Brisson et al. do not teach power leveling. Hale et al. teaches in FIG. 1 a passive optical network comprising an OLT and a plurality of ONUs. Hale et al. teaches in col. 5, lines 2-10 that the OLT transmits control signals to ONU to adjust launch power. One of ordinary skill in the art would have been

motivated to combine the teaching of Hale et al. with the modified LAN of Modiano et al. and Brisson et al. because power leveling adjusts the launch power of each ONU such that the received signal from each of them is about the same power level and, therefore, optimizes performance. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide power leveling, as taught by Hale et al., in the modified LAN of Modiano et al. and Brisson et al. because power leveling adjusts the launch power of each ONU for optimal performance.

12. Claims 108, 121 and 132 are rejected under 35 U.S.C. 103(a) as being unpatentable over Modiano et al. and Brisson et al. as applied to claims 77-83, 85-86, 105-106, 109-111, 119-120, 122-125 and 128-129 above, and further in view of Medina et al. (U.S. Patent 6,778,399 B2).

Modiano et al. and Brisson et al. have been discussed above in regard to claims 77-83, 85-86, 105-106, 109-111, 119-120, 122-125 and 128-129. The difference between Modiano et al. and Brisson et al. and the claimed invention is that Modiano et al. and Brisson et al. do not teach the form factor of the optical ports. Medina et al. teaches in col. 1, lines 28-40 small form pluggable (SFP) transceiver multisource agreement (MSA) standard. One of ordinary skill in the art would have been motivated to combine the teaching of Medina et al. with the modified optical LAN of Modiano et al. and Brisson et al. and use SFP type connector for the optical port because SFP has small form factor and allows high port density and, therefore, saves space. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use SFP for the optical ports, as taught by Medina et al., in the modified optical LAN of Modiano et al. and Brisson et al. because SFP has small form factor and allows high port density and, therefore, saves space.

13. Claim 114 is rejected under 35 U.S.C. 103(a) as being unpatentable over Modiano et al., Brisson et al. and Adcox et al. as applied to claims 101-104, 113, 115-117 and 130-131 above, and further in view of Hale et al. (U.S. Patent 5,572,349).

Modiano et al., Brisson et al. and Adcox et al. have been discussed above in regard to claims 101-104, 113, 115-117 and 130-131. The difference between Modiano et al., Brisson et al. and Adcox et al. and the claimed invention is that Modiano et al., Brisson et al. and Adcox et al. do not teach power leveling. Hale et al. teaches in FIG. 1 a passive optical network comprising an OLT and a plurality of ONUs. Hale et al. teaches in col. 5, lines 2-10 that the OLT transmits control signals to ONU to adjust launch power. One of ordinary skill in the art would have been motivated to combine the teaching of Hale et al. with the modified LAN of Modiano et al., Brisson et al. and Adcox et al. because power leveling adjusts the launch power of each ONU such that the received signal from each of them is about the same power level and, therefore, optimizes performance. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide power leveling, as taught by Hale et al., in the modified LAN of Modiano et al., Brisson et al. and Adcox et al. because power leveling adjusts the launch power of each ONU for optimal performance.

Response to Arguments

14. Applicant's arguments filed 11 September 2006 have been fully considered but they are not persuasive.

The Applicant argues that the art cited by the Examiner generally devotes considerable discussion to wide area network (WANs) in a manner intended to clarify the WAN definition and its distinctiveness from other type of networks. Modiano et al. make this WAN distinction

throughout the paper and even in the title itself "A Novel Medium Access Control Protocol for WDM-Based LAN's and Access Networks Using a Master/Slave Scheduler". The Examiner has a different opinion. While Applicant interprets that the title implies LAN and access network are quite different, the Examiner interprets that the title implies that LAN and access network are compatible and certain technologies can be used for both of them. For example, the master/slave scheduler of Modiano et al. can be used for either a LAN or an access network.

The Applicant traverses the Examiners unsupported assertion that an OLT is equivalent to Applicant's network manager and the unsupported assertion that an ONU is equivalent to Applicants' network client adapter. The applicant asserts that OLTs and ONUs in the art are associated with fiber WAN or fiber access networks and not to LANs. However, in order to patentably distinguish the claimed invention from the prior art, there must be structural difference between the claimed invention and the prior art. A special name does not carry any patentable weight.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., inconsistent with the slotted or time multiplex protocol taught by Applicant and mixing control and data information on a same wavelength) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See In re Van Geuns, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

The Applicant argues that Modiano and Brisson together neither consider nor suggest a hub or switch comprising the internal passive optical splitter claimed by claims 77, 109 and 122. The Examiner disagrees. Modiano suggest in FIG. 1 that an optical splitter is within the hub.

In response to applicant's argument that Ramamurthy teaches the use of a slotted or time division multiplex protocol which is inconsistent with the unslotted Aloha protocol, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See In re Keller, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

Furthermore, Modiano uses unslotted random access protocol for the control channel and uses a **slotted** system for the data channels (see page 464, left col., second paragraph). Therefore, the Applicant's argument is moot.

The Applicant argues that the Applicant find no reference or suggestion to hairpinning in Masucci. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See In re Keller, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); In re Merck & Co., 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Modiano et al. teaches in FIG. 1 hairpinning.

The Applicant argues that Masucci teaches using a WAN or optical access system and the WAN interface 38 is the interface to the WAN 10 network itself. The Examiner disagrees with the Applicant's interpretation of Masucci. Masucci teaches in col. 3, line 30-31 that 10 is an optical access system. The interface 38 is a WAN interface which allows the optical access network to be connected to a WAN. Furthermore, the Examiner's rejection does not rely on the

WAN interface and the WAN interface is not relevant in determining the patentability of instant claims.

The Applicant argues that one skilled in the art would hind no suggestion or motivation to combine Masucci with the teachings of Modiano et al. and Brisson absent Applicant's teachings. The Examine disagrees. The examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Masucci et al. teaches a hub with WAN interface for connecting to remote servers or other users located in another network. One of ordinary skill in the art would have been motivated to combine the teaching of Masucci et al. with the modified optical LAN of Modiano et al. and Brisson et al. because connection to remote server or other users allows local users to communicate with users in other networks or retrieve/receive information from external servers, e.g., broadcast video/TV.

Conclusion

15. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shi K. Li whose telephone number is 571 272-3031. The examiner can normally be reached on Monday-Friday (8:30 a.m. - 5:00 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571 272-3022. 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.

skl
17 November 2006

SHI K. LI
PRIMARY PATENT EXAMINER

PTO/SB/08a (08-03)
Approved for use through 07/31/2006. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	10886514
Filing Date	2004-07-06
First Named Inventor	Alexander I. Soto
Art Unit	2613
Examiner Name	Li, Shi K.
Attorney Docket Number	UBI-005

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
SK	1	47760471	A	1988-10-04	Husbands, Charles R.	
SK	2	4701909	A	1987-10-20	Kavehrad, Mosen	

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Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
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IPR2023-00960, Ex. 1002-2
Ex. 1002-2.290

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	10886514
	Filing Date	2004-07-06
	First Named Inventor	Alexander I. Soto
	Art Unit	2613
	Examiner Name	Li, Shi K.
	Attorney Docket Number	UBI-005

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
SK	1	RADOVANOVIC, "Ethernet-Based Passive Optical Local-Area Networks for Fiber-to-the-Desk Application", Journal of Lightwave Technology, Nov 2003, pages 2534-2545, vol 21 no 11.	☐
SK	2	CHAING et al, "Implementation of STARNET: A WDM Computer Communications Network", Journal on Selected Areas in Communications, June 1996, pages 824-839, vol 14, no 5.	☐
SK	3	RAWSON, ERIC, "The Fibernet II Ethernet-Compatible Fiber-Optic LAN", IEEE Journal of Lightwave Technology, June 1985, pages 496-501, vol LT-3, No 3.	☐

If you wish to add additional non-patent literature document citation information please click the Add button [Add]

EXAMINER SIGNATURE

Examiner Signature	/Shi K. Li/	Date Considered	11/17/2006

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

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Ex. 1002-2.291

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10886514	SOTO ET AL.
	Examiner	Art Unit
	Li, Shi K	2613

✓	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	11/17/2006								
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Ex. 1002-2.292

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10886514	SOTO ET AL.
	Examiner	Art Unit
	Li, Shi K	2613

✓	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								
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Ex. 1002-2.293

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10886514	SOTO ET AL.
	Examiner	Art Unit
	Li, Shi K	2613

✓	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	11/17/2006								
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	74	-								
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	108	✓								

Nokia of America Corporation
IPR2023-00960, Ex. 1002-2
Ex. 1002-2.294

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10886514	SOTO ET AL.
	Examiner	Art Unit
	Li, Shi K	2613

✓	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	11/17/2006								
	109	✓								
	110	✓								
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	131	✓								
	132	✓								

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Ex. 1002-2.295

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10886514	SOTO ET AL.
	Examiner	Art Unit
	Li, Shi K	2613

SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES		
Search Notes	Date	Examiner
Updated search	11/17/2006	SK

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

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IPR2023-00960, Ex. 1002-2
Ex. 1002-2.296

OIPE
SEP 11 2006
PATENT & TRADEMARK OFFICE

PATENTS
Docket No. UBI-005

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: **Alexander I. Soto et al.**	Group Art Unit: **2613**
Patent Application No.: **10/886,514**	
Filed on: **July 06, 2004**	Examiner: **Li, Shi K.**
For: **Communication System and Method For An Optical Local Area Network**	

Commissioner for Patents
Mail Stop Amendment
PO Box 1450
Alexandria, VA 22313-4150

AMENDMENT AND RESPONSE PER 37 C.F.R. §1.111

Responsive to the Office Action mailed on April 04, 2006, please enter the following Amendment and Response in the above-entitled Patent Application. A Petition for a two-month Extension of Time per 37 C.F.R. §1.136(a) and the requisite fee is submitted herewith.

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, Box 1450, Alexandria, VA 22313-1450 on:

Sept. 05, 2006

James Albert Ward

(Applicant, Assignee, Registered Representative)

James A Ward

(Signature)

September 05, 2006

(Date of Signature)

Nokia of America Corporation
IPR2023-00960, Ex. 1002-2
Ex. 1002-2.297

AMENDMENTS TO THE CLAIMS

Kindly enter the claim amendments as set forth in the following claim listing presented in accordance with 37 C.F.R. §1.121(c)(1):

Claims 1-76 are cancelled.

77. (Previously presented) An optical Local Area Network (LAN) of one or more local area network clients, the optical LAN comprising:

a network manager including

an optical interface having means for converting received optical signals to electrical signals and means for producing transmitted optical signals from electrical signals,

a plurality of optical ports,

a passive optical coupler coupled between the optical interface and the optical ports and having means for accepting received optical signals from and for distributing transmitted optical signals to the optical interface and the optical ports, and

a control module coupled to the optical interface and having means for receiving electrical signals from and for transmitting electrical signals to the optical interface;

a plurality of network client adapters including

an optical interface having means for converting received optical signals to electrical signals and means for producing transmitted optical signals from electrical signals,

an optical port coupled to the optical interface, and

a control module having means for receiving electrical signals from and for transmitting electrical signals to the optical interface; and

a plurality of optical waveguides each coupled between one of the network client adapter optical ports and the network manager;

Nokia of America Corporation
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Ex. 1002-2.298

whereby the network manager can receive an optical signal from any network client adapter, a network client adapter can receive an optical signal from the network manager, and the network manager and network client adapters are in communication to facilitate sending and receiving data across the optical waveguides.

78. (Previously presented) The optical LAN of claim 77, wherein the network manager control module includes means for administering the received electrical signals and transmitted electrical signals conforming to an Open Systems Interconnection reference model (OSI) Layer 2 or Layer 3 protocol.

79. (Previously presented) The optical LAN of claim 78, wherein the OSI Layer protocols includes means of representing address, synchronization, error control and data into frames or packets.

80. (Previously presented) The optical LAN of claim 77, wherein a network client adapter control module includes means to administer the received electrical signals and transmitted electrical signals conforming to an OSI Layer-2 or Layer-3 protocol.

81. (Previously presented) The optical LAN of claim 80, wherein the OSI Layer protocols includes means for representing address, synchronization, error control and data into frames or packets.

82. The optical LAN of claim 77, wherein a network manager control module includes means to transmit data according to a time division multiplexing scheme.

83. (Previously presented) The optical LAN of claim 82, wherein the network manager control module includes means for dynamically scheduling or providing bandwidth allocations.

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84. (Previously presented) The optical LAN of claim 82, wherein the network manager control module includes means for scheduling or providing a minimum bandwidth allocation.

85. (Previously presented) The optical LAN of claim 77, wherein the network manager control module includes means for receiving data according to a time division multiple access scheme.

86. (Previously presented) The optical LAN of claim 85, wherein the network manager control module includes means for dynamically scheduling or providing bandwidth allocations.

87. (Previously presented) The optical LAN of claim 85, wherein the network manager control module includes means for scheduling or providing a minimum bandwidth allocation.

88. (Previously presented) The optical LAN of claim 77, wherein the network manager includes means for transmitting downstream data from the network manager to a network client adapter in successive downstream frames over the optical waveguides, the downstream data including downstream packet data.

89. (Previously presented) The optical LAN of claim 88, wherein each downstream frame includes a first number of downstream subframes, each downstream subframe including a second number of downstream slots of time, each downstream slot of time having one of a plurality of downstream formats.

90. (Previously presented) The optical LAN of claim 89, wherein a downstream subframe further includes a downstream communication channel for communicating schedule or provisioning information for provisioning upstream slots of time to respective network client adapters.

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91. (Previously presented) The optical LAN of claim 88, wherein the downstream packet format for carrying downstream packet data includes a downstream packet header and a downstream packet payload; the downstream packet header including a field indicating length of the downstream packet payload.

92. (Previously presented) The optical LAN of claim 91, wherein the downstream packet payload includes at least a portion of an Ethernet or Fibre Channel frame.

93. (Previously presented) The optical LAN of claim 77, wherein a network client adapter includes means to transmit upstream data from the network client adapter to a network manager in respective upstream slots of time over the optical waveguides, the upstream slots of time forming essentially successive upstream frames, the upstream data including upstream packet data.

94. (Previously presented) The optical LAN of claim 93, wherein each upstream frame includes a first number of upstream subframes, each upstream subframe including a second number of upstream slots of time, each upstream slot of time having one of a plurality of upstream formats.

95. (Previously presented) The optical LAN of claim 93, wherein the upstream packet format for carrying upstream packet data includes an upstream packet header and an upstream packet payload, wherein the upstream packet header includes a field for indicating an upstream packet payload length.

96. (Previously presented) The optical LAN of claim 95, wherein the upstream packet payload includes at least a portion of an Ethernet or Fibre Channel frame.

97. (Previously presented) The optical LAN of claim 93, wherein the network manager includes means for hairpinning upstream data to one or more network client adapters.

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98. (Previously presented) The optical LAN of claim 77, wherein a network client adapter further includes a network interface adapted to communicate electrically to one or more of the local area network clients.

99. (Previously presented) The optical LAN of claim 98, wherein the network interface includes means for a Layer 2 or Layer 1 network interface protocol selected from the group consisting essentially of:

Ethernet and Fibre Channel protocols.

100. (Previously presented) The optical LAN of claim 98, wherein the network clients are selected from the group consisting essentially of:

a workstation, a personal computer, a disk storage array, a server, a switch, and a router.

101. (Previously presented) The optical LAN of claim 77, wherein the network manager further includes a switch interface adapted to communicate electrically to an OSI Layer 2 or Layer 3 switch device.

102. (Previously presented) The optical LAN of claim 101, wherein the switch interface includes means for implementing a Layer 2 or Layer 1 switch interface protocol selected from the group consisting essentially of:

Ethernet and Fibre Channel protocols.

103. (Previously presented) The optical LAN of claim 101, wherein the switch device is selected from the group consisting essentially of:

an Ethernet media access controller (MAC) device and a Fibre Channel FC-2 service device.

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104. (Previously presented) The optical LAN of claim 101, wherein the network manager includes means for transmitting at least a portion of the received data to the switch device.

105. (Previously presented) The optical LAN of claim 77, wherein the network manager includes means for determining a message response delay between the network manager and a network client adapter.

106. (Previously presented) The optical LAN of claim 105, wherein a network client adapter includes means for adjusting transmission timing responsive to the message response delay between the network manager and a network client adapter.

107. (Previously presented) The optical LAN of claim 77, wherein the network manager includes means for adjusting the optical transmit power of a network client adapter to a predetermined level in response to a received message.

108. (Previously presented) The optical LAN of claim 77, wherein the form factors of the optical ports are selected from the group consisting essentially of:

the optical Multi-Source Agreements (MSA) specifications, including XFP, XENPAK, XPAK, and SFP.

109. (Previously presented) A method for operating an optical local area network (LAN) including a network hub having an optical transceiver coupled to an internal passive optical coupler that is also coupled to a plurality of optical ports and including a plurality of network terminals each coupled to a network hub optical port by means of at least one of a plurality of optical waveguides, the method comprising the steps of:

accepting information at the network hub; and

communicating information between the network hub and a network terminal in accordance with an OSI layer 2 or layer 3 protocol.

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110. (Previously presented) The method of claim 109, further comprising the steps of:

managing the communications at the network hub;

transmitting data from the network hub to all network terminals in a broadcast time division multiplexed manner;

transmitting data from a network terminal to the network hub in a time division multiple access manner;

providing bandwidth allocation for the data transfers at the network hub.

111. (Previously presented) The method of claim 110, wherein the bandwidth allocation includes dynamic bandwidth allocation.

112. (Previously presented) The method of claim 110, wherein the bandwidth allocation includes a minimum bandwidth allocation.

113. (Previously presented) The method of claim 109, further comprising the unordered steps of:

(a) transmitting an incoming optical signal representing data frames from a first network terminal to one of the plurality of network hub optical ports over at least one of the optical waveguides;

(b) accepting the incoming optical signal from one of the network hub optical ports;

(c) converting the incoming optical signal to a first electrical signal representing the optical signal data;

(d) processing the first electrical signal according to an OSI Layer-2 protocol to produce a first processed electrical signal representing physical address, synchronization, error control, flow control and data;

(e) converting the first processed electrical signal to a broadcast optical signal responsive to the physical address, synchronization, error control, flow control and data;

(f) transmitting the broadcast optical signal to a passive optical coupler; and

(g) distributing the broadcast optical signal from the passive optical coupler to

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each of the plurality of hub optical ports; and

(h) accepting the broadcast optical signal at a plurality of the network terminals.

114. (Previously presented) The method of claim 113, further comprising the unordered steps of:

(b.1) measuring the incoming optical signal power level at the network hub;

(b.2) determining a desired network terminal optical transmission power level adjustment from the measured optical signal power level;

(e.1) adding data representing the desired network terminal optical transmission power level adjustment to the broadcast optical signal; and

(h.1) adjusting the optical transmission power level at one of the network terminals responsive to acceptance of the broadcast optical signal.

115. (Previously presented) The method of claim 113, further comprising the steps of:

(d.1) coupling the first electrical signal to a device that processes the first electrical signal according to an OSI layer-3 protocol to produce logical address, network routing, network segmentation and traffic control data.

116. (Previously presented) The method of claim 113, further comprising the steps of:

(h.1) converting the received broadcast optical signal transmission to a second electrical signal representing data frames in a receiving network terminal;

(h.2) selecting a data frame within the second electrical signal associated with the receiving network terminal; and

(h.3) adapting data in the selected frame for transmission over a network interface having a Layer 2 or Layer 1 network interface protocol selected from the group consisting essentially of:

the Ethernet and Fibre Channel protocols.

117. (Previously presented) The method of claim 113, further comprising the steps of:

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(i.1) converting the incoming optical signal to a third electrical signal representing data frames in the network hub;

(i.2) selecting a data frame within the third electrical signal; and

(i.3) adapting data in the selected frame for transmission over a switch interface having a Layer 2 or Layer 1 switch interface protocol selected from the group consisting essentially of:

the Ethernet and Fibre Channel protocols.

118. (Previously presented) The method of claim 109, wherein one or more of the network terminals are selected from the group consisting essentially of:

a workstation, a personal computer, a disk storage array, a server, a switch, and a router.

119. (Previously presented) The method of claim 109, further comprising the step of:

determining a response time delay at the network hub, including the steps of

(a) transmitting a message from the network hub to a network terminal,

(b) processing the message at the network terminal,

(c) transmitting a return message from the network terminal, and

(d) receiving the return message at the network hub.

120. (Previously presented) The method of claim 119, further comprising the steps of:

(a) transmitting a representation of the determined response time delay to the network terminal; and

(b) adjusting the transmission timing of the network terminal in reaction to the received representation of the determined response time delay.

121. (Previously presented) The method claim 109, wherein the form factor of the optical ports is selected from the group consisting essentially of:

the optical Multi-Source Agreements (MSA) specifications including XFP, XENPAK, XPAK, and SFP.

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122. (Currently Amended) A method for reducing the number of optical transceivers in a hub of an optical local area network, comprising:

coupling an optical transceiver or optical module to a passive optical coupler; and

coupling the passive optical coupler to a plurality of optical ports; and

distributing transmitted optical signals from the optical transceiver to each of the optical ports through the passive optical coupler; and

combining received optical signals from each optical port to the optical transceiver through the passive optical coupler.

whereby the optical ports serve as a connection site that connects an external optical waveguide to the internal optical transceiver through the internal passive optical coupler ~~in lieu of optical transceivers~~, thereby reducing the requisite number of optical transceivers in an ~~traditional~~ optical LAN hub by the number of optical ports minus one.

123. (Previously presented) The method of claim 122, further comprising the steps of:

producing a first electrical signal representing the received optical signal;

producing a transmitted optical signal representing a second electrical signal; and

processing the first and second electric signals in accordance with an OSI Layer 2 or Layer 3 protocol.

124. (Previously presented) The method of claim 122, further comprising the steps of:

managing network communications at the network hub;

transmitting data from the network hub to a network terminal in a broadcast time division multiplexed manner;

transmitting data from the network terminal to the network hub in a time division multiple access manner; and

provisioning bandwidth allocation for all network communications at the network hub.

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125. (Previously presented) The method of claim 124, wherein the bandwidth allocation includes dynamic bandwidth allocation.

126. (Previously presented) The method of claim 124, wherein the bandwidth allocation includes a minimum bandwidth allocation.

127. (Previously presented) The method of claim 124, further comprising the steps of:

measuring the received optical signal power level at the network hub;

determining a desired network terminal optical transmission power level adjustment from the measured optical signal power level;

adding data representing the desired network terminal optical transmission power level adjustment to the transmitted data from the network hub to the network terminal; and

adjusting the optical transmission power level at the network terminal responsive to acceptance of the transmitted data.

128. (Previously presented) The method of claim 124, further comprising the step of:

determining a delay response time at the network hub, including the steps of

(a) transmitting a message from the network hub to a network terminal;

(b) processing of the message by the network terminal;

(c) transmitting a return message at the network terminal; and

(d) receiving the return message at the network hub.

129. (Previously presented) The method of claim 128, further comprising the steps of:

(a) transmitting a representation of the determined response time delay to the network terminal; and

(b) adjusting the transmission timing of the network terminal in reaction to the received representation of the determined response time delay.

130. (Previously presented) The method of claim 122, further comprising:

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converting the received optical signal to a third electrical signal representing data frames in the network hub;

selecting a data frame within the third electrical signal; and

adapting data in the selected frame for transmission over a switch interface having a Layer 2 or Layer 1 switch interface protocol selected from the group consisting essentially of:

the Ethernet and Fibre Channel protocols.

131. (Previously presented) The method of claim 130, further comprising:

receiving a fourth electrical signal at the switch interface;

converting the fourth electrical signal to an optical signal; and

transmitting the optical signal to a network terminal.

132. (Previously presented) The method of claim 122, wherein the form factor of the optical ports is selected from the group consisting essentially of:

the optical Multi-Source Agreements (MSA) specifications including XFP, XENPAK, XPAK, and SFP.

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REMARKS

Introduction: Applicants herewith amend claim 122 to better and more specifically recite that which Applicants consider to be the invention. Applicants respectfully request reexamination and reconsideration of claims 77-132, as amended.

Applicants respectfully bring to the attention of the Examiner that local area networks (LANs) and wide area networks (WAN, also known as access networks or broadband networks) are considered separate and unique networks to those skilled in the art. Claims 77-132 are each limited to local area networks and more specifically to optical local area networks.

The art cited by the Examiner generally devotes considerable discussion to wide area networks (WANs) in a manner intended to clarify the WAN definition and its distinctiveness from other types of networks. Modiano *et al.* make this WAN distinction throughout the paper and even in the title itself "A Novel Medium Access Control Protocol for WDM-Based ***LAN's*** and ***Access Networks*** Using a Master/Slave Scheduler". Masucci *et al.* (U.S Pat. No. 6,498,667) describe an optical access network with a central terminal located in the central office or head-end of a carrier (col. 3, lines 29-48). Unitt *et al.* (U.S. Pat. No. 6,970,461) describe a fiber-to-the-home (FTTH) access network that shares fiber facilities and head-end equipment across a number of customers (col. 1-5), wherein the head-end contains one or more OLTs (col. 4, lines 54-55) and wherein ONUs are situated on end user premises (col. 5, lines 13-14). Differentiating the access network and the local area network is essential to appreciating the novelty in Unitt et al's invention of providing secure multicast over a LAN by means of an ONU having a channel request vetting function and a permitted channel list; without such network distinction, there is no invention. Adcox *et al.* (U.S. Published Application 2003/0236916) is another example demonstrating that the difference between a WAN and a LAN are essential to appreciating their invention of FTTH to LAN MAC address translation.

Applicants respectfully traverse the Examiners unsupported assertion that an OLT is equivalent to Applicants' network manager and the unsupported assertion that an ONU is equivalent to Applicants' network client adapter. Applicants respectfully assert that OLTs and ONUs in the art are associated with fiber WAN or fiber access networks and

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not to LANs.

Discussion of the Patentability of Claims 122-132: In the Office Action mailed on April 4, 2006, Examiner rejects claims 122-132 for lack of enablement under 35 U.S.C. §112. Applicants respectfully traverse the Examiner's assertion that the specification as filed does not include sufficient description of the claim limitation: "thereby reducing the requisite number of optical transceivers in a traditional optical LAN hub by the number of optical ports minus one". To those skilled in the art, an optical LAN hub traditionally has one optical transceiver for every optical port. This is clear from paragraph **0014** of the published specification, which states that "*the number of optical transceivers and switching elements used to sustain the same number of computing nodes in a LAN via a point-to-multipoint optically coupled network configuration is reduced, thus saving the majority of expense*" as also shown in Figs. **1, 6A, 6B, 6C** and **7D**, which illustrate a hub **100** containing an optical splitter **116** connecting an optical interface **108** described in paragraph **0027** as an optical transceiver ("an optical-electrical converter") with optical ports **117** described in paragraph **0028** as "optical fiber connector sockets for coupling to the optical waveguides." These descriptions and figures clearly serve to make it clear to someone skilled in the art that no optical transceivers are needed in the optical ports and that only one optical transceiver is necessary in Applicants' optical LAN hub, given the use of the passive optical splitter, regardless of the number of optical ports.

In an abundance of care, Applicants herewith amend claim 122 to emphasize these points by better and more specifically reciting that which Applicants consider to be the invention. Applicants respectfully request reexamination and reconsideration of claims 122-132 as amended.

Discussion of the Patentability of Claims 77-83, 85-86, 105-106, 109-111, 119-120, 122-125 and 128-129: Examiner further rejects claims 77-83, 85-86, 105-106, 109-111, 119-120, 122-125 and 128-129 under 35 U.S.C. §103(a) for unpatentability over an IEEE paper by Modiano *et al.* (Modiano) in view of U.S. Pat. No. 6,788,833 issued to Brisson *et al.* (Brisson '833). Applicants respectfully traverse these rejections and respectfully suggest that claims 77-83, 85-86, 105-106, 109-111, 119-120, 122-125 and

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128-129 are indeed patentable over Modiano in view of Brisson '833 for the following reasons.

Modiano teaches the use of a unslotted Aloha protocol, which is contrary to and entirely inconsistent with the slotted or time division multiplex protocol taught by Applicants (see Applicants' Figs. 2-3). In addition, Modiano separates the control channel from the data channel on separate and distinct wavelengths (λ_c is the wavelength used for control, $\lambda_{1\text{-}30}$ are the wavelengths for data) and neither considers nor suggests Applicants' mixing of control and data information on a same wavelength (see Applicants' Figs. 2-3). Brisson '833 neither considers nor suggests any of these features that distinguish Applicants' claimed invention over Modiano. Therefore, someone skilled in the arts would find no suggestion or motivation to combine Modiano and Brisson '833 because neither Modiano and Brisson '833 suggest such a combination.

Also, Applicants respectfully traverse Examiner's characterization of the cited combination of Modiano in view of Brisson '833 as suggesting the features of Applicants' claimed invention because Modiano and Brisson '833 together neither consider nor suggest a hub or switch comprising the *internal* passive optical splitter claimed by Applicants' in independent claims 77, 109 and 122.

Accordingly, Applicants respectfully suggest that, as amended, claims 77-83, 85-86, 105-106, 109-111, 119-120, 122-125 and 128-129 are patentable over Modiano in view of Brisson '833 and request reconsideration and withdrawal of these 35 U.S.C. §103(a) rejections of claims 77-83, 85-86, 105-106, 109-111, 119-120, 122-125 and 128-129, as amended.

Discussion of the Patentability of Claims 84, 87, 112, and 126: Examiner further rejects claims 84, 87, 112, and 126 under 35 U.S.C. §103(a) for unpatentability over Modiano and Brisson '833 in view of U.S. Patent Application Pub. 2003/0227926 filed by Ramamurthy *et al.* (Ramamurthy '926). Applicants respectfully traverse these rejections and suggest that claims 84, 87, 112, and 126 are patentable over Modiano and Brisson '833 in view of Ramamurthy '926 for the following reasons.

Ramamurthy '926 neither considers nor suggests any of the features that distinguish Applicants' claimed invention over Modiano in view of Brisson '833 for the rea-

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sons discussed above with respect to claims 77-83, 85-86, 105-106, 109-111, 119-120, 122-125 and 128-129. Actually, Ramamurthy '926 teaches the use of a slotted or time division multiplex protocol (see Fig. 3, paragraphs 074, 159-160), which is completely contrary to and inconsistent with the unslotted Aloha protocol of Modiano, thereby not only failing to suggest combining the teachings of Modiano and Ramamurthy '926 but indeed teaching away from any such combination.

Accordingly, Applicants respectfully suggest that claims 84, 87, 112, and 126 are patentable over Modiano in view of Brisson '833 and Ramamurthy '926 and request reconsideration and withdrawal of these 35 U.S.C. §103(a) rejections of claims 84, 87, 112, and 126.

Discussion of the Patentability of Claims 88-99 and 101: Examiner further rejected claims 88-89 and 101 under 35 U.S.C. §103(a) for unpatentability over Modiano and Brisson '833 in view of U.S. Patent No. 6,498,667 issues to Masucci *et al.* (Masucci '667). Applicants respectfully traverse these rejections and suggest that claims 88-89 and 101 are patentable over Modiano and Brisson '833 in view of Masucci '667 for the following reasons.

Masucci '667 neither considers nor suggests any of the features that distinguish Applicants' claimed invention over Modiano in view of Brisson '833 for the reasons discussed above with respect to claims 77-83, 85-86, 105-106, 109-111, 119-120, 122-125 and 128-129. Applicants find no reference or suggestion to hairpinning in Masucci '667. In addition, Masucci '667 teaches the use of a slotted or time division multiplex protocol (see Fig. 3-8, col. 3 lines 35-41) which is contrary to the unslotted Aloha protocol of Modiano.

Furthermore, Masucci '667 teaches using a WAN or optical access system (col. 3 lines 30-31) and the WAN interface 38 is the interface to the WAN 10 network itself. As previously mentioned LANs and WANs are not equivalent. One skilled in the art would find no suggestion or motivation to combine Masucci '667 with the teachings of Modiano et al and Brisson '833 absent Applicants' teachings.

Accordingly, Applicants respectfully suggest that claims 88-89 and 101 are patentable over Modiano and Brisson '833 in view of Masucci '667 and request reconsidera-

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tion and withdrawal of these 35 U.S.C. §103(a) rejections of claims 88-89 and 101.

Discussion of the Patentability of Claims 98-100, 113, 115 and 118: Examiner further rejects claims 98-100, 113, 115 and 118 under 35 U.S.C. §103(a) for unpatentability over Modiano and Brisson '833 in view of U.S. Patent No. 6,970,461 issued to Unitt *et al.* (Unitt '461). Applicants respectfully traverse these rejections and respectfully suggest that claims 98-100, 113, 115 and 118 are patentable over Modiano and Brisson '833 in view of Unitt '461 for the following reasons.

Unitt '461 neither considers nor suggests any of the features that distinguish Applicants' claimed invention over Modiano in view of Brisson '833 for the reasons discussed above with respect to claims 77-83, 85-86, 105-106, 109-111, 119-120, 122-125 and 128-129. In addition, as mentioned above, an OLT is not equivalent to Applicants' network manager nor is an ONU equivalent to Applicants' network client adapter; a distinction that is essential to the novelty of the Unitt '461 invention and to Applicants' invention. Therefore, one skilled in the art would find no suggestion to combine Unitt '461 with the teachings of Modiano et al and Brisson '833 absent Applicants' teachings.

Accordingly, Applicants respectfully suggest that claims 98-100, 113, 115 and 118 are patentable over Modiano and Brisson '833 in view of Unitt '461 and request reconsideration and withdrawal of these 35 U.S.C. §103(a) rejections of claims 98-100, 113, 115 and 118.

Discussion of the Patentability of Claims 101-104, 113, 115-117 and 130-131: Examiner further rejected claims 101-104, 113, 115-117 and 130-131 under 35 U.S.C. §103(a) for unpatentability over Modiano and Brisson '833 in view of U.S. Patent Application Pub. 2003/0236916 filed by Adcox et al (Adcox '916). Applicants respectfully traverse these rejections and respectfully suggest that claims 101-104, 113, 115-117 and 130-131 are patentable over Modiano and Brisson '833 in view of Adcox '916 for the following reasons.

Adcox '916 neither considers nor suggests any of the features that distinguish Applicants' claimed invention over Modiano in view of Brisson '833 for the reasons discussed above with respect to claims 77-83, 85-86, 105-106, 109-111, 119-120, 122-125 and 128-129. In addition, Adcox '916 teaches the use of a slotted or time division multi-

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plex protocol (see Fig. 7, paragraph 0068) which is contrary to the unslotted Aloha protocol of Modiano.

Furthermore, as previously mentioned LANs and WANs are not equivalent; a difference that is essential to the novelty of Adcox '916's invention as well as Applicants' invention. Therefore, one skilled in the art would find no suggestion to combine Adcox '916 with the teachings of Modiano et al and Brisson '833.

Accordingly, Applicants respectfully suggest that claims 101-104, 113, 115-117 and 130-131 are patentable over Modiano and Brisson '833 in view of Adcox '916 and request reconsideration and withdrawal of these 35 U.S.C. §103(a) rejections of claims 101-104, 113, 115-117 and 130-131.

Discussion of the Patentability of Claims 107 and 127: Examiner further rejected claims 107 and 127 under 35 U.S.C. §103(a) for unpatentability over Modiano in view of Brisson '833 in view of U.S. Patent No. 5,572,349 issued to Hale *et al.* (Hale '349). Applicants respectfully traverse these rejections and suggest that claims 107 and 127 are patentable over Modiano and Brisson '833 in view of Hale '349 for the following reasons.

Hale '349 neither considers nor suggests any of the features that distinguish Applicants' claimed invention over Modiano in view of Brisson '833 for the reasons discussed above with respect to claims 77-83, 85-86, 105-106, 109-111, 119-120, 122-125 and 128-129. In addition, Hale '349 teaches the use of a slotted or time division multiplex protocol (see Fig. 4b and Fig. 5) which is contrary to the unslotted Aloha protocol of Modiano.

Furthermore, as previously mentioned an OLT is not equivalent to the Applicants network manager nor is an ONU equivalent to Applicants network client adapter. A difference that is essential to the novelty of Hale '349's invention as well as the Applicants' invention. Therefore, someone skilled in the arts would find no suggestion to combine Hale '349 with the teachings of Modiano and Brisson '833.

Accordingly, Applicants respectfully suggest that claims 107 and 127 are patentable over the Modiano Paper in view of Brisson '833 and Hale '349 and request reconsideration and withdrawal of these 35 U.S.C. §103(a) rejections of claims 107 and

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127.

