

**PATENT ASSIGNMENT**

Electronic Version v1.1  
 Stylesheet Version v1.1

SUBMISSION TYPE:	NEW ASSIGNMENT								
NATURE OF CONVEYANCE:	ASSIGNMENT								
<b>CONVEYING PARTY DATA</b>									
<table border="1"> <thead> <tr> <th>Name</th> <th>Execution Date</th> </tr> </thead> <tbody> <tr> <td>Mr. Jin-Gen Wang</td> <td>04/07/2009</td> </tr> <tr> <td>Mr. Qing Li</td> <td>04/07/2009</td> </tr> <tr> <td>Mr. Ron Munoz</td> <td>04/07/2009</td> </tr> </tbody> </table>		Name	Execution Date	Mr. Jin-Gen Wang	04/07/2009	Mr. Qing Li	04/07/2009	Mr. Ron Munoz	04/07/2009
Name	Execution Date								
Mr. Jin-Gen Wang	04/07/2009								
Mr. Qing Li	04/07/2009								
Mr. Ron Munoz	04/07/2009								
<b>RECEIVING PARTY DATA</b>									
Name:	Level 3 Communications, LLC								
Street Address:	1025 Eldorado Blvd								
City:	Broomfield								
State/Country:	COLORADO								
Postal Code:	80021								
<b>PROPERTY NUMBERS Total: 1</b>									
<table border="1"> <thead> <tr> <th>Property Type</th> <th>Number</th> </tr> </thead> <tbody> <tr> <td>Application Number:</td> <td>12420965</td> </tr> </tbody> </table>		Property Type	Number	Application Number:	12420965				
Property Type	Number								
Application Number:	12420965								
<b>CORRESPONDENCE DATA</b>									
Fax Number:	(720)888-5619								
<i>Correspondence will be sent via US Mail when the fax attempt is unsuccessful.</i>									
Email:	david.wier@level3.com								
Correspondent Name:	David Wier c/o CPA Global								
Address Line 1:	P.O. Box 52050								
Address Line 4:	Minneapolis, MINNESOTA 55402								
ATTORNEY DOCKET NUMBER:	0145-US-U1								
NAME OF SUBMITTER:	Damon A. Rieth								
<p>Total Attachments: 7          source=PA-0145-US-U1-SignedAssignment#page1.tif          source=PA-0145-US-U1-SignedAssignment#page2.tif          source=PA-0145-US-U1-SignedAssignment#page3.tif</p>									

OP \$40.00 12420965

**500923006**

**PATENT  
 REEL: 023022 FRAME: 0807**

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source=PA-0145-US-U1-AssignmentRecordationCoverSheet#page1.tif  
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## ASSIGNMENT

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WHEREAS, I/we, Jin-Gen Wang, residing at 2885 Blue Jay Way, Lafayette, CO 80026, Qing Li, residing at 4545 Castle Lane, Broomfield, CO 80023, and Ron Munoz, residing at 8528 Gray Ct., Arvada, CO 80003 (hereinafter, individually and collectively the "Assignor"), have invented a certain new and useful invention entitled "**Content Delivery in a Network**" for which an application for Letters Patent of the United States has been prepared and filed on April 9, 2009 receiving Application No. 12/420,965, and further identified as Attorney Docket No. **0145-US-U1**;

NOW THEREFORE, for good and valuable consideration, receipt of which is acknowledged, Assignor has agreed to assign and transfer and does hereby assign and transfer unto **Level 3 Communications, LLC** ("Company"), a limited liability company organized and existing under the laws of the State of Delaware, having its principal office at 1025 Eldorado Boulevard, Broomfield, Colorado 80021, its successors and assigns, the entire right, title, and interest in and to said invention and application, and in and to any divisional or continuation (in whole or in part) of said application, and in and to any and all improvements in said invention made by Assignor (provided any such improvement is made during, or within one year after the termination, of the employment by said Company of Assignor), and in and to any and all Letters Patent, reexaminations, reissues, or extensions thereof, of the United States of America and countries, foreign thereto (including the right to apply for Letters Patent, Utility Models, or Inventors' Certificates in foreign countries in its own name and to claim any priority rights for such foreign applications to which such applications are entitled under international conventions, treaties, or otherwise), which have been or may be granted thereon or on any divisional, continuation (in whole or in part), renewal, reexamination, reissue, or other or further application based in whole or in part upon said invention or improvements thereon, to be held and enjoyed as fully and exclusively as they would have been by me had this assignment and transfer not been made;

Assignor further agrees for Assignor and for Assignor's heirs, executors, and administrators, to execute and deliver without further consideration any further applications, assignments, and documents, and to perform such other acts as Assignor lawfully may, that may be deemed necessary by said Company, its successors, assigns, and nominees, fully to secure its right, title, and interest as aforesaid to obtain to maintain Letters Patent, Utility Models, or Inventors' Certificates in any and all countries;

STATE OF COLORADO )  
CITY OF Broomfield ) ss.  
COUNTY OF Broomfield

By: *Qing Li*  
Qing Li

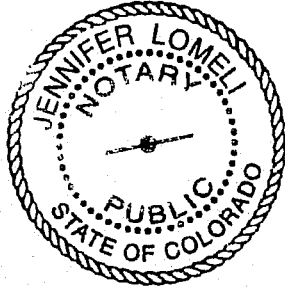
Dated: 4/7/2009

Before me, a Notary Public in and for said County and State, personally appeared Qing Li, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed the same for the purposes and considerations therein expressed.

