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PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT4911723

NATURE OF CONVEYANCE: ASSIGNMENT ASSIGNMENT CONVEYING PARTY DATA FRANCIS FERGUSON ERIC OSBORNE CLYDE DAVID COOPER III BRENT W. SMITH BRENT W. SMITH RECEIVING PARTY DATA RECEIVING PARTY DATA Street Address: 1025 ELDORADO BOULEVARD City: BROOMFIELD State/Country: COLORADO PROPERTY NUMBERS Total: 2 Number Application Number: 62510912 Application Number: 15891047	Execution Date 12/12/2017 12/12/2017 12/19/2017 12/12/2017		
Name Name FRANCIS FERGUSON ERIC OSBORNE CLYDE DAVID COOPER III BRENT W. SMITH RECEIVING PARTY DATA RECEIVING PARTY DATA Name: LEVEL 3 COMMUNICATIONS, LLC Street Address: 1025 ELDORADO BOULEVARD City: BROOMFIELD State/Country: OLORADO PROPERTY NUMBERS Total: 2 Number Application Number: 62510912	12/12/2017 12/12/2017 12/19/2017		
FRANCIS FERGUSON ERIC OSBORNE CLYDE DAVID COOPER III BRENT W. SMITH RECEIVING PARTY DATA RECEIVING PARTY DATA Name: LEVEL 3 COMMUNICATIONS, LLC Street Address: 1025 ELDORADO BOULEVARD City: BROOMFIELD State/Country: COLORADO Postal Code: 80021 Number PROPERTY NUMBERS Total: 2 Property Type Number Application Number: 62510912	12/12/2017 12/12/2017 12/19/2017		
ERIC OSBORNE CLYDE DAVID COOPER III BRENT W. SMITH RECEIVING PARTY DATA RECEIVING PARTY DATA Name: LEVEL 3 COMMUNICATIONS, LLC Street Address: 1025 ELDORADO BOULEVARD City: BROOMFIELD State/Country: COLORADO Postal Code: 80021 PROPERTY NUMBERS Total: 2 Property Type Number Application Number: 62510912	12/12/2017 12/19/2017		
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Postal Code: 80021 PROPERTY NUMBERS Total: 2 Property Type Number Application Number: 62510912			
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Application Number: 15891047			
CORRESPONDENCE DATA			
Fax Number: <i>Correspondence will be sent to the e-mail address first; if that is unsucc</i> e	essful, it will be sent		
using a fax number, if provided; if that is unsuccessful, it will be sent via	US Mail.		
Email: patent.docketing@level3.com			
Correspondent Name:LEVEL 3 COMMUNICATIONS, LLCAddress Line 1:1025 ELDORADO BOULEVARD			
Address Line 1: 1023 ELDORADO BOOLEVARD Address Line 4: BROOMFIELD, COLORADO 80021			
TTORNEY DOCKET NUMBER: 0611-US-U1			
AME OF SUBMITTER: JANAE ALLABASTRO			
GIGNATURE: /Janae Allabastro for Gregory P. Durbi	n/		
DATE SIGNED: 04/12/2018			
Fotal Attachments: 6			
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ASSIGNMENT

PARTIES TO THE ASSIGNMENT:

Assignor/Inventor:

Name of Assignor: Francis Ferguson City and State of Residence: Aurora, CO

Name of Assignor: Eric Osborne City and State of Residence: Sutton, MA

Name of Assignor: Clyde David Cooper III City and State of Residence: Louisville, CO

Name of Assignor: Brent W. Smith City and State of Residence: Arvada, CO

Assignee:

Level 3 Communications, LLC 1025 Eldorado Boulevard Broomfield, Colorado 80021

PATENT APPLICATIONS SUBJECT TO THE ASSIGNMENT (the "Applications"):

Provisional Patent Application No.: 62/510,912 Filing Date: May 25, 2017 Title: SYSTEM AND METHOD FOR NEXT HOP BGP ROUTING IN A NETWORK Attorney Docket No. 0611-US-P2

Nonprovisional Patent Application No.: 15/891,047 Filing Date: February 7, 2018 Title: SYSTEM AND METHOD FOR NEXT HOP BGP ROUTING IN A NETWORK Attorney Docket No. 0611-US-U1

WHEREAS, the Assignor identified above has invented certain new and useful inventions for which the patent applications for Letters Patent identified above has been prepared for filing with the United States Patent and Trademark Office.

NOW THEREFORE, for good and valuable consideration, the receipt and sufficiency of which is acknowledged, Assignor has agreed to assign and transfer and does hereby assign and transfer unto the Assignee identified above, its successors and assigns, the entire right, title, and interest in and to said invention and the Applications, including any provisional or non-provisional application to which said Application claims priority, including but not limited to U.S. patent application no. 62/510,912, and in and to any United States of America and foreign

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applications that claim priority to the Applications, any divisional or continuation (in whole or in part) of said Applications, 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 the United States of America and all foreign countries in its own name and any priority rights for such United States of America and foreign applications to which such Applications or the Assignor 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, and any and all rights to collect past damages for infringement of any and all Letters Patent of the United States and countries and regions foreign thereto which may be published, 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 Assignee, 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;

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

Assignor hereby acknowledges that Assignee's internal and external counsel have represented only Assignee and will continue to represent only Assignee with respect to this invention;

Assignor hereby acknowledges an obligation of assignment and transfer of this invention and Applications to Assignee at the time the invention was made; 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 Assignee, as the assignee of the entire right, title, and interest therein.

Assignor and Assignee hereby agree that this assignment is governed by the laws of the state of Colorado of the United States of America and subject to the non-exclusive jurisdiction of the courts of the state of Colorado of the United States of America.

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

	By:	Francis Ferguson
	By:	Eric Osborne
	Dated:	
		Clyde David Cooper III
	By:	Brent W. Smith
	Dated:	······
IN WITNESS WHEREOF, the Assignee e indicated below.	hereunt	o has executed this Assignment upon
		Viet duly authorized for and on behalf of Communications, LLC

Dated: ______

the date indicated below.

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

	By:	
	2	Francis Ferguson
	Dated:	
	By:	Eric Osborne
	Dated:	12/12/2017
	By:	Clyde David Cooper III
	Dated:	
,	By:	Brent W. Smith
	Dated:	
	horouni	
IN WITNESS WHEREOF, the Assignee e indicated below.	nereuni	o has executed this Assignment upon
	By:	<u></u>
		Mer duly/authorized for and on behalf of Communications, LLC
	revel o	
	Dated:	4-9-18

the date indicated below.

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

	By:	Francis Ferguson
	Dated:	
	By:	Eric Osborne
	Dated:	
	,	<u>Claste Que d'Caquae ZZZ</u> Clyde David Cooper III
	Dated:	_/@·/ <u>9·/</u> /7
	By:	Brent W. Smith
	Dated:	
IN WITNESS WHEREOF, the Assignee e indicated below.	hereunt	to has executed this Assignment upon
	By:	< lat

David Wier duly authorized for and on behalf of Level 3 Communications, LLC

Dated: ____4~9~78

the date indicated below.

PATENT REEL: 045515 FRAME: 0061 IN WITNESS WHEREOF, the Assignor hereunto has executed this Assignment upon the date indicated below.

By:	Francis Ferguson
	Francis Ferguson
Dated:	
By:	•
	Eric Osborne
Datad.	
Daleu.	a
By:	
by.	Clyde David Cooper III
Dated:	
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D	Ent W. Sh
By:	Brent W. Smith
Dated:	12-12-17

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

By:

David Wier duly authorized for and on behalf of Level 3 Communications, LLC

Dated:	4-G-	78	

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RECORDED: 04/12/2018