505560067 07/08/2019

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT5606864

SUBMISSION TYPE:	NEW ASSIGNMENT	
NATURE OF CONVEYANCE:	ASSIGNMENT	

CONVEYING PARTY DATA

Name	Execution Date
. ABHIGYAN	05/24/2017
MATTI HILTUNEN	05/24/2017
KAUSTUBH JOSHI	05/30/2017
YOJI OZAWA	05/23/2017
RICHARD SCHLICHTING	05/24/2017

RECEIVING PARTY DATA

Name:	AT&T Intellectual Property I, L.P.	
Street Address:	675 W. Peachtree Street	
Internal Address:	Suite 4000	
City:	Atlanta	
State/Country:	GEORGIA	
Postal Code:	30308	

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	16504577

CORRESPONDENCE DATA

Fax Number: (908)532-1991

Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent

using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.

Phone: 9085321918

Email: adam@hciplaw.com

Correspondent Name: AT&T LEGAL DEPARTMENT - H&C ATTN: PATENT

Address Line 1: ONE AT&T WAY
Address Line 2: ROOM 2A-207

Address Line 4: BEDMINSTER, NEW JERSEY 07921

ATTORNEY DOCKET NUMBER:	2016-1777CON/27.5939USC1	
NAME OF SUBMITTER:	ADAM J. CITRIN	
SIGNATURE:	/Adam J. Citrin/	
DATE SIGNED:	07/08/2019	

PATENT 505560067 REEL: 049687 FRAME: 0758

Total Attachments: 10 source=5939USC1_Assignments_filed_07-08-19#page1.tif source=5939USC1_Assignments_filed_07-08-19#page2.tif source=5939USC1_Assignments_filed_07-08-19#page3.tif source=5939USC1_Assignments_filed_07-08-19#page4.tif source=5939USC1_Assignments_filed_07-08-19#page5.tif source=5939USC1_Assignments_filed_07-08-19#page6.tif source=5939USC1_Assignments_filed_07-08-19#page7.tif source=5939USC1_Assignments_filed_07-08-19#page8.tif source=5939USC1_Assignments_filed_07-08-19#page9.tif source=5939USC1_Assignments_filed_07-08-19#page9.tif

PATENT REEL: 049687 FRAME: 0759

WHEREAS, I. Abhigyan, residing at 4 Alfred Avenue, Somerset, New Jersey 08873, US, am listed as an inventor on a patent application entitled "Creating Cross-Service Chains Of Virtual Network Functions In A Wide Area Network," having AT&T Docket No. 2016-1777, the patent application to be filed in the United States Patent & Trademark Office; and

WHEREAS, AT&T Intellectual Property I, L.P., a partnership organized and existing under and by virtue of the laws of the State of Delaware, and having an office and place of business at 675 W. Peachtree Street, Suite 4000, Atlanta, GA 30308 (hereinafter referred to as "Assignee"), desires to acquire the entire right, title and interest for the United States of America and elsewhere throughout the world in and to said invention and the patent application identified above, including any and all divisions and continuations thereof and any and all Letters Patent which may be granted thereon, including any and all renewals, reissues and prolongations thereto;

NOW THEREFORE, be it known that for and in consideration of the sum of Ten Dollars (\$10.00) and other good and valuable consideration the receipt of which from Assignee is hereby acknowledged, I, as Assignor, have sold, assigned, transferred, and set over, and do hereby sell, assign, transfer, and set over unto the Assignee, its lawful successors and assigns, my entire right, title, and interest in and to this invention and this non-provisional application, and all divisions, substitutions, and continuations thereof; and all Letters Patent of the United States which may be granted thereon, and all reexaminations and reissues thereof; and all rights to claim priority on the basis of the above provisional application (if any), as well as all rights to claim priority on the basis of this application; and all applications for Letters Patent which may hereafter be filed for this invention in any foreign country and all Letters Patent which may be granted on this invention in any foreign country, including certificates of inventions, utility models, industrial design protection, design patent protection, and other governmental grants or issuances; and all extensions, renewals, prolongations, and reissues thereof; to have and to hold for the sole and exclusive use and benefit of the Assignee, its successors and assigns, to the full end of the term and terms for all such patents;