Given under my hand and seal of office this 7<sup>th</sup> day of April, 2009.

*Jennifer Lomell*  
Notary Public

My Commission Expires: 11/16/09



Assignor hereby authorizes Assignee, its successors and assigns, or anyone it may properly designate, to insert in this instrument the application number and filing date of the Patent Application once known; and

Assignor hereby authorizes and requests the Commissioner of Patents to issue any and all Letters Patent which may be granted upon any of said applications, to said Company, as the assignee of the entire right, title, and interest therein.

IN WITNESS WHEREOF, the Assignor hereunto has executed this Assignment upon the date indicated below.

STATE OF COLORADO )  
CITY OF Broomfield ) ss.  
COUNTY OF Broomfield

By: [Signature]  
Jin-Gen Wang

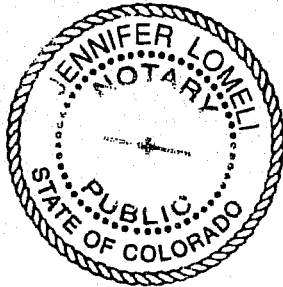
Dated: 4-7-2009

Before me, a Notary Public in and for said County and State, personally appeared Jin-Gen Wang, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed the same for the purposes and considerations therein expressed.

Given under my hand and seal of office this 7th day of April, 2009.

[Signature]  
Notary Public

My Commission Expires: 11/12/09



STATE OF COLORADO )  
CITY OF Broomfield ) ss.  
COUNTY OF Broomfield

By: [Signature]  
Ron Munoz

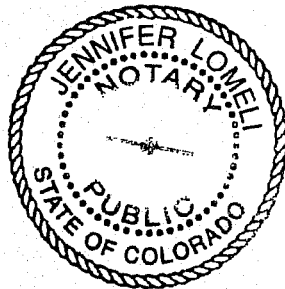
Dated: 4/7/2009

Before me, a Notary Public in and for said County and State, personally appeared Ron Munoz, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed the same for the purposes and considerations therein expressed.

Given under my hand and seal of office this 7<sup>th</sup> day of April, 2009.

[Signature]  
Notary Public

My Commission Expires: 11/16/09



# RECORDATION FORM COVER SHEET PATENTS ONLY

To the Director of the U.S. Patent and Trademark Office: Please record the attached documents or the new address(es) below.

**1. Name of conveying party(ies)**

Jin-Gen Wang  
Qing Li  
Ron Munoz

Additional name(s) of conveying party(ies) attached?  Yes  No

**2. Name and address of receiving party(ies)**

Name: Level 3 Communications, LLC

Internal Address: \_\_\_\_\_

Street Address: 1025 Eldorado Blvd

City: Broomfield

State: CO

Country: USA Zip: 80021

Additional name(s) & address(es) attached?  Yes  No

**3. Nature of conveyance/Execution Date(s):**

Execution Date(s) April 7, 2009

- Assignment  Merger
- Security Agreement  Change of Name
- Joint Research Agreement
- Government Interest Assignment
- Executive Order 9424, Confirmatory License
- Other \_\_\_\_\_

**4. Application or patent number(s):**

This document is being filed together with a new application.

A. Patent Application No.(s)

B. Patent No.(s)

12/420,965

Additional numbers attached?  Yes  No

**5. Name and address to whom correspondence concerning document should be mailed:**

Name: David Wier

Internal Address: Level 3 Communications, C/O CPA Global

Street Address: P.O. Box 52050

City: Minneapolis

State: MN Zip: 55402

Phone Number: 720-888-3539

Fax Number: \_\_\_\_\_

Email Address: \_\_\_\_\_

**6. Total number of applications and patents involved: 1**

**7. Total fee (37 CFR 1.21(h) & 3.41) \$40.00**

- Authorized to be charged to deposit account
- Enclosed
- None required (government interest not affecting title)

**8. Payment Information**

Deposit Account Number \_\_\_\_\_

Authorized User Name \_\_\_\_\_

**9. Signature:**

\_\_\_\_\_  
/Damon A. Rieth/  
Signature

\_\_\_\_\_  
July 28, 2009  
Date

\_\_\_\_\_  
Damon A. Rieth  
Name of Person Signing

Total number of pages including cover sheet, attachments, and documents:

7

Documents to be recorded (including cover sheet) should be faxed to (571) 273-0140, or mailed to:  
Mail Stop Assignment Recordation Services, Director of the USPTO, P.O.Box 1450, Alexandria, V.A. 22313-1450

**PATENT**  
**REEL: 023022 FRAME: 0813**

## Guidelines for Completing Patents Cover Sheets (PTO-1595)

Cover Sheet information must be submitted with each document to be recorded. If the document to be recorded concerns both patents and trademarks separate patent and trademark cover sheets, including any attached pages for continuing information, must accompany the document. All pages of the cover sheet should be numbered consecutively, for example, if both a patent and trademark cover sheet is used, and information is continued on one additional page for both patents and trademarks, the pages of the cover sheet would be numbered from 1 to 4.

### Item 1. Name of Conveying Party(ies).

Enter the full name of the party(ies) conveying the interest. If there is insufficient space, enter a check mark in the "Yes" box to indicate that additional information is attached. The name of the additional conveying party(ies) should be placed on an attached page clearly identified as a continuation of the information Item 1. Enter a check mark in the "No" box, if no information is contained on an attached page. If the document to be recorded is a joint research agreement, enter the name(s) of the party(ies) other than the owner of the patent or patent application as the conveying party(ies).

### Item 2. Name and Address of Receiving Party(ies).

Enter the name and full address of the first party receiving the interest. If there is more than one party receiving the interest, enter a check mark in the "Yes" box to indicate that additional information is attached. Enter a check mark in the "No" box, if no information is contained on an attached page. If the document to be recorded is a joint research agreement, enter the name(s) of the patent or patent application owner(s) as the receiving party.

### Item 3. Nature of Conveyance/Execution Date(s).

Enter the execution date(s) of the document. It is preferable to use the name of the month, or an abbreviation of that name, in order that confusion over dates is minimized. Place a check mark in the appropriate box describing the nature of the conveying document. If the "Other" box is checked, specify the nature of the conveyance.

### Item 4. Application Number(s) or Patent Number(s).

Indicate the application number(s), and/or patent number(s) against which the document is to be recorded. National application numbers must include both the series code and a six-digit number (e.g., 07/123,456), and international application numbers must be complete (e.g., PCT/US91/12345).

Enter a check mark in the appropriate box: "Yes" or "No" if additional numbers appear on attached pages. Be sure to identify numbers included on attached pages as the continuation of Item 4. Also enter a check mark if this Assignment is being filed with a new application.

### Item 5. Name and Address of Party to whom correspondence concerning the document should be mailed.

Enter the name and full address of the party to whom correspondence is to be mailed.

### Item 6. Total Applications and Patents involved.

Enter the total number of applications and patents identified for recordation. Be sure to include all applications and patents identified on the cover sheet and on additional pages.

### Block 7. Total Fee Enclosed.

Enter the total fee enclosed or authorized to be charged. A fee is required for each application and patent against which the document is recorded.

### Item 8. Payment Information.

Enter the deposit account number and authorized user name to authorize charges.

### Item 9. Signature.

Enter the name of the person submitting the document. The submitter must sign and date the cover sheet. Enter the total number of pages including the cover sheet, attachments, and document.

This collection of information is required by 35 USC 261 and 262 and 15 USC 1057 and 1060. The information is used by the public to submit (and by the USPTO to process) patent and trademark assignment requests. After the USPTO records the information, the records for patent and trademarks, assignments, and other associated documents can be inspected by the public. To view documents recorded under secrecy orders or documents recorded due to the interest of the federal government, a written authorization must be submitted. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the form to the USPTO. 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 Manager of the Assignment Division, USPTO, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop Assignment Recordation Services, Director of the USPTO, P.O. Box 1450, Alexandria, VA 22313-1450.



## Privacy Act Statement for Patent Assignment Recordation Form Cover Sheet

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with the above request for information. This collection of information is authorized by 35 U.S.C. 1, 2, 261 and E.O. 9424. This information will primarily be used by the USPTO for the recordation of assignments related to patents and patent applications. Submission of this information is voluntary but is required in order for the USPTO to record the requested assignment. If you do not provide the information required on the cover sheet, the assignment will not be recorded, and all documents will be returned to you.

After the information is recorded, the records and associated documents can be inspected by the public and are not confidential, except for documents that are sealed under secrecy orders or related to unpublished patent applications. Assignment records relating to unpublished patent applications are maintained in confidence in accordance with 35 U.S.C. 122. Records open to the public are searched by users for the purpose of determining ownership for other property rights with respect to patents and trademarks.

Routine uses of the information you provide may also include disclosure to appropriate Federal, state, local, or foreign agencies in support of their enforcement duties and statutory or regulatory missions, including investigating potential violations of law or contract and awarding contracts or other benefits; to a court, magistrate, or administrative tribunal in the course of presenting evidence; to members of Congress responding to requests for assistance from their constituents; to the Office of Management and Budget in connection with the review of private relief legislation; to the Department of Justice in connection with a Freedom of Information Act request; to a contractor in the performance of their duties; to the Office of Personnel Management for personnel studies; and to the General Services Administration (GSA) as part of their records management responsibilities under the authority of 44 U.S.C. 2904 and 2906. Such disclosure to GSA shall not be used to make determinations about individuals.