Discussion of the Patentability of Claims 108, 121 and 132: Examiner further rejected claims 108, 121 and 132 under 35 U.S.C. §103(a) for unpatentability over Modiano in view of Brisson '833 in view of U.S. Patent No. 6,778,399 issued to Medina *et al.* (Medina '399). Applicants respectfully traverse these rejections and suggest that claims 108, 121 and 132 are patentable over Modiano and Brisson '833 in view of Medina '399 for the following reason. Medina '399 neither considers nor suggests any of the features that distinguish Applicants' claimed invention over Modiano in view of Brisson '833 for the reasons discussed above with respect to claims 77-83, 85-86, 105-106, 109-111, 119-120, 122-125 and 128-129.

Accordingly, Applicants respectfully suggest that claims 108, 121 and 132 are patentable over Modiano and Brisson '833 in view of Medina '399 and request reconsideration and withdrawal of these 35 U.S.C. §103(a) rejections of claims 108, 121 and 132.

Discussion of the Patentability of Claim 114: Examiner further rejected claim 114 under 35 U.S.C. §103(a) for unpatentability over Modiano and Brisson '833 and Adcox '916 in view of U.S. Patent No. 5,572,349 issued to Hale *et al.* (Hale '349). Applicants respectfully traverse these rejections and respectfully suggest that claim 114 is patentable over Modiano, Brisson '833 and Adcox '916 in view of Hale '349 for the following reason. Hale '349 neither considers nor suggests any of the features that distinguish Applicants' claimed invention over Modiano in view of Brisson '833 for the reasons discussed above with respect to claims 77-83, 85-86, 105-106, 109-111, 119-120, 122-125 and 128-129.

Accordingly, Applicants respectfully suggest that claim 114 is patentable over Modiano, Brisson '833, Adcox '916 and Hale '349 and request reconsideration and withdrawal of this 35 U.S.C. §103(a) rejection of claim 114.

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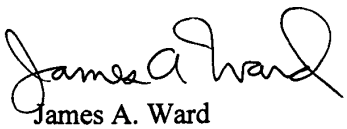
Conclusion: Applicants respectfully request reexamination and reconsideration of the application as amended. A petition for a two-month extension of time per 37 C.F.R. §1.136(a) and the requisite $225 fee per 37 C.F.R. §1.17(a)(2) are filed herewith.

Respectfully submitted,



James A. Ward
Reg. No. 34,041
Customer No. 50,625
1 Waterway
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jim@jward.org

Nokia of America Corporation
IPR2023-00960, Ex. 1002-2
Ex. 1002-2.317

OIPE IAP88 SEP 11 2006 PATENT & TRADEMARK OFFICE

DPW

PTO/SB/22 (07-06)
Approved for use through 09/30/2006. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARMENT OF COMMERCE
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PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a) **FY 2005** *(Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).)*	Docket Number (Optional) UBI-005
Application Number 10/886,514	Filed 07/06/2004
For Communication System and Method for an Optical Local Area Network	
Art Unit 2613	Examiner Shi K. Li

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	$
☒	Two months (37 CFR 1.17(a)(2))	$450	$225	$ 225
☐	Three months (37 CFR 1.17(a)(3))	$1020	$510	$
☐	Four months (37 CFR 1.17(a)(4))	$1590	$795	$
☐	Five months (37 CFR 1.17(a)(5))	$2160	$1080	$

☒ 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 _____. 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.

09/12/2006 NNGUYEN1 00000016 10886514
01 FC:2252 225.00 OP

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 34,041

☐ attorney or agent under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34 _____

James A Ward — Signature

September 05, 2006 — Date

James Albert Ward — Typed or printed name

949-748-6760 — 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.

PTO/SB/06 (12-04)
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PATENT APPLICATION FEE DETERMINATION RECORD
Substitute for Form PTO-875

Application or Docket Number: 10/886,514

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY FEE ($)
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))	56 minus 20 =	* 36	x =	Paid	OR	x =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	5 minus 3 =	* 2	x =	Paid		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))			N/A			N/A	
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	Paid		TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT A

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 56	Minus	** 56	= 0	x =	0	OR	x =	
Independent (37 CFR 1.16(h))	* 3	Minus	*** 5	= 0	x =	0	OR	x =	
Application Size Fee (37 CFR 1.16(s))									
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					N/A		OR	N/A	
					TOTAL ADD'L FEE	0	OR	TOTAL ADD'L FEE	

9/11/06

AMENDMENT B

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 56	Minus	** 56	=	x =		OR	x =	
Independent (37 CFR 1.16(h))	* 3	Minus	*** 3	=	x =		OR	x =	
Application Size Fee (37 CFR 1.16(s))									
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					N/A		OR	N/A	
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

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

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

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Nokia of America Corporation
IPR2023-00960, Ex. 1002-2
Ex. 1002-2.319

PTO/SB/08a (08-03)
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	10886514
	Filing Date	2004-07-06
	First Named Inventor	Alexander I. Soto
	Art Unit	2613
	Examiner Name	Li, Shi K.
	Attorney Docket Number	UBI-005

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	47760471	A	1988-10-04	Husbands, Charles R.	
	2	4701909	A	1987-10-20	Kavehrad, Mosen	

If you wish to add additional U.S. Patent citation information please click the Add button. Add

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Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1					

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Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1							☐

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NON-PATENT LITERATURE DOCUMENTS Remove

Nokia of America Corporation
IPR2023-00960, Ex. 1002-2
Ex. 1002-2.320

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99)**		
	Application Number	10886514
	Filing Date	2004-07-06
	First Named Inventor	Alexander I. Soto
	Art Unit	2613
	Examiner Name	Li, Shi K.
	Attorney Docket Number	UBI-005

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1	RADOVANOVIC, "Ethernet-Based Passive Optical Local-Area Networks for Fiber-to-the-Desk Application", Journal of Lightwave Technology, Nov 2003, pages 2534-2545, vol 21 no 11.	☐
	2	CHAING et al, "Implementation of STARNET: A WDM Computer Communications Network", Journal on Selected Areas in Communications, June 1996, pages 824-839, vol 14, no 5.	☐
	3	RAWSON, ERIC, "The Fibernet II Ethernet-Compatible Fiber-Optic LAN", IEEE Journal of Lightwave Technology, June 1985, pages 496-501, vol LT-3, No 3.	☐

If you wish to add additional non-patent literature document citation information please click the Add button Add

EXAMINER SIGNATURE

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

Nokia of America Corporation
IPR2023-00960, Ex. 1002-2
Ex. 1002-2.321

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	10886514
	Filing Date	2004-07-06
	First Named Inventor	Alexander I. Soto
	Art Unit	2613
	Examiner Name	Li, Shi K.
	Attorney Docket Number	UBI-005

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☐ See attached certification statement.

☐ Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☑ None

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/James Albert Ward #34,041/	Date (YYYY-MM-DD)	2006-09-05
Name/Print	James Albert Ward	Registration Number	34041

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour 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.**

Nokia of America Corporation
IPR2023-00960, Ex. 1002-2
Ex. 1002-2.322

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 the Freedom of Information Act requires disclosure of these record s.

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 inspections 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.

Nokia of America Corporation
IPR2023-00960, Ex. 1002-2
Ex. 1002-2.323

Electronic Acknowledgement Receipt

EFS ID:	1186867
Application Number:	10886514
Confirmation Number:	8709
Title of Invention:	Communication system and method for an optical local area network
First Named Inventor:	Alexander I. Soto
Customer Number:	50625
Filer:	James Albert Ward
Filer Authorized By:	
Attorney Docket Number:	17740-007001
Receipt Date:	06-SEP-2006
Filing Date:	06-JUL-2004
Time Stamp:	01:32:38
Application Type:	Utility
International Application Number:	

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)	Multi Part	Pages
1	Information Disclosure Statement (IDS) Filed	US_IDS_UBI-005_05Sep06.pdf	728644	no	4

Warnings:					
Information:					
2	NPL Documents	Radovanovic_01251081.pdf	752302	no	12
Warnings:					
Information:					
3	NPL Documents	Rawson_01074228.pdf	178552	no	6
Warnings:					
Information:					
4	NPL Documents	Chiang_00510906.pdf	2084978	no	16
Warnings:					
Information:					
		Total Files Size (in bytes):	3744476		

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.

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.
10/886,514	07/06/2004	Alexander I. Soto	17740-007001	8709

50625 7590 04/04/2006

JAMES ALBERT WARD
6924 CAMINO PACHECO
SAN DIEGO, CA 92111

EXAMINER	
LI, SHI K	

ART UNIT	PAPER NUMBER
2613	

DATE MAILED: 04/04/2006

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

Nokia of America Corporation
IPR2023-00960, Ex. 1002-2
Ex. 1002-2.326

Office Action Summary	Application No.	Applicant(s)	
	10/886,514	SOTO ET AL.	
	Examiner	Art Unit	
	Shi K. Li	2613	

-- 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 *18 February 2006*.

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) *77-132* 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) *77-132* 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-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Nokia of America Corporation
IPR2023-00960, Ex. 1002-2
Ex. 1002-2.327

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 18 February 2006 has been entered.

Claim Rejections - 35 USC § 112

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

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

3. Claims 122-132 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 122 recites the limitation "thereby reducing the requisite number of optical transceivers in a traditional optical LAN hub by the number of optical ports minus one" in lines 10-12 of the claim. However, the specification as originally filed does not describe the limitation in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

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. Claims 122-132 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 122 recites the limitation "thereby reducing the requisite number of optical transceivers in a traditional optical LAN hub by the number of optical ports minus one" in lines 10-12 of the claim. The word "traditional" renders the claim indefinite because it is unclear what is considered as a traditional optical LAN hub and it is unclear how many ports are there in a traditional optical LAN hub.

Claim Rejections - 35 USC § 103

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 77-83, 85-86, 105-106, 109-111, 119-120, 122-125 and 128-129 are rejected under 35 U.S.C. 103(a) as being unpatentable over Modiano et al. (E. Modiano et al., "A Novel Medium Access Control Protocol for WDM-Based LAN's and Access Networks Using a Master/Slave Scheduler", Journal of Lightwave Technology, Vol. 18, No. 4, April 2000) in view of Brisson et al. (U.S. Patent 6,788,833 B1).

Regarding claims 77 and 122, Modiano et al. discloses in FIG. 1 a local area network (LAN) including a hub (equivalent to network manager of instant claim) and a plurality of optical terminals (equivalent to network client adapters of instant claim). The hub is coupled to the optical terminals via an optical star coupler with a plurality of ports and fibers. Modiano et al. teaches in p. 461, right col., 4th paragraph that the LAN uses an unslotted MAC protocol.

MAC protocol corresponds to layer 2 (link layer) of the OSI reference model. The hub receives signals (scheduling requests) from the optical terminals, processes the signals and broadcasts the processed signal to the optical terminals. The difference between Modiano et al. and the claimed invention is that Modiano et al. does not teach converters for converting incoming optical signal to an electrical signal and converter for converting the processed electrical signal to optical signal. However, Modiano et al. suggests in p. 461, right col., last paragraph to use application specific integrated circuit (ASIC) for the scheduler. Also, it is well known in the art that most computers and processors process data in electrical domain. For example, Brisson et al. teaches in FIG. 1 an optical LAN. Brisson et al. teaches in FIG. 2 receiver for each node including O/E converter (photodetector) for converting optical signal to electrical signal.

One of ordinary skill in the art would have been motivated to combine the teaching of Brisson et al. with the scheduler based network of Modiano et al. because technology for processing signals in electrical domain is mature and processor for processing signals in electrical domain is widely available and inexpensive. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to include O/E converter for converting optical signals into electrical signals for processing and include E/O converter for converting processed electrical signals into optical signals for transmitting, as taught by Brisson et al., in the scheduler based network of Modiano et al. because technology for processing signals in electrical domain is mature and processor for processing signals in electrical domain is widely available and inexpensive. Brisson et al. also teaches in FIG. 2 a passive star coupler 110 which shows the details of the broadcast star of Modiano et al. (the circle with the Σ sign in FIG. 1 of Modiano et al.).

Regarding claims 78, 80, 109 and 123, Modiano et al. teaches to use an unslotted Aloha protocol for the control channel (see p. 462, right col., first paragraph). Aloha is a network layer (ISO layer-3) protocol.

Regarding claims 79 and 81, Applicant admitted in the remarks dated 18 February 2006 that combining address, synchronization, error control and data into frame or packet is standard layer-2 and layer 3 protocols that are well known in the art.

Regarding claims 82, 110 and 124, Modiano et al. teaches a time division multiplexing scheme.

Regarding claims 83, 111 and 125, Modiano et al. teaches that scheduling is based on client request, therefore bandwidth is dynamically allocated.

Regarding claim 85-86, Modiano et al. teaches to use an unslotted Aloha protocol for the control channel (see p. 462, right col., first paragraph). Aloha is a time division multiple access scheme. Modiano et al. teaches that scheduling is based on client request, therefore bandwidth is dynamically allocated.

Regarding claims 105-106, 119-120 and 128-129, Modiano et al. teaches on page 463, left col., Section A the use of ranging.

8. Claims 84, 87, 112 and 126 are rejected under 35 U.S.C. 103(a) as being unpatentable over Modiano et al. and Brisson et al. as applied to claims 77-83, 85-86, 105-106, 109-111, 119-120, 122-125 and 128-129 above, and further in view of Ramamurthy et al. (U.S. Patent Application Pub. 2003/0227926 A1).

Modiano et al. and Brisson et al. have been discussed above in regard to claims 77-83, 85-86, 105-106, 109-111, 119-120, 122-125 and 128-129. The difference between Modiano et

al. and Brisson et al. and the claimed invention is that Modiano et al. and Brisson et al. do not teach slot allocation that provides minimum bandwidth. Ramamurthy et al. teaches in paragraph [0018] to reserve bandwidth (slots) so that a minimum bandwidth is guaranteed. One of ordinary skill in the art would have been motivated to combine the teaching of Ramamurthy et al. with the modified scheduler based network of Modiano et al. and Brisson et al. because minimum bandwidth ensures each node can send top priority data. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to reserve slots for each node for guaranteeing a minimum bandwidth, as taught by Ramamurthy et al., in the modified scheduler based network of Modiano et al. and Brisson et al. because minimum bandwidth ensures each node can send top priority data.

9. Claims 88-99 and 101 are rejected under 35 U.S.C. 103(a) as being unpatentable over Modiano et al. and Brisson et al. as applied to claims 77-83, 85-86, 105-106, 109-111, 119-120, 122-125 and 128-129 above, and further in view of Masucci et al. (U.S. Patent 6,498,667 B1).

Modiano et al. and Brisson et al. have been discussed above in regard to claims 77-83, 85-86, 105-106, 109-111, 119-120, 122-125 and 128-129. Regarding claim 88, Modiano et al. teaches sending scheduling packets to the optical terminals. Therefore, the combination of Modiano et al. and Brisson et al. teaches sending packets to network client adapter. In case Applicant argues or amends the claim such that packet data means payload/application data, the Examiner includes Masucci et al. for teaching sending downstream application data. Masucci et al. teaches in FIG. 1 a PON with remote terminals 14 (equivalent to network client) and central terminal 12 (equivalent to network manager). The central terminal connects the remote terminals to wide area network via WAN interface such that remote terminals can receive application data

from workstations, servers or other users located in another network. One of ordinary skill in the art would have been motivated to combine the teaching of Masucci et al. with the modified optical LAN of Modiano et al. and Brisson et al. because Modiano et al. teaches in the abstract that an important application for the optical LAN is in optical access networks and a connection to WAN via an access network allows users communicate with servers and users located in other networks. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to connect network clients to other networks via the hub, as taught by Masucci et al., in the modified optical LAN of Modiano et al. and Brisson et al. because connection to WAN via an access network allows users communicate with servers and users located in other networks.

Regarding claims 89-90 and 93-94, Masucci et al. teaches in FIG. 3 frame and subframes.

Regarding claims 91 and 95, Masucci et al. teaches in FIG. 4 packet length field 228 and in FIG. 8 OAM&P header with length field 410.

Regarding claims 92 and 96, Masucci et al. teaches in FIG. 1 Ethernet MAC 30 and Ethernet PHY 32.

Regarding claim 97, Modiano et al. teaches in FIG. 1 hairpinning.

Regarding claim 98-99, Masucci et al. teaches in FIG. 1 that the remote terminals include network interface 33 for local area network clients.

Regarding claim 101, Masucci et al. teaches in FIG. 1 switch 36.

10. Claims 98-100, 113, 115 and 118 are rejected under 35 U.S.C. 103(a) as being unpatentable over Modiano et al. and Brisson et al. as applied to claims 77-83, 85-86, 105-106,

109-111, 119-120, 122-125 and 128-129 above, and further in view of Unitt et al. (U.S. Patent 6,970,461 B1).

Modiano et al. and Brisson et al. have been discussed above in regard to claims 77-83, 85-86, 105-106, 109-111, 119-120, 122-125 and 128-129. Regarding claims 98-100, the difference between Modiano et al. and Brisson et al. and the claimed invention is that Modiano et al. and Brisson et al. do not teach a network interface. Unitt et al. teaches in FIG. 1 a PON comprising OLT (equivalent to network manager) and ONU (equivalent to network client adapter). Unitt et al. teaches in FIG. 2 that ONU includes an Ethernet switch for connecting to PC and set top box (STB). One of ordinary skill in the art would have been motivated to combine the teaching of Unitt et al. with the modified optical LAN of Modiano et al. and Brisson et al. because a Ethernet switch allows several pieces of equipment to share a same ONU and reduces network deployment cost. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a network interface such as a Ethernet switch, as taught by Unitt et al., in the modified optical LAN of Modiano et al. and Brisson et al. because a Ethernet switch allows several pieces of equipment to share a same ONU and reduces network deployment cost.

11. Claims 101-104, 113, 115-117 and 130-131 are rejected under 35 U.S.C. 103(a) as being unpatentable over Modiano et al. and Brisson et al. as applied to claims 77-83, 85-86, 105-106, 109-111, 119-120, 122-125 and 128-129 above, and further in view of Adcox et al. (U.S. Patent Application Pub. 2003/0236916 A1).

Modiano et al. and Brisson et al. have been discussed above in regard to claims 77-83, 85-86, 105-106, 109-111, 119-120, 122-125 and 128-129. Regarding claim 101, the difference

between Modiano et al. and Brisson et al. and the claimed invention is that Modiano et al. and Brisson et al. do not teach a switch interface. Adcox et al. teaches in FIG. 4 a PON wherein the headend (QOIU) 20A includes a switch interface for connecting to an Ethernet switch. One of ordinary skill in the art would have been motivated to combine the teaching of Adcox et al. with the modified optical LAN of Modiano et al. and Brisson et al. because a switch allows the routing of traffic among the client users and reduces the traffic on each fiber. In other words, the switch allows each fiber to support more users or allows each user to have more bandwidth by eliminating traffic that is not designated for the users served by the fiber. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to interface to a switch, as taught by Adcox et al., in the modified optical LAN of Modiano et al. and Brisson et al. because a switch eliminates traffic that is not designated for the users served by the fiber and, therefore, increases usable bandwidth.

Regarding claims 102-104, 113, 115-117 and 130-131, Adcox et al. teaches in FIG. 4 Ethernet switch. The Ethernet switch switches frames based on address and sends packets from one client to another client through the PON and sends packets from clients to users of other network through the PPPOE BRAS. On the client side, Adcox et al. teaches in FIG. 4 10BaseT Ethernet interface.

12. Claims 107 and 127 are rejected under 35 U.S.C. 103(a) as being unpatentable over Modiano et al. and Brisson et al. as applied to claims 77-83, 85-86, 105-106, 109-111, 119-120, 122-125 and 128-129 above, and further in view of Hale et al. (U.S. Patent 5,572,349).

Modiano et al. and Brisson et al. have been discussed above in regard to claims 77-83, 85-86, 105-106, 109-111, 119-120, 122-125 and 128-129. The difference between Modiano et

al. and Brisson et al. and the claimed invention is that Modiano et al. and Brisson et al. do not teach power leveling. Hale et al. teaches in FIG. 1 a passive optical network comprising an OLT and a plurality of ONUs. Hale et al. teaches in col. 5, lines 2-10 that the OLT transmits control signals to ONU to adjust launch power. One of ordinary skill in the art would have been motivated to combine the teaching of Hale et al. with the modified LAN of Modiano et al. and Brisson et al. because power leveling adjusts the launch power of each ONU such that the received signal from each of them is about the same power level and, therefore, optimizes performance. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide power leveling, as taught by Hale et al., in the modified LAN of Modiano et al. and Brisson et al. because power leveling adjusts the launch power of each ONU for optimal performance.

13. Claims 108, 121 and 132 are rejected under 35 U.S.C. 103(a) as being unpatentable over Modiano et al. and Brisson et al. as applied to claims 77-83, 85-86, 105-106, 109-111, 119-120, 122-125 and 128-129 above, and further in view of Medina et al. (U.S. Patent 6,778,399 B2).

Modiano et al. and Brisson et al. have been discussed above in regard to claims 77-83, 85-86, 105-106, 109-111, 119-120, 122-125 and 128-129. The difference between Modiano et al. and Brisson et al. and the claimed invention is that Modiano et al. and Brisson et al. do not teach the form factor of the optical ports. Medina et al. teaches in col. 1, lines 28-40 small form pluggable (SFP) transceiver multisource agreement (MSA) standard. One of ordinary skill in the art would have been motivated to combine the teaching of Medina et al. with the modified optical LAN of Modiano et al. and Brisson et al. and use SFP type connector for the optical port because SFP has small form factor and allows high port density and, therefore, saves space.

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use SFP for the optical ports, as taught by Medina et al., in the modified optical LAN of Modiano et al. and Brisson et al. because SFP has small form factor and allows high port density and, therefore, saves space.

14. Claim 114 is rejected under 35 U.S.C. 103(a) as being unpatentable over Modiano et al., Brisson et al. and Adcox et al. as applied to claims 101-104, 113, 115-117 and 130-131 above, and further in view of Hale et al. (U.S. Patent 5,572,349).

Modiano et al., Brisson et al. and Adcox et al. have been discussed above in regard to claims 101-104, 113, 115-117 and 130-131. The difference between Modiano et al., Brisson et al. and Adcox et al. and the claimed invention is that Modiano et al., Brisson et al. and Adcox et al. do not teach power leveling. Hale et al. teaches in FIG. 1 a passive optical network comprising an OLT and a plurality of ONUs. Hale et al. teaches in col. 5, lines 2-10 that the OLT transmits control signals to ONU to adjust launch power. One of ordinary skill in the art would have been motivated to combine the teaching of Hale et al. with the modified LAN of Modiano et al., Brisson et al. and Adcox et al. because power leveling adjusts the launch power of each ONU such that the received signal from each of them is about the same power level and, therefore, optimizes performance. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide power leveling, as taught by Hale et al., in the modified LAN of Modiano et al., Brisson et al. and Adcox et al. because power leveling adjusts the launch power of each ONU for optimal performance.

Response to Arguments

15. Applicant's arguments with respect to claims 77-132 have been considered but are moot in view of the new ground(s) of rejection.

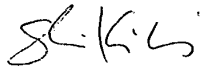
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shi K. Li whose telephone number is 571 272-3031. The examiner can normally be reached on Monday-Friday (8:30 a.m. - 5:00 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571 272-3022. 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).

skl
31 March 2006



Shi K. Li
Patent Examiner

Notice of References Cited	Application/Control No. 10/886,514	Applicant(s)/Patent Under Reexamination SOTO ET AL.	
	Examiner Shi K. Li	Art Unit 2613	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-6,498,667 B1	12-2002	Masucci et al.	398/98
*	B	US-6,778,399 B2	08-2004	Medina et al.	361/729
*	C	US-6,788,833 B1	09-2004	Brisson et al.	385/3
*	D	US-6,970,461 B2	11-2005	Unitt et al.	370/390
*	E	US-2003/0236916 A1	12-2003	Adcox et al.	709/245
	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					
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NON-PATENT DOCUMENTS

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

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Index of Claims

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10/886,514	SOTO ET AL.
Examiner	**Art Unit**
Shi K. Li	2613

√	Rejected	–	(Through numeral) Cancelled	N	Non-Elected	A	Appeal
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Claim		Date								
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Search Notes	Application/Control No.	Applicant(s)/Patent under Reexamination
	10/886,514	SOTO ET AL.
	Examiner	Art Unit
	Shi K. Li	2613

SEARCHED			
Class	Subclass	Date	Examiner

INTERFERENCE SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	DATE	EXMR
Updated Search	3/31/06	sk

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Ex. 1002-2.341

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S2	20630	ethernet and optical	US-PGPUB; USPAT	OR	ON	2006/03/27 15:18
S3	1972	ethernet with switch and optical	US-PGPUB; USPAT	OR	ON	2005/04/21 14:06
S4	864	S3 and @pd<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/25 13:24
S11	8	collision and darcie.in.	US-PGPUB; USPAT	OR	ON	2005/04/21 16:51
S12	80	coupler and schedul$3 with slot	US-PGPUB; USPAT	OR	ON	2005/04/23 08:31
S13	141	(coupler or splitter) and schedul$3 with slot	US-PGPUB; USPAT	OR	ON	2005/04/23 06:54
S14	97	S13 and @pd<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/23 07:34
S15	896	398/58-67.ccls.	US-PGPUB; USPAT	OR	ON	2005/04/23 07:34
S16	159	S15 and @pd<"20030703" and (slot or timeslot)	US-PGPUB; USPAT	OR	ON	2005/04/23 08:32
S17	117	S16 and (coupler or splitter)	US-PGPUB; USPAT	OR	ON	2005/04/23 07:35
S18	60	coupler and schedul$3 with slot and delay	US-PGPUB; USPAT	OR	ON	2005/04/23 08:35
S19	39	S18 and @pd<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/23 08:35
S20	390	coupler and slot and measur$3 with delay	US-PGPUB; USPAT	OR	ON	2005/04/23 08:36
S21	294	S20 and @pd<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/23 08:36
S22	235	optical with (coupler or splitter) and slot and measur$3 with delay	US-PGPUB; USPAT	OR	ON	2005/04/23 08:36
S23	163	S22 and @pd<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/23 09:06
S24	35	ATM and STM and ONU	US-PGPUB; USPAT	OR	ON	2005/04/23 09:07
S27	1051	ethernet with hub and optical	US-PGPUB; USPAT	OR	ON	2005/04/24 06:40
S28	544	S27 and @pd<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/24 07:24
S29	71	S28 and optical with (splitter or coupler)	US-PGPUB; USPAT	OR	ON	2005/04/24 07:02
S33	14	optical with ethernet adj hub	US-PGPUB; USPAT	OR	ON	2005/04/24 07:24

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EAST Search History

S34	56	optical with ethernet with hub	US-PGPUB; USPAT	OR	ON	2005/04/24 07:24
S35	26	S34 and @pd<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/24 07:57
S48	81	"10 GbE"	US-PGPUB; USPAT	OR	ON	2005/04/24 08:20
S49	15	S48 and @pd<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/24 09:34
S50	8235	queue$3 same schedul$3	US-PGPUB; USPAT	OR	ON	2005/04/24 09:33
S51	2400	S50 and optical	US-PGPUB; USPAT	OR	ON	2005/04/24 09:34
S52	1360	S51 and @pd<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/24 13:35
S53	36	S50 and optical adj (coupler or splitter)	US-PGPUB; USPAT	OR	ON	2005/04/24 09:45
S58	9	GbE adj switch	US-PGPUB; USPAT	OR	ON	2005/04/24 09:51
S65	14	ethernet adj switch and "E/O"	US-PGPUB; USPAT	OR	ON	2005/04/24 10:04
S66	290	centralized near2 hub	US-PGPUB; USPAT	OR	ON	2005/04/24 12:12
S67	22	S66 and (coupler or splitter)	US-PGPUB; USPAT	OR	ON	2005/04/24 12:16
S71	16	("5299044").URPN.	USPAT	OR	ON	2005/04/24 12:22
S74	327	ethernet and (ONU or (optical adj terminal))	US-PGPUB; USPAT	OR	ON	2005/04/24 13:35
S75	155	S74 and @pd<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/24 14:32
S76	226	client adj2 adapter	US-PGPUB; USPAT	OR	ON	2005/04/24 14:32
S77	119	S76 and @pd<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/24 15:11
S79	7714	fiber adj channel	US-PGPUB; USPAT	OR	ON	2005/04/24 15:10
S80	866	S79 and (coupler or splitter)	US-PGPUB; USPAT	OR	ON	2005/04/24 15:11
S81	578	S80 and @pd<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/24 15:11
S82	58	S81 and hub	US-PGPUB; USPAT	OR	ON	2005/04/24 15:11
S83	668	FC-AL	US-PGPUB; USPAT	OR	ON	2005/04/25 07:49

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EAST Search History

S84	641	FC-AL and fiber	US-PGPUB; USPAT	OR	ON	2005/04/25 07:49
S85	639	FC-AL and fiber adj channel	US-PGPUB; USPAT	OR	ON	2005/04/25 07:49
S86	342	S85 and @pd<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/25 07:55
S87	45	S86 and passive	US-PGPUB; USPAT	OR	ON	2005/04/25 07:55
S88	552	S85 and @ad<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/25 07:55
S89	45	S87 and passive	US-PGPUB; USPAT	OR	ON	2005/04/25 07:55
S90	69	S88 and passive	US-PGPUB; USPAT	OR	ON	2005/04/25 15:08
S93	324	guarantee with bandwidth same schedul$3	US-PGPUB; USPAT	OR	ON	2005/04/25 13:28
S94	282	S93 and @ad<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/25 15:41
S95	56	guarantee with bandwidth with minimum same schedul$3	US-PGPUB; USPAT	OR	ON	2005/04/25 13:29
S96	48	S95 and @ad<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/25 13:29
S100	498	loop same fiber adj channel and hub	US-PGPUB; USPAT; USOCR	OR	ON	2005/04/25 15:43
S101	425	S100 and @ad<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/25 16:03
S102	29	loop same fiber adj channel and hub with passive	US-PGPUB; USPAT; USOCR	OR	ON	2005/04/25 16:02
S103	24	S102 and @ad<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/25 15:44
S104	142	star and fiber adj channel and passive	US-PGPUB; USPAT; USOCR	OR	ON	2005/04/25 16:03
S105	123	S104 and @ad<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/25 16:03
S108	16555	sin$7 near3 clock	US-PGPUB; USPAT	OR	ON	2005/10/06 10:48
S109	13607	sin$7 near2 clock	US-PGPUB; USPAT	OR	ON	2005/10/06 10:49
S110	9247	sin$7 near clock	US-PGPUB; USPAT	OR	ON	2005/10/06 10:49
S111	1833	sin$7 near clock and optical	US-PGPUB; USPAT	OR	ON	2005/10/06 10:49

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EAST Search History

S112	79	sin$7 near clock and "398"/$.ccls.	US-PGPUB; USPAT	OR	ON	2005/10/06 12:56
S115	0	("H002103").URPN.	USPAT	OR	ON	2005/10/06 13:11
S116	563	398/58,61-64,66-68,70-72.ccls.	USPAT	OR	ON	2005/10/06 13:23
S117	195	S116 and broadcast$3	USPAT	OR	ON	2005/10/06 13:23
S118	768	398/58,61-64,66-68,70-72.ccls.	US-PGPUB; USPAT	OR	ON	2005/10/06 13:23
S119	276	S118 and broadcast$3	US-PGPUB; USPAT	OR	ON	2005/10/06 13:31
S124	22	broadcast adj star	US-PGPUB; USPAT	OR	ON	2005/10/07 09:20
S125	52	("5303078").URPN.	USPAT	OR	ON	2005/10/07 10:11
S126	4191	adjust$3 with power adj level	USPAT	OR	ON	2005/10/07 10:11
S127	144	S126 and star	USPAT	OR	ON	2005/10/07 10:33
S128	5156	"398"/$.ccls. and (range or ranging)	USPAT	OR	ON	2005/10/07 10:34
S129	4536	S128 and (level power)	USPAT	OR	ON	2005/10/07 10:35
S130	214	S129 and (hub OLT)	USPAT	OR	ON	2005/10/07 10:35
S133	93542	ranging and optical	US-PGPUB; USPAT; USOCR	OR	ON	2005/10/07 12:21
S134	735	ranging and "398"/$.ccls.	US-PGPUB; USPAT; USOCR	OR	ON	2005/10/07 13:38
S135	127	S134 and adjust$3 with (power intensity)	US-PGPUB; USPAT; USOCR	OR	ON	2005/10/07 13:32
S136	51	leveling and "398"/$.ccls.	US-PGPUB; USPAT; USOCR	OR	ON	2005/10/07 13:38
S137	46	("4417334").URPN.	USPAT	OR	ON	2005/10/07 13:49
S138	8	("4856023").URPN.	USPAT	OR	ON	2005/10/07 14:52
S140	29	ATM-LAN with ethernet	US-PGPUB; USPAT	OR	ON	2005/10/07 15:11

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EAST Search History

S150	672	passive with star	US-PGPUB; USPAT	OR	ON	2006/03/27 16:04
S151	616	S150 and (optical fiber)	US-PGPUB; USPAT	OR	ON	2006/03/27 16:04
S152	550	S151 and @ad<"20030703"	US-PGPUB; USPAT	OR	ON	2006/03/27 16:05

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PATENTS
Docket No. UBI-005

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: **Alexander I. Soto et al.**	Group Art Unit: **2633**
Patent Application No.: **10/886,514**	
Filed on: **July 06, 2004**	Examiner: **Li, Shi K.**
For: **Communication System and Method For An Optical Local Area Network**	

Commissioner for Patents
Mail Stop Amendment
PO Box 1450
Alexandria, VA 22313-4150

PRELIMINARY AMENDMENT PER 37 C.F.R. §1.114(c)

Responsive to the Final Office Action mailed on October 18, 2005 and in connection with the attached Request for Continued Examination, please enter the following Preliminary Amendment in the above-entitled Patent Application. A Petition for a one-month Extension of Time per 37 C.F.R. §1.136(a) is attached herewith.

I hereby certify that this correspondence is being transmitted by facsimile to 1-571-273-8300 Commissioner for Patents, Box 1450, Alexandria, VA 22313-1450 on:
February 18, 2006

(Applicant, Assignee, Registered Representative)
James A. Ward

(Signature) James A Ward

(Date of Signature) February 18, 2006

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AMENDMENTS TO THE CLAIMS

Kindly enter the claim amendments as set forth in the following claim listing presented in accordance with 37 C.F.R. §1.121(c)(1):

Claims 1-76 are cancelled.

77. (New) An optical Local Area Network (LAN) of one or more local area network clients, the optical LAN comprising:

a network manager including

an optical interface having means for converting received optical signals to electrical signals and means for producing transmitted optical signals from electrical signals,

a plurality of optical ports,

a passive optical coupler coupled between the optical interface and the optical ports and having means for accepting received optical signals from and for distributing transmitted optical signals to the optical interface and the optical ports, and

a control module coupled to the optical interface and having means for receiving electrical signals from and for transmitting electrical signals to the optical interface;

a plurality of network client adapters including

an optical interface having means for converting received optical signals to electrical signals and means for producing transmitted optical signals from electrical signals,

an optical port coupled to the optical interface, and

a control module having means for receiving electrical signals from and for transmitting electrical signals to the optical interface; and

a plurality of optical waveguides each coupled between one of the network client adapter optical ports and the network manager;

whereby the network manager can receive an optical signal from any network client adapter, a

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network client adapter can receive an optical signal from the network manager, and the network manager and network client adapters are in communication to facilitate sending and receiving data across the optical waveguides.

78. (New) The optical LAN of claim 77, wherein the network manager control module includes means for administering the received electrical signals and transmitted electrical signals conforming to an Open Systems Interconnection reference model (OSI) Layer 2 or Layer 3 protocol.

79. (New) The optical LAN of claim 78, wherein the OSI Layer protocols includes means of representing address, synchronization, error control and data into frames or packets.

80. (New) The optical LAN of claim 77, wherein a network client adapter control module includes means to administer the received electrical signals and transmitted electrical signals conforming to an OSI Layer-2 or Layer-3 protocol.

81. (New) The optical LAN of claim 80, wherein the OSI Layer protocols includes means for representing address, synchronization, error control and data into frames or packets.

82. The optical LAN of claim 77, wherein a network manager control module includes means to transmit data according to a time division multiplexing scheme.

83. (New) The optical LAN of claim 82, wherein the network manager control module includes means for dynamically scheduling or providing bandwidth allocations.

84. (New) The optical LAN of claim 82, wherein the network manager control module includes means for scheduling or providing a minimum bandwidth allocation.

85. (New) The optical LAN of claim 77, wherein the network manager control module includes means for receiving data according to a time division multiple access scheme.