AND, I HEREBY authorize and request the Commissioner of Patents and Trademarks of the United States and any official of any foreign country whose duty it is to issue patents on applications as described above, to issue all Letters Patent for this invention to Assignee, its successors and assigns, in accordance with the terms of this Assignment;

AND, I HEREBY covenant that I have the full right to convey the interest assigned by this Assignment, and I have not executed and will not execute any assignment, sale, license, agreement, or encumbrance in conflict with this Assignment;

AND, I HEREBY further covenant and agree, for the Assignor and the Assignor's legal representatives, that I will, without further consideration, communicate with Assignee, its successors and assigns, any facts known to us respecting this invention; assist the Assignee in the prosecution of the patent application identified above; assist in the making and prosecution of any other patent applications that the Assignee may elect to make covering the invention identified above; testify in any interference, litigation, or other legal proceeding; sign all lawful papers when called upon to do so; execute and deliver any and all papers that may be necessary or desirable to perfect the title to this invention in said Assignee, its successors or assigns; execute all divisional, continuation, and reissue applications; make all rightful oaths and generally do everything possible to aid Assignee, to obtain and enforce proper patent protection for this invention in the United States and any foreign country, it being understood that any expense incident to the execution of such papers shall be borne by the Assignee; and hereby instruct, and further covenant and agree to bind my heirs, legal representatives, and assigns, to do same, without compensation, but at the expense of Assignee or its representatives.

Page 1 of 2

AND, I HEREBY consent that a copy of this assignment shall be deemed a full legal and formal equivalent of any document which may be required in any country in proof of the right of AT&T Intellectual Property I, L.P. to apply for patent or other form of protection for said inventions and to claim the aforesaid benefit of the right of priority.

This Assignment may be executed in any number of counterparts, each of which when so executed and delivered shall be deemed an original, and such counterparts together shall constitute one and the same instrument. A facsimile copy of this Assignment, or any form of an electronic copy of this Assignment, including the signature pages hereto, shall be deemed to be an original,

MAY	IN TESTIMONY	WHEREOF, I have hereunto set my hands this 24 de	ay of
		and for the first of the second second	
		Abhigyan	
	EM JERSEY	•	
COUNTY OF	SOMERSET) \$8. }	

On this ______day *** 2 4 2017 ____, 2017, before me a Notary Public in and for the above County and State, personally appeared Abhigyan, and acknowledged the execution of the foregoing assignment as his/her free act and deed for the purpose herein set forth.

RICHARD SETO YES NOTARY PLANE OF RESIDENCE DF Mades

11/ Charleston States 10/20/200

Notary Public

WHEREAS, I, Matti Hiltunen, residing at 24 Dellwood Avenue, Morristown, New Jersey 07960, US, am listed as an inventor on a patent application entitled "Creating Cross-Service Chains Of Virtual Network Functions In A Wide Area Network," having AT&T Docket No. 2016-1777, the patent application to be filed in the United States Patent & Trademark Office; and

WHEREAS, AT&T Intellectual Property I, L.P., a partnership organized and existing under and by virtue of the laws of the State of Delaware, and having an office and place of business at 675 W. Peachtree Street, Suite 4000, Atlanta, GA 30308 (hereinafter referred to as "Assignee"), desires to acquire the entire right, title and interest for the United States of America and elsewhere throughout the world in and to said invention and the patent application identified above, including any and all divisions and continuations thereof and any and all Letters Patent which may be granted thereon, including any and all renewals, reissues and prolongations thereto;

NOW THEREFORE, be it known that for and in consideration of the sum of Ten Dollars (\$10.00) and other good and valuable consideration the receipt of which from Assignee is hereby acknowledged, I, as Assignor, have sold, assigned, transferred, and set over, and do hereby sell, assign, transfer, and set over unto the Assignee, its lawful successors and assigns, my entire right, title, and interest in and to this invention and this non-provisional application, and all divisions, substitutions, and continuations thereof; and all Letters Patent of the United States which may be granted thereon, and all reexaminations and reissues thereof; and all rights to claim priority on the basis of the above provisional application (if any), as well as all rights to claim priority on the basis of this application; and all applications for Letters Patent which may hereafter be filed for this invention in any foreign country and all Letters Patent which may be granted on this invention in any foreign country, including certificates of inventions, utility models, industrial design protection, design patent protection, and other governmental grants or issuances; and all extensions, renewals, prolongations, and reissues thereof; to have and to hold for the sole and exclusive use and benefit of the Assignee, its successors and assigns, to the full end of the term and terms for all such patents;

AND, I HEREBY authorize and request the Commissioner of Patents and Trademarks of the United States and any official of any foreign country whose duty it is to issue patents on applications as described above, to issue all Letters Patent for this invention to Assignee, its successors and assigns, in accordance with the terms of this Assignment;

AND, I HEREBY covenant that I have the full right to convey the interest assigned by this Assignment, and I have not executed and will not execute any assignment, sale, license, agreement, or encumbrance in conflict with this Assignment;

AND, I HEREBY further covenant and agree, for the Assignor and the Assignor's legal representatives, that I will, without further consideration, communicate with Assignee, its successors and assigns, any facts known to us respecting this invention; assist the Assignee in the prosecution of the patent application identified above; assist in the making and prosecution of any other patent applications that the Assignee may elect to make covering the invention identified above; testify in any interference, litigation, or other legal proceeding; sign all lawful papers when called upon to do so; execute and deliver any and all papers that may be necessary or desirable to perfect the title to this invention in said Assignee, its successors or assigns; execute all divisional, continuation, and reissue applications; make all rightful oaths and generally do everything possible to aid Assignee, to obtain and enforce proper patent protection for this invention in the United States and any foreign country, it being understood that any expense incident to the execution of such papers shall be borne by the Assignee; and hereby instruct, and further covenant and agree to bind my heirs, legal representatives, and assigns, to do same, without compensation, but at the expense of Assignee or its representatives.

Page Lof 2

AND, I HEREBY consent that a copy of this assignment shall be deemed a full legal and formal equivalent of any document which may be required in any country in proof of the right of AT&T Intellectual Property I, L.P. to apply for patent or other form of protection for said inventions and to claim the aforesaid benefit of the right of priority.

This Assignment may be executed in any number of counterparts, each of which when so executed and delivered shall be deemed an original, and such counterparts together shall constitute one and the same instrument. A facsimile copy of this Assignment, or any form of an electronic copy of this Assignment, including the signature pages hereto, shall be deemed to be an original.

IN TESTIMONY	WHEREOF, I have hereunto set my hands this 24 day o	ŧ`
0	USOQUA	
	Matti Hiltunen	
STATE OF <u>U</u>)	
COUNTY OF SQ 55W SC 5) ss.)	

On this ______day **MAY 2 A 7017**, 2017, before me a Notary Public in and for the above County and State, personally appeared **Matti Hiltunen**, and acknowledged the execution of the foregoing assignment as his/her free act and deed for the purpose herein set forth.

RICHARD SETO YEE NOTARY PUNICOF NEW ÆRÆY ID # 2430961

My Commission Expires 10/20/2018

Notary Public

WHEREAS, I, Kaustubh Joshi, residing at 2365 Morse Avenue, Scotch Plains, New Jersey 07076, US, am listed as an inventor on a patent application entitled "Creating Cross-Service Chains Of Virtual Network Functions In A Wide Area Network," having AT&T Docket No. 2016-1777, the patent application to be filed in the United States Patent & Trademark Office; and

WHEREAS, AT&T Intellectual Property I, L.P., a partnership organized and existing under and by virtue of the laws of the State of Delaware, and having an office and place of business at 675 W. Peachtree Street, Suite 4000, Atlanta, GA 30308 (hereinafter referred to as "Assignee"), desires to acquire the entire right, title and interest for the United States of America and elsewhere throughout the world in and to said invention and the patent application identified above, including any and all divisions and continuations thereof and any and all Letters Patent which may be granted thereon, including any and all renewals, reissues and prolongations thereto;