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86. (New) The optical LAN of claim 85, wherein the network manager control module includes means for dynamically scheduling or providing bandwidth allocations.

87. (New) The optical LAN of claim 85, wherein the network manager control module includes means for scheduling or providing a minimum bandwidth allocation.

88. (New) The optical LAN of claim 77, wherein the network manager includes means for transmitting downstream data from the network manager to a network client adapter in successive downstream frames over the optical waveguides, the downstream data including downstream packet data.

89. (New) The optical LAN of claim 88, wherein each downstream frame includes a first number of downstream subframes, each downstream subframe including a second number of downstream slots of time, each downstream slot of time having one of a plurality of downstream formats.

90. (New) The optical LAN of claim 89, wherein a downstream subframe further includes a downstream communication channel for communicating schedule or provisioning information for provisioning upstream slots of time to respective network client adapters.

91. (New) The optical LAN of claim 88, wherein the downstream packet format for carrying downstream packet data includes a downstream packet header and a downstream packet payload; the downstream packet header including a field indicating length of the downstream packet payload.

92. (New) The optical LAN of claim 91, wherein the downstream packet payload includes at least a portion of an Ethernet or Fibre Channel frame.

93. (New) The optical LAN of claim 77, wherein a network client adapter includes means to transmit upstream data from the network client adapter to a network manager in respective up-

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stream slots of time over the optical waveguides, the upstream slots of time forming essentially successive upstream frames, the upstream data including upstream packet data.

94. (New) The optical LAN of claim 93, wherein each upstream frame includes a first number of upstream subframes, each upstream subframe including a second number of upstream slots of time, each upstream slot of time having one of a plurality of upstream formats.

95. (New) The optical LAN of claim 93, wherein the upstream packet format for carrying upstream packet data includes an upstream packet header and an upstream packet payload, wherein the upstream packet header includes a field for indicating an upstream packet payload length.

96. (New) The optical LAN of claim 95, wherein the upstream packet payload includes at least a portion of an Ethernet or Fibre Channel frame.

97. (New) The optical LAN of claim 93, wherein the network manager includes means for hair-pinning upstream data to one or more network client adapters.

98. (New) The optical LAN of claim 77, wherein a network client adapter further includes a network interface adapted to communicate electrically to one or more of the local area network clients.

99. (New) The optical LAN of claim 98, wherein the network interface includes means for a Layer 2 or Layer 1 network interface protocol selected from the group consisting essentially of:

Ethernet and Fibre Channel protocols.

100. (New) The optical LAN of claim 98, wherein the network clients are selected from the group consisting essentially of:

a workstation, a personal computer, a disk storage array, a server, a switch, and a router.

101. (New) The optical LAN of claim 77, wherein the network manager further includes a switch

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interface adapted to communicate electrically to an OSI Layer 2 or Layer 3 switch device.

102. (New) The optical LAN of claim 101, wherein the switch interface includes means for implementing a Layer 2 or Layer 1 switch interface protocol selected from the group consisting essentially of:

Ethernet and Fibre Channel protocols.

103. (New) The optical LAN of claim 101, wherein the switch device is selected from the group consisting essentially of:

an Ethernet media access controller (MAC) device and a Fibre Channel FC-2 service device.

104. (New) The optical LAN of claim 101, wherein the network manager includes means for transmitting at least a portion of the received data to the switch device.

105. (New) The optical LAN of claim 77, wherein the network manager includes means for determining a message response delay between the network manager and a network client adapter.

106. (New) The optical LAN of claim 105, wherein a network client adapter includes means for adjusting transmission timing responsive to the message response delay between the network manager and a network client adapter.

107. (New) The optical LAN of claim 77, wherein the network manager includes means for adjusting the optical transmit power of a network client adapter to a predetermined level in response to a received message.

108. (New) The optical LAN of claim 77, wherein the form factors of the optical ports are selected from the group consisting essentially of:

the optical Multi-Source Agreements (MSA) specifications, including XFP, XENPAK, XPAK, and SFP.

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109. (New) A method for operating an optical local area network (LAN) including a network hub having an optical transceiver coupled to an internal passive optical coupler that is also coupled to a plurality of optical ports and including a plurality of network terminals each coupled to a network hub optical port by means of at least one of a plurality of optical waveguides, the method comprising the steps of:

accepting information at the network hub; and

communicating information between the network hub and a network terminal in accordance with an OSI layer 2 or layer 3 protocol.

110. (New) The method of claim 109, further comprising the steps of:

managing the communications at the network hub;

transmitting data from the network hub to all network terminals in a broadcast time division multiplexed manner;

transmitting data from a network terminal to the network hub in a time division multiple access manner;

providing bandwidth allocation for the data transfers at the network hub.

111. (New) The method of claim 110, wherein the bandwidth allocation includes dynamic bandwidth allocation.

112. (New) The method of claim 110, wherein the bandwidth allocation includes a minimum bandwidth allocation.

113. (New) The method of claim 109, further comprising the unordered steps of:

(a) transmitting an incoming optical signal representing data frames from a first network terminal to one of the plurality of network hub optical ports over at least one of the optical waveguides;

(b) accepting the incoming optical signal from one of the network hub optical ports;

(c) converting the incoming optical signal to a first electrical signal representing the

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optical signal data;

(d) processing the first electrical signal according to an OSI Layer-2 protocol to produce a first processed electrical signal representing physical address, synchronization, error control, flow control and data;

(e) converting the first processed electrical signal to a broadcast optical signal responsive to the physical address, synchronization, error control, flow control and data;

(f) transmitting the broadcast optical signal to a passive optical coupler; and

(g) distributing the broadcast optical signal from the passive optical coupler to each of the plurality of hub optical ports; and

(h) accepting the broadcast optical signal at a plurality of the network terminals.

114. (New) The method of claim 113, further comprising the unordered steps of:

(b.1) measuring the incoming optical signal power level at the network hub;

(b.2) determining a desired network terminal optical transmission power level adjustment from the measured optical signal power level;

(e.1) adding data representing the desired network terminal optical transmission power level adjustment to the broadcast optical signal; and

(h.1) adjusting the optical transmission power level at one of the network terminals responsive to acceptance of the broadcast optical signal.

115. (New) The method of claim 113, further comprising the steps of:

(d.1) coupling the first electrical signal to a device that processes the first electrical signal according to an OSI layer-3 protocol to produce logical address, network routing, network segmentation and traffic control data.

116. (New) The method of claim 113, further comprising the steps of:

(h.1) converting the received broadcast optical signal transmission to a second electrical signal representing data frames in a receiving network terminal;

(h.2) selecting a data frame within the second electrical signal associated with the receiving network terminal; and

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(h.3) adapting data in the selected frame for transmission over a network interface having a Layer 2 or Layer 1 network interface protocol selected from the group consisting essentially of:

the Ethernet and Fibre Channel protocols.

117. (New) The method of claim 113, further comprising the steps of:

(i.1) converting the incoming optical signal to a third electrical signal representing data frames in the network hub;

(i.2) selecting a data frame within the third electrical signal; and

(i.3) adapting data in the selected frame for transmission over a switch interface having a Layer 2 or Layer 1 switch interface protocol selected from the group consisting essentially of:

the Ethernet and Fibre Channel protocols.

118. (New) The method of claim 109, wherein one or more of the network terminals are selected from the group consisting essentially of:

a workstation, a personal computer, a disk storage array, a server, a switch, and a router.

119. (New) The method of claim 109, further comprising the step of:

determining a response time delay at the network hub, including the steps of

(a) transmitting a message from the network hub to a network terminal,

(b) processing the message at the network terminal,

(c) transmitting a return message from the network terminal, and

(d) receiving the return message at the network hub.

120. (New) The method of claim 119, further comprising the steps of:

(a) transmitting a representation of the determined response time delay to the network terminal; and

(b) adjusting the transmission timing of the network terminal in reaction to the received representation of the determined response time delay.

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121. (New) The method claim 109, wherein the form factor of the optical ports is selected from the group consisting essentially of:

the optical Multi-Source Agreements (MSA) specifications including XFP, XENPAK, XPAK, and SFP.

122. (New) A method for reducing the requisite number of optical transceivers in a network hub of an optical local area network (LAN), comprising the steps of:

providing an optical transceiver or optical module coupled to a passive optical coupler that is further coupled to a plurality of optical ports;

distributing transmitted optical signals from the optical transceiver to each of the optical ports through the passive optical coupler; and

combining received optical signals from each optical port to the optical transceiver through the passive optical coupler.

whereby the optical ports operate as a connection site that connects an external optical waveguide to the passive optical coupler in lieu of optical transceivers, thereby reducing the requisite number of optical transceivers in a traditional optical LAN hub by the number of optical ports minus one.

123. (New) The method of claim 122, further comprising the steps of:

producing a first electrical signal representing the received optical signal;

producing a transmitted optical signal representing a second electrical signal; and

processing the first and second electric signals in accordance with an OSI Layer 2 or Layer 3 protocol.

124. (New) The method of claim 122, further comprising the steps of:

managing network communications at the network hub;

transmitting data from the network hub to a network terminal in a broadcast time division multiplexed manner;

transmitting data from the network terminal to the network hub in a time division multiple access manner; and

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provisioning bandwidth allocation for all network communications at the network hub.

125. (New) The method of claim 124, wherein the bandwidth allocation includes dynamic bandwidth allocation.

126. (New) The method of claim 124, wherein the bandwidth allocation includes a minimum bandwidth allocation.

127. (New) The method of claim 124, further comprising the steps of:

measuring the received optical signal power level at the network hub;

determining a desired network terminal optical transmission power level adjustment from the measured optical signal power level;

adding data representing the desired network terminal optical transmission power level adjustment to the transmitted data from the network hub to the network terminal; and

adjusting the optical transmission power level at the network terminal responsive to acceptance of the transmitted data.

128. (New) The method of claim 124, further comprising the step of:

determining a delay response time at the network hub, including the steps of

(a) transmitting a message from the network hub to a network terminal;

(b) processing of the message by the network terminal;

(c) transmitting a return message at the network terminal; and

(d) receiving the return message at the network hub.

129. (New) The method of claim 128, further comprising the steps of:

(a) transmitting a representation of the determined response time delay to the network terminal; and

(b) adjusting the transmission timing of the network terminal in reaction to the received representation of the determined response time delay.

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130. (New) The method of claim 122, further comprising:

converting the received optical signal to a third electrical signal representing data frames in the network hub;

selecting a data frame within the third electrical signal; and

adapting data in the selected frame for transmission over a switch interface having a Layer 2 or Layer 1 switch interface protocol selected from the group consisting essentially of:

the Ethernet and Fibre Channel protocols.

131. (New) The method of claim 130, further comprising:

receiving a fourth electrical signal at the switch interface;

converting the fourth electrical signal to an optical signal; and

transmitting the optical signal to a network terminal.

132. (New) The method of claim 122, wherein the form factor of the optical ports is selected from the group consisting essentially of:

the optical Multi-Source Agreements (MSA) specifications including XFP, XENPAK, XPAK, and SFP.

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REMARKS

Introduction: This is a preliminary amendment submitted with a Request for Continued Examination per 35 C.F.R. §1.114. Applicants herewith cancel claims 57-76 and add new claims 77-132 representing selected earlier-submitted claims rewritten to better describe and claim that which Applicants consider to be the invention. Basis for the new claims may be found in original claims and throughout the specifications and drawings, in particular Figs. 1-7 and the associated description at paragraphs 23-51. Claims 77-132 are now in the application. Applicants respectfully request reexamination and reconsideration of the application as amended to include claims 77-132.

Discussion of the Patentability of Claims 59, 64-76: In the Office Action mailed on October 18, 2005, Examiner rejected claims 59 and 64-76 under 35 U.S.C. §112 for the addition of new matter. Applicants respectfully traverse these rejections. The objected-to terms "logical address, network routing, network segmentation and traffic control data" and "physical address, synchronization, error control and flow control data" are copied from the OSI Level 2 specification referenced in paragraphs 30-42 of the specification and in Figs. 2-4, which include the IEEE 802.3 and Fibre Channel specifications by reference at paragraph 31. Thus, the objected-to terms are recited directly from the industry specifications referenced in the disclosure at Paragraph 31, for example. Applicants cancel claims 57-76 herewith and add new claims 77-132 to better describe and claim that which Applicants consider to be the invention. Accordingly, Applicants respectfully suggest that the object-to terms are properly enabled by the specification and drawings and do not fall within the accepted legal definition of new matter.

Discussion of the Patentability of Claims 57, 60, 64-67, 70-72 and 75: In the Office Action mailed on October 18, 2005, Examiner rejected claims 57, 60, 64-67, 70-72 and 75 under 35 U.S.C. §103(a) for unpatentability over an IEEE paper by Modiano *et al.* (the Modiano paper) in view of U.S. Pat. Appl. Publ. No. 2002/0 067 529 filed by Yokomoto *et al.* (Yokomoto '529). Applicants respectfully traverse Examiner's characterization of the cited combination of the Modiano paper and Yokomoto '529, which together neither consider nor suggest network hub appli-

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cations. For example, the Modiano paper and Yokomoto '529 do not suggest ***a hub having an optical transceiver coupled to an internal passive optical coupler that is coupled to a plurality of optical ports*** *and including a plurality of network terminals coupled to the hub optical ports by a plurality of optical waveguides* as claimed by Applicants in new claim 109, for example. Applicants cancel claims 57-76 herewith and add new claims 77-132 representing certain of the cancelled claims rewritten to better describe and claim that which Applicants consider to be the invention. Basis for the new claims may be found in original claims and throughout the specifications and drawings, in particular Figs. 1-7 and the associated description at paragraphs 23-51. Accordingly, Applicants respectfully suggest that new claims 77-132 are patentable over the Modiano Paper in view of Yokomoto '529.

Discussion of the Patentability of Claims 58-59 and 73: In the Office Action mailed on October 18, 2005, Examiner further rejects claims 58-59 and 73 under 35 U.S.C. §103(a) for unpatentability over the Modiano paper and Yokomoto '529 in further view of Hale et al (U.S. Patent 5,572,349) (Hale '349).

Applicants respectfully assert that Examiner has failed to state a proper *prima facie* case for obviousness as defined in M.P.E.P §706.02(j) because Examiner fails to recite any suggestion or motivation in the prior art for modifying and/or combining the Modiano Paper, Yokomoto '529 and Hale '349 references in the manner shown. Applicants respectfully traverse Examiner's assertion that one of ordinary skill in the art would be motivated to modify Modiano Paper and Yokomoto '529 teachings by adding selections from Hale '349's teachings and assert that Applicants' disclosure is the only available source for such motivation. Except for Applicants' disclosure, Examiner recites no other source for motivating such a specific combination of elements.

> ". . .there must have been some **explicit** teaching of suggestion in the art to motivate one of even ordinary skill to combine such elements so as to create the same invention." *Winner International Royalty Corp. v. Wang*, 48 USPQ.2d 1139, 1144 (D.C.D.C. 1998) [Emphasis added].

With regard to the proposed combination of Modiano Paper, Yokomoto '529 in view of Hale '349, Applicants respectfully assert that the proper statement of a *prima facie* case for obvi-

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ousness under 35 U.S.C. §103(a) requires, in addition to the prior-art references themselves, some suggestion in the prior art for their combination. Applicants are unable to find in the Office Action mailed on October 18, 2005, any reference to the requisite prior art suggestion for the proposed combination and accordingly Applicants respectfully traverse Examiner's characterization of the cited combination of the Modiano paper, Yokomoto '529 and Hale '349, which together neither consider nor suggest power leveling in local area network applications.

Applicants cancel claims 57-76 herewith and add new claims 77-132 representing certain of the cancelled claims rewritten to better describe and claim that which Applicants consider to be the invention. Basis for the new claims may be found in original claims and throughout the specifications and drawings, in particular Figs. 1-7 and the associated description at paragraphs 23-51. Accordingly, Applicants respectfully suggest that new claims 77-132 are patentable over the Modiano Paper, Yokomoto '529 in view of Hale '349.

Discussion of the Patentability of Claims 61, 63, 68 and 76: In the Office Action mailed on October 18, 2005, Examiner further rejects claims 61, 63, 68 and 76 under 35 U.S.C. §103(a) over the Modiano paper and Yokomoto '529 in further view of U.S. Pat. Appl. Publ. No. 2003/0091045 filed by Choi *et al.* (Choi '045).

Applicants respectfully traverse Examiner's characterization of the cited combination of the Modiano paper, Yokomoto '529 and Choi '045, which together neither consider nor suggest ***a hub having an optical transceiver coupled to an internal passive optical coupler that is coupled to a plurality of optical ports*** *and including a plurality of network terminals coupled to the hub optical ports by a plurality of optical waveguides* as claimed by Applicants in new claim 109, for example.

Applicants cancel claims 57-76 herewith and add new claims 77-132 representing certain of the cancelled claims rewritten to better describe and claim that which Applicants consider to be the invention. Basis for the new claims may be found in original claims and throughout the specifications and drawings, in particular Figs. 1-7 and the associated description at paragraphs 23-51. Accordingly, Applicants respectfully suggest that new claims 77-132 are patentable over the Modiano Paper and Yokomoto '529 in view of Choi '045.

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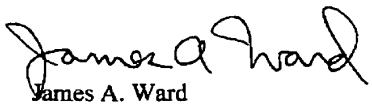
Ex. 1002-2.361

Discussion of the Patentability of Claims 69 and 74: In the Office Action mailed on October 18, 2005, Examiner further rejects claims 69 under 35 U.S.C. §103(a) for unpatentability over the Modiano paper, Yokomoto '529 and Choi '045 in further view of U.S. Pat. Appl. Publ. No. 2002/0163921 filed by Ethridge *et al.* (Ethridge '921); and claim 74 under 35 U.S.C. §103(a) for unpatentability over the Modiano paper and Yokomoto '529 in further view of U.S. Pat. Appl. Publ. No. 2003/0227926 filed by Ramamurthy *et al.* (Ramamurthy '926); Applicants cancel claims 57-76 herewith and add new claims 77-132 representing certain of the cancelled claims rewritten to better describe and claim that which Applicants consider to be the invention. Basis for the new claims may be found in original claims and throughout the specifications and drawings, in particular Figs. 1-7 and the associated description at paragraphs 23-51. As stated above, Applicants respectfully suggest that new claims 77-132 are patentable over all of these cited references, separately and in any combination, absent the showing of a proper *prima facie* case of obviousness as set forth in Manual for Patent Examining Procedure (MPEP) §2142.

Conclusion: Applicants respectfully request examination of the application as amended. The requisite $395 RCE fee per 37 C.F.R. §1.17(e) is attached hereto. A one-month extension of time is requested per 37 C.F.R. §1.136(a) and the requisite petition and $60 fee per 37 C.F.R. §1.17(a)(1) are attached hereto. No additional claim fees are required by this amendment as shown in the attached Fee Determination Record Form PTO/SB/06.

Respectfully submitted,



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Ex. 1002-2.362

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PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a) FY 2005 *(Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).)*	Docket Number (Optional) UBI-005
Application Number 10/886,514	Filed July 06, 2004
For Communication System and Method For An Optical Local Area Network	
Art Unit 2633	Examiner Li, Shi K.

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	
[X]	One month (37 CFR 1.17(a)(1))	$120	$60	$ 60
[ ]	Two months (37 CFR 1.17(a)(2))	$450	$225	$
[ ]	Three months (37 CFR 1.17(a)(3))	$1020	$510	$
[ ]	Four months (37 CFR 1.17(a)(4))	$1590	$795	$
[ ]	Five months (37 CFR 1.17(a)(5))	$2160	$1080	$

[X] Applicant claims small entity status. See 37 CFR 1.27.

02/21/2006 TL0111 00000034 10886514
02 FC:2251 60.00 OP

[ ] A check in the amount of the fee is enclosed.

[X] 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 _____. 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).

[X] attorney or agent of record. Registration Number 34,041

[ ] attorney or agent under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34 _____

James A. Ward — Signature

February 17, 2006 — Date

James A. Ward — Typed or printed name

858-278-0828 — 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 8 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.**

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Ex. 1002-2.363

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PATENT APPLICATION FEE DETERMINATION RECORD
Substitute for Form PTO-875

Application or Docket Number: 10/886,514

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY FEE ($)
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), (i), 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))	56 minus 20 =	* 36	X =	Paid	OR	X =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	5 minus 3 =	* 2	X =	Paid		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))			N/A			N/A	
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	Paid		TOTAL	

APPLICATION AS AMENDED – PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE ($)
AMENDMENT A	Total (37 CFR 1.16(i))	* 56	Minus	** 56	= 0	X =	0	OR	X =	
	Independent (37 CFR 1.16(h))	* 3	Minus	*** 5	= 0	X =	0	OR	X =	
	Application Size Fee (37 CFR 1.16(s))							OR		
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					N/A		OR	N/A	
						TOTAL ADD'L FEE	0	OR	TOTAL ADD'L FEE	

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE ($)
AMENDMENT B	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))					N/A		OR	N/A	
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

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

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

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Ex. 1002-2.364

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Request for Continued Examination (RCE) Transmittal

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

Application Number	10/886,514
Filing Date	July 06, 2004
First Named Inventor	Soto, Alexander I. et al
Art Unit	2633
Examiner Name	Li, Shi K.
Attorney Docket Number	UBI-005

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.
   - a. ☐ The Director is hereby authorized to charge the following fees, any underpayment of fees, or credit any overpayments, to Deposit Account No. _____. I have enclosed a duplicate copy of this sheet.
     - 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 $ _____ enclosed
   - c. ☑ Payment by credit card (Form PTO-2038 enclosed)

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01 FC:2801 395.00 OP

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SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED			
Signature	James A Ward	Date	February 17, 2006
Name (Print/Type)	James A. Ward	Registration No.	34,041

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	James A Ward		
Name (Print/Type)	James A. Ward	Date	18 FEB 06

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.**

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Ex. 1002-2.365

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/886,514	07/06/2004	Alexander I. Soto	17740-007001	8709

50625 7590 10/18/2005

JAMES ALBERT WARD
6924 CAMINO PACHECO
SAN DIEGO, CA 92111

EXAMINER	
LI, SHI K	

ART UNIT	PAPER NUMBER
2633	

DATE MAILED: 10/18/2005

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

PTO-90C (Rev. 10/03)

Office Action Summary	Application No.	Applicant(s)	
	10/886,514	SOTO ET AL.	
	Examiner	Art Unit	
	Shi K. Li	2633	

-- 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 *01 August 2005*.

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) *57-76* 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) *57-76* 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-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

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Ex. 1002-2.367

DETAILED ACTION

Claim Objections

1. Claim 73 is objected to because of the following informalities: In line 9 of the claim, "pf" should read "of". Appropriate correction is required.

Claim Rejections - 35 USC § 112

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

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

3. Claims 59 and 64-76 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 59 recites the limitation "to produce logical address, network routing, network segmentation and traffic control data" in lines 3-4 of the claim. However, the specification as originally filed does not teach the limitation and, therefore, it is considered as new subject matter.

Claim 64 recites the limitation "to produce a processed electrical signal representing physical address, synchronization, error control and flow control data" in lines 14-16 of the claim. However, the specification as originally filed does not teach error control. Claim 65 recites "to produce logical address, network routing, network segmentation and traffic control

data" in lines 3-4 of the claim. However, the specification as originally filed does not teach the limitation and, therefore, it is considered as new subject matter.

Claim 66 recites the limitation "to produce a processed electrical signal representing physical address, synchronization, error control and flow control data" in lines 18-19 of the claim. However, the specification as originally filed does not teach error control. Claim 72 recites "to produce logical address, network routing, network segmentation and traffic control data" in line 4 of the claim. However, the specification as originally filed does not teach the limitation and, therefore, it is considered as new subject matter.

Claim 73 recites the limitation "comparing the incoming optical signal power level to a predetermined power level" in line 5 of the claim. The specification as originally filed does not teach the limitation and, therefore, it is considered as new subject matter.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 57, 60, 62, 64-67, 70-72 and 75 are rejected under 35 U.S.C. 103(a) as being unpatentable over Modiano et al. (E. Modiano et al., "A Novel Medium Access Control Protocol for WDM-Based LAN's and Access Networks Using a Master/Slave Scheduler", Journal of Lightwave Technology, Vol. 18, No. 4, April 2000) in view of Yokomoto et al. (U.S. Patent Application Pub. 2002/0067529 A1).

Regarding claim 57, Modiano et al. discloses in FIG. 1 a local area network (LAN) including a hub (equivalent to network manager of instant claim) and a plurality of optical terminals (equivalent to network client adapters of instant claim). The hub is coupled to the

optical terminals via an optical star coupler with a plurality of ports and fibers. Modiano et al. teaches in p. 461, right col., 4th paragraph that the LAN uses an unslotted MAC protocol. MAC protocol corresponds to layer 2 (link layer) of the OSI reference model. The hub receives signals (scheduling requests) from the optical terminals, processes the signals and broadcasts the processed signal to the optical terminals. The difference between Modiano et al. and the claimed invention is that Modiano et al. does not teach converters for converting incoming optical signal to an electrical signal and converter for converting the processed electrical signal to optical signal. However, Modiano et al. suggests in p. 461, right col., last paragraph to use application specific integrated circuit (ASIC) for the scheduler. Also, it is well known in the art that most computers and processors process data in electrical domain. For example, Yokomoto et al. teaches in FIG. 6 optical line terminator 2 comprising PDS-LT for converting optical signal into electrical signal for processing and for converting processed electrical signal into optical signal for transmitting (see paragraph [0097]). Signal processors such as STM-SW 2-4 and ATM-SW 2-3 of FIG. 6 operate in electrical domain. One of ordinary skill in the art would have been motivated to combine the teaching of Yokomoto et al. with the scheduler based network of Modiano et al. because technology for processing signals in electrical domain is mature and processor for processing signals in electrical domain is widely available and inexpensive. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to include O/E converter for converting optical signals into electrical signals for processing and include E/O converter for converting processed electrical signals into optical signals for transmitting, as taught by Yokomoto et al., in the scheduler based network of Modiano et al.

because technology for processing signals in electrical domain is mature and processor for processing signals in electrical domain is widely available and inexpensive.

Regarding claim 60, Yokomoto et al. teaches in FIG. 6 and paragraph [0084] PDS-LT with optic/electric converting part for converting received broadcast optical signal to a second electrical signal, and interfaces 2-5 and 2-6.

Regarding claim 62, Yokomoto et al. teaches in FIG. 6 and paragraph [0097] PDS-LT with optic/electric converting part for converting incoming optical signal to electrical signal and ATM-SW for selecting data frame for network interface IF 2-5.

Regarding claims 64, 66 and 70, Modiano et al. teaches in p. 464, Section C, scheduling algorithm for assigning slots to requests.

Regarding claim 65, the scheduler/controller of Modiano et al. handles requests from each optical terminal. Therefore, it processes signals according to layer-3 protocol.

Regarding claim 67, Yokomoto et al. teaches in FIG. 6 and paragraphs [0084] and [0087] PDS-LT with optic/electric converting part for converting incoming optical signal to electrical signal and ATM-MDP for selecting data frame for interface IF 1-5.

Regarding claim 71, Modiano et al. teaches in p. 462, right col., first paragraph to measure round-trip delay of each optical terminal.

Regarding claim 72, Modiano et al. teaches to use an unslotted Aloha protocol for the control channel (see p. 462, right col., first paragraph). Aloha is a network layer (ISO layer-3) protocol.

Regarding claim 75, Yokomoto et al. teaches in FIG. 6 and paragraph [0097] PDS-LT with optic/electric converting part for converting incoming optical signal to electrical signal and ATM-SW for selecting data frame for network interface IF 2-5.

6. Claims 58-59 and 73 are rejected under 35 U.S.C. 103(a) as being unpatentable over Modiano et al. and Yokomoto et al. as applied to claims 57, 60, 62, 64-67, 70-72 and 75 above, and further in view of Hale et al. (U.S. Patent 5,572,349).

Modiano et al. and Yokomoto et al. have been discussed above in regard to claims 57, 60, 62, 64-67, 70-72 and 75. The difference between Modiano et al. and Yokomoto et al. and the claimed invention is that Modiano et al. and Yokomoto et al. do not teach power leveling. Hale et al. teaches in FIG. 1 a passive optical network comprising an OLT and a plurality of ONUs. Hale et al. teaches in col. 5, lines 2-10 that the OLT transmits control signals to ONU to adjust launch power. One of ordinary skill in the art would have been motivated to combine the teaching of Hale et al. with the modified LAN of Modiano et al. and Yokomoto et al. because power leveling adjusts the launch power of each ONU such that the received signal from each of them is about the same power level and, therefore, optimizes performance. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide power leveling, as taught by Hale et al., in the modified LAN of Modiano et al. and Yokomoto et al. because power leveling adjusts the launch power of each ONU for optimal performance.

7. Claims 61, 63, 68 and 76 are rejected under 35 U.S.C. 103(a) as being unpatentable over Modiano et al. and Yokomoto et al. as applied to claims 57, 60, 62, 64-67, 70-72 and 75 above, and further in view of Choi et al. (U.S. Patent Application Pub. 2003/0091045 A1).

Modiano et al. and Yokomoto et al. have been discussed above in regard to claims 57, 60, 62, 64-67, 70-72 and 75. The difference between Modiano et al. and Yokomoto et al. and the claimed invention is that Modiano et al. and Yokomoto et al. do not teach an Ethernet protocol. Choi et al. teaches in paragraph [0010] that gigabit Ethernet has relative low production cost and wider bandwidth than ATM and teaches in FIG. 2a to use Ethernet (IEEE 802.3) protocol among optical nodes. One of ordinary skill in the art would have been motivated to combine the teaching of Choi et al. with the modified scheduler based network of Modiano et al. and Yokomoto et al. because gigabit Ethernet has relative low production cost and wider bandwidth than ATM. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use Ethernet protocol for transferring data between nodes, as taught by Choi et al., in the modified scheduler based network of Modiano et al. and Yokomoto et al. because gigabit Ethernet has relative low production cost and wider bandwidth than ATM.

8. Claim 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Modiano et al., Yokomoto et al. and Choi et al. as applied to claims 61, 63 and 68 above, and further in view of Ethridge et al. (U.S. Patent Application Pub. 2002/0163921 A1).

Modiano et al., Yokomoto et al. and Choi et al. have been discussed above in regard to claims 61, 63 and 68. The difference between Modiano et al., Yokomoto et al. and Choi et al. and the claimed invention is that Modiano et al., Yokomoto et al. and Choi et al. do not teach personal computer as a client device. Ethridge et al. teaches in FIG. 4 to connect PC to an optical network unit via Ethernet. One of ordinary skill in the art would have been motivated to apply the modified scheduler based network of Modiano et al., Yokomoto et al. and Choi et al. for connecting PC because PCs are popularly used in office and there is a need for connecting

them to form LAN so that they can exchange information such as emails. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use apply the modified scheduler based network of Modiano et al., Yokomoto et al. and Choi et al. for connecting PC, as taught by Ethridge et al., because PCs are popularly used in office and there is a need for connecting them to form LAN so that they can exchange information such as emails.

9. Claim 74 is rejected under 35 U.S.C. 103(a) as being unpatentable over Modiano et al. and Yokomoto et al. as applied to claims 57, 60, 62, 64-67, 70-72 and 75 above, and further in view of Ramamurthy et al. (U.S. Patent Application Pub. 2003/0227926 A1).

Modiano et al. and Yokomoto et al. have been discussed above in regard to claims 57, 60, 62, 64-67, 70-72 and 75. The difference between Modiano et al. and Yokomoto et al. and the claimed invention is that Modiano et al. and Yokomoto et al. do not teach slot allocation that provides minimum bandwidth. Ramamurthy et al. teaches in paragraph [0018] to reserve bandwidth (slots) so that a minimum bandwidth is guaranteed. One of ordinary skill in the art would have been motivated to combine the teaching of Ramamurthy et al. with the modified scheduler based network of Modiano et al. and Yokomoto et al. because minimum bandwidth ensures each node can send top priority data. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to reserve slots for each node for guaranteeing a minimum bandwidth, as taught by Ramamurthy et al., in the modified scheduler based network of Modiano et al. and Yokomoto et al. because minimum bandwidth ensures each node can send top priority data.

Response to Arguments

10. Applicant's arguments filed 1 August 2005 have been fully considered but they are not persuasive.

The Applicant argues that Modiano and Yokomoto do not suggest a network manager (NM) having a plurality of NM optical ports coupled by means of a passive optical distribution fabric (PODF) to a plurality of network client adapters (NCAs) each coupled to one of a plurality of LAN clients for transferring data in accordance with the Open System Interconnection (OSI) Reference Model Layer-2 protocol as claimed by Applicants in new claims 57-76. The Examiner disagrees. Modiano et al. discloses in FIG. 1 and Section II, *System Architecture* (p. 462), a local area network (LAN) including a hub (equivalent to network manager of instant claim) and a plurality of optical terminals (equivalent to network client adapters of instant claim). The hub is coupled to the optical terminals via an optical star coupler with a plurality of ports and fibers. Modiano et al. teaches in p. 461, right col., 4th paragraph that the LAN uses an MAC protocol. MAC protocol corresponds to layer 2 (link layer) of the OSI reference model.

Conclusion

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

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

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shi K. Li whose telephone number is 571 272-3031. The examiner can normally be reached on Monday-Friday (8:30 a.m. - 5:00 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571 272-3022. 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).

skl
9 October 2005

M. R. SEDIGHIAN
PRIMARY EXAMINER

Notice of References Cited	Application/Control No. 10/886,514	Applicant(s)/Patent Under Reexamination SOTO ET AL.	
	Examiner Shi K. Li	Art Unit 2633	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-5,572,349 A	11-1996	Hale et al.	398/100
	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.

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Index of Claims

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Shi K. Li	2633

√	Rejected	–	(Through numeral) Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

Claim		Date
Final	Original	10/9/05
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Claim		Date
Final	Original	10/9/05
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Claim		Date
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Search Notes

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Examiner	**Art Unit**	
Shi K. Li	2633	

SEARCHED			
Class	Subclass	Date	Examiner
398	58	10/9/05	Sk
398	63	10/9/05	Sk
398	64	10/9/05	Sk

INTERFERENCE SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	DATE	EXMR
Update search	10/9/05	Sk

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Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S2	20630	ethernet and optical	US-PGPUB; USPAT	OR	ON	2005/10/09 08:21
S3	1972	ethernet with switch and optical	US-PGPUB; USPAT	OR	ON	2005/04/21 14:06
S4	864	S3 and @pd<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/25 13:24
S11	8	collision and darcie.in.	US-PGPUB; USPAT	OR	ON	2005/04/21 16:51
S12	80	coupler and schedul$3 with slot	US-PGPUB; USPAT	OR	ON	2005/04/23 08:31
S13	141	(coupler or splitter) and schedul$3 with slot	US-PGPUB; USPAT	OR	ON	2005/04/23 06:54
S14	97	S13 and @pd<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/23 07:34
S15	896	398/58-67.ccls.	US-PGPUB; USPAT	OR	ON	2005/04/23 07:34
S16	159	S15 and @pd<"20030703" and (slot or timeslot)	US-PGPUB; USPAT	OR	ON	2005/04/23 08:32
S17	117	S16 and (coupler or splitter)	US-PGPUB; USPAT	OR	ON	2005/04/23 07:35
S18	60	coupler and schedul$3 with slot and delay	US-PGPUB; USPAT	OR	ON	2005/04/23 08:35
S19	39	S18 and @pd<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/23 08:35
S20	390	coupler and slot and measur$3 with delay	US-PGPUB; USPAT	OR	ON	2005/04/23 08:36
S21	294	S20 and @pd<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/23 08:36
S22	235	optical with (coupler or splitter) and slot and measur$3 with delay	US-PGPUB; USPAT	OR	ON	2005/04/23 08:36
S23	163	S22 and @pd<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/23 09:06
S24	35	ATM and STM and ONU	US-PGPUB; USPAT	OR	ON	2005/04/23 09:07
S27	1051	ethernet with hub and optical	US-PGPUB; USPAT	OR	ON	2005/04/24 06:40
S28	544	S27 and @pd<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/24 07:24
S29	71	S28 and optical with (splitter or coupler)	US-PGPUB; USPAT	OR	ON	2005/04/24 07:02
S33	14	optical with ethernet adj hub	US-PGPUB; USPAT	OR	ON	2005/04/24 07:24
S34	56	optical with ethernet with hub	US-PGPUB; USPAT	OR	ON	2005/04/24 07:24

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S35	26	S34 and @pd<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/24 07:57
S39	12930	barry.in.	US-PGPUB; USPAT	OR	ON	2005/04/24 07:56
S48	81	"10 GbE"	US-PGPUB; USPAT	OR	ON	2005/04/24 08:20
S49	15	S48 and @pd<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/24 09:34
S50	8235	queue$3 same schedul$3	US-PGPUB; USPAT	OR	ON	2005/04/24 09:33
S51	2400	S50 and optical	US-PGPUB; USPAT	OR	ON	2005/04/24 09:34
S52	1360	S51 and @pd<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/24 13:35
S53	36	S50 and optical adj (coupler or splitter)	US-PGPUB; USPAT	OR	ON	2005/04/24 09:45
S58	9	GbE adj switch	US-PGPUB; USPAT	OR	ON	2005/04/24 09:51
S65	14	ethernet adj switch and "E/O"	US-PGPUB; USPAT	OR	ON	2005/04/24 10:04
S66	290	centralized near2 hub	US-PGPUB; USPAT	OR	ON	2005/04/24 12:12
S67	22	S66 and (coupler or splitter)	US-PGPUB; USPAT	OR	ON	2005/04/24 12:16
S71	16	("5299044").URPN.	USPAT	OR	ON	2005/04/24 12:22
S74	327	ethernet and (ONU or (optical adj terminal))	US-PGPUB; USPAT	OR	ON	2005/04/24 13:35
S75	155	S74 and @pd<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/24 14:32
S76	226	client adj2 adapter	US-PGPUB; USPAT	OR	ON	2005/04/24 14:32
S77	119	S76 and @pd<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/24 15:11
S79	7714	fiber adj channel	US-PGPUB; USPAT	OR	ON	2005/04/24 15:10
S80	866	S79 and (coupler or splitter)	US-PGPUB; USPAT	OR	ON	2005/04/24 15:11
S81	578	S80 and @pd<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/24 15:11
S82	58	S81 and hub	US-PGPUB; USPAT	OR	ON	2005/04/24 15:11
S83	668	FC-AL	US-PGPUB; USPAT	OR	ON	2005/04/25 07:49
S84	641	FC-AL and fiber	US-PGPUB; USPAT	OR	ON	2005/04/25 07:49

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S85	639	FC-AL and fiber adj channel	US-PGPUB; USPAT	OR	ON	2005/04/25 07:49
S86	342	S85 and @pd<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/25 07:55
S87	45	S86 and passive	US-PGPUB; USPAT	OR	ON	2005/04/25 07:55
S88	552	S85 and @ad<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/25 07:55
S89	45	S87 and passive	US-PGPUB; USPAT	OR	ON	2005/04/25 07:55
S90	69	S88 and passive	US-PGPUB; USPAT	OR	ON	2005/04/25 15:08
S93	324	guarantee with bandwidth same schedul$3	US-PGPUB; USPAT	OR	ON	2005/04/25 13:28
S94	282	S93 and @ad<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/25 15:41
S95	56	guarantee with bandwidth with minimum same schedul$3	US-PGPUB; USPAT	OR	ON	2005/04/25 13:29
S96	48	S95 and @ad<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/25 13:29
S100	498	loop same fiber adj channel and hub	US-PGPUB; USPAT; USOCR	OR	ON	2005/04/25 15:43
S101	425	S100 and @ad<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/25 16:03
S102	29	loop same fiber adj channel and hub with passive	US-PGPUB; USPAT; USOCR	OR	ON	2005/04/25 16:02
S103	24	S102 and @ad<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/25 15:44
S104	142	star and fiber adj channel and passive	US-PGPUB; USPAT; USOCR	OR	ON	2005/04/25 16:03
S105	123	S104 and @ad<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/25 16:03
S108	16555	sin$7 near3 clock	US-PGPUB; USPAT	OR	ON	2005/10/06 10:48
S109	13607	sin$7 near2 clock	US-PGPUB; USPAT	OR	ON	2005/10/06 10:49
S110	9247	sin$7 near clock	US-PGPUB; USPAT	OR	ON	2005/10/06 10:49
S111	1833	sin$7 near clock and optical	US-PGPUB; USPAT	OR	ON	2005/10/06 10:49
S112	79	sin$7 near clock and "398"/$.ccls.	US-PGPUB; USPAT	OR	ON	2005/10/06 12:56

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S115	0	("H002103").URPN.	USPAT	OR	ON	2005/10/06 13:11
S116	563	398/58,61-64,66-68,70-72.ccls.	USPAT	OR	ON	2005/10/06 13:23
S117	195	S116 and broadcast$3	USPAT	OR	ON	2005/10/06 13:23
S118	768	398/58,61-64,66-68,70-72.ccls.	US-PGPUB; USPAT	OR	ON	2005/10/06 13:23
S119	276	S118 and broadcast$3	US-PGPUB; USPAT	OR	ON	2005/10/06 13:31
S124	22	broadcast adj star	US-PGPUB; USPAT	OR	ON	2005/10/07 09:20
S125	52	("5303078").URPN.	USPAT	OR	ON	2005/10/07 10:11
S126	4191	adjust$3 with power adj level	USPAT	OR	ON	2005/10/07 10:11
S127	144	S126 and star	USPAT	OR	ON	2005/10/07 10:33
S128	5156	"398"/$.ccls. and (range or ranging)	USPAT	OR	ON	2005/10/07 10:34
S129	4536	S128 and (level power)	USPAT	OR	ON	2005/10/07 10:35
S130	214	S129 and (hub OLT)	USPAT	OR	ON	2005/10/07 10:35
S133	93542	ranging and optical	US-PGPUB; USPAT; USOCR	OR	ON	2005/10/07 12:21
S134	735	ranging and "398"/$.ccls.	US-PGPUB; USPAT; USOCR	OR	ON	2005/10/07 13:38
S135	127	S134 and adjust$3 with (power intensity)	US-PGPUB; USPAT; USOCR	OR	ON	2005/10/07 13:32
S136	51	leveling and "398"/$.ccls.	US-PGPUB; USPAT; USOCR	OR	ON	2005/10/07 13:38
S137	46	("4417334").URPN.	USPAT	OR	ON	2005/10/07 13:49
S138	8	("4856023").URPN.	USPAT	OR	ON	2005/10/07 14:52
S140	29	ATM-LAN with ethernet	US-PGPUB; USPAT	OR	ON	2005/10/07 15:11

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APPLICATION NUMBER	PATENT NUMBER	GROUP ART UNIT	FILE WRAPPER LOCATION
10/886,514		2633	28M1

Correspondence Address / Fee Address Change

The following fields have been set to Customer Number 50625 on 09/01/2005

- Correspondence Address

The address of record for Customer Number 50625 is:
JAMES ALBERT WARD
6924 CAMINO PACHECO
SAN DIEGO,CA 92111

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PATENTS
Docket No. UBI-005

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: **Alexander I. Soto et al.**	Group Art Unit: **2633**
Patent Application No.: **10/886,514**	
Filed on: **July 06, 2004**	Examiner: **Li, Shi K.**
For: **Communication System and Method for an Optical Local Area Network**	

Central Facsimile Number **1-571-273-8300**

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-4150

AMENDMENT AND RESPONSE PER 37 C.F.R. §1.111

Responsive to the Office Action mailed on May 03, 2005, please enter the following Amendment in the above-entitled Patent Application.

I hereby certify that this correspondence is being transmitted by facsimile to **1-571-273-8300** Commissioner for Patents, Box 1450, Alexandria, VA 22313-1450 on:
August 01, 2005

James A. Ward
(Applicant, Assignee, Registered Representative)

James A Ward
(Signature)

01 AUG 01
(Date of Signature)

PAGE 1/10 * RCVD AT 8/1/2005 10:14:05 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-6/26 * DNIS:2738300 * CSID:858-278-0358 * DURATION (mm-ss):05-08

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AMENDMENTS TO THE CLAIMS

Kindly enter the claim amendments as set forth in the following claim listing presented in accordance with 37 C.F.R. §1.121(c)(1):

Claims 1-56 are cancelled.

57. (New) In an optical Local Area Network (LAN) including a network manager (NM) having a plurality of NM optical ports coupled by means of a passive optical distribution fabric (PODF) to a plurality of network client adapters (NCAs) each coupled to one of a plurality of LAN clients for transferring data in accordance with the Open Systems Interconnection (OSI) Reference Model Layer-2 protocol, a method for broadcasting data comprising the unordered steps of:

(a) transmitting an incoming optical signal representing data frames from a first NCA to one of the plurality of ports over the PODF;

(b) accepting the incoming optical signal from one of the NM optical ports;

(c) converting the incoming optical signal to a first electrical signal representing the optical signal data;

(d) processing the first electrical signal according to an OSI Layer-2 protocol to produce a first processed electrical signal representing physical address, synchronization, error control and flow control data;

(e) converting the first processed electrical signal to a broadcast optical signal responsive to the physical address, synchronization, error control and flow control data;

(f) coupling the broadcast optical signal to each of the plurality of NM optical ports; and

(g) accepting the broadcast optical signal at a plurality of NCAs.

58. (New) The method of claim 57 further comprising the steps of:

(b.1) measuring the incoming optical signal power level at an NM optical port;

(b.2) determining a NCA optical transmission power level adjustment by comparing the incoming optical signal power level to a predetermined power level;

(d.1) adding data representing the NCA optical transmission power level adjustment to the broadcast optical signal; and

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(g.1) adjusting the optical transmission power level at one of the NCAs responsive to acceptance of the broadcast optical signal.

59. (New) The method of claim 58, further comprising the step of:

(d.1) coupling the first electrical signal to a device that processes the first electrical signal according to an OSI layer-3 protocol to produce logical address, network routing, network segmentation and traffic control data.

60. (New) The method of claim 57, further comprising the steps of:

(g.1) converting the received broadcast optical signal transmission to a second electrical signal representing data frames in a receiving NCA;

(g.2) selecting a data frame within the second electrical signal associated with the receiving NCA; and

(g.3) adapting data in the selected frame for transmission over a network interface having a network interface protocol

61. (New) The method of claim 60, wherein the network interface protocol is selected from the group consisting essentially of the Ethernet and Fibre Channel protocols.

62. (New) The method of claim 57, further comprising the steps of:

(h.1) converting the incoming optical signal to a third electrical signal representing data frames in the NM;

(h.2) selecting a data frame within the third electrical signal; and

(h.3) adapting data in the selected frame for transmission over a network interface having a network interface protocol.

63. (New) The method of claim 62, wherein the network interface protocol is selected from the group consisting essentially of the Ethernet and Fibre Channel protocols.

64. (New) A Network Manager (NM) apparatus comprising:

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a plurality of NM optical ports for transferring optical signals representing both control and message data;

a solitary optical-electrical converter (OEC) having an NM OEC optical port and an NM OEC electrical port with a signal;

a passive optical coupler disposed to communicate between the NM OEC optical port and each of the plurality of NM optical ports;

a control module in electrical communication with the NM OEC electrical port for scheduling the optical signals transferred by the plurality of NM optical ports, including

means for scheduling a slot for accepting an optical signal at an NM optical port, and

means for scheduling a time for transmitting an optical signal from each of the plurality of NM optical ports; and

a data link processor module in electrical communication with the control module for processing the NM OEC electrical port signal according to an OSI Layer-2 protocol to produce a processed electrical signal representing physical address, synchronization, error control and flow control data.

65. (New) The NM apparatus of claim 64, further comprising:

a network processor module in electrical communication with the control module for processing the NM OEC electrical port signal according to an OSI layer-3 protocol to produce logical address, network routing, network segmentation and traffic control data.

66. (New) An optical Local Area Network (LAN) comprising:

a passive optical distribution fabric (PODF) including a plurality of optical waveguides;

a Network Manager (NM) including

a plurality of NM optical ports each coupled to the PODF for transferring optical signals representing both control and message data,

a solitary optical-electrical converter (OEC) having an NM OEC optical port and an NM OEC electrical port with a signal,

a passive optical coupler disposed to communicate between the NM OEC optical port and each of the plurality of NM optical ports,

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a NM control module in electrical communication with the NM OEC electrical port for scheduling the optical signals transferred by the plurality of NM optical ports, including

means for scheduling a slot for accepting an optical signal at an NM optical port, and

means for scheduling a time for transmitting a broadcast optical signal from each of the plurality of NM optical ports, and

a data link processor module in electrical communication with the NM control module for processing the NM OEC electrical port signal according to an Open Systems Interconnection (OSI) Reference Model Layer-2 protocol to produce a processed electrical signal representing physical address, synchronization, error control and flow control data; and

a plurality of Network Client Adapters (NCAs) each including an NCA OEC having

an NCA OEC optical port coupled to the PODF for accepting optical signals from the PODF and

an NCA OEC electrical port coupled to one of a plurality of LAN clients for transferring data in accordance with the OSI Layer-2 protocol.

67. (New) The optical LAN of claim 66, further comprising:

in each NCA OEC,

means for converting an optical signal accepted from the PODF to a second electrical signal representing data frames;

means for selecting a data frame within the second electrical signal associated with the receiving NCA; and

means for adapting data in the selected frame for transmission over a network interface associated with one of the LAN clients.

68. (New) The optical LAN of claim 67, wherein the network interface is selected from the group consisting essentially of the Ethernet and Fibre Channel protocols.

69. (New) The optical LAN of claim 67, wherein each of the plurality of LAN clients

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is selected from the group consisting essentially of:

a workstation, a personal computer, a disk storage array, a server, a switch, and a router.

70. (New) The optical LAN of claim 66, further comprising:

in the NM control module, means for dynamically scheduling a slot for receiving an optical signal from the PODF responsive to a message from one of the NCAs.

71. (New) The optical LAN of claim 66, further comprising:

in the NM control module, means for determining a response delay between the solitary OEC and one of the NCAs.

72. (New) The optical LAN of claim 66, further comprising:

a network processor module in electrical communication with the NM control module for processing an electrical signal from the NM OEC electrical port according to an OSI layer-3 protocol to produce logical address, network routing, network segmentation and traffic control data.

73. (New) The optical LAN of claim 66, further comprising:

in the a NM control module,

means for quantifying the incoming optical signal power level at an NM optical port,

means for determining a NCA optical transmission power level adjustment by comparing the incoming optical signal power level to a predetermined power level, and

means for adding data representing the NCA optical transmission power level adjustment to the broadcast optical signal; and

in each of the NCAs, means coupled to the NCA OEC electrical port for adjusting the NCA OEC optical transmission power level responsive to acceptance pf the broadcast optical signal.

74. (New) The optical LAN of claim 66, further comprising:

in the NM control module, means for making the slot allocations to guarantee a minimum data transfer bandwidth for the NCAs.

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Ex. 1002-2.390

75. (New) The optical LAN of claim 66, further comprising:

in the NM OEC,

means for converting an optical signal accepted from the PODF to a third electrical signal representing data frames;

means for selecting a data frame within the third electrical signal; and

means for adapting data in the selected frame for transmission over a network interface associated with the NM.

76. (New) The method of claim 75, wherein the network interface has a network interface protocol selected from the group consisting essentially of the Ethernet and Fibre Channel protocols.

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Ex. 1002-2.391

REMARKS

Introduction: Applicants herewith cancel claims 1-56 and add new claims 57-76 representing selected earlier-submitted claims rewritten to better describe and claim that which Applicants consider to be the invention. Basis for new claims 57-76 may be found in the original claims 1-56, which are canceled herewith, and throughout the specification and drawing. Claims 57-76 remain in the application. Applicants respectfully request reexamination and reconsideration of claims 57-76.

Discussion of the Rejection of Claims 1-6: In the Office Action mailed on May 03, 2005, Examiner rejects claims 1-6 under 35 U.S.C. §102(b) for anticipation by U.S. Pat. Appl. Publ. No. 2002/0 006 111 filed by Akita *et al.* (Akita '111). Applicants cancel the claims 1-6 herewith.

Discussion of the Rejection of Claims 1, 4-6, 8-27, 29-31, 33-41, 43-45, 47-50, 52 and 55-56: Examiner further rejects claims 1, 4-6, 8-27, 29-31, 33-41, 43-45, 47-50, 52 and 55-56 under 35 U.S.C. §103(a) for unpatentability over an IEEE paper by Modiano *et al.* (the Modiano paper) in view of U.S. Pat. Appl. Publ. No. 2002/0 067 529 filed by Yokomoto *et al.* (Yokomoto '529). Applicants cancel claims 1-56 herewith and add new claims 57-76 representing certain of the cancelled claims rewritten to better describe and claim that which Applicants consider to be the invention. Basis for the new claims may be found in the original claims 7-56, which are canceled herewith, and throughout the specification and drawing.

Applicants respectfully traverse Examiner's characterization of the cited combination of the Modiano paper and Yokomoto '529, which together neither consider or suggest network hub applications. For example, the Modiano paper and Yokomoto '529 do not suggest *a network manager (NM) having a plurality of NM optical ports coupled by means of a passive optical distribution fabric (PODF) to a plurality of network client adapters (NCAs) each coupled to one of a plurality of LAN clients for transferring data in accordance with the Open Systems Interconnection (OSI) Reference Model Layer-2 protocol* as claimed by Applicants in new claims 57-76, for example. Accordingly, Applicants respectfully suggest that new claims 57-76 are patentable over the Modiano Paper in view of Yokomoto '529.

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Discussion of the Rejection of Claims 7, 28, 42 and 53: Examiner further rejects claims 7, 28, 42 and 53 under 35 U.S.C. §103(a) for unpatentability over the Modiano paper and Yokomoto '529 in further view of U.S. Pat. Appl. Publ. No. 2003/0 091 045 filed by Choi *et al.* (Choi '045). Applicants cancel claims 1-56 herewith and add new claims 57-76 representing certain of the cancelled claims rewritten to better describe and claim that which Applicants consider to be the invention. Basis for the new claims may be found in the original claims 7-56, which are canceled herewith, and throughout the specification and drawing.

Applicants respectfully traverse Examiner's characterization of the cited combination of the Modiano paper, Yokomoto '529 and Choi '045, which together neither consider or suggest *a Network Manager (NM) including a plurality of NM optical ports each coupled to the PODF for transferring optical signals representing both control and message data, a solitary optical-electrical converter (OEC) having an NM OEC optical port and an NM OEC electrical port with a signal* in combination with *a passive optical distribution fabric (PODF)* as claimed by Applicants in new claim 66, for example. Accordingly, Applicants respectfully suggest that new claims 57-76 are patentable over the Modiano Paper and Yokomoto '529 in view of Choi '045.

Discussion of the Rejection of Claims 32, 46, 51 and 54: Examiner further rejects claims 32 and 46 under 35 U.S.C. §103(a) for unpatentability over the Modiano paper, Yokomoto '529 and Choi '045 in further view of U.S. Pat. Appl. Publ. No. 2002/0 163 921 filed by Ethridge *et al.* (Ethridge '921); claim 51 under 35 U.S.C. §103(a) for unpatentability over the Modiano paper and Yokomoto '529 in further view of U.S. Pat. Appl. Publ. No. 2003/0 227 926 filed by Ramamurthy *et al.* (Ramamurthy '926); and claim54 under 35 U.S.C. §103(a) for unpatentability over the Modiano paper and Yokomoto '529 in further view of an IEEE paper by Sachs *et al.* (the Sachs paper). Applicants cancel claims 1-56 herewith and add new claims 57-76 representing certain of the cancelled claims rewritten to better describe and claim that which Applicants consider to be the invention. Basis for the new claims may be found in the original claims 7-56, which are canceled herewith, and throughout the specification and drawing. As stated above, Applicants respectfully suggest that new claims 57-76 are patentable over all of these cited references, separately and in any combination permitted under the requirements for making a proper *prima facie* case of obviousness set forth in Manual for Patent Examining Procedure (MPEP) §2142.

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Conclusion: Applicants respectfully request reexamination and reconsideration of the application as amended and solicit allowance of new claims 57-76 at an early date. No fee is required for this Amendment.

Respectfully submitted,

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PATENTS
Docket No. UBI-005

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: **Alexander I. Soto et al.**	Group Art Unit: **2633**
Patent Application No.: **10/886,514**	
Filed on: **July 06, 2004**	Examiner: **Li, Shi K.**
For: **Communication System and Method for an Optical Local Area Network**	

Central Facsimile Number **1-571-273-8300**

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-4150

AMENDMENT AND RESPONSE PER 37 C.F.R. §1.111

Responsive to the Office Action mailed on May 03, 2005, please enter the following Amendment in the above-entitled Patent Application.

I hereby certify that this correspondence is being transmitted by facsimile to **1-571-273-8300** Commissioner for Patents, Box 1450, Alexandria, VA 22313-1450 on:
August 01, 2005

James A. Ward
(Applicant, Assignee, Registered Representative)

James A Ward
(Signature)

01 AUG 01
(Date of Signature)

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AMENDMENTS TO THE CLAIMS

Kindly enter the claim amendments as set forth in the following claim listing presented in accordance with 37 C.F.R. §1.121(c)(1):

Claims 1-56 are cancelled.

57. (New) In an optical Local Area Network (LAN) including a network manager (NM) having a plurality of NM optical ports coupled by means of a passive optical distribution fabric (PODF) to a plurality of network client adapters (NCAs) each coupled to one of a plurality of LAN clients for transferring data in accordance with the Open Systems Interconnection (OSI) Reference Model Layer-2 protocol, a method for broadcasting data comprising the unordered steps of:

(a) transmitting an incoming optical signal representing data frames from a first NCA to one of the plurality of ports over the PODF;

(b) accepting the incoming optical signal from one of the NM optical ports;

(c) converting the incoming optical signal to a first electrical signal representing the optical signal data;

(d) processing the first electrical signal according to an OSI Layer-2 protocol to produce a first processed electrical signal representing physical address, synchronization, error control and flow control data;

(e) converting the first processed electrical signal to a broadcast optical signal responsive to the physical address, synchronization, error control and flow control data;

(f) coupling the broadcast optical signal to each of the plurality of NM optical ports; and

(g) accepting the broadcast optical signal at a plurality of NCAs.

58. (New) The method of claim 57 further comprising the steps of:

(b.1) measuring the incoming optical signal power level at an NM optical port;

(b.2) determining a NCA optical transmission power level adjustment by comparing the incoming optical signal power level to a predetermined power level;

(d.1) adding data representing the NCA optical transmission power level adjustment to the broadcast optical signal; and

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(g.1) adjusting the optical transmission power level at one of the NCAs responsive to acceptance of the broadcast optical signal.

59. (New) The method of claim 58, further comprising the step of:

(d.1) coupling the first electrical signal to a device that processes the first electrical signal according to an OSI layer-3 protocol to produce logical address, network routing, network segmentation and traffic control data.

60. (New) The method of claim 57, further comprising the steps of:

(g.1) converting the received broadcast optical signal transmission to a second electrical signal representing data frames in a receiving NCA;

(g.2) selecting a data frame within the second electrical signal associated with the receiving NCA; and

(g.3) adapting data in the selected frame for transmission over a network interface having a network interface protocol

61. (New) The method of claim 60, wherein the network interface protocol is selected from the group consisting essentially of the Ethernet and Fibre Channel protocols.

62. (New) The method of claim 57, further comprising the steps of:

(h.1) converting the incoming optical signal to a third electrical signal representing data frames in the NM;

(h.2) selecting a data frame within the third electrical signal; and

(h.3) adapting data in the selected frame for transmission over a network interface having a network interface protocol.

63. (New) The method of claim 62, wherein the network interface protocol is selected from the group consisting essentially of the Ethernet and Fibre Channel protocols.

64. (New) A Network Manager (NM) apparatus comprising:

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a plurality of NM optical ports for transferring optical signals representing both control and message data;

a solitary optical-electrical converter (OEC) having an NM OEC optical port and an NM OEC electrical port with a signal;

a passive optical coupler disposed to communicate between the NM OEC optical port and each of the plurality of NM optical ports;

a control module in electrical communication with the NM OEC electrical port for scheduling the optical signals transferred by the plurality of NM optical ports, including

means for scheduling a slot for accepting an optical signal at an NM optical port, and

means for scheduling a time for transmitting an optical signal from each of the plurality of NM optical ports; and

a data link processor module in electrical communication with the control module for processing the NM OEC electrical port signal according to an OSI Layer-2 protocol to produce a processed electrical signal representing physical address, synchronization, error control and flow control data.

65. (New) The NM apparatus of claim 64, further comprising:

a network processor module in electrical communication with the control module for processing the NM OEC electrical port signal according to an OSI layer-3 protocol to produce logical address, network routing, network segmentation and traffic control data.

66. (New) An optical Local Area Network (LAN) comprising:

a passive optical distribution fabric (PODF) including a plurality of optical waveguides;

a Network Manager (NM) including

a plurality of NM optical ports each coupled to the PODF for transferring optical signals representing both control and message data,

a solitary optical-electrical converter (OEC) having an NM OEC optical port and an NM OEC electrical port with a signal,

a passive optical coupler disposed to communicate between the NM OEC optical port and each of the plurality of NM optical ports,

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a NM control module in electrical communication with the NM OEC electrical port for scheduling the optical signals transferred by the plurality of NM optical ports, including

means for scheduling a slot for accepting an optical signal at an NM optical port, and

means for scheduling a time for transmitting a broadcast optical signal from each of the plurality of NM optical ports, and

a data link processor module in electrical communication with the NM control module for processing the NM OEC electrical port signal according to an Open Systems Interconnection (OSI) Reference Model Layer-2 protocol to produce a processed electrical signal representing physical address, synchronization, error control and flow control data; and

a plurality of Network Client Adapters (NCAs) each including an NCA OEC having

an NCA OEC optical port coupled to the PODF for accepting optical signals from the PODF and

an NCA OEC electrical port coupled to one of a plurality of LAN clients for transferring data in accordance with the OSI Layer-2 protocol.

67. (New) The optical LAN of claim 66, further comprising:

in each NCA OEC,

means for converting an optical signal accepted from the PODF to a second electrical signal representing data frames;

means for selecting a data frame within the second electrical signal associated with the receiving NCA; and

means for adapting data in the selected frame for transmission over a network interface associated with one of the LAN clients.

68. (New) The optical LAN of claim 67, wherein the network interface is selected from the group consisting essentially of the Ethernet and Fibre Channel protocols.

69. (New) The optical LAN of claim 67, wherein each of the plurality of LAN clients

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is selected from the group consisting essentially of:

a workstation, a personal computer, a disk storage array, a server, a switch, and a router.

70. (New) The optical LAN of claim 66, further comprising:

in the NM control module, means for dynamically scheduling a slot for receiving an optical signal from the PODF responsive to a message from one of the NCAs.

71. (New) The optical LAN of claim 66, further comprising:

in the NM control module, means for determining a response delay between the solitary OEC and one of the NCAs.

72. (New) The optical LAN of claim 66, further comprising:

a network processor module in electrical communication with the NM control module for processing an electrical signal from the NM OEC electrical port according to an OSI layer-3 protocol to produce logical address, network routing, network segmentation and traffic control data.

73. (New) The optical LAN of claim 66, further comprising:

in the a NM control module,

means for quantifying the incoming optical signal power level at an NM optical port,

means for determining a NCA optical transmission power level adjustment by comparing the incoming optical signal power level to a predetermined power level, and

means for adding data representing the NCA optical transmission power level adjustment to the broadcast optical signal; and

in each of the NCAs, means coupled to the NCA OEC electrical port for adjusting the NCA OEC optical transmission power level responsive to acceptance pf the broadcast optical signal.

74. (New) The optical LAN of claim 66, further comprising:

in the NM control module, means for making the slot allocations to guarantee a minimum data transfer bandwidth for the NCAs.

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Ex. 1002-2.400

75. (New) The optical LAN of claim 66, further comprising:

in the NM OEC,

means for converting an optical signal accepted from the PODF to a third electrical signal representing data frames;

means for selecting a data frame within the third electrical signal; and

means for adapting data in the selected frame for transmission over a network interface associated with the NM.

76. (New) The method of claim 75, wherein the network interface has a network interface protocol selected from the group consisting essentially of the Ethernet and Fibre Channel protocols.

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Ex. 1002-2.401

REMARKS

Introduction: Applicants herewith cancel claims 1-56 and add new claims 57-76 representing selected earlier-submitted claims rewritten to better describe and claim that which Applicants consider to be the invention. Basis for new claims 57-76 may be found in the original claims 1-56, which are canceled herewith, and throughout the specification and drawing. Claims 57-76 remain in the application. Applicants respectfully request reexamination and reconsideration of claims 57-76.

Discussion of the Rejection of Claims 1-6: In the Office Action mailed on May 03, 2005, Examiner rejects claims 1-6 under 35 U.S.C. §102(b) for anticipation by U.S. Pat. Appl. Publ. No. 2002/0 006 111 filed by Akita *et al.* (Akita '111). Applicants cancel the claims 1-6 herewith.

Discussion of the Rejection of Claims 1, 4-6, 8-27, 29-31, 33-41, 43-45, 47-50, 52 and 55-56: Examiner further rejects claims 1, 4-6, 8-27, 29-31, 33-41, 43-45, 47-50, 52 and 55-56 under 35 U.S.C. §103(a) for unpatentability over an IEEE paper by Modiano *et al.* (the Modiano paper) in view of U.S. Pat. Appl. Publ. No. 2002/0 067 529 filed by Yokomoto *et al.* (Yokomoto '529). Applicants cancel claims 1-56 herewith and add new claims 57-76 representing certain of the cancelled claims rewritten to better describe and claim that which Applicants consider to be the invention. Basis for the new claims may be found in the original claims 7-56, which are canceled herewith, and throughout the specification and drawing.

Applicants respectfully traverse Examiner's characterization of the cited combination of the Modiano paper and Yokomoto '529, which together neither consider or suggest network hub applications. For example, the Modiano paper and Yokomoto '529 do not suggest *a network manager (NM) having a plurality of NM optical ports coupled by means of a passive optical distribution fabric (PODF) to a plurality of network client adapters (NCAs) each coupled to one of a plurality of LAN clients for transferring data in accordance with the Open Systems Interconnection (OSI) Reference Model Layer-2 protocol* as claimed by Applicants in new claims 57-76, for example. Accordingly, Applicants respectfully suggest that new claims 57-76 are patentable over the Modiano Paper in view of Yokomoto '529.

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Discussion of the Rejection of Claims 7, 28, 42 and 53: Examiner further rejects claims 7, 28, 42 and 53 under 35 U.S.C. §103(a) for unpatentability over the Modiano paper and Yokomoto '529 in further view of U.S. Pat. Appl. Publ. No. 2003/0 091 045 filed by Choi *et al.* (Choi '045). Applicants cancel claims 1-56 herewith and add new claims 57-76 representing certain of the cancelled claims rewritten to better describe and claim that which Applicants consider to be the invention. Basis for the new claims may be found in the original claims 7-56, which are canceled herewith, and throughout the specification and drawing.

Applicants respectfully traverse Examiner's characterization of the cited combination of the Modiano paper, Yokomoto '529 and Choi '045, which together neither consider or suggest *a Network Manager (NM) including a plurality of NM optical ports each coupled to the PODF for transferring optical signals representing both control and message data, a solitary optical-electrical converter (OEC) having an NM OEC optical port and an NM OEC electrical port with a signal* in combination with *a passive optical distribution fabric (PODF)* as claimed by Applicants in new claim 66, for example. Accordingly, Applicants respectfully suggest that new claims 57-76 are patentable over the Modiano Paper and Yokomoto '529 in view of Choi '045.

Discussion of the Rejection of Claims 32, 46, 51 and 54: Examiner further rejects claims 32 and 46 under 35 U.S.C. §103(a) for unpatentability over the Modiano paper, Yokomoto '529 and Choi '045 in further view of U.S. Pat. Appl. Publ. No. 2002/0 163 921 filed by Ethridge *et al.* (Ethridge '921); claim 51 under 35 U.S.C. §103(a) for unpatentability over the Modiano paper and Yokomoto '529 in further view of U.S. Pat. Appl. Publ. No. 2003/0 227 926 filed by Ramamurthy *et al.* (Ramamurthy '926); and claim54 under 35 U.S.C. §103(a) for unpatentability over the Modiano paper and Yokomoto '529 in further view of an IEEE paper by Sachs *et al.* (the Sachs paper). Applicants cancel claims 1-56 herewith and add new claims 57-76 representing certain of the cancelled claims rewritten to better describe and claim that which Applicants consider to be the invention. Basis for the new claims may be found in the original claims 7-56, which are canceled herewith, and throughout the specification and drawing. As stated above, Applicants respectfully suggest that new claims 57-76 are patentable over all of these cited references, separately and in any combination permitted under the requirements for making a proper *prima facie* case of obviousness set forth in Manual for Patent Examining Procedure (MPEP) §2142.

PAGE 9/10 * RCVD AT 8/1/2005 10:14:05 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-6/26 * DNIS:2738300 * CSID:858-278-0358 * DURATION (mm-ss):05-08

Nokia of America Corporation
IPR2023-00960, Ex. 1002-2
Ex. 1002-2.403

Conclusion: Applicants respectfully request reexamination and reconsideration of the application as amended and solicit allowance of new claims 57-76 at an early date. No fee is required for this Amendment.

Respectfully submitted,

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PAGE 10/10 * RCVD AT 8/1/2005 10:14:05 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-6/26 * DNIS:2738300 * CSID:858-278-0358 * DURATION (mm-ss):05-08

Nokia of America Corporation
IPR2023-00960, Ex. 1002-2
Ex. 1002-2.404

PTO/SB/06 (08-03)
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PATENT APPLICATION FEE DETERMINATION RECORD
Substitute for Form PTO-875

Application or Docket Number: 10/816,514

CLAIMS AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE	SMALL ENTITY FEE	OR	OTHER THAN SMALL ENTITY RATE	OTHER THAN SMALL ENTITY FEE
BASIC FEE (37 CFR 1.16(a))				385	OR		$
TOTAL CLAIMS (37 CFR 1.16(c))	56 minus 20 =	* 36	x $ 09 =	324	OR	x $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(b))	5 minus 3 =	* 2	x $ 43 =	86	OR	x $ =	
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(d))			+ $ =		OR	+ $ =	
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	805	OR	TOTAL	

CLAIMS AS AMENDED – PART II

AMENDMENT A — 8/1/05

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE	SMALL ENTITY ADDITIONAL FEE	OR	OTHER THAN SMALL ENTITY RATE	OTHER THAN SMALL ENTITY ADDITIONAL FEE
Total (37 CFR 1.16(i))	* 20	Minus	** 36	=	x $ =		OR	x $ =	
Independent (37 CFR 1.16(h))	* 3	Minus	*** 5	=	x $ =		OR	x $ =	
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(d))					+ $ =		OR	+ $ =	
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

AMENDMENT B

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE	ADDITIONAL FEE	OR	RATE	ADDITIONAL FEE
Total (37 CFR 1.16(i))	*	Minus	**	=	x $ =		OR	x $ =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	x $ =		OR	x $ =	
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(d))					+ $ =		OR	+ $ =	
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

AMENDMENT C

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE	ADDITIONAL FEE	OR	RATE	ADDITIONAL FEE
Total (37 CFR 1.16(i))	*	Minus	**	=	x $ =		OR	x $ =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	x $ =		OR	x $ =	
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(d))					+ $ =		OR	+ $ =	
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

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

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

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/886,514	07/06/2004	Alexander I. Soto	17740-007001	8709

50625 7590 05/03/2005

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EXAMINER	
LI, SHI K	

ART UNIT	PAPER NUMBER
2633	

DATE MAILED: 05/03/2005

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

Nokia of America Corporation
IPR2023-00960, Ex. 1002-2
Ex. 1002-2.406

Office Action Summary	Application No.	Applicant(s)	
	10/886,514	SOTO ET AL.	
	Examiner	Art Unit	
	Shi K. Li	2633	

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

Period for Reply

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

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

Status

1)☒ Responsive to communication(s) filed on *06 July 2004*.

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) *1-56* 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) *1-56* 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-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Nokia of America Corporation
IPR2023-00960, Ex. 1002-2
Ex. 1002-2.407

DETAILED ACTION

1. 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:

Claim Rejections - 35 USC § 102

2. 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.

3. Claims 1-6 are rejected under 35 U.S.C. 102(e) as being anticipated by Akita et al. (U.S. Patent Application Pub. 2002/0006111 A1).

Regarding claim 1, Akita et al. discloses in FIG. 1 a communication control device with an optical coupler 23 having a plurality of ports. The communication control device receives incoming optical signal from a port, e.g., the port connected to child station 20a. The communication control device converts the receiving signal into electrical signal with signal transmitting and receiving unit 18, and processes the electrical signal with packet checking unit 11, traffic estimating unit 15 and converts the information into a slot allocation information for inserting into the downstream broadcast signal, converts the broadcast signal into optical signal and coupling the broadcast optical signal to coupler 23 for each of the plurality of ports.

Regarding claims 2 and 3, the communication control device processes packet (layer-2) and address (layer-3) information.

Regarding claim 4, Akita et al. teaches in FIG. 8 child station device 60a for converting an electrical client signal into optical signal for transmitting into fiber 24.

Regarding claims 5-6, Akita et al. teaches in FIG. 8 reading-out control unit for controlling the access to the media. Flow control of media access is an OSI layer-2 protocol.

Claim Rejections - 35 USC § 103

4. 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 negatived by the manner in which the invention was made.

5. Claims 1, 4-6, 8-27, 29-31, 33-41, 43-45, 47-50, 52 and 55-56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Modiano et al. (E. Modiano et al., "A Novel Medium Access Control Protocol for WDM-Based LAN's and Access Networks Using a Master/Slave Scheduler", Journal of Lightwave Technology, Vol. 18, No. 4, April 2000) in view of Yokomoto et al. (U.S. Patent Application Pub. 2002/0067529 A1).

Regarding claims 1, 12, 33 and 47, Modiano et al. discloses in FIG. 1 a hub for scheduling transmission in an optical network comprising a plurality of optical terminals, a scheduler/controller and an optical star coupler with a plurality of ports for connecting to the plurality of optical terminals. It receives signals (scheduling requests) from the optical terminals, processes the signals and broadcast the processed signal to the optical terminals via the plurality of ports. The difference between Modiano et al. and the claimed invention is that Modiano et al. does not teach converters for converting incoming optical signal to an electrical signal and converter for converting the processed electrical signal to optical signal. However, Modiano et

al. suggests in p. 461, right col., last paragraph to use application specific integrated circuit (ASIC) for the scheduler. Also, it is well known in the art that most computers and processors process data in electrical domain. For example, Yokomoto et al. teaches in FIG. 6 optical line terminator 2 comprising PDS-LT for converting optical signal into electrical signal for processing and for converting processed electrical signal into optical signal for transmitting (see paragraph [0097]). Signal processors such as STM-SW 2-4 and ATM-SW 2-3 of FIG. 6 operate in electrical domain. One of ordinary skill in the art would have been motivated to combine the teaching of Yokomoto et al. with the scheduler based network of Modiano et al. because technology for processing signals in electrical domain is mature and processor for processing signals in electrical domain is widely available and inexpensive. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to include O/E converter for converting optical signals into electrical signals for processing and include E/O converter for converting processed electrical signals into optical signals for transmitting, as taught by Yokomoto et al., in the scheduler based network of Modiano et al. because technology for processing signals in electrical domain is mature and processor for processing signals in electrical domain is widely available and inexpensive.

Regarding claim 4, Yokomoto et al. teaches in FIG. 6 PDS-LT 1-2B for converting electrical client signals such as signals from the ISDN or ATM-LAN to optical signals.

Regarding claim 5, Yokomoto et al. teaches in FIG. 6 PMDX for multiplexing STM signals and ATM signals together. Multiplexing packets is an OSI layer-2 protocol.

Regarding claim 6, Modiano et al. teaches in page 462, right col., last paragraph access control. Therefore, the modified scheduler based network of Modiano et al. and Yokomoto et al. would have followed an access control protocol for gaining access to the shared medium.

Regarding claims 8 and 9, Modiano et al. teaches in FIG. 1 broadcast star for transmitting the incoming optical signal to the plurality of ports which is connected to the plurality of optical terminals (clients).

Regarding claim 10, Yokomoto et al. teaches in FIG. 6 and paragraph [0084] PDS-LT with optic/electric converting part for converting received broadcast optical signal to a second electrical signal.

Regarding claim 11, Yokomoto et al. teaches in FIG. 6 and paragraph [0085] PMDX for demultiplexing signals and separating frames.

Regarding claim 13, Modiano et al. teaches in FIG. 3 scheduler/controller for scheduling a slot for receiving a signal from an optical terminal. The hub measures the delay time between the optical terminal and the hub. Therefore, scheduling slot for receiving a signal from an optical terminal also schedules a time for broadcasting over the plurality of ports.

Regarding claim 14, the scheduler/controller only needs a single optical-electric converter for converting λ_C.

Regarding claims 15-16, Modiano et al. teaches to use an unslotted Aloha protocol for the control channel (see p. 462, right col., first paragraph). Aloha is a network layer (ISO layer-3) protocol. Of course, processing layer-3 implies processing layer-2.

Regarding claim 17, the modified scheduler based network of Modiano et al. and Yokomoto et al. as described above differs from the claimed in that the modified scheduler based

network uses two fibers (waveguides) for each port, one for signals from the optical terminal to the hub and the other for signals from the hub to the optical terminal. It is well known in the art that bi-directional traffic can share a single fiber using wavelength division multiplexing (WDM) technology. For example, Yokomoto et al. teaches in paragraph [0026] to use WDM so that simultaneous bi-directional traffics share a single fiber. One of ordinary skill in the art would have been motivated to combine the teaching of Yokomoto et al. with the modified scheduler based network of Modiano et al. and Yokomoto et al. because WDM technology reduces the number of fibers for the network and, therefore, reduces the deployment cost of the network. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use WDM technology to provide simultaneous bi-directional traffic in a single fiber, as taught by paragraph [0026] of Yokomoto et al., in the modified scheduler based network of Modiano et al. and Yokomoto et al. because WDM technology reduces the number of fibers for the network and, therefore, reduces the deployment cost of the network.

Regarding claims 18-19 and 52, Modiano et al. teaches in FIG. 1 a broadcast star coupler and a plurality of optical fibers for connecting the hub and the optical terminals.

Regarding claims 20 and 34, Modiano et al. teaches in FIG. 3 scheduler/controller for scheduling a slot for receiving a signal from an optical terminal. The hub measures the delay time between the optical terminal and the hub. Therefore, scheduling slot for receiving a signal from an optical terminal also schedules a time for broadcasting over the plurality of ports.

Regarding claims 21, 35 and 50, Modiano et al. teaches that optical terminal sends schedule request to scheduler based network.

Regarding claims 22, 36 and 49, Modiano et al. teaches in p. 462, right col., first paragraph to measure round-trip delay of each optical terminal.

Regarding claims 23-24 and 37-38, Modiano et al. teaches to use an unslotted Aloha protocol for the control channel (see p. 462, right col., first paragraph). Aloha is a network layer (ISO layer-3) protocol. Of course, processing layer-3 implies processing layer-2.

Regarding claims 25 and 39, Yokomoto et al. teaches in FIG. 6 and paragraph [0084] electric/optic converting part E/O for converting client signal to an optical signal for transmission over an optical waveguide to the hub.

Regarding claims 26 and 40, Yokomoto et al. teaches in FIG. 6 PMDX for multiplexing STM signals and ATM signals together. Multiplexing packets is an OSI layer-2 protocol.

Regarding claims 27 and 41, Modiano et al. teaches in page 462, right col., last paragraph access control. Therefore, the modified scheduler based network of Modiano et al. and Yokomoto et al. would have followed an access control protocol for gaining access to the shared medium.

Regarding claims 29 and 43, Yokomoto et al. teaches in FIG. 6 and paragraph [0084] PDS-LT with optic/electric converting part for converting received broadcast optical signal to a second electrical signal.

Regarding claims 30 and 44, Yokomoto et al. teaches in FIG. 6 and paragraph [0085] PMDX for demultiplexing signals and separating frames.

Regarding claims 31 and 45, Yokomoto et al. teaches interface (IF) 1-5.

Regarding claim 48, Modiano et al. teaches in FIG. 1 scheduler/controller corresponding to internal node of instant claim.

Regarding claim 55, Yokomoto et al. teaches in FIG. 6 and paragraph [0097] PDS-LT with optic/electric converting part O/E and an electric/optic converting part E/O corresponding to optical module of instant claim.

Regarding claim 56, Yokomoto et al. teaches in FIG. 6 and paragraph [0084] PDS-LT with optic/electric converting part O/E and an electric/optic converting part E/O corresponding to optical module of instant claim.

6. Claims 7, 28, 42 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Modiano et al. and Yokomoto et al. as applied to claims 1, 4-6, 8-27, 29-31, 33-41, 43-45, 47-50, 52 and 55-56 above, and further in view of Choi et al. (U.S. Patent Application Pub. 2003/0091045 A1).

Modiano et al. and Yokomoto et al. have been discussed above in regard to claims 1, 4-6, 8-27, 29-31, 33-41, 43-45, 47-50, 52 and 55-56. The difference between Modiano et al. and Yokomoto et al. and the claimed invention is that Modiano et al. and Yokomoto et al. do not teach an Ethernet protocol. Choi et al. teaches in paragraph [0010] that gigabit Ethernet has relative low production cost and wider bandwidth than ATM and teaches in FIG. 2a to use Ethernet (IEEE 802.3) protocol among optical nodes. One of ordinary skill in the art would have been motivated to combine the teaching of Choi et al. with the modified scheduler based network of Modiano et al. and Yokomoto et al. because gigabit Ethernet has relative low production cost and wider bandwidth than ATM. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use Ethernet protocol for transferring data between nodes, as taught by Choi et al., in the modified scheduler based network of Modiano et al. and

Yokomoto et al. because gigabit Ethernet has relative low production cost and wider bandwidth than ATM.

7. Claims 32 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Modiano et al., Yokomoto et al. and Choi et al. as applied to claims 7, 28, 42 and 53 above, and further in view of Ethridge et al. (U.S. Patent Application Pub. 2002/0163921 A1).

Modiano et al., Yokomoto et al. and Choi et al. have been discussed above in regard to claims 7, 28, 42 and 53. The difference between Modiano et al., Yokomoto et al. and Choi et al. and the claimed invention is that Modiano et al., Yokomoto et al. and Choi et al. do not teach personal computer as a client device. Ethridge et al. teaches in FIG. 4 to connect PC to an optical network unit via Ethernet. One of ordinary skill in the art would have been motivated to apply the modified scheduler based network of Modiano et al., Yokomoto et al. and Choi et al. for connecting PC because PCs are popularly used in office and there is a need for connecting them to form LAN so that they can exchange information such as emails. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use apply the modified scheduler based network of Modiano et al., Yokomoto et al. and Choi et al. for connecting PC, as taught by Ethridge et al., because PCs are popularly used in office and there is a need for connecting them to form LAN so that they can exchange information such as emails.

8. Claim 51 is rejected under 35 U.S.C. 103(a) as being unpatentable over Modiano et al. and Yokomoto et al. as applied to claims 1, 4-6, 8-27, 29-31, 33-41, 43-45, 47-50, 52 and 55-56 above, and further in view of Ramamurthy et al. (U.S. Patent Application Pub. 2003/0227926 A1).

Modiano et al. and Yokomoto et al. have been discussed above in regard to claims 1, 4-6, 8-27, 29-31, 33-41, 43-45, 47-50, 52 and 55-56. The difference between Modiano et al. and Yokomoto et al. and the claimed invention is that Modiano et al. and Yokomoto et al. do not teach slot allocation that provides minimum bandwidth. Ramamurthy et al. teaches in paragraph [0018] to reserve bandwidth (slots) so that a minimum bandwidth is guaranteed. One of ordinary skill in the art would have been motivated to combine the teaching of Ramamurthy et al. with the modified scheduler based network of Modiano et al. and Yokomoto et al. because minimum bandwidth ensures each node can send top priority data. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to reserve slots for each node for guaranteeing a minimum bandwidth, as taught by Ramamurthy et al., in the modified scheduler based network of Modiano et al. and Yokomoto et al. because minimum bandwidth ensures each node can send top priority data.

9. Claim 54 is rejected under 35 U.S.C. 103(a) as being unpatentable over Modiano et al. and Yokomoto et al. as applied to claims 1, 4-6, 8-27, 29-31, 33-41, 43-45, 47-50, 52 and 55-56 above, and further in view of Sachs et al. (M. Sachs et al., "Fibre Channel and Related Standards", IEEE Communications Magazine, August 1996).

Modiano et al. and Yokomoto et al. have been discussed above in regard to claims 1, 4-6, 8-27, 29-31, 33-41, 43-45, 47-50, 52 and 55-56. The difference between Modiano et al. and Yokomoto et al. and the claimed invention is that Modiano et al. and Yokomoto et al. do not fiber channel traffic. Sachs et al. teaches in p. 40, left col., third paragraph that fiber channel are commonly used for clustering of working connecting workings to supercomputers and attaching storage subsystem to workstations and supercomputers. One of ordinary skill in the art would

have been motivated to apply the modified scheduler based network of Modiano et al. and Yokomoto et al. for workstations, supercomputers and storage subsystems that conform with fiber channel standard because the scheduler of Modiano is relatively simple and can be easily implemented in a single application specific integrated circuit (see p.461, right col., last paragraph). Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the modified scheduler based network of Modiano et al. and Yokomoto et al. for workstations, supercomputers and storage subsystems that conform with fiber channel standard, as taught by Sachs et al., because the scheduler of Modiano is relatively simple and can be easily implemented in a single application specific integrated circuit.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shi K. Li whose telephone number is 571 272-3031. The examiner can normally be reached on Monday-Friday (8:30 a.m. - 5:00 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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).

skl
26 April 2005

Shi K. Li
Patent Examiner

Notice of References Cited	Application/Control No. 10/886,514	Applicant(s)/Patent Under Reexamination SOTO ET AL.	
	Examiner Shi K. Li	Art Unit 2633	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-2002/0006111	01-2002	Akita et al.	370/235
	B	US-2002/0067529 A1	06-2002	Yokomoto et al.	359/168
	C	US-2002/0163921 A1	11-2002	Ethridge et al.	370/401
	D	US-2003/0091045 A1	05-2003	Choi et al.	370/390
	E	US-2003/0227926	12-2003	Ramamurthy et al.	370/395.42
	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	E. Modiano et al., "A Novel Medium Access Control Protocol for WDM-Based LAN's and Access Networks Using a Master/Slave Scheduler", Journal of Lightwave Technology, Vol. 18, No. 4, April 2000.
	V	M. Sachs et al., "Fibre Channel and Related Standards", IEEE Communications Magazine, August 1996.
	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.

Nokia of America Corporation
IPR2023-00960, Ex. 1002-2
Ex. 1002-2.419

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BIBDATASHEET

Bib Data Sheet

CONFIRMATION NO. 8709

SERIAL NUMBER	FILING OR 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
10/886,514	07/06/2004 RULE	398	2633	17740-007001

APPLICANTS

Alexander I. Soto, San Diego, CA;
Walter G. Soto, San Clemente, CA;

**** CONTINUING DATA **********

This appln claims benefit of 60/485,072 07/03/2003 yes SK
and claims benefit of 60/515,836 10/30/2003

**** FOREIGN APPLICATIONS **********

None SK

IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** SMALL ENTITY **
** 08/21/2004

Foreign Priority claimed	STATE OR COUNTRY	SHEETS DRAWING	TOTAL CLAIMS	INDEPENDENT CLAIMS
☐ yes ☒ no	CA	14	56	5
35 USC 119 (a-d) conditions met ☐ yes ☒ no ☐ Met after Allowance				
Verified and Acknowledged Examiner's Signature SK Initials				

ADDRESS

50625

TITLE

Communication system and method for an optical local area network

FILING FEE RECEIVED	FEES: Authority has been given in Paper	
872	No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

Index of Claims

Application/Control No.	Applicant(s)/Patent under Reexamination
10/886,514	SOTO ET AL.
Examiner	**Art Unit**
Shi K. Li	2633

√	Rejected	–	(Through numeral) Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

Claim		Date								
Final	Original	4/26/05								
	1	✓								
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Claim		Date								
Final	Original	4/26/05								
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IPR2023-00960, Ex. 1002-2
Ex. 1002-2.421

Search Notes

Application/Control No.	Applicant(s)/Patent under Reexamination
10/886,514	SOTO ET AL.
Examiner	**Art Unit**
Shi K. Li	2633

SEARCHED			
Class	Subclass	Date	Examiner
398	58	4/26/05	sk
398	63	4/26/05	sk
398	64	4/26/05	sk

INTERFERENCE SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	DATE	EXMR
EAST Search	4/26/05	sk

Nokia of America Corporation
IPR2023-00960, Ex. 1002-2
Ex. 1002-2.422

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S2	20630	ethernet and optical	US-PGPUB; USPAT	OR	ON	2005/04/21 14:06
S3	1972	ethernet with switch and optical	US-PGPUB; USPAT	OR	ON	2005/04/21 14:06
S4	864	S3 and @pd<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/25 13:24
S10	35	"398"/$.ccls. and frigo.in.	US-PGPUB; USPAT	OR	ON	2005/04/21 16:44
S11	8	collision and darcie.in.	US-PGPUB; USPAT	OR	ON	2005/04/21 16:51
S12	80	coupler and schedul$3 with slot	US-PGPUB; USPAT	OR	ON	2005/04/23 08:31
S13	141	(coupler or splitter) and schedul$3 with slot	US-PGPUB; USPAT	OR	ON	2005/04/23 06:54
S14	97	S13 and @pd<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/23 07:34
S15	896	398/58-67.ccls.	US-PGPUB; USPAT	OR	ON	2005/04/23 07:34
S16	159	S15 and @pd<"20030703" and (slot or timeslot)	US-PGPUB; USPAT	OR	ON	2005/04/23 08:32
S17	117	S16 and (coupler or splitter)	US-PGPUB; USPAT	OR	ON	2005/04/23 07:35
S18	60	coupler and schedul$3 with slot and delay	US-PGPUB; USPAT	OR	ON	2005/04/23 08:35
S19	39	S18 and @pd<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/23 08:35
S20	390	coupler and slot and measur$3 with delay	US-PGPUB; USPAT	OR	ON	2005/04/23 08:36
S21	294	S20 and @pd<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/23 08:36
S22	235	optical with (coupler or splitter) and slot and measur$3 with delay	US-PGPUB; USPAT	OR	ON	2005/04/23 08:36
S23	163	S22 and @pd<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/23 09:06
S24	35	ATM and STM and ONU	US-PGPUB; USPAT	OR	ON	2005/04/23 09:07
S27	1051	ethernet with hub and optical	US-PGPUB; USPAT	OR	ON	2005/04/24 06:40
S28	544	S27 and @pd<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/24 07:24
S29	71	S28 and optical with (splitter or coupler)	US-PGPUB; USPAT	OR	ON	2005/04/24 07:02
S33	14	optical with ethernet adj hub	US-PGPUB; USPAT	OR	ON	2005/04/24 07:24

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Ex. 1002-2.423

S34	56	optical with ethernet with hub	US-PGPUB; USPAT	OR	ON	2005/04/24 07:24
S35	26	S34 and @pd<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/24 07:57
S39	12930	barry.in.	US-PGPUB; USPAT	OR	ON	2005/04/24 07:56
S40	146	S39 and optical and ethernet	US-PGPUB; USPAT	OR	ON	2005/04/24 07:57
S41	79	S40 and @pd<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/24 08:20
S45	78671	803$4	US-PGPUB; USPAT	OR	ON	2005/04/24 08:18
S46	3095	803$4 and ethernet	US-PGPUB; USPAT	OR	ON	2005/04/24 08:18
S47	7	803$4 and GbE	US-PGPUB; USPAT	OR	ON	2005/04/24 08:20
S48	81	"10 GbE"	US-PGPUB; USPAT	OR	ON	2005/04/24 08:20
S49	15	S48 and @pd<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/24 09:34
S50	8235	queue$3 same schedul$3	US-PGPUB; USPAT	OR	ON	2005/04/24 09:33
S51	2400	S50 and optical	US-PGPUB; USPAT	OR	ON	2005/04/24 09:34
S52	1360	S51 and @pd<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/24 13:35
S53	36	S50 and optical adj (coupler or splitter)	US-PGPUB; USPAT	OR	ON	2005/04/24 09:45
S58	9	GbE adj switch	US-PGPUB; USPAT	OR	ON	2005/04/24 09:51
S65	14	ethernet adj switch and "E/O"	US-PGPUB; USPAT	OR	ON	2005/04/24 10:04
S66	290	centralized near2 hub	US-PGPUB; USPAT	OR	ON	2005/04/24 12:12
S67	22	S66 and (coupler or splitter)	US-PGPUB; USPAT	OR	ON	2005/04/24 12:16
S71	16	("5299044").URPN.	USPAT	OR	ON	2005/04/24 12:22
S74	327	ethernet and (ONU or (optical adj terminal))	US-PGPUB; USPAT	OR	ON	2005/04/24 13:35
S75	155	S74 and @pd<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/24 14:32
S76	226	client adj2 adapter	US-PGPUB; USPAT	OR	ON	2005/04/24 14:32
S77	119	S76 and @pd<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/24 15:11

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IPR2023-00960, Ex. 1002-2
Ex. 1002-2.424

S79	7714	fiber adj channel	US-PGPUB; USPAT	OR	ON	2005/04/24 15:10
S80	866	S79 and (coupler or splitter)	US-PGPUB; USPAT	OR	ON	2005/04/24 15:11
S81	578	S80 and @pd<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/24 15:11
S82	58	S81 and hub	US-PGPUB; USPAT	OR	ON	2005/04/24 15:11
S83	668	FC-AL	US-PGPUB; USPAT	OR	ON	2005/04/25 07:49
S84	641	FC-AL and fiber	US-PGPUB; USPAT	OR	ON	2005/04/25 07:49
S85	639	FC-AL and fiber adj channel	US-PGPUB; USPAT	OR	ON	2005/04/25 07:49
S86	342	S85 and @pd<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/25 07:55
S87	45	S86 and passive	US-PGPUB; USPAT	OR	ON	2005/04/25 07:55
S88	552	S85 and @ad<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/25 07:55
S89	45	S87 and passive	US-PGPUB; USPAT	OR	ON	2005/04/25 07:55
S90	69	S88 and passive	US-PGPUB; USPAT	OR	ON	2005/04/25 15:08
S93	324	guarantee with bandwidth same schedul$3	US-PGPUB; USPAT	OR	ON	2005/04/25 13:28
S94	282	S93 and @ad<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/25 15:41
S95	56	guarantee with bandwidth with minimum same schedul$3	US-PGPUB; USPAT	OR	ON	2005/04/25 13:29
S96	48	S95 and @ad<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/25 13:29
S100	498	loop same fiber adj channel and hub	US-PGPUB; USPAT; USOCR	OR	ON	2005/04/25 15:43
S101	425	S100 and @ad<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/25 16:03
S102	29	loop same fiber adj channel and hub with passive	US-PGPUB; USPAT; USOCR	OR	ON	2005/04/25 16:02
S103	24	S102 and @ad<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/25 15:44
S104	142	star and fiber adj channel and passive	US-PGPUB; USPAT; USOCR	OR	ON	2005/04/25 16:03

Nokia of America Corporation
IPR2023-00960, Ex. 1002-2
Ex. 1002-2.425

S105	123	S104 and @ad<"20030703"	US-PGPUB; USPAT	OR	ON	2005/04/25 16:03

Nokia of America Corporation
IPR2023-00960, Ex. 1002-2
Ex. 1002-2.426

PTO/SB/06 (08-03)
Approved for use through 7/31/2006. OMB 0651-0032
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PATENT APPLICATION FEE DETERMINATION RECORD
Substitute for Form PTO-875

Application or Docket Number: 10/886,514

CLAIMS AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE	SMALL ENTITY FEE	OR	OTHER THAN SMALL ENTITY RATE	OTHER THAN SMALL ENTITY FEE
BASIC FEE (37 CFR 1.16(a))				$395	OR		$____
TOTAL CLAIMS (37 CFR 1.16(c))	56 minus 20 =	* 36	x $ 9 =	324	OR	x $____ =	
INDEPENDENT CLAIMS (37 CFR 1.16(b))	5 minus 3 =	* 2	x $ 43 =	86	OR	x $____ =	
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(d))			+ $____ =		OR	+ $____ =	
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	805	OR	TOTAL	

CLAIMS AS AMENDED – PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE	SMALL ENTITY ADDITIONAL FEE	OR	OTHER THAN SMALL ENTITY RATE	OTHER THAN SMALL ENTITY ADDITIONAL FEE
AMENDMENT A	Total (37 CFR 1.16(c))	*	Minus	**	=	x $____ =		OR	x $____ =	
	Independent (37 CFR 1.16(b))	*	Minus	***	=	x $____ =		OR	x $____ =	
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(d))					+ $____ =		OR	+ $____ =	
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	
AMENDMENT B	Total (37 CFR 1.16(c))	*	Minus	**	=	x $____ =		OR	x $____ =	
	Independent (37 CFR 1.16(b))	*	Minus	***	=	x $____ =		OR	x $____ =	
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(d))					+ $____ =		OR	+ $____ =	
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	
AMENDMENT C	Total (37 CFR 1.16(c))	*	Minus	**	=	x $____ =		OR	x $____ =	
	Independent (37 CFR 1.16(b))	*	Minus	***	=	x $____ =		OR	x $____ =	
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(d))					+ $____ =		OR	+ $____ =	
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

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

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

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

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Ex. 1002-2.427

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APPLICATION NUMBER	FILING OR 371 (c) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
10/886,514	07/06/2004	Alexander I. Soto	17740-007001

CONFIRMATION NO. 8709

OC000000015478572

OC000000015478572

50625
JAMES ALBERT WARD
6924 CAMINO PACHECO
SAN DIEGO, CA 92111

Date Mailed: 03/16/2005

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 01/24/2005.

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

KATRINA L HARLING
2600 (571) 272-7254

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APPLICATION NUMBER	FILING OR 371 (c) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
10/886,514	07/06/2004	Alexander I. Soto	17740-007001

CONFIRMATION NO. 8709

OC000000015478522

OC000000015478522

26181
FISH & RICHARDSON P.C.
3300 DAIN RAUSCHER PLAZA
MINNEAPOLIS, MN 55402

Date Mailed: 03/16/2005

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 01/24/2005.

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

KATRINA L HARLING
2600 (571) 272-7254

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UNITED STATES DEPARTMENT OF COMMERCE
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CONFIRMATION NO. 8709

SERIAL NUMBER	FILING OR 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
10/886,514	07/06/2004 RULE	398	2633	17740-007001

APPLICANTS

Alexander I. Soto, San Diego, CA;
Walter G. Soto, San Clemente, CA;

**** CONTINUING DATA **********

This appln claims benefit of 60/485,072 07/03/2003
and claims benefit of 60/515,836 10/30/2003

**** FOREIGN APPLICATIONS **********

IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** SMALL ENTITY **
** 08/21/2004

		STATE OR COUNTRY	SHEETS DRAWING	TOTAL CLAIMS	INDEPENDENT CLAIMS
Foreign Priority claimed ☐ yes ☐ no 35 USC 119 (a-d) conditions met ☐ yes ☐ no ☐ Met after Allowance Verified and Acknowledged Examiner's Signature Initials		CA	14	56	5

ADDRESS

50625

TITLE

Communication system and method for an optical local area network

FILING FEE RECEIVED		
872	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

OIPE JC18 JAN 24 2005 PATENT & TRADEMARK OFFICE

10/886,514

PTO/SB/82 (09-04)
Approved for use through 11/30/2005. OMB 0651-0035
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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REVOCATION OF POWER OF ATTORNEY WITH NEW POWER OF ATTORNEY AND CHANGE OF CORRESPONDENCE ADDRESS

Application Number	10/886,514
Filing Date	July 08, 2004
First Named Inventor	Alexander I. Soto
Art Unit	Unknown
Examiner Name	Unknown
Attorney Docket Number	UBIS-005

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

☐ A Power of Attorney is submitted herewith.

OR

☑ I hereby appoint the practitioners associated with the Customer Number: 000050625

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

☑ The address associated with Customer Number: 000050625

OR

☐ Firm *or* Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Fax			

I am the:

☑ Applicant/Inventor.

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

SIGNATURE of Applicant or Assignee of Record

Signature			
Name	Alexander I. Soto		
Date	1/6/05	Telephone	949-836-5735

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 2 forms are submitted.

This collection of information is required by 37 CFR 1.36. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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

OIPE JC14
JAN 24 2005
PATENT & TRADEMARK OFFICE

PTO/SB/82 (09-04)
Approved for use through 11/30/2005. OMB 0651-0035
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.

REVOCATION OF POWER OF ATTORNEY WITH NEW POWER OF ATTORNEY AND CHANGE OF CORRESPONDENCE ADDRESS

Application Number	10/886,514
Filing Date	July 06, 2004
First Named Inventor	Alexander I. Soto
Art Unit	Unknown
Examiner Name	Unknown
Attorney Docket Number	UBIS-005

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

☐ A Power of Attorney is submitted herewith.

OR

☑ I hereby appoint the practitioners associated with the Customer Number: 000050625

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

☑ The address associated with Customer Number: 000050625

OR

☐ Firm *or* Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Fax			

I am the:

☑ Applicant/Inventor.

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

SIGNATURE of Applicant or Assignee of Record

Signature	Walter Soto		
Name	Walter G. Soto		
Date	1/16/04	Telephone	949-923-5567

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 2 forms are submitted.

This collection of information is required by 37 CFR 1.36. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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

OIPE JC14 OCT 27 2004 PATENT & TRADEMARK OFFICE

Attorney's Docket No.: 17740-007001

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	: Soto et al.	Art Unit	:
Serial No.	: 10/886,514	Examiner	:
Filed	: July 6, 2004		
Title	: COMMUNICATION SYSTEM AND METHOD FOR AN OPTICAL LOCAL AREA NETWORK		

MAIL STOP MISSING PARTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

RESPONSE TO NOTICE TO FILE MISSING PARTS OF APPLICATION

In response to the Notice to File Missing Parts of Application under 37 CFR §1.53(b) mailed August 23, 2004 (copy enclosed), applicant claims small entity status (see 37 CFR 1.27) and submits herewith the following:

- ☒ Payment of the basic filing fee of $395;
- ☒ Payment of the additional/multiple dependent claims fees of $410;
- ☒ Payment of the surcharge of $65 for late filing of the basic filing fee and/or declaration;
- ☒ A check in the total amount of $870 is attached;
- ☒ A Combined Declaration and Power of Attorney in compliance with 37 CFR §1.63;
- ☒ Other: Request for Corrected Official Filing Receipt (1 page); Copy of Official Filing Receipt with requested change marked in red.

CERTIFICATE OF MAILING BY FIRST CLASS MAIL

I hereby certify under 37 CFR §1.8(a) that this correspondence is being deposited with the United States Postal Service as first class mail with sufficient postage on the date indicated below and is addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

10/25/04
Date of Deposit

Terri L. Knox
Signature

Terri L. Knox
Typed or Printed Name of Person Signing Certificate

It is understood that this perfects the application and no additional papers or filing fees are required. Please apply any other charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

Date: October 25, 2004

Paul A. Pysher
Reg. No. 40,780

Fish & Richardson P.C.
225 Franklin Street
Boston, MA 02110-2804
Telephone: (617) 542-5070
Facsimile: (617) 542-8906

20962903.doc

OIPE JC14 OCT 27 2004 PATENT & 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 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371 (c) DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NUMBER
10/886,514	07/06/2004	Alexander I. Soto	17740-007001

CONFIRMATION NO. 8709

26181
FISH & RICHARDSON P.C.
3300 DAIN RAUSCHER PLAZA
MINNEAPOLIS, MN 55402

FORMALITIES LETTER

OC000000013609304

Date Mailed: 08/23/2004

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

Filing Date Granted

Items Required To Avoid Abandonment:

An application number and filing date have been accorded to this application. The item(s) indicated below, however, are missing. Applicant is given **TWO MONTHS** from the date of this Notice within which to file all required items and pay any fees required below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

- The statutory basic filing fee is missing.
  Applicant must submit $ **770** *to complete the basic filing fee for a non-small entity. If appropriate, applicant may make a written assertion of entitlement to small entity status and pay the small entity filing fee (37 CFR 1.27).*
- The oath or declaration is missing.
  A properly signed oath or declaration in compliance with 37 CFR 1.63, identifying the application by the above Application Number and Filing Date, is required.
- To avoid abandonment, a late filing fee or oath or declaration surcharge as set forth in 37 CFR 1.16(e) of $130 for a non-small entity, must be submitted with the missing items identified in this letter.

The applicant needs to satisfy supplemental fees problems indicated below.

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

• Additional claim fees of **$820** as a non-small entity, including any required multiple dependent claim fee, are required. Applicant must submit the additional claim fees or cancel the additional claims for which fees are due.

SUMMARY OF FEES DUE:

Total additional fee(s) required for this application is **$1720** for a Large Entity

- **$770** Statutory basic filing fee.
- **$130** Late oath or declaration Surcharge.

```
10/28/2004 RMEBRAHT 00000113 061050    10886514
01 FC:2001                            395.00 OP
02 FC:2051                             65.00 OP
03 FC:2202                            324.00 OP
04 FC:2201          2.00 DA            86.00 OP
```

Nokia of America Corporation
IPR2023-00960, Ex. 1002-2
Ex. 1002-2.435

- Total additional claim fee(s) for this application is **$820**
  - **$172** for **2** independent claims over 3.
  - **$648** for **36** total claims over 20.

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

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

Customer Service Center
Initial Patent Examination Division (703) 308-1202
PART 2 - COPY TO BE RETURNED WITH RESPONSE

OIPE JC14 OCT 27 2004 PATENT & TRADEMARK OFFICE

Attorney's Docket No.: 17740-007001
Client's Ref. No.:

COMBINED DECLARATION AND POWER OF ATTORNEY

As a below named inventor, I hereby declare that:

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

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled COMMUNICATION SYSTEM AND METHOD FOR AN OPTICAL LOCAL AREA NETWORK, the specification of which:

[] is attached hereto.
[X] was filed on July 6, 2004 as Application Serial No. 10/886,514 and was amended on _____.
[] was described and claimed in PCT International Application No. _____ filed on _____ and as amended under PCT Article 19 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 all information I know to be material to patentability in accordance with Title 37, Code of Federal Regulations, §1.56.

I hereby claim the benefit under Title 35, United States Code, §119(e)(1) of any United States provisional application(s) listed below:

U.S. Serial No.	Filing Date	Status
60/485,072	July 3, 2003	
60/515,836	October 30, 2003	

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

U.S. Serial No.	Filing Date	Status

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate or of any PCT international application(s) designating at least one country other than the United States of America listed below and have also identified below any foreign application for patent or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application(s) of which priority is claimed:

Country	Application No.	Filing Date	Priority Claimed
			[ ] Yes [ ] No
			[ ] Yes [ ] No

Combined Declaration and Power of Attorney

I hereby appoint the following attorneys and/or agents to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

Mark D. Kirkland, Reg. No. 40,048
David J. Goren, Reg. No. 34,609
Mary Ann Dillahunty, Reg. No. 34,576
Paul A. Pysher, Reg. No. 40,780
Jennifer A. Zanocco, Reg. No. 54,563
Roger S. Borovoy, Reg. No. 20,193
Hans R. Troesch, Reg. No. 36,950
Tim H. Pham, Reg. No. 48,589
Kelvin M. Vivian, Reg. No. 53,727
Brian J. Gustafson, Reg. No. 52,978

Direct all telephone calls to MARK D. KIRKLAND at telephone number (650) 839-5070.

Direct all correspondence to the following:

26181
PTO Customer Number

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 patents issued thereon.

Full Name of Inventor: ALEXANDER I. SOTO
Inventor's Signature: Alexander Soto Date: 9/21/04
Residence Address: San Diego, California
Citizenship: United States
Post Office Address: 7673 Hazard Center Drive
San Diego, California 92108

Full Name of Inventor: WALTER G. SOTO
Inventor's Signature: Walter Soto Date: 9/21/04
Residence Address: San Clemente, CA
Citizenship: United States
Post Office Address: 2020 Costero Hermoso
San Clemente, CA 92673

Nokia of America Corporation
IPR2023-00960, Ex. 1002-2
Ex. 1002-2.438

OIPE JC14 OCT 27 2004 PATENT & TRADEMARK OFFICE

Attorney's Docket No.: 17740-007001

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Soto et al. Art Unit :
Serial No. : 10/886,514 Examiner :
Filed : July 6, 2004
Title : COMMUNICATION SYSTEM AND METHOD FOR AN OPTICAL LOCAL AREA NETWORK

MAIL STOP MISSING PARTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

RESPONSE TO NOTICE TO FILE MISSING PARTS OF APPLICATION

In response to the Notice to File Missing Parts of Application under 37 CFR §1.53(b) mailed August 23, 2004 (copy enclosed), applicant claims small entity status (see 37 CFR 1.27) and submits herewith the following:

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- ☒ Payment of the additional/multiple dependent claims fees of $410;
- ☒ Payment of the surcharge of $65 for late filing of the basic filing fee and/or declaration;
- ☒ A check in the total amount of $870 is attached;
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CERTIFICATE OF MAILING BY FIRST CLASS MAIL

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10/25/04
Date of Deposit

Terri L. Knox
Signature

Terri L. Knox
Typed or Printed Name of Person Signing Certificate

It is understood that this perfects the application and no additional papers or filing fees are required. Please apply any other charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

Date: October 25, 2004

Paul A. Pysher
Reg. No. 40,780

Fish & Richardson P.C.
225 Franklin Street
Boston, MA 02110-2804
Telephone: (617) 542-5070
Facsimile: (617) 542-8906

20962903.doc

OIPE JC14 OCT 27 2004 PATENT & 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 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371 (c) DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NUMBER
10/886,514	07/06/2004	Alexander I. Soto	17740-007001

CONFIRMATION NO. 8709

26181
FISH & RICHARDSON P.C.
3300 DAIN RAUSCHER PLAZA
MINNEAPOLIS, MN 55402

FORMALITIES LETTER

OC000000013609304

Date Mailed: 08/23/2004

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

Filing Date Granted

Items Required To Avoid Abandonment:

An application number and filing date have been accorded to this application. The item(s) indicated below, however, are missing. Applicant is given **TWO MONTHS** from the date of this Notice within which to file all required items and pay any fees required below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

- The statutory basic filing fee is missing.
  Applicant must submit $ **770** *to complete the basic filing fee for a non-small entity. If appropriate, applicant may make a written assertion of entitlement to small entity status and pay the small entity filing fee (37 CFR 1.27).*
- The oath or declaration is missing.
  A properly signed oath or declaration in compliance with 37 CFR 1.63, identifying the application by the above Application Number and Filing Date, is required.
- To avoid abandonment, a late filing fee or oath or declaration surcharge as set forth in 37 CFR 1.16(e) of $130 for a non-small entity, must be submitted with the missing items identified in this letter.

The applicant needs to satisfy supplemental fees problems indicated below.

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

• Additional claim fees of **$820** as a non-small entity, including any required multiple dependent claim fee, are required. Applicant must submit the additional claim fees or cancel the additional claims for which fees are due.

SUMMARY OF FEES DUE:

Total additional fee(s) required for this application is **$1720** for a Large Entity

- **$770** Statutory basic filing fee.
- **$130** Late oath or declaration Surcharge.

```
10/28/2004 RMEBRAHT 00000113 061050    10886514
01 FC:2001                            395.00 OP
02 FC:2051                             65.00 OP
03 FC:2202                            324.00 OP
04 FC:2201          2.00 DA            86.00 OP
```

Nokia of America Corporation
IPR2023-00960, Ex. 1002-2
Ex. 1002-2.441

- Total additional claim fee(s) for this application is **$820**
  - **$172** for **2** independent claims over 3.
  - **$648** for **36** total claims over 20.

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

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

Customer Service Center
Initial Patent Examination Division (703) 308-1202
PART 2 - COPY TO BE RETURNED WITH RESPONSE

OIPE
OCT 27 2004
PATENT & TRADEMARK OFFICE

Attorney's Docket No.: 17740-007001

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	: Soto et al.	Art Unit	:
Serial No.	: 10/886,514	Examiner	:
Filed	: July 6, 2004		
Title	: COMMUNICATION SYSTEM AND METHOD FOR AN OPTICAL LOCAL AREA NETWORK		

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

REQUEST FOR CORRECTED OFFICIAL FILING RECEIPT

Please correct the Filing Receipt for the above-referenced application to include the "Small Entity" status as requested on the application transmittal letter filed July 6, 2004, and also noted on the Response to Notice to File Missing Parts being filed concurrently.

Please supply a corrected Filing Receipt to the undersigned with respect to this application. A copy of the original Filing Receipt showing the desired changes in red ink is attached for your convenience.

No fee is believed to be due. If, however, there are any charges or credits, please apply them to Deposit Account No. 06-1050.

Respectfully submitted,

Date: October 25, 2004

Paul A. Pysher
Reg. No. 40,780

Fish & Richardson P.C.
225 Franklin Street
Boston, MA 02110-2804
Telephone: (617) 542-5070
Facsimile: (617) 542-8906

20962887.doc

CERTIFICATE OF MAILING BY FIRST CLASS MAIL
I hereby certify under 37 CFR §1.8(a) that this correspondence is being deposited with the United States Postal Service as first class mail with sufficient postage on the date indicated below and is addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

10/25/04
Date of Deposit

Signature

Terri L. Knox
Typed or Printed Name of Person Signing Certificate

MDK
EJM

OIPE JC148 OCT 27 2004 PATENT & TRADEMARK

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPL NO.	FILING OR 371 (c) DATE	ART UNIT	FIL FEE REC'D	ATTY.DOCKET NO	DRAWINGS	TOT CLMS	IND CLMS
10/886,514	07/06/2004	2661	0.00	17740-007001	14	56	5

RECEIVED AUG 27 2004 PRACTICE SYSTEMS

CONFIRMATION NO. 8709

FILING RECEIPT

OC000000013609303

26181
FISH & RICHARDSON P.C.
3300 DAIN RAUSCHER PLAZA
MINNEAPOLIS, MN 55402

Date Mailed: 08/23/2004

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

DOCKETED BY PRACTICE SYSTEMS
ACTION CODE: Corr Offr
BASE DATE: 23 Aug 2004
DUE DATE: 23 Sept 2004
DEADLINE:
INITIALS: DB
RECORD:

Applicant(s)

Alexander I. Soto, Residence Not Provided;
Walter G. Soto, Residence Not Provided;

Domestic Priority data as claimed by applicant

This appln claims benefit of 60/485,072 07/03/2003
and claims benefit of 60/515,836 10/30/2003

Foreign Applications

If Required, Foreign Filing License Granted: 08/21/2004

Projected Publication Date: To Be Determined - pending completion of Missing Parts

Non-Publication Request: No

Docketed By Billing Secretary
Due Date:
Deadline:
Initials:

Early Publication Request: No

** SMALL ENTITY **

Title

Communication system and method for an optical local area network

Preliminary Class

370

LICENSE FOR FOREIGN FILING UNDER
Title 35, United States Code, Section 184
Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Office of Export Administration, Department of Commerce (15 CFR 370.10 (j)); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NUMBER	FILING OR 371 (c) DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NUMBER
10/886,514	07/06/2004	Alexander I. Soto	17740-007001

CONFIRMATION NO. 8709

26181
FISH & RICHARDSON P.C.
3300 DAIN RAUSCHER PLAZA
MINNEAPOLIS, MN 55402

FORMALITIES LETTER

OC000000013609304

Date Mailed: 08/23/2004

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

Filing Date Granted

Items Required To Avoid Abandonment:

An application number and filing date have been accorded to this application. The item(s) indicated below, however, are missing. Applicant is given **TWO MONTHS** from the date of this Notice within which to file all required items and pay any fees required below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

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  Applicant must submit $ **770** *to complete the basic filing fee for a non-small entity. If appropriate, applicant may make a written assertion of entitlement to small entity status and pay the small entity filing fee (37 CFR 1.27).*
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  A properly signed oath or declaration in compliance with 37 CFR 1.63, identifying the application by the above Application Number and Filing Date, is required.
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SUMMARY OF FEES DUE:

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- **$770** Statutory basic filing fee.
- **$130** Late oath or declaration Surcharge.

- Total additional claim fee(s) for this application is **$820**
  - **$172** for **2** independent claims over 3.
  - **$648** for **36** total claims over 20.

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

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

B-H

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

PART 3 - OFFICE COPY

21861 U.S.PTO
070604

FISH & RICHARDSON P.C.

Frederick P. Fish
1855-1930

W.K. Richardson
1859-1951

500 Arguello Street
Suite 500
Redwood City, California
94063-1526

Telephone
650 839-5070

Facsimile
650 839-5071

Web Site
www.fr.com

22278 U.S.PTO
10/886514
070604

July 6, 2004

Attorney Docket No.: 17740-007001

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

Presented for filing is a new patent application claiming priority from a provisional patent application of:

Applicant: ALEXANDER I. SOTO AND WALTER G. SOTO

Title: COMMUNICATION SYSTEM AND METHOD FOR AN OPTICAL LOCAL AREA NETWORK

FR

BOSTON
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Enclosed are the following papers, including those required to receive a filing date under 37 CFR §1.53(b):

	Pages
Specification	20
Claims	9
Abstract	1
Declaration	[To be Filed at a Later Date]
Drawing(s)	14

Enclosures:

— Cover Sheet (1 page).
— Small entity statement. This application is entitled to small entity status.
— Postcard.

Under 35 USC §119(e)(1), this application claims the benefits of prior U.S. provisional applications 60/485,072, filed July 3, 2003 and 60/515,836, filed October 30, 2003.

Under 37 CFR §1.53(f), no filing fee is being paid at this time.

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APPLICATION

FOR

UNITED STATES LETTERS PATENT

TITLE: COMMUNICATION SYSTEM AND METHOD FOR AN OPTICAL LOCAL AREA NETWORK

APPLICANT: ALEXANDER I. SOTO AND WALTER G. SOTO

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COMMUNICATION SYSTEM AND METHOD FOR AN OPTICAL LOCAL AREA NETWORK

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims the benefit of U.S. Provisional Application No. 60/485,072 filed July 3, 2003, incorporated herein by reference, and U.S. Provisional Application No. 60/515,836 filed October 30, 2003, incorporated herein by reference.

FIELD OF THE INVENTION

[0002] The present invention relates to optical fiber networks.

BACKGROUND OF THE INVENTION

A local-area network (LAN) is a computer network that spans a relatively small area. Most LANs are confined to a single building or group of buildings. However, one LAN can be connected to other LANs over any distance often spanning an area greater than either LAN via telephone lines, coaxial cable, optical fiber, free-space optics and radio waves. A system of LANs connected in this way is commonly referred to as a wide-area network (WAN).

SUMMARY OF THE INVENTION

[0003] In general, in one aspect, the invention includes a method for broadcasting data including receiving an incoming optical signal at a first port of a plurality of ports; converting the received incoming optical signal to an electrical signal; processing the electrical signal; converting the processed electrical signal to a broadcast optical signal; and coupling the broadcast optical signal to each of the plurality of ports.

[0004] Aspects of the invention may include one or more of the following features. Processing the electrical signal includes coupling the electrical signal to a device that processes the electrical signal according to an OSI layer-2 protocol. Processing the electrical signal includes coupling the electrical signal to a device that processes the electrical signal according to an OSI layer-3 protocol. The method further includes converting an electrical client signal to the incoming optical signal. The method further includes adapting the electrical client signal from a signal conforming to an OSI

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layer-2 protocol. The OSI layer-2 protocol includes a media access control protocol. The media access control protocol is Ethernet or Fibre Channel. The method further includes transmitting the incoming optical signal from a network client adapter to one of the plurality of ports over an optical distribution fabric. The method further includes transmitting the broadcast optical signal from one of the plurality of ports over an optical distribution fabric; and receiving the broadcast optical signal at network client adapters in a plurality of clients. The method further includes converting the received broadcast optical signal to a second electrical signal in at least one of the clients. The method further includes selecting a frame within the second electrical signal associated with the network client adapter and adapting data in the selected frame for transmission over a network interface.

[0005] In general, in another aspect, the invention includes an apparatus including a plurality of ports; a passive optical coupler coupled to each of the plurality of ports; an optical-electrical converter in optical communication with the passive optical coupler; and a control module in electrical communication with the optical-electrical converter for scheduling slots for incoming and outgoing signals over the plurality of ports.

[0006] Aspects of the invention may include one or more of the following features. The control module is operable to schedule a slot for receiving a signal over one of the plurality of ports and to schedule a slot for broadcasting a signal over each of the plurality of ports. The apparatus includes only a single optical-electrical converter in optical communication with the passive optical coupler. The control module is coupled to a device that is operable to process an electrical signal provided by the optical-electrical converter according to an OSI layer-2 protocol. The control module is coupled to a device that is operable to process an electrical signal provided by the optical-electrical converter according to an OSI layer-3 protocol.

[0007] In general, in another aspect, the invention includes an optical local area network including a plurality of optical waveguides; a network manager that includes an optical-electrical converter in optical communication with the plurality of optical waveguides; and a control module in electrical communication with the optical-electrical converter for scheduling slots for incoming and outgoing signals transmitted over the plurality of optical waveguides; and a plurality of network client adapters coupled to the

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plurality of optical waveguides, each network client adapter including an optical-electrical converter for processing transmitted and received optical signals at a client.

[0008] Aspects of the invention may include one or more of the following features. The optical local area network further includes a passive optical coupler coupled to each of the plurality of optical waveguides. The network manager further includes a passive optical coupler coupled to each of the plurality of optical waveguides. The control module is operable to schedule a slot for receiving a signal over one of the plurality of optical waveguides and to schedule a slot for broadcasting a signal over each of the plurality of optical waveguides. The control module is operable to dynamically schedule a slot for receiving a signal over one of the plurality of optical waveguides in response to a message from one of the network client adapters. The control module is operable to determine a response delay between the optical-electrical converter and one of the network client adapters. The control module is coupled to a device that is operable to process an electrical signal provided by the optical-electrical converter according to an OSI layer-2 protocol. The control module is coupled to a device that is operable to process an electrical signal provided by the optical-electrical converter according to an OSI layer-3 protocol. Each of the network client adapters is operable to convert an electrical client signal to an optical signal for transmission over one of the optical waveguides. Each of the network client adapters is operable to adapt the client signal from a signal conforming to an OSI layer-2 protocol. The OSI layer-2 protocol includes a media access control protocol. The media access control protocol used by a network client adapter is Ethernet or Fibre Channel. Each of the network client adapters is operable to convert a received optical signal to an electrical signal. Each network client adapter is operable to select a frame within the electrical signal associated with the network client adapter. The optical local area network further includes a client that includes a network interface card, the network interface card including one of the network client adapters. The client is selected from the group consisting of a workstation, a personal computer, a disk storage array, a server, a switch, and a router.

[0009] In general, in another aspect, the invention includes an optical local area network including a passive optical distribution fabric interconnecting a plurality of nodes including a first node and a plurality of remaining nodes; a hub that includes the

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first node and a control module; and a client network adapter coupled to each of the remaining nodes for responding to the control module; wherein the control module controls timing for each of the client network adapters to transmit signals over the passive optical distribution fabric and distribution of signals to each of the nodes.

[0010] Aspects of the invention may include one or more of the following features. The control module is operable to schedule a slot for receiving a signal from one of the remaining nodes and to schedule a slot for broadcasting a signal to each of the remaining nodes. The control module is operable to dynamically schedule a slot for receiving a signal from one of the remaining nodes in response to a message from one of the network client adapters. The control module is operable to determine a response delay between the hub and one of the network client adapters. The control module is coupled to a device that is operable to process signals according to an OSI layer-2 protocol. The control module is coupled to a device that is operable to process signals according to an OSI layer-3 protocol. Each of the network client adapters is operable to convert an electrical signal to an optical signal for transmission over the passive optical transmission fabric. Each of the network client adapters is operable to adapt a signal conforming to an OSI layer-2 protocol. The OSI layer-2 protocol includes a media access control protocol. The media access control protocol used by a network client adapter is Ethernet or Fibre Channel. Each of the network client adapters is operable to convert a received optical signal to an electrical signal. Each network client adapter is operable to select a frame within the electrical signal associated with the network client adapter. The optical local area network further includes a client that includes a network interface card, the network interface card including one of the network client adapters. The client is selected from the group consisting of a workstation, a personal computer, a disk storage array, a server, a switch, and a router.

[0011] In general, in another aspect, the invention includes an optical local area network including a hub; a plurality of external nodes interconnected by a passive optical distribution fabric, wherein the external nodes are located external to the hub, and the hub is operable to control traffic across all nodes; adaptors at each external node responsive to hub instruction; and an interface coupled to the hub coupling signals received from any individual external node for distribution to all external nodes.

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[0012] Aspects of the invention may include one or more of the following features. The hub includes an internal node coupled to the passive optical distribution fabric. The hub is operable to measure response delay between the hub and external nodes. The hub is operable to allocate slots for external nodes dynamically. Slot allocations are made to guarantee external nodes have a minimum bandwidth. The optical local area network further includes splitters coupled between the hub and external nodes. Traffic arriving at one or more external nodes includes Ethernet traffic. Traffic arriving at one or more external nodes includes Fibre channel traffic. The hub includes an optical module. At least one of the external nodes is located within an optical module external to the hub.

[0013] Implementations of the invention may include one or more of the following advantages. A network manager in an optical local area network can provide switching functions of a hub, a switch or a router. A switch configuration in which network managers are aggregated enables a high performance network in a compact apparatus. Connectivity of network managers and network client adapters to existing conventional routers and switches using industry standard form factor optical modules enables a high performance network upgrade with minimal new equipment. A network client switch can support multiple physical layer ports without necessarily requiring a Layer-2 MAC or switching elements and the associated routing tables and packet memory. The number of optical transceivers and switching elements used to sustain the same number of computing nodes in a LAN via a point-to-multipoint optically coupled network configuration is reduced, thus saving the majority of expense described above.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] FIG. 1 is a block diagram of an optical local area network.

[0015] FIGS. 2, 3A and 3B are schematic diagrams showing frame structures.

[0016] FIG. 4 is a flowchart for a network operating process.

[0017] FIG. 5 is a flowchart for a response delay process.

[0018] FIGS. 6A – 6C are diagrams of optical local area networks utilizing a hub configuration.

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[0019] FIGS. 7A-7D are diagrams of optical local area networks utilizing a switch configuration.

[0020] FIG. 8 is a diagram of an optical local area network.

[0021] FIGS. 9A and 9B are block diagrams of switches.

DETAILED DESCRIPTION

[0022] Referring to **FIG. 1**, a high-level schematic of an optical local area network **50** includes a network manager (NM) **100** at the head end of a passive optical distribution fabric (ODF) **102**. The NM **100** acts as a central transmission point and an overall controlling device for the optical local area network **50**. On another end, the ODF **102** is terminated by a plurality of (in one implementation, generally similar) network client adapters (NCAs) **104A, 104B, 104C**. Herein the NCA **104A**, NCA **104B**, NCA **104C**, are also referred to collectively as NCAs **104**. Though three NCAs **104** are shown more or fewer NCAs may be included in the optical local area network **50**.

[0023] The NM **100** transmits/receives data to/from the NCAs **104** in the form of modulated optical light signals of known wavelength through the ODF **102**. The transmission mode of the data sent over the ODF **102** may be continuous, burst or both burst and continuous modes. Both NM **100** and NCAs **104** may transmit light signals having a same wavelength. In one implementation, the light signals are polarized and the polarization of light transmitted by the NM **100** is perpendicular to the polarization of the light transmitted by the NCAs **104**. Alternatively, the transmissions can be made in accordance with a time-division multiplexing scheme or similar protocol.

[0024] In another implementation, bi-directional wavelength-division multiplexing (WDM) may be used. Bi-directional WDM is herein defined as any technique by which two optical signals having different wavelengths may be simultaneously transmitted bi-directionally with one wavelength used in each direction over a single fiber. In yet another implementation, bi-directional dense wavelength-division multiplexing (DWDM) may be used. Bi-directional DWDM is herein defined as any technique by which more than two optical signals having different wavelengths may be simultaneously transmitted bi-directionally with more than one wavelength used in each direction over a single fiber with each wavelength unique to a direction. For

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example, if bi-directional WDM is used, the NM **100** may transmit data to an NCA **104A, 104B, 104C** utilizing a first wavelength of modulated light conveyed via a fiber **105A, 105B, 105C**, respectively, in the ODF **102** and, similarly, the NCAs **104A, 104B, 104C** may transmit data via the same fiber **105A, 105B, 105C**, respectively, in the ODF **102** to the NM **100** utilizing a second wavelength of modulated light. Because only a single fiber is used (e.g., between the NM **100** and each respective NCA **104**), this type of transmission system is commonly referred to as a bi-directional transmission system. Although the optical local area network **50** illustrated in **FIG. 1** includes an NM **100** in communication with a plurality of NCAs **104** using a plurality of fibers, other implementations of optical local area networks **50** may be used. In some implementations, the NCAs **104** are generally similar. In other implementations, the NCAs **104** may differ in one or more aspects.

[0025] The NM **100** includes network management communication logic and memory (NM-CLM) **106** block, a network management optical interface (NM Optical Interface) **108** block and an optical distribution fabric interface (ODF Interface) **110** block. The NM-CLM **106** includes a network manager engine (NM Engine) **112** block, a transmit framer (Tx Framer) **114** block and a receive framer (Rx Framer) **115** block.

[0026] The NM Engine **112** is a control module that performs various processing and scheduling functions of an NM **100**. The Tx Framer **114** frames outgoing data from the NM Engine **112** in accordance with a framing protocol that is in-use. The Rx Framer **115** receives incoming frames and recovers appropriate data and messages to pass on to the NM Engine **112**. The NM Optical Interface **108** is controlled by the NM-CLM **106** using, for example, bus **109**. The NM Optical Interface **108** converts electrical signals carrying data from the Tx Framer **114** to optical signals, for example, by modulating a laser (not shown) included in the NM Optical Interface **108** and transmitting the laser output to the ODF interface **110**. The NM Optical Interface **108** also receives optical signals from the ODF interface **110** and converts the optical signals to electrical signals carrying data that is then transferred to the Rx Framer **115**. Thus, the NM Optical Interface **108** functions as an "optical-electrical converter" that can convert a signal from an optical signal to electrical signal or from an electrical signal to an optical signal.

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[0027] The ODF Interface **110** includes an optical splitter **116** and a plurality of ODF Ports **117A, 117B, 117C**, etc. For example, the optical splitter **116** can be a 1:*n* splitter (where *n* is at least 2) that splits light coming from the NM Optical Interface **108** into *n* portions of light coupled into *n* optical ports, respectively. The optical ports (e.g., ODF Ports **117**) can be coupled to one or more optical waveguides. In one implementation, each ODF Port **117** is coupled to an optical waveguide. The optical waveguides can be, for example, single mode or multimode fibers that guide received/transmitted light to/from respective ODF Ports **117A, 117B, 117C**, etc. The 1:*n* splitter (or equivalently, *n*:1 combiner) also directs light from any of the ODF Ports **117A, 117B, 117C**, etc. received over one of the optical waveguides to the NM Optical Interface **108**. ODF Ports **117A, 117B, 117C**, etc. include optical fiber connector sockets (e.g., SC, LC, FC, ST, or MU connector sockets) for coupling to the optical waveguides.

[0028] The ODF **102** can include any of a variety of passive optical components including optical fibers (e.g., single mode fibers, multimode fibers), optical connectors, fiber splices, passive branching components (e.g., passive splitters) and passive optical attenuators.

[0029] In this implementation, the NCAs **104** each include a network client communication logic and memory (NC-CLM) **120** block, a network client optical interface (NC Optical Interface) **122** block and an ODF port **124**. The NC-CLM **120** block includes an Adaptation Unit **126** block, a network client engine (NC Engine) **128** block, a transmit framer (Framer) **130** block and a receiver framer (Deframer) **131** block. The NC Engine **128** is a control module that performs various functions associated with an NCA **104**, such as responding to messages from the NM **100**. The Framer **130** frames outgoing data from the NC Engine **128** in accordance with a framing protocol that is in-use. The Deframer **131** receives incoming frames and recovers appropriate data and messages to pass on to the NC Engine **128**. The adaptation unit **126** receives and transmits data and messages in the form of frames, packets or cells according to one or more external protocol(s). External controls, data and messages can be received using the network interface **136**. The responsibilities of the adaptation unit **126** may include providing buffering, data and/or message filtering and translation between the external protocol(s) and the protocol of the optical local area network **50**. The adaptation Unit

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126 includes egress queue **132** block and ingress queue **133** block. Egress and ingress queues **132, 133** can be of the form of memory and are used for buffering receive and transmit data and messages, respectively. The adaptation unit **126** can filter out or drop data and/or messages that are not intended to egress through its network interface **136**. Filtering can be based on the destination address of the data and/or messages according to the external protocol in-use. Additionally, the adaptation unit **126** can filter out or drop data and/or messages that are not intended to ingress through its network interface **136**. Filtering can be based on equal values for the source and destination addresses of the data and/or messages according to the external protocol in-use. The NC Optical Interface **122** is controlled by the NC-CLM **128** using bus **134**. The NC Optical Interface **122** converts electrical signals carrying data from the Framer **130** block to optical signals, for example, by modulating a laser (not shown) included in the NC Optical Interface **122** and transmitting the laser output to the ODF port **124**. The NC Optical Interface **122** also receives optical signals from the ODF port **124** and converts the optical signals to electrical signals carrying data that is then transferred to the Deframer **131** block. The ODF port **124** includes an optical fiber connector socket (e.g., an SC, LC, FC ST, or MU connector socket).

[0030] The NCAs **104** can be coupled to data link layer devices (not shown) or physical layer devices (not shown) using network interface **136**. The data link layer devices and physical layer devices are network devices that operate at a Layer-2 or Layer-1 respectively, according to the Open Systems Interconnect (OSI) 7-layer reference model. Furthermore, these network devices may comply with industry standard specifications such as IEEE 802.3 and Fibre Channel (incorporated herein by reference). Consequently, the network interface **136** may be an MII, GMII, XGMII, XAUI or SPI type interface. Other Layer-2 and Layer-1 type interface specifications may also be used.

[0031] The optical local area network **50** transfers data between an NM **100** and the NCAs **104** in the form of downstream frames (NM **100** to NCAs **104**) and upstream "virtual frames" (NCAs **100** to NM **104**). Downstream frames from the NM **100** are transmitted into the ODF **102** in an essentially continuous sequence of constant period frames. In one implementation, downstream frames have a period of 125 μs, and transfer data downstream at a rate of approximately 10 Gb/s, although other periods and rates

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may be used. The ODF Interface **110** and potentially the ODF **102** split the downstream transmissions passively so that all NCAs **104** receive the frames in a generally broadcast manner. In the upstream direction, separate transmissions from the plurality of NCAs **104** are transmitted as burst transmissions or in slots which are combined in a virtual frame so that the separate burst transmissions do not collide when they arrive at the NM **100**. In one implementation, the virtual upstream frames have essentially the same period as the downstream frames, and upstream data transmissions are transmitted at a rate approximately equal to the downstream rate. Alternatively, different upstream and downstream rates may be used.

[0032] **FIG. 2** is a schematic timing and framing diagram, showing overall structure of a downstream frame **200**, and a virtual upstream frame **202** in an implementation of a framing protocol. Referring now to **FIG.s 1** and **2**, each downstream frame **200** includes a header **204** and a payload section **206**. The downstream header **204** includes a downstream synchronization (DS Sync) **208** section, a station management **210** section, two sections containing the number of NCAs **104** in communication with the NM **100** (# of NCAs) **212**, **214** and an upstream slot allocation (US slot allocation) **216** section. The DS Sync **208** section includes a consecutive sequence of bits that enables receiving NCAs **104** to identify a beginning of the downstream frame **200** and thus acts as starting marker for frame timing throughout the optical local area network **50**. The number of NCAs **104** in communication with the NM is sent twice **212, 214** to ensure correct interpretation of the US slot allocation section **216**. The order of downstream header sections **210, 212, 214, 216** after a DS Sync **208** may differ in other implementations.

[0033] During each network period **218** defined by respective adjacent downstream headers, each NCA **104** is able to send upstream data. The virtual upstream frame **202** is partitioned into slots, where a "slot" corresponds to a fixed number of bits or a fixed length of time within a virtual frame. For each network period **218**, the NM **100** allocates each NCA **104** respective slots within which an NCA is able to transmit data upstream. Each slot allocation includes a start slot number and end slot number (also referred to as start time and end time), relative to the starting marker defined by a DS Sync **208** from the next network period after an NCA **104** receives a slot allocation. In

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alternative implementations, a start slot number and a length of time during which a specific NCA **104** is permitted to transmit may be sent instead of a start slot number and an end slot number. Slot allocation start and end numbers are allocated within the virtual upstream frame so that slot allocations do not overlap, ensuring that there are no collisions of data from different NCAs **104** at the NM **100**. The allocations can be determined by the NM Engine **112** based on total upstream bandwidth requests and can be communicated to NCAs **104** in the downstream frame US slot allocation **216** section. The US slot allocation **216** section includes start and end slot numbers pertaining to and identified to specific NCAs **104** (as shown in **220** and **222**). Slot allocations assigned to NCAs **104** can be dynamic and may be changed from network period to network period.

[0034] The upstream frame **224** includes header **226** and payload **228** sections. The header **226** includes a preamble **230** section, a frame delimiter (Delimiter) **232** section and a station management **234** section. The preamble **230** section includes a consecutive sequence of bits designed to aid an NM **100** in synchronizing to the bit clock of a respective transmitting NCA **104**. The Delimiter **232** includes a consecutive sequence of bits designed to aid an NM **100** in synchronizing to and recognizing the beginning of an upstream frame **224**.

[0035] Each downstream frame **200** and upstream frame **224** includes a payload section **206**, **228** respectively, in which data to and from NCAs **104** (from the network interface **136**) are transferred. **FIG. 3A** is a schematic showing the payload in downstream and upstream framing, showing that the payload of both upstream and downstream may contain a single adaptation data unit (ADU) **300**. ADUs **300** are output units of data from an adaptation unit **126**, where the adaptation unit **126** has processed data received from the network interface **136** for transfer across the optical local network **50**. For example, in one implementation the adaptation unit **126** receives Ethernet media access control frames (MAC frames) via a GMII interface (as an implementation for the network interface **136**) and removes the MAC frame's preamble and start of frame delimiter (SFD) fields with the remaining fields of the MAC frame encapsulated in an ADU **300**. Additionally, in one implementation the adaptation unit **126** receives Fibre Channel (FC) FC-2 frames through a serial interface (as an implementation of the

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network interface **136**) and removes the FC-2 frame's start of frame and end of frame fields with the remaining fields of the FC-2 frame encapsulated in an ADU **300**.

[0036] In another example, the adaptation unit **126** can receive IEEE 802.3 MAC frames via a GMII interface and form an ADU **300** with the entire MAC frame included (i.e., encapsulate the entire MAC frame). In yet another example, the adaptation unit **126** can receive FC-2 frames through a serial interface (as an implementation for the network interface **136**) and form an ADU 300 with the entire FC-2 frame included (i.e., encapsulate the entire FC-2 frame).

[0037] In one implementation, the payload **204, 232** of downstream frames **200** and upstream frames **224** may include multiple consecutive sub-frames. Referring to **FIG.s 1** and **3B**, a sub-frame includes a sub-frame header **302** section and a sub-frame payload **304** section. A sub-frame header **302** section includes a payload length indicator (PLI) **308** and cyclic redundancy check (CRC) **310** section that covers the PLI **308**. CRC sections, although not shown, may be used in the downstream **200** and upstream **224** frames as well. The sub-frame payload **304** section includes a type **312** section, a CRC **314** that relates to the type **312** section, a payload data unit (PDU) **316** and optionally a CRC **318** that relates to the PDU **316**. The PLI **308** gives an indication of the length, e.g., in bits, of the sub-frame payload **304** section immediately following the sub-frame header **302**. The type **312** section gives an indication of the type of data in the PDU **316**. An adaptation unit **126** may receive data from a mixture of protocols essentially simultaneously (as described below) and the use of sub-frames allows the data to be transferred across the network ensuring quality of service or class of service. An adaptation unit **126** uses sub-frames by placing received data in the PDU **316**, indicating the type of data received in the type **312** section and entering the length of the sub-frame payload **304** in the PLI **308** section.

[0038] The optical local area network **50** operates according to an exemplary process illustrated in **FIG. 4**. Referring now to **FIG.s 1** and **4**, after an NM **100** is powered on **400**, the NM **100** sends out **402** one or more message(s) requesting new NCAs **104** (NCAs **104** that the NM **100** is unaware of) to identity themselves by reporting to the NM **100** with their respective serial number. The NM **100** also sends out **402** network parameters including initial NCA transmit power levels using, for example,

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a station management message(s). The NCAs **104** respond using slot allocation(s) given by the NM **100** for new NCAs **104** to respond. After successfully receiving new NCA serial numbers, the NM **100** assigns each new NCA **104** a network identification number (NC-ID) and requests **404** the new NCA **104** to adjust its transmitting power level. In one implementation, the NM **100** sends these requests in a station management message. The respective new NCAs **104** use the assigned NC-ID to interpret specific messages of concern (i.e., addressed) to a given NCA **104**. The NM **100** initiates **406** a response delay process to determine the delay in responses between the new NCA and the NM **100**. After performing **419** the response delay process, the NM **100** enters normal operation in which network data is transmitted and received **408** across the optical local area network **50**.

[0039] When an NCA **104** is powered on **410**, the NCA **104** attempts to synchronize **412** to downstream frames by searching for the DS Sync **208**. After successful downstream synchronization, the NCA **104** interprets **414** network parameters received via downstream station management messages **404**, adjusts its initial transmit power level and awaits instructions (e.g., a message) for new NCAs **104**. The instructions include a slot allocation for new NCAs **104** to respond **416** to the NM **100** with the NCA's **104** serial number. Once the NCA **104** has sent its serial number the NCA **104** is then assigned an NC-ID by the NM **100**. The NCA **104** then enters a waiting loop (e.g., for a station management message from the NM **100** to adjust its transmit power level). In response to a request to set transmit power level, the NCA **104** adjusts the transmit power level **418**. The NCA **104** then enters a waiting loop again (e.g., until receipt of a message from the NM **100** to initiate a response delay process). Upon receipt of an instruction to begin a response delay process, the NCA **104** can, in cooperation with the NM **100**, determine the delay between the respective network elements (not shown as part of the process flow). The details of the response delay process are described in greater detail below. After the NCA **104** and NM **100** complete the response delay process, the NCA **104** may adjust **420** its alignment with the network period to account for downstream and upstream transmission delay. The NCA **104** then enters its normal operation state in which network data is received and transmitted **422**.

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[0040] **FIG. 5** shows one implementation for executing a response delay process **500**. The response delay process **500**, is a process to determine the delay in NM downstream transmission to NM upstream reception of a message or network data transmission. Referring now to **FIG.s 1, 2** and **5**, the NM **100** starts **501** the delay process with a new NCA **104** or with an NCA **104** that may cause upstream transmission collisions. The NM **100** assigns one or more slot(s) to the target NCA **104** (i.e., the new NCA or one NCA that may cause a collision in upstream communication) to respond with a response delay message. The NM **100** generates **502** a silence period in the upstream virtual frame **202** (e.g., by not assigning or granting any slots for that period) around the slot(s) assigned to the target NCA **104**. The silence period ensures no upstream collisions will occur. The NM **100** sends **504** a message to the NCA **104** to respond with a response delay message and informs the NCA **104** of its slot(s) assignment to respond. Thereafter, the NCA **104** responds **506** to the NM **100** at the appropriate slot time. The NM **100** receives the NCA **104** response delay message and calculates **508** the transmission delay. In one implementation, the NM **100** transmits **510** the result of the response delay calculation to the NCA **104** and the NCA **104** aligns **512** itself to the proper network period.

[0041] The NM **100** may assign, schedule or grant slot allocations in a number of ways (e.g. according to fixed time-division multiplex or statistical time-division multiplex schemes). In one implementation the slot allocations are scheduled to give the NCs **104** a guaranteed minimum upstream transfer rate. The rate may be determined by dividing the maximum upstream data rate by the number of NCAs **104**. In another implementation, the NM **100** receives status information about the NCAs **104** egress **132** and ingress **133** queue status. The NM **100** can schedule slot allocations that best minimize the depth of the egress **132** and ingress **133** queues to minimize transmission delays ensuring quality of service (QOS) or class of service (COS).

[0042] **FIG.s 6A – 6C, 7A – 7C** and **8** are illustrations of implementations of the optical local area network **50**. In one implementation shown in **FIG. 6A**, an NM **100** may function in a hub configuration **600** networking clients including workstations **602**, personal computers (PC) **604** and Ethernet switches **618** together using the Ethernet protocol. The workstations **602** and PCs **604** are connected to the hub configuration **600**

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with a network interface card (NIC) **606** containing an NCA **104** and a NIC controller **608**. In one implementation of the NIC **606**, the NIC controller **608** includes a GMII interface, an Ethernet MAC and a peripheral component interconnect (PCI) bus interface. The NCA **104** communicates to the NIC controller **608** through the GMII interface. Ethernet switches **618** are connected to the hub configuration **600** with a network adaptor **621A** containing an NCA **104**. Ethernet switches **618** can be conventional Ethernet switches. In one implementation of the network adaptor **621A**, the network interface **136** is a GMII interface.

[0043] In another implementation shown in **FIG. 6B**, the hub configuration **600** can network disk storage array devices **612**, servers **614** and FC switches **619** together using the Fibre Channel (FC) protocol. This implementation may be described as a Storage Area Network (SAN). The disk storage array devices **612** and servers **614** are connected to the hub configuration **600** with a host bust adaptor (HBA) **607**. In one implementation of HBA **607**, the HBA controller **609** includes a serial interface, FC controller and a PCI bus interface. FC switches **619** are connected to the hub configuration **600** with a network adaptor **621B** containing an NCA **104**. FC switches **619** can be conventional FC switches. In one implementation of the network adaptor **621B**, the network interface **136** is a serial interface.

[0044] In yet another implementation of the optical local area network **50** shown in **FIG. 6C**, the hub configuration **600** may network clients such as workstations **602**, PCs **604**, disk storage array devices **612**, servers **614** and switches **618, 619 (FIG. 6B)** using both Ethernet and FC protocols concurrently. NICs **606** can connect a particular client to the hub configuration **600** using the Ethernet protocol. HBAs **607** can connect a particular client to the hub configuration **600** using the FC protocol. For example, workstations **602**, PCs **604** and switches **618** can communicate with the hub configuration **600** using Ethernet protocol while disk storage array devices **612** and servers **614** can communicate with the hub configuration **600** using FC protocol. The ODF **102** (not shown) of the optical local area network **50** can include splitters **620**. Hub configuration **600** can also connect to a switch **618** using an adaptor card **621A**. Adaptor card **621A** includes an NCA **104** with a respective network interface **136** (e.g., GMII,

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XAUI, Serial). Switch **618** may be, for example, a switch in a conventional Ethernet LAN **622**.

[0045] One or more NMs **100** can interface to a switching device (e.g., a Layer-2 switch or a Layer-3 switch) to process frames from the various NCAs **104** according to a communication protocol of the switching device. Referring to **FIG. 7A**, a switch configuration **704** includes multiple NMs **100A, 100B, 100C** in communication with a Layer-2 switch device **700** which is in further communication with an uplink port **702**. In alternative implementations, the Layer-2 switch device **700** may be in communication with a plurality of uplink ports (not shown). Though three NMs **100A, 100B, 100C** are shown more or fewer NMs **100** may be in communication with a Layer-2 switch device **700** included in the switch configuration **704**. Each NM **100A, 100B, 100C** includes an adaptation unit **706** in communication with a NM Engine (not shown). The adaptation unit **706** receives and transmits data and messages in the form of frames, packets or cells according to the Layer-2 switch device **700** via a switch interface **708**. Adaptation unit **706** can provide buffering, data and/or message filtering and translation between the protocol of the Layer-2 switch device **700** and the protocol of the optical local area network **50**. The adaptation unit **706** includes an egress queue block (not shown) and an ingress queue block (not shown). Egress and ingress queues can be of the form of memory and are used for buffering receive and transmit data and messages, respectively. In one implementation of the NMs **100A, 100B, 100C**, all upstream traffic received by an NM **100** is passed through the switch interface **708** to the Layer-2 switch device **700**. All downstream traffic transmitted by an NM **100** is received by the NM **100** through the switch interface **708**. In another implementation upstream traffic received by an NM **100** can be filtered based on destination address to either pass data and/or messages back to one or more NCAs **104** multiplexed in downstream traffic (e.g. hairpinning) or to the Layer-2 switch device **700** through the switch interface **708**. The fiber connections **105** form a first ODF for connecting NM **100A** with one or more NCAs. The fiber connections **710** form a second ODF for connecting NM **100B** with one or more NCAs. The fiber connections **712** form a third ODF for connecting NM **100C** with one or more NCAs.

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[0046] In one implementation of an optical local area network **50** shown in **FIG. 7A**, the switch configuration **704** is used to network workstations **602**, PCs **604** and a Ethernet switch **618** together using the Ethernet protocol with appropriate NICs **606** as described above. The switch configuration **704** includes a Layer-2 switch (e.g., Layer-2 switch device **700**) that implements an Ethernet MAC and switching functions. The optical fibers **105**, **710**, **712** connecting the workstations **602**, PCs **604** and Ethernet switches **618** to the switch configuration **704** can be associated with different NMs **100A**, **100B**, **100C** depending on which fiber connections are used. The uplink port **702** of switch configuration **704** can connect to an Ethernet switch and/or router (not shown).

[0047] In another implementation of an optical local area network **50** shown in **FIG. 7B**, the switch configuration **704** is used to network one or more disk storage array devices **612**, servers **614** and FC-2 switches **619** using, for example, the FC protocol with appropriate HBAs **607** as described above. This implementation may also be described as a Storage Area Network (SAN). The switch configuration **704** includes a Layer-2 switch (e.g., Layer-2 switch device **700**) that implements an FC-2 controller and switching functions. The optical fibers **105**, **710**, **712** connecting the disk storage array devices **612**, servers **614** and FC-2 switch **619** to the switch configuration **704** can be associated with different NMs **100A**, **100B**, **100C** depending on which fiber connections are used. The uplink port **702** of switch configuration **704** may connect to an FC-2 switch and/or router (not shown). FC-2 switches 619 can be a conventional FC-2 switch.

[0048] In yet another implementation of an optical local area network **50** shown in **FIG. 7C**, a switch configuration **704** is used to network workstations **602**, PCs **604**, disk storage array devices **612**, servers **614** and other switches (e.g. an Ethernet switch **618)** together using, for example, both Ethernet and FC protocols concurrently in a manner described previously. The switch configuration **704** includes a Layer-2 switch (e.g. Layer-2 switch device **700**) that implements both an Ethernet MAC and FC-2 controller with switching functions. Layer-2 switch device **700** can be implemented by a packet processor or network processor. The optical fibers **105**, **710**, **712** connecting the workstations **602**, PCs **604**, disk storage array devices **612**, servers **614** and t switches to the switch configuration **704** can be associated with different NMs **100A**, **100B**, **100C**

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depending on which fiber connections are used. The uplink port **702** of switch configuration **704** may connect to an Ethernet or FC-2 switch and/or router (not shown).

[0049] In yet another implementation of an optical local area network **50**, an implementation of switch configuration **705** containing an NM **100**, an adaptation unit **706** and an uplink port **702** is shown in **FIG. 7D**. Switch configuration **705** can be used to network workstations **602**, PCs **604** and other switches **618** in a manner described previously. The NM **100** is in communication with a Layer-2 switch device (not shown) through the uplink port **702** that is connected to a switch. The connection between uplink port **702** and switch **618** can be a physical layer connection **714** (e.g., 1000 BASE-SX, 1000 BASE-LX). Ethernet switch **618** can be a conventional Ethernet switch.

[0050] In some implementations of switch configurations **704**, **705** the uplink port **702** can be an NCA adaptor (not shown) similar to **621A**, **621B** wherein the network interface **136** and switch interface **708** are coupled using the same interface standard (e.g., XAUI, Serial, Parallel), thus enabling the uplink port **702** to connect to other hub configurations **600** and switch configurations **704** (**FIG.s 7A-7C**), **705** (FIG. 7D).

[0051] In another implementation of an optical local area network **50** shown in **FIG. 8**, NM **100** and NCA **104** may be implemented in optical modules. A network manager in an optical module (NM-OM) **800** is provided that, in one implementation, conforms to an industry standard form factor and includes an NM-CLM **803** that includes an adaptation unit **706** to transfer data into and out of a network interface (e.g., switch interface **708**). The NM-OM **800** also includes a NM Optical interface **108** and an ODF port **117A**. In one implementation, the optical module NM-OM **800** conforms to an industry standard Multi-source agreement (MSA) form factor (e.g., 300pin, XENPAK, X2, XPAK, XFP or SFP). A network client adaptor in an optical module (NC-OM) **802** can be provided that, in one implementation, also conforms to an industry standard form factor and includes an NCA **104**. For example, the optical module NC-OM may conform to an MSA form factor (e.g., 300pin, XENPAK, X2, XPAK, XFP or SFP).

[0052] The NM-OM **800** can connect to a conventional router **804** that has optical module ports **806** using the router's switch interface (e.g., XAUI or Serial). The NM-OM **800** is in optical communication with an optical splitter **810** that splits light among and collects light from workstations **602**, PCs **604**, disk storage array devices **612**, servers **614**

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and switches using appropriate NICs **606** and/or NC-OM **802** as previously described. The Ethernet Layer-2/3 switch **808** may be of conventional design and include an uplink port, that in one implementation, conforms to an industry standard optical module form factor. The Ethernet Layer-2/3 switch **808** can communicate with the NM-OM **800** in router **804** by using an NC-OM **802** via network interface **136** (e.g., XAUI or Serial).

[0053] The Ethernet Layer-2/3 switch **808** is further detailed in **FIG. 9A**. In the Ethernet Layer-2/3 switch **808**, an NC-OM **802** is in communication with a Layer-2 switch **900** by means of a MAC (not shown) using a network interface **136** (e.g., XAUI or Serial). Ethernet Layer-2/3 switch **808** also includes physical layer ports (PHY ports) **902** that, in one implementation, form a conventional Ethernet LAN (e.g., Ethernet LAN **622** of **FIG. 8**) connecting network clients such as workstations **602** and PCs **604**.

[0054] An implementation of an alternative configuration for a switch is shown in **FIG. 9B**. **FIG. 9B** is an illustration of an NC-Switch **910**, in which no conventional Layer-2 switch and MAC is used. NC-Switch **910** includes an NCA **912** and multiple PHY ports **902**. Each PHY port may perform wireline (e.g., 10/100/1000 BASE-T, DSL) or wireless (e.g., IEEE 802.11, IEEE 802.16) physical layer communications with conventional LAN clients. In this implementation, the adaptation unit **126** supports multiple network interfaces **136**. The switching function previously performed by the Layer-2 switch (e.g., Layer-2 switch **900** of **FIG. 9A**) is consolidated to the switch or router in communication with an NM **100** in a switch configuration **704** (as described above) or an NM-OM **800** (e.g. as illustrated in **FIG. 8** an NC-Switch **910** in communication with an NM-OM **800**). Alternatively, the switching function previously performed by the Layer-2 switch is consolidated to Layer-2 switches (not shown) in communication with other NCAs **104** networked in a hub configuration **600**.

[0055] In hub configuration **600** (e.g. **FIG.s 6A-6C**) of the optical local area network **50**, flow control, denial of service and other network administration functions are dependent on external Layer-2 devices in communication with NCAs **104** (for example, the Ethernet MAC or FC-2 controller in the NIC controller **608** dependent on the implementation as previously discussed). In switch configurations **704** (e.g. **FIG.s 7A-7C**) of the optical local area network **50**, flow control, denial of service and other network administration functions are further dependent on the external Layer-2 device

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700 in communication with NMs **100**, in addition to the Layer-2 devices external and in communication with NCAs **104** as previously mentioned.

[0056] Although the invention has been described in terms of particular implementations, one of ordinary skill in the art, in light of this teaching, can generate additional implementations and modifications without departing from the spirit of or exceeding the scope of the claimed invention. Accordingly, it is to be understood that the drawings and descriptions herein are proffered by way of example to facilitate comprehension of the invention and should not be construed to limit the scope thereof.

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1. What is claimed is:

1. A method for broadcasting data comprising:

receiving an incoming optical signal at a first port of a plurality of ports;

converting the received incoming optical signal to an electrical signal;

processing the electrical signal;

converting the processed electrical signal to a broadcast optical signal; and

coupling the broadcast optical signal to each of the plurality of ports.

2. The method of claim 1, wherein processing the electrical signal includes coupling the electrical signal to a device that processes the electrical signal according to an OSI layer-2 protocol.

3. The method of claim 1, wherein processing the electrical signal includes coupling the electrical signal to a device that processes the electrical signal according to an OSI layer-3 protocol.

4. The method of claim 1, further comprising converting an electrical client signal to the incoming optical signal.

5. The method of claim 4, further comprising adapting the electrical client signal from a signal conforming to an OSI layer-2 protocol.

6. The method of claim 5, wherein the OSI layer-2 protocol includes a media access control protocol.

7. The method of claim 6, wherein the media access control protocol is Ethernet or Fibre Channel.

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8. The method of claim 1, further comprising transmitting the incoming optical signal from a network client adapter to one of the plurality of ports over an optical distribution fabric.

9. The method of claim 1, further comprising:

transmitting the broadcast optical signal from one of the plurality of ports over an optical distribution fabric; and

receiving the broadcast optical signal at network client adapters in a plurality of clients.

10. The method of claim 9, further comprising converting the received broadcast optical signal to a second electrical signal in at least one of the clients.

11. The method of claim 10, further comprising selecting a frame within the second electrical signal associated with the network client adapter and adapting data in the selected frame for transmission over a network interface.

12. An apparatus comprising:

a plurality of ports;

a passive optical coupler coupled to each of the plurality of ports;

an optical-electrical converter in optical communication with the passive optical coupler; and

a control module in electrical communication with the optical-electrical converter for scheduling slots for incoming and outgoing signals over the plurality of ports.

13. The apparatus of claim 12, wherein the control module is operable to schedule a slot for receiving a signal over one of the plurality of ports and to schedule a time for broadcasting a signal over each of the plurality of ports.

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14. The apparatus of claim 12, including only a single optical-electrical converter in optical communication with the passive optical coupler.

15. The apparatus of claim 12, wherein the control module is coupled to a device that is operable to process an electrical signal provided by the optical-electrical converter according to an OSI layer-2 protocol.

16. The apparatus of claim 12, wherein the control module is coupled to a device that is operable to process an electrical signal provided by the optical-electrical converter according to an OSI layer-3 protocol.

17. An optical local area network comprising:

a plurality of optical waveguides;

a network manager that comprises

an optical-electrical converter in optical communication with the plurality of optical waveguides; and

a control module in electrical communication with the optical-electrical converter for scheduling slots for incoming and outgoing signals transmitted over the plurality of optical waveguides; and

a plurality of network client adapters coupled to the plurality of optical waveguides, each network client adapter including an optical-electrical converter for processing transmitted and received optical signals at a client.

18. The optical local area network of claim 17, further comprising a passive optical coupler coupled to each of the plurality of optical waveguides.

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19. The optical local area network of claim 17, wherein the network manager further comprises a passive optical coupler coupled to each of the plurality of optical waveguides.

20. The optical local area network of claim 17, wherein the control module is operable to schedule a slot for receiving a signal over one of the plurality of optical waveguides and to schedule a time for broadcasting a signal over each of the plurality of optical waveguides.

21. The optical local area network of claim 20, wherein the control module is operable to dynamically schedule a slot for receiving a signal over one of the plurality of optical waveguides in response to a message from one of the network client adapters.

22. The optical local area network of claim 17, wherein the control module is operable to determine a response delay between the optical-electrical converter and one of the network client adapters.

23. The optical local area network of claim 17, wherein the control module is coupled to a device that is operable to process an electrical signal provided by the optical-electrical converter according to an OSI layer-2 protocol.

24. The optical local area network of claim 17, wherein the control module is coupled to a device that is operable to process an electrical signal provided by the optical-electrical converter according to an OSI layer-3 protocol.

25. The optical local area network of claim 17, wherein each of the network client adapters is operable to convert an electrical client signal to an optical signal for transmission over one of the optical waveguides.

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26. The optical local area network of claim 25, wherein each of the network client adapters is operable to adapt the client signal from a signal conforming to an OSI layer-2 protocol.

27. The optical local area network of claim 26, wherein to the OSI layer-2 protocol includes a media access control protocol.

28. The optical local area network of claim 27, wherein the media access control protocol used by a network client adapter is Ethernet or Fibre Channel.

29. The optical local area network of claim 17, wherein each of the network client adapters is operable to convert a received optical signal to an electrical signal.

30. The optical local area network of claim 29, wherein each network client adapter is operable to select a frame within the electrical signal associated with the network client adapter.

31. The optical local area network of claim 17, further comprising a client that includes a network interface card, the network interface card including one of the network client adapters.

32. The optical local area network of claim 31, wherein the client is selected from the group consisting of a workstation, a personal computer, a disk storage array, a server, a switch, and a router.

33. An optical local area network comprising:

a passive optical distribution fabric interconnecting a plurality of nodes including a first node and a plurality of remaining nodes;

a hub that includes the first node and a control module; and

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a client network adapter coupled to each of the remaining nodes for responding to the control module;

wherein the control module controls timing for each of the client network adapters to transmit signals over the passive optical distribution fabric and distribution of signals to each of the nodes.

34. The optical local area network of claim 33, wherein the control module is operable to schedule a slot for receiving a signal from one of the remaining nodes and to schedule a time for broadcasting a signal to each of the remaining nodes.

35. The optical local area network of claim 34, wherein the control module is operable to dynamically schedule a slot for receiving a signal from one of the remaining nodes in response to a message from one of the network client adapters.

36. The optical local area network of claim 33, wherein the control module is operable to determine a response delay between the hub and one of the network client adapters.

37. The optical local area network of claim 33, wherein the control module is coupled to a device that is operable to process signals according to an OSI layer-2 protocol.

38. The optical local area network of claim 33, wherein the control module is coupled to a device that is operable to process signals according to an OSI layer-3 protocol.

39. The optical local area network of claim 33, wherein each of the network client adapters is operable to convert an electrical signal to an optical signal for transmission over the passive optical transmission fabric.

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40. The optical local area network of claim 39, wherein each of the network client adapters is operable to adapt a signal conforming to an OSI layer-2 protocol.

41. The optical local area network of claim 40, wherein OSI layer-2 protocol includes a media access control protocol.

42. The optical local area network of claim 41, wherein the media access control protocol used by a network client adapter is Ethernet or Fibre Channel.

43. The optical local area network of claim 33, wherein each of the network client adapters is operable to convert a received optical signal to an electrical signal.

44. The optical local area network of claim 43, wherein each network client adapter is operable to select a frame within the electrical signal associated with the network client adapter.

45. The optical local area network of claim 33, further comprising a client that includes a network interface card, the network interface card including one of the network client adapters.

46. The optical local area network of claim 45, wherein the client is selected from the group consisting of a workstation, a personal computer, a disk storage array, a server, a switch, and a router.

47. An optical local area network comprising:

a hub;

a plurality of external nodes interconnected by a passive optical distribution fabric, wherein the external nodes are located external to the hub, and the hub is operable to control traffic across all nodes;

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adaptors at each external node responsive to hub instruction; and

an interface coupled to the hub coupling signals received from any individual external node for distribution to all external nodes.

48. The optical local area network of claim 47, wherein the hub includes an internal node coupled to the passive optical distribution fabric.

49. The optical local area network of claim 47, wherein the hub is operable to measure response delay between the hub and external nodes.

50. The optical local area network of claim 47, wherein the hub is operable to allocate slots for external nodes dynamically.

51. The optical local area network of claim 50, wherein slot allocations are made to guarantee external nodes have a minimum bandwidth.

52. The optical local area network of claim 47, further comprising splitters coupled between the hub and external nodes.

53. The optical local area network of claim 47, wherein traffic arriving at one or more external nodes includes Ethernet traffic.

54. The optical local area network of claim 47, wherein traffic arriving at one or more external nodes includes Fibre channel traffic.

55. The optical local area network of claim 47, wherein the hub includes an optical module.

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56. The optical local area network of claim 47, wherein at least one of the external nodes is located within an optical module external to the hub.

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ABSTRACT

An optical local area network includes a passive optical distribution fabric interconnecting a plurality of nodes including a first node and a plurality of remaining nodes, a hub that includes the first node and a control module, and a client network adapter coupled to each of the remaining nodes for responding to the control module. The control module controls timing for each of the client network adapters to transmit signals over the passive optical distribution fabric and distribution of signals to each of the nodes.

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Ex. 1002-2.480

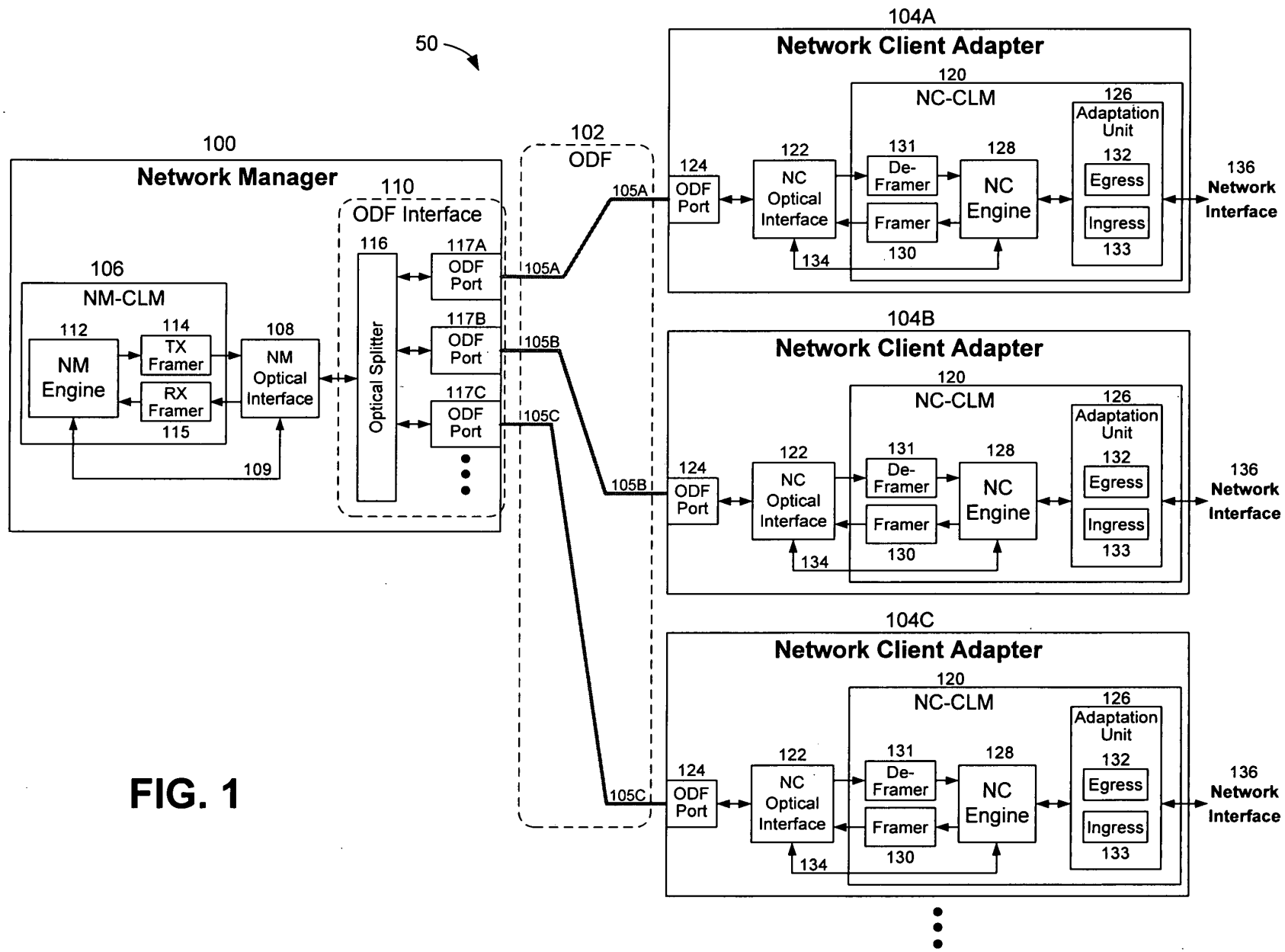

FIG. 1

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Ex. 1002-2.481

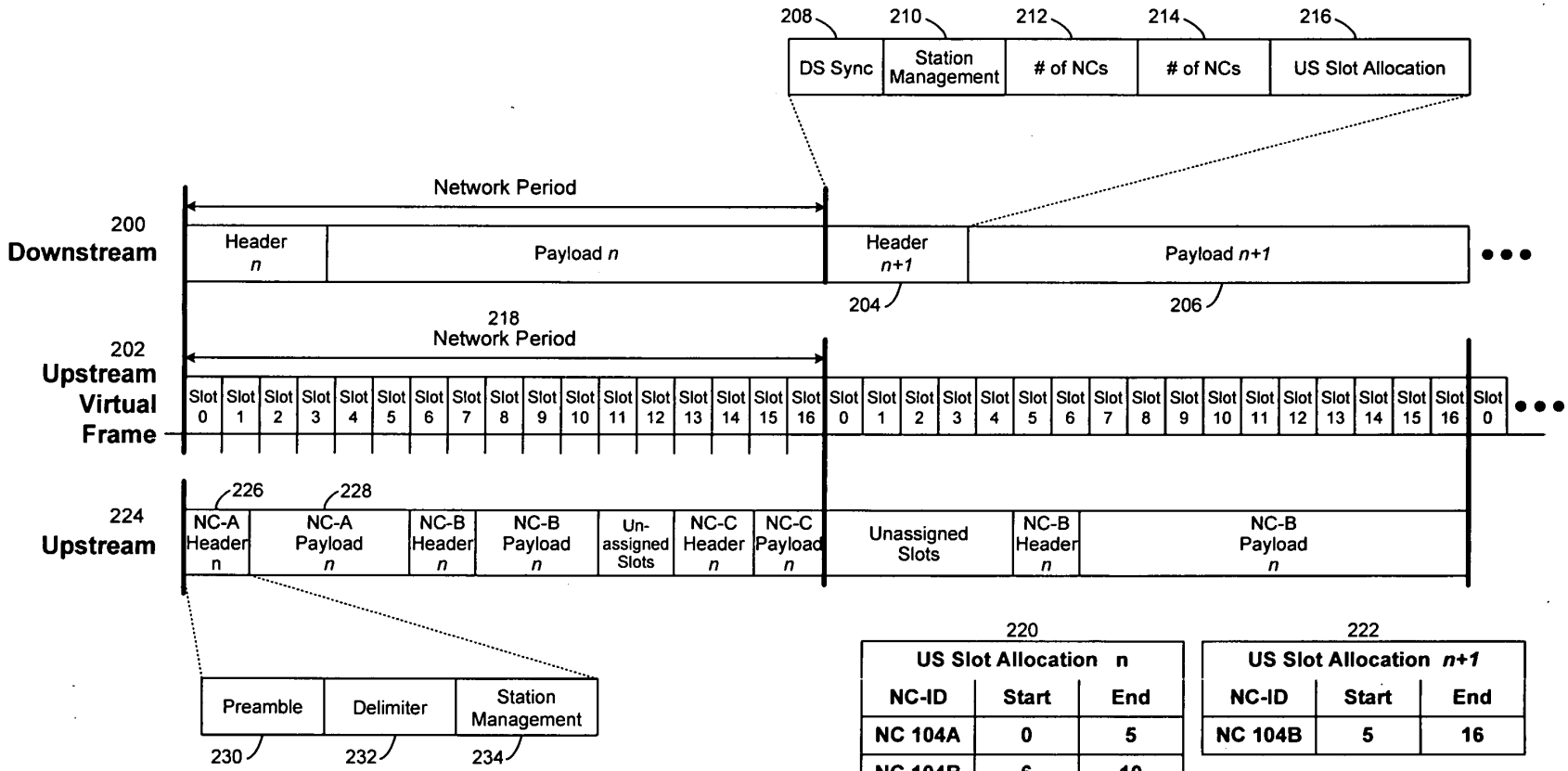

FIG. 2

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Ex. 1002-2.482

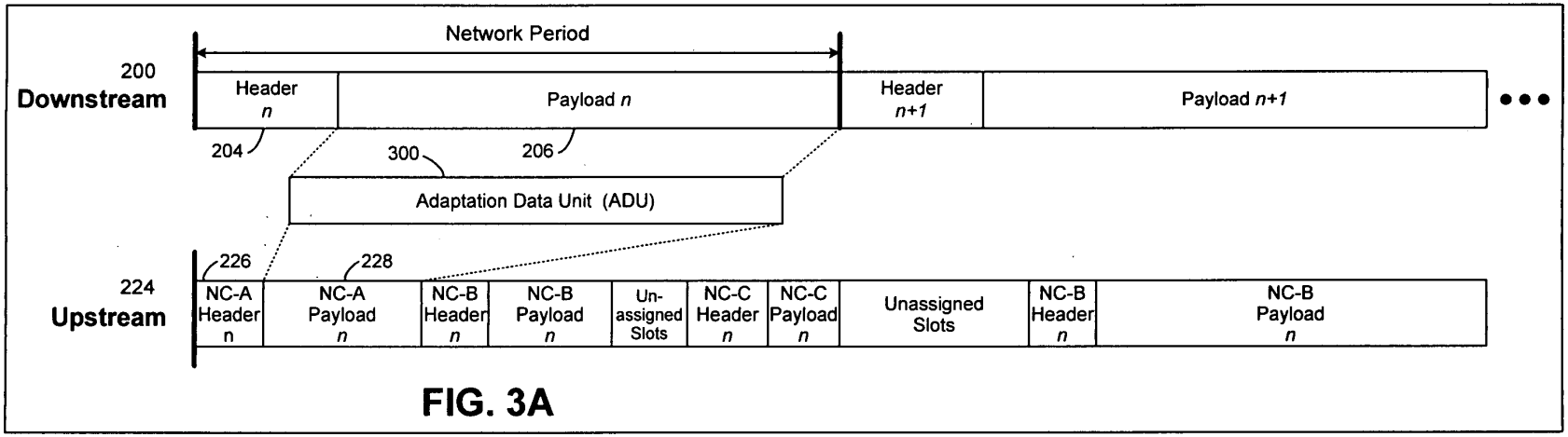

FIG. 3A

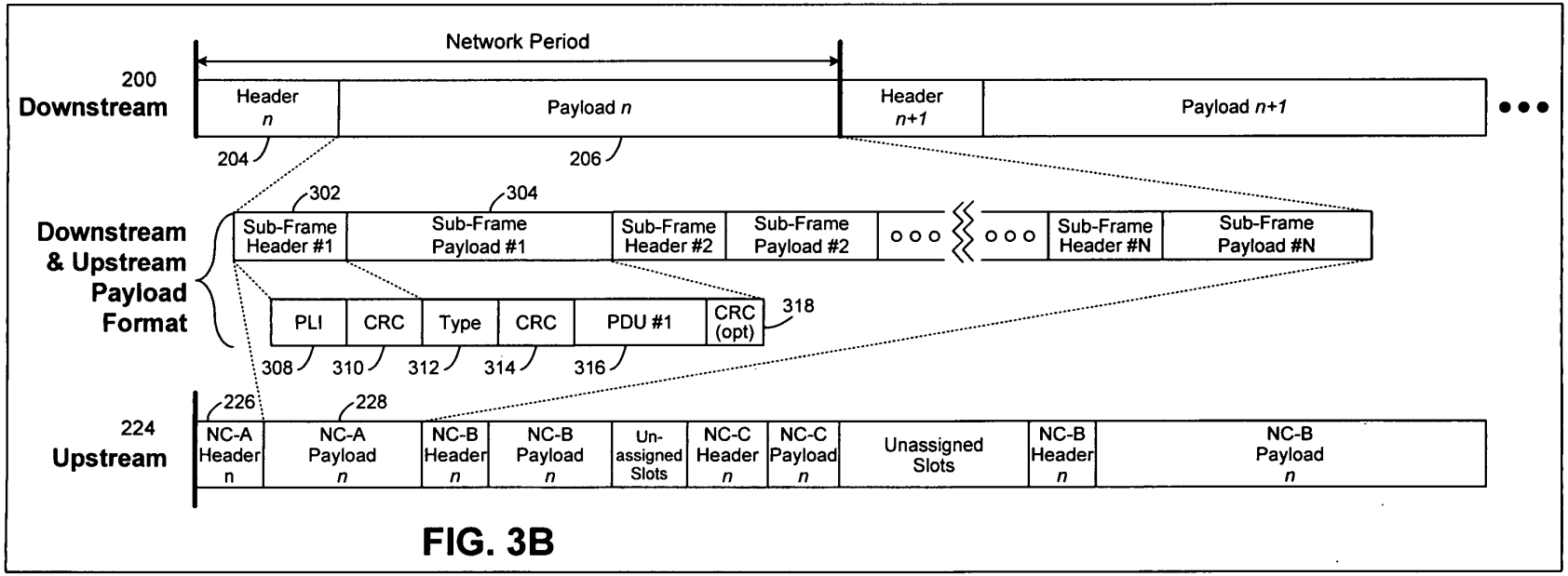

FIG. 3B

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Ex. 1002-2.483

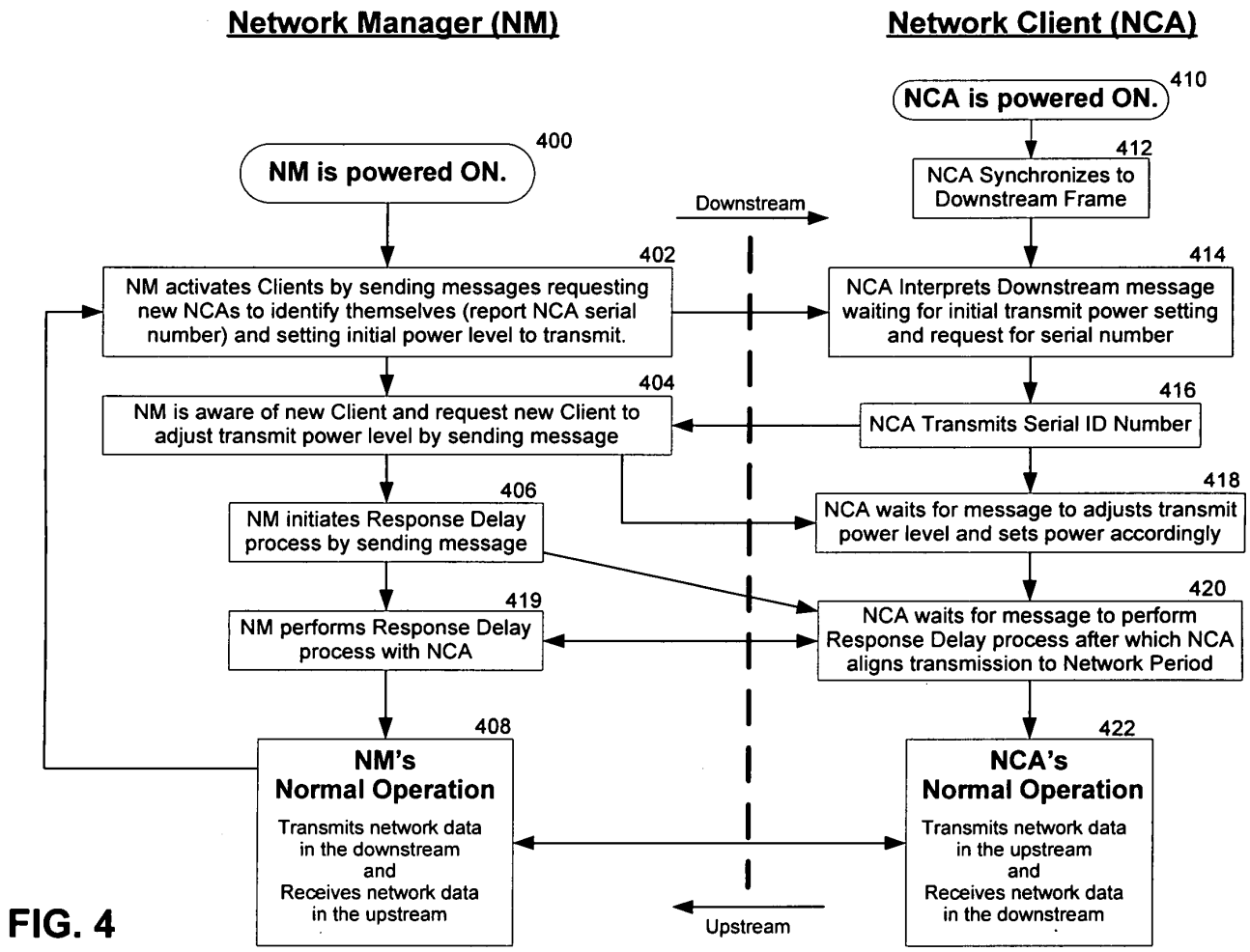

FIG. 4

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Ex. 1002-2.484

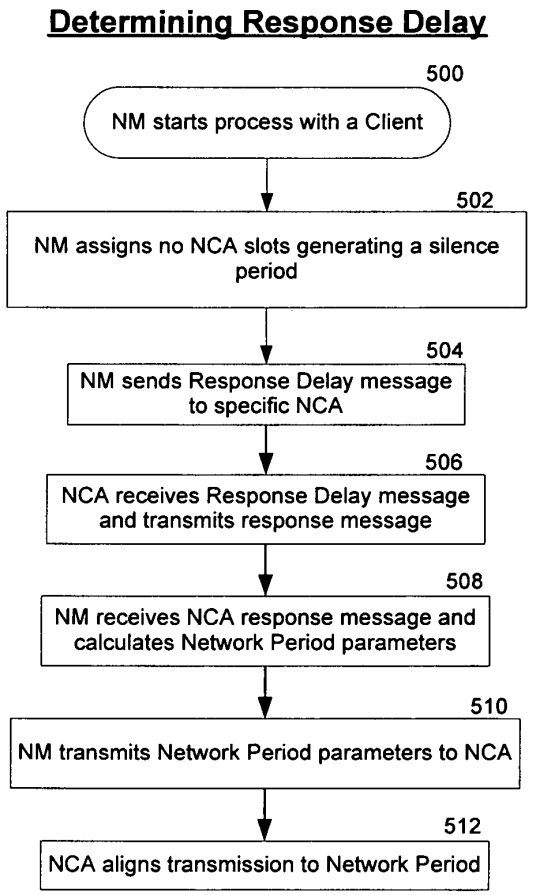

FIG. 5

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Ex. 1002-2.485

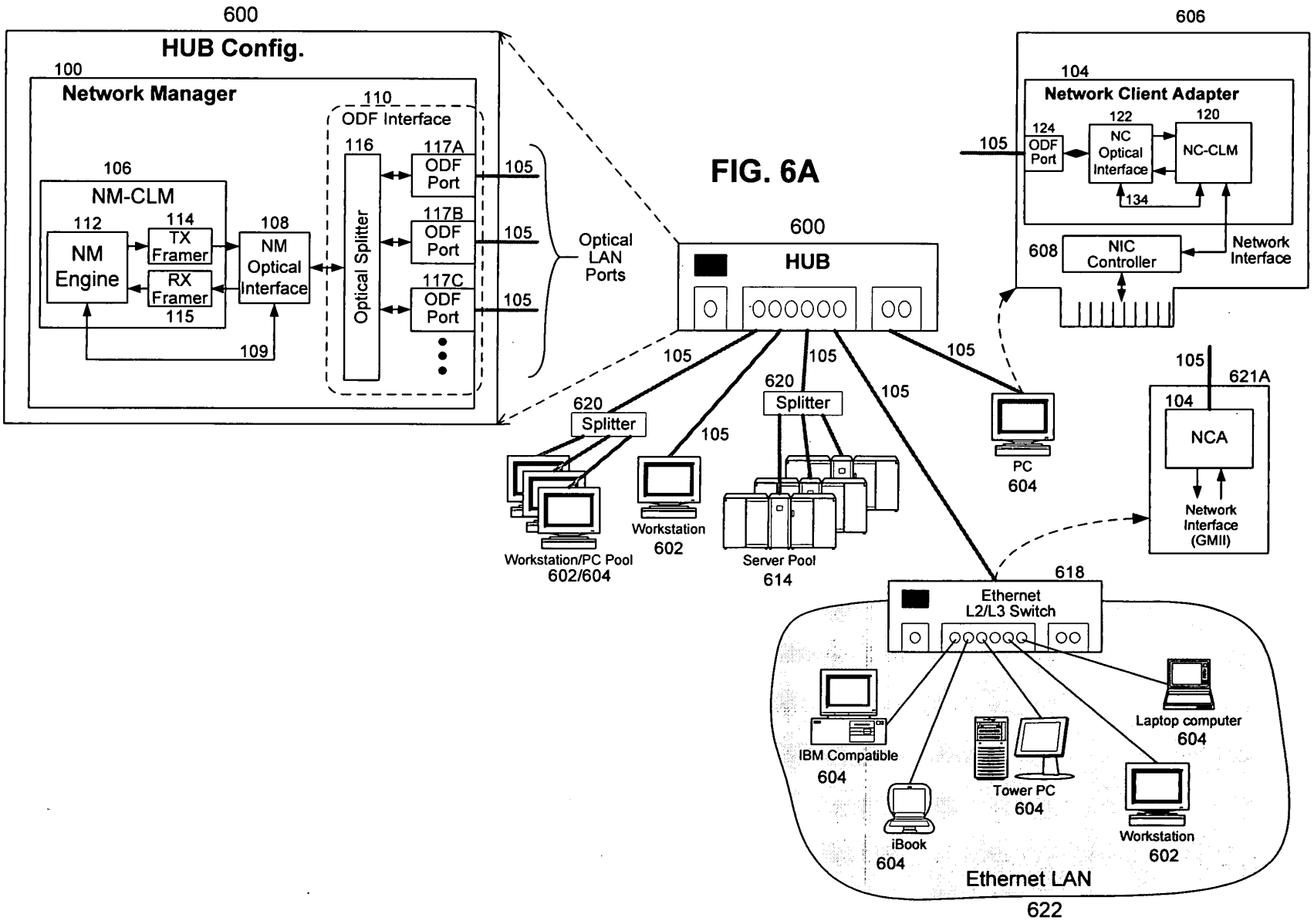

FIG. 6A

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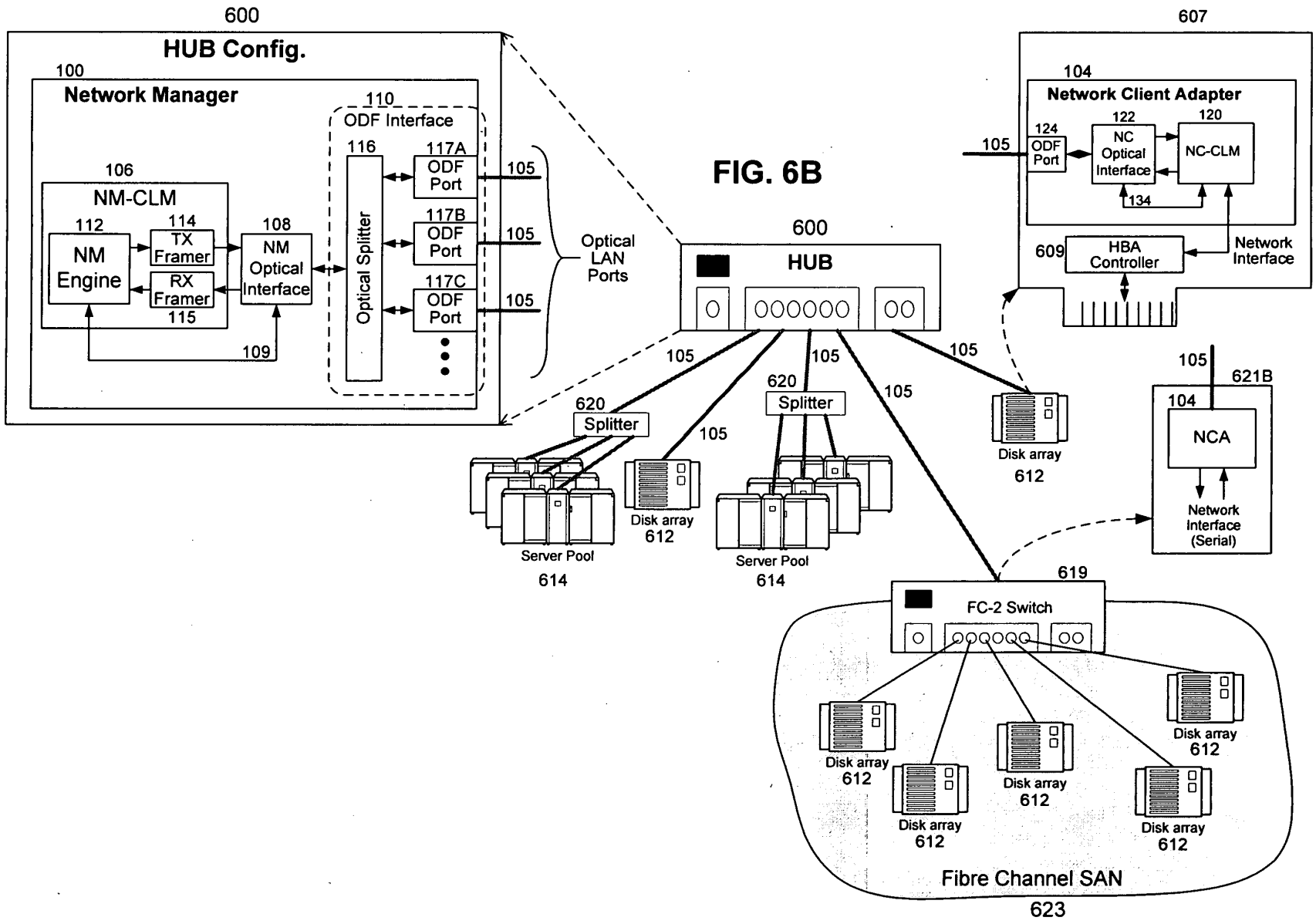
Ex. 1002-2.486



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IPR2023-00960, Ex. 1002-2
Ex. 1002-2.487

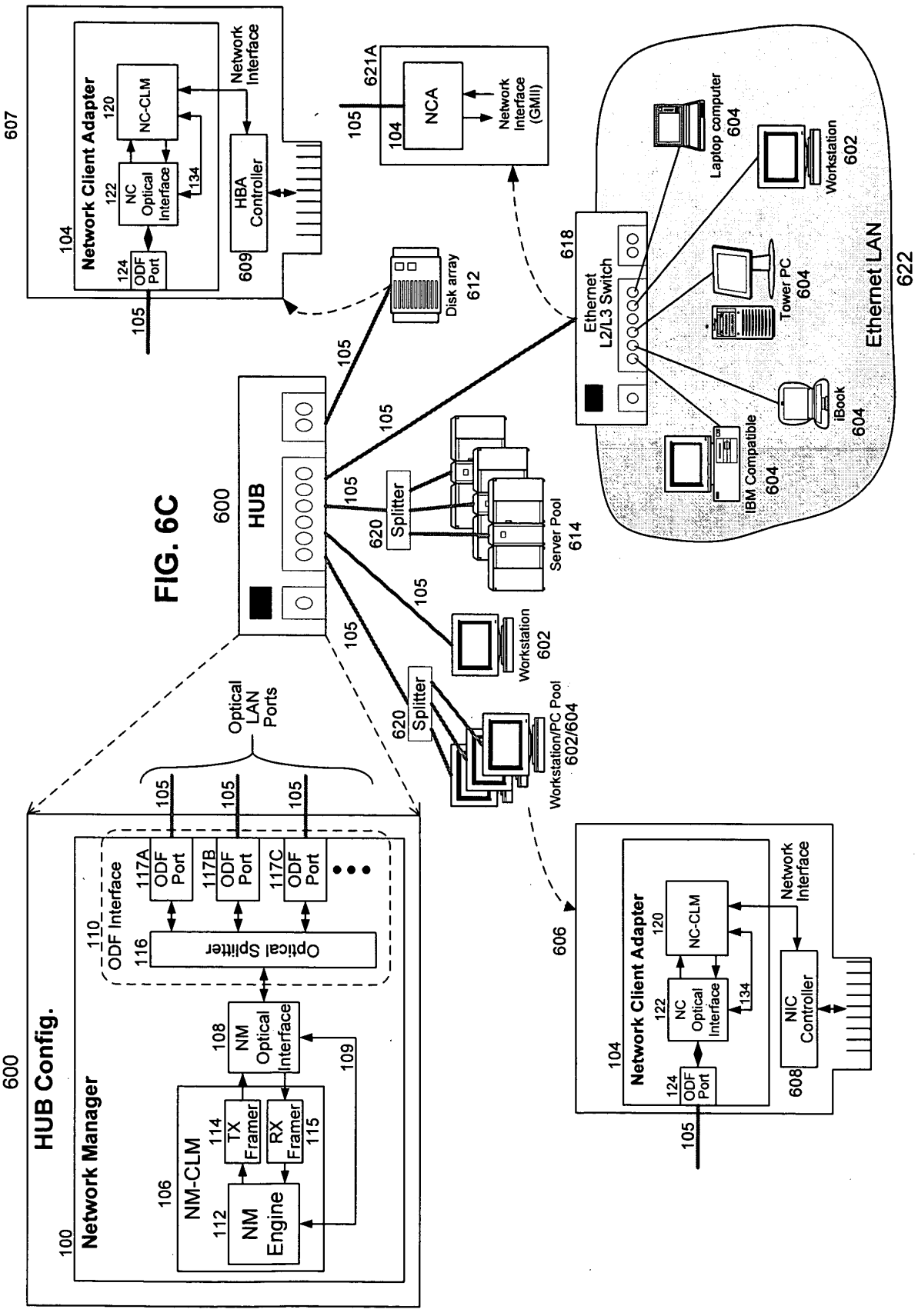

600
HUB Config.
Network Manager
100
NM-CLM
106
NM Engine
112
TX Framer
114
RX Framer
115
NM Optical Interface
108
109
ODF Interface
110
Optical Splitter
116
117A ODF Port
117B ODF Port
117C ODF Port
Optical LAN Ports
105
607
Network Client Adapter
104
NC-CLM
120
NC Optical Interface
122
134
HBA Controller
609
Network Interface
124 ODF Port
105
621A
NCA
104
Network Interface (GMII)
105
Disk array
612
600
HUB
105
620 Splitter
Server Pool
614
Workstation
602
Workstation/PC Pool
602/604
618
Ethernet L2/L3 Switch
Laptop computer
604
Workstation
602
Tower PC
604
iBook
604
IBM Compatible
604
Ethernet LAN
622
606
Network Client Adapter
104
NC-CLM
120
NC Optical Interface
122
134
NIC Controller
608
Network Interface
124 ODF Port
105

FIG. 6C

606
NCA
104
124
ODF Port
105
122
NC Optical Interface
134
120
NC-CLM
Network Interface
NIC Controller
105
621A
NCA
104
Network Interface (GMII)
PC
604
105
704
Switch
105
710
Splitter
620
Server Pool
614
712
Workstation
602
712
Splitter
620
Workstation/PC Pool
602/604
618
Ethernet L2/L3 Switch
Laptop computer
604
Workstation
602
Tower PC
604
iBook
604
IBM Compatible
604
Ethernet LAN
622
Optical LAN Ports
105
105
105
710
710
710
712
712
712
NM
NM
NM
100A
100B
100C
Adaptation Unit
Adaptation Unit
Adaptation Unit
706
706
706
708
708
708
Layer 2 Switch
700
704
Switch Config.
702
Uplink Port
714

FIG. 7A

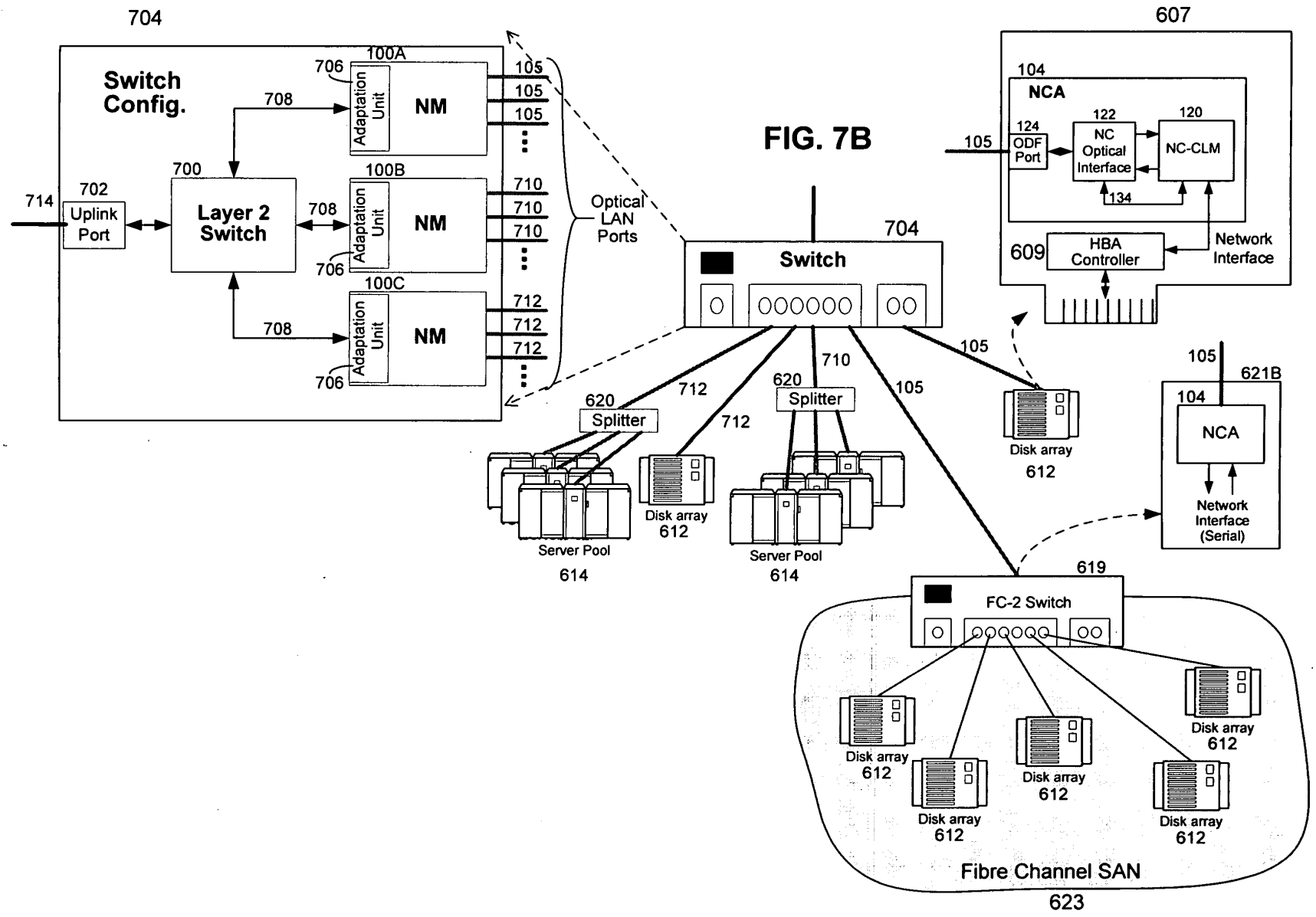
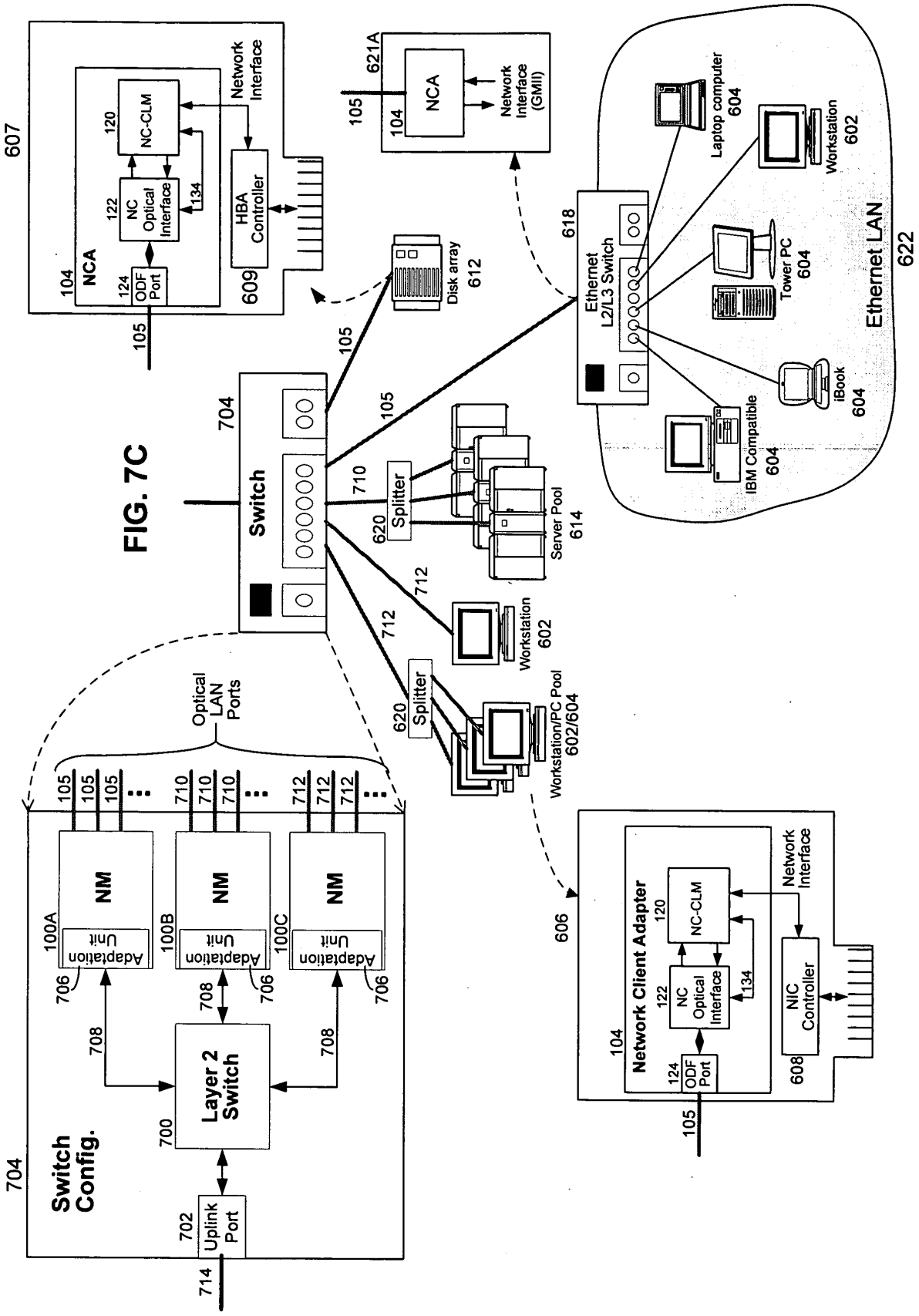


FIG. 7B

Nokia of America Corporation
IPR2023-00960, Ex. 1002-2
Ex. 1002-2.490



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Ex. 1002-2.491

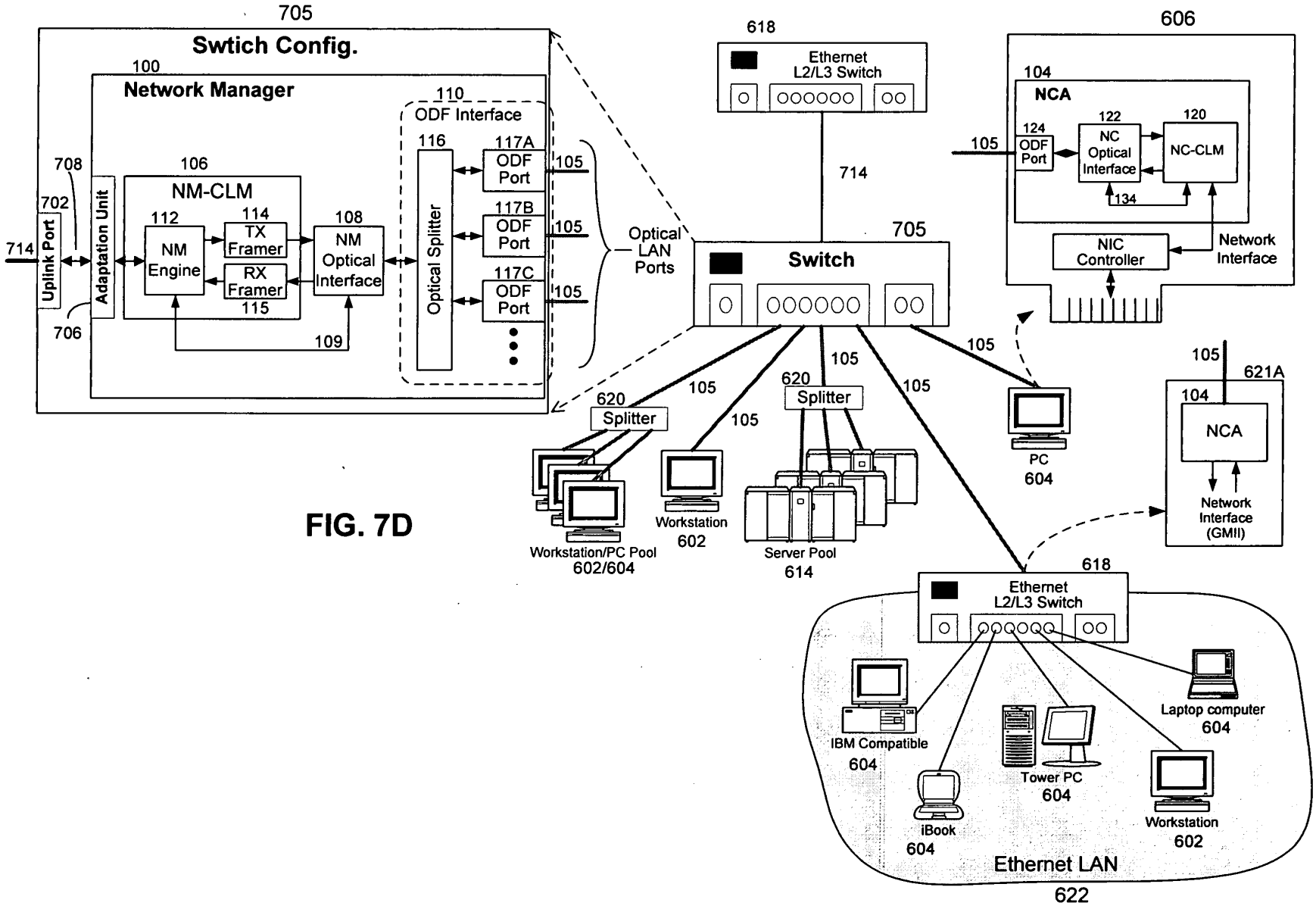

FIG. 7D

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IPR2023-00960, Ex. 1002-2
Ex. 1002-2.492

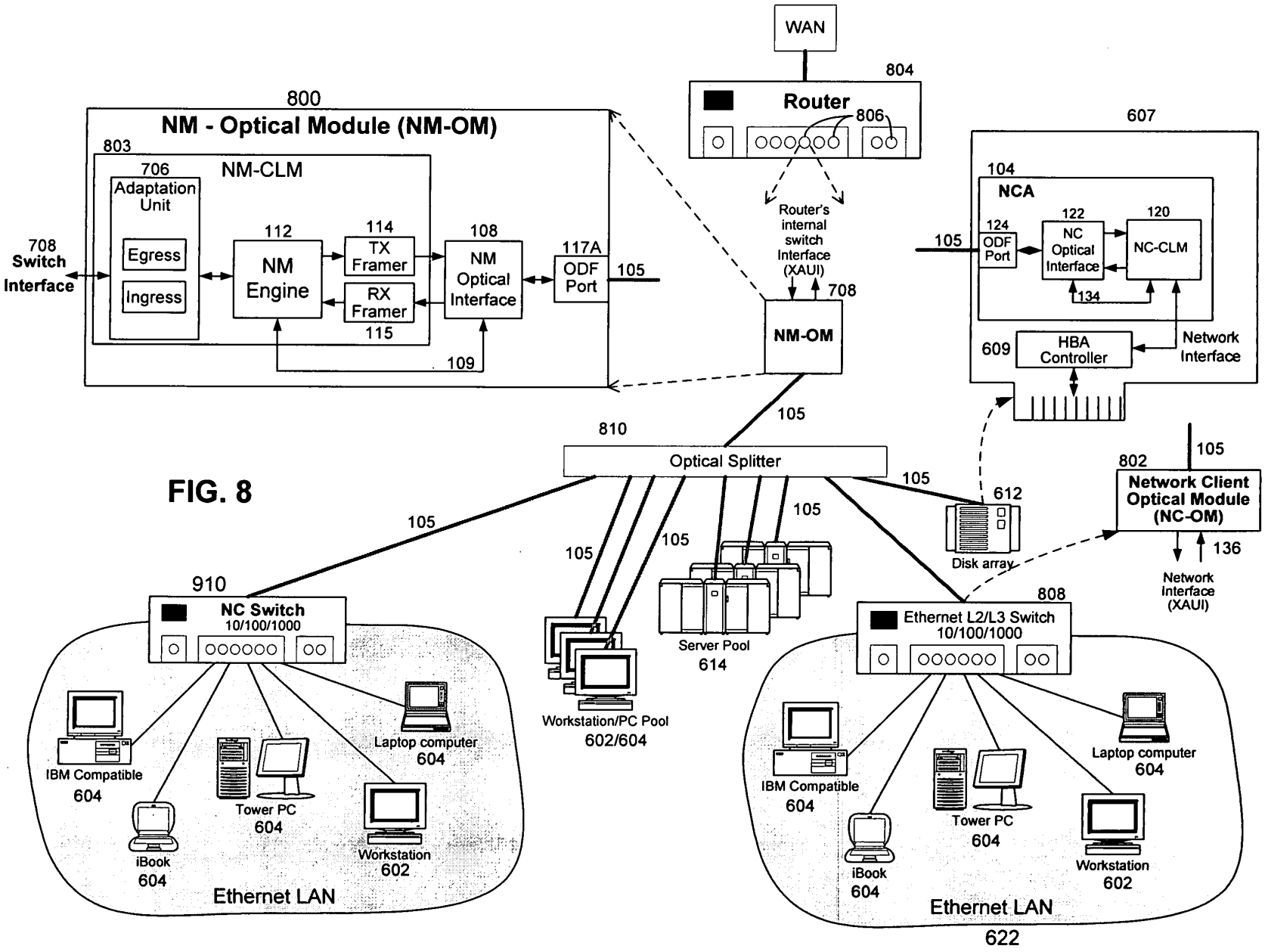

FIG. 8

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Ex. 1002-2.493

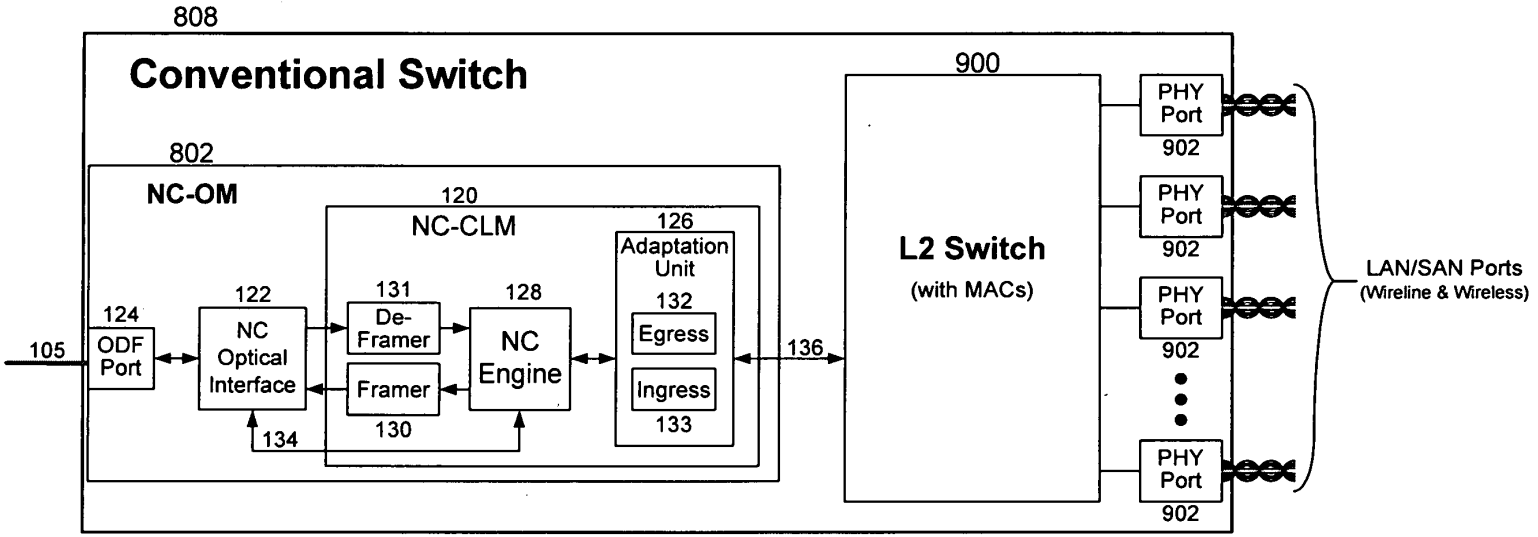

FIG. 9A

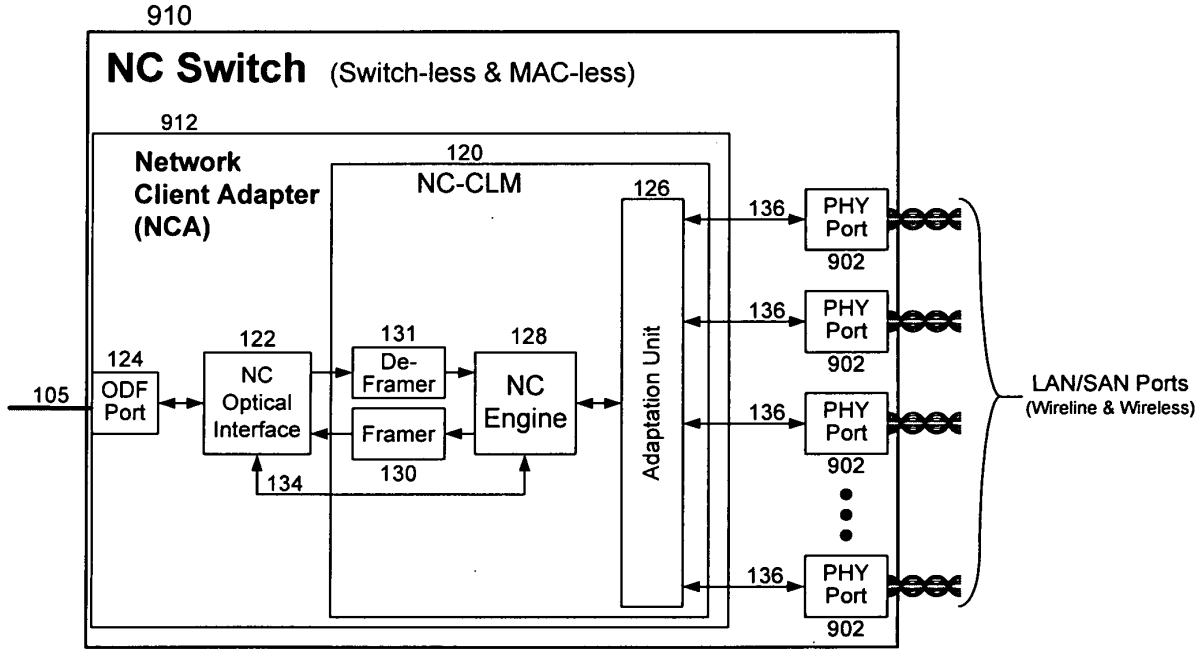

FIG. 9B

Nokia of America Corporation
IPR2023-00960, Ex. 1002-2
Ex. 1002-2.494

PATENT APPLICATION FEE DETERMINATION RECORD
Effective October 1, 2003

Application or Docket Number: 10886514

CLAIMS AS FILED - PART I

	(Column 1)	(Column 2)
TOTAL CLAIMS 56		
FOR	NUMBER FILED	NUMBER EXTRA
TOTAL CHARGEABLE CLAIMS	56 minus 20=	* 36
INDEPENDENT CLAIMS	5 minus 3 =	* 2
MULTIPLE DEPENDENT CLAIM PRESENT		☐

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

SMALL ENTITY TYPE ☐		OR	OTHER THAN SMALL ENTITY	
RATE	FEE		RATE	FEE
BASIC FEE	385.00	OR	BASIC FEE	770.00
XS 9=		OR	X$18=	648
X43=		OR	X86=	172
+145=		OR	+290=	
TOTAL		OR	TOTAL	1590

CLAIMS AS AMENDED - PART II

AMENDMENT A	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X43=		OR	X86=	
+145=		OR	+290=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

AMENDMENT B	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X43=		OR	X86=	
+145=		OR	+290=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

AMENDMENT C	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X43=		OR	X86=	
+145=		OR	+290=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

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

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IPR2023-00960, Ex. 1002-2
Ex. 1002-2.495

PTO/SB/06 (12-04)
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PATENT APPLICATION FEE DETERMINATION RECORD
Substitute for Form PTO-875

Application or Docket Number: 10/886,514

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY FEE ($)
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))	56 minus 20 =	* 36	x =	Paid	OR	x =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	5 minus 3 =	* 2	x =	Paid		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))			N/A			N/A	
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	Paid		TOTAL	

APPLICATION AS AMENDED – PART II

2-18-06 RCE

AMENDMENT A	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 56	Minus	** 56	= 0	x =	0	OR	x =	
Independent (37 CFR 1.16(h))	* 3	Minus	*** 5	= 0	x =	0	OR	x =	
Application Size Fee (37 CFR 1.16(s))							OR		
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					N/A		OR	N/A	
					TOTAL ADD'L FEE	0	OR	TOTAL ADD'L FEE	

AMENDMENT B	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)	OR	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))					N/A		OR	N/A	
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

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

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

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Ex. 1002-2.496