NOW THEREFORE, be it known that for and in consideration of the sum of Ten Dollars (\$10.00) and other good and valuable consideration the receipt of which from Assignee is hereby acknowledged, I, as Assignor, have sold, assigned, transferred, and set over, and do hereby sell, assign, transfer, and set over unto the Assignee, its lawful successors and assigns, my entire right, title, and interest in and to this invention and this non-provisional application, and all divisions, substitutions, and continuations thereof; and all Letters Patent of the United States which may be granted thereon, and all reexaminations and reissues thereof; and all rights to claim priority on the basis of the above provisional application (if any), as well as all rights to claim priority on the basis of this application; and all applications for Letters Patent which may hereafter be filed for this invention in any foreign country and all Letters Patent which may be granted on this invention in any foreign country, including certificates of inventions, utility models, industrial design protection, design patent protection, and other governmental grants or issuances; and all extensions, renewals, prolongations, and reissues thereof; to have and to hold for the sole and exclusive use and benefit of the Assignee, its successors and assigns, to the full end of the term and terms for all such patents;

AND, I HEREBY authorize and request the Commissioner of Patents and Trademarks of the United States and any official of any foreign country whose duty it is to issue patents on applications as described above, to issue all Letters Patent for this invention to Assignee, its successors and assigns, in accordance with the terms of this Assignment;

AND, I HEREBY covenant that I have the full right to convey the interest assigned by this Assignment, and I have not executed and will not execute any assignment, sale, license, agreement, or encumbrance in conflict with this Assignment;

AND, I HEREBY further covenant and agree, for the Assignor and the Assignor's legal representatives, that I will, without further consideration, communicate with Assignee, its successors and assigns, any facts known to us respecting this invention; assist the Assignee in the prosecution of the patent application identified above; assist in the making and prosecution of any other patent applications that the Assignee may elect to make covering the invention identified above; testify in any interference, litigation, or other legal proceeding; sign all lawful papers when called upon to do so; execute and deliver any and all papers that may be necessary or desirable to perfect the title to this invention in said Assignee, its successors or assigns; execute all divisional, continuation, and reissue applications; make all rightful oaths and generally do everything possible to aid Assignee, to obtain and enforce proper patent protection for this invention in the United States and any foreign country, it being understood that any expense incident to the execution of such papers shall be borne by the Assignee; and hereby instruct, and further covenant and agree to bind my heirs, legal representatives, and assigns, to do same, without compensation, but at the expense of Assignee or its representatives.

Page 1 of 2

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IN TESTIMONY WHEDEOF I have	hereunto set my hands this 30^{++} day of
MAY .2017.	nereunto set my nanus uns 12 day or
, 2017.	s \$
	CON-
Kaustub	h Joshi
NEW JERSEY	
STATE OF HOMNERSON)	
) ss.	
NEW JERSEY STATE OF HOMERSED) ss. COUNTY OF SOMERSED)	
nothing and a second	2017, before me a Notary Public in and for the Joshi , and acknowledged the execution of the
On this 30 day of NITY,	2017, before me a Notary Public in and for the
foregoing assignment as his/her free act and deed for the p	ourpose herein set forth.
	RICHARD SETO YEE
	NOTARY PUBLIC OF NEW JERSEY
	ID # 2439861
Nichard Cle	My Commission Expires 10/23/2018
(SEAL) STEE	
Notary P	ublic

WHEREAS, I, Yoji Ozawa, residing at 214-1-2-207 Maeda-cho, Totsuka-ku, Yokohama-shi, Kanagawa-ken, Japan, 244-0804, am listed as an inventor on a patent application entitled "Creating Cross-Service Chains Of Virtual Network Functions In A Wide Area Network," having AT&T Docket No. 2016-1777, the patent application to be filed in the United States Patent & Trademark Office; and

WHEREAS, AT&T Intellectual Property I, L.P., a partnership organized and existing under and by virtue of the laws of the State of Delaware, and having an office and place of business at 675 W. Peachtree Street, Suite 4000, Atlanta, GA 30308 (hereinafter referred to as "Assignee"), desires to acquire the entire right, title and interest for the United States of America and elsewhere throughout the world in and to said invention and the patent application identified above, including any and all divisions and continuations thereof and any and all Letters Patent which may be granted thereon, including any and all renewals, reissues and prolongations thereto;

NOW THEREFORE, be it known that for and in consideration of the sum of Ten Dollars (\$10.00) and other good and valuable consideration the receipt of which from Assignee is hereby acknowledged, I, as Assignor, have sold, assigned, transferred, and set over, and do hereby sell, assign, transfer, and set over unto the Assignee, its lawful successors and assigns, my entire right, title, and interest in and to this invention and this non-provisional application, and all divisions, substitutions, and continuations thereof; and all Letters Patent of the United States which may be granted thereon, and all reexaminations and reissues thereof; and all rights to claim priority on the basis of the above provisional application (if any), as well as all rights to claim priority on the basis of this application; and all applications for Letters Patent which may hereafter be filed for this invention in any foreign country and all Letters Patent which may be granted on this invention in any foreign country, including certificates of inventions, utility models, industrial design protection, design patent protection, and other governmental grants or issuances; and all extensions, renewals, prolongations, and reissues thereof; to have and to hold for the sole and exclusive use and benefit of the Assignee, its successors and assigns, to the full end of the term and terms for all such patents;

AND, I HEREBY authorize and request the Commissioner of Patents and Trademarks of the United States and any official of any foreign country whose duty it is to issue patents on applications as described above, to issue all Letters Patent for this invention to Assignee, its successors and assigns, in accordance with the terms of this Assignment;

AND, I HEREBY covenant that I have the full right to convey the interest assigned by this Assignment, and I have not executed and will not execute any assignment, sale, license, agreement, or encumbrance in conflict with this Assignment;

AND, I HEREBY further covenant and agree, for the Assignor and the Assignor's legal representatives, that I will, without further consideration, communicate with Assignee, its successors and assigns, any facts known to us respecting this invention; assist the Assignee in the prosecution of the patent application identified above; assist in the making and prosecution of any other patent applications that the Assignee may elect to make covering the invention identified above; testify in any interference, litigation, or other legal proceeding; sign all lawful papers when called upon to do so; execute and deliver any and all papers that may be necessary or desirable to perfect the title to this invention in said Assignee, its successors or assigns; execute all divisional, continuation, and reissue applications; make all rightful oaths and generally do everything possible to aid Assignee, to obtain and enforce proper patent protection for this invention in the United States and any foreign country, it being understood that any expense incident to the execution of such papers shall be borne by the Assignce; and hereby instruct, and further

covenant and agree to bind my heirs, legal representatives, and assigns, to do same, without compensation, but at the expense of Assignee or its representatives.

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<u> May</u>	IN TESTIMONY WHEREOF, I have hereunto set my hands this 23 day of, 2017.
•	Yoji Ozawa
	ı
	Witness Maratumi Tsuyuki
	Minori Sakashita

Witness

WHEREAS, I, Richard Schlichting, residing at 221 Sagamore Drive, New Providence, New Jersey 07974. US, am listed as an inventor on a patent application entitled "Creating Cross-Service Chains Of Virtual Network Functions In A Wide Area Network," having AT&T Docket No. 2016-1777, the patent application to be filed in the United States Patent & Trademark Office; and

WHEREAS, AT&T Intellectual Property I, L.P., a partnership organized and existing under and by virtue of the laws of the State of Delaware, and having an office and place of business at 675 W. Peachtree Street, Suite 4000, Atlanta, GA 30308 (hereinafter referred to as "Assignee"), desires to acquire the entire right, title and interest for the United States of America and elsewhere throughout the world in and to said invention and the patent application identified above, including any and all divisions and continuations thereof and any and all Letters Patent which may be granted thereon, including any and all renewals, reissues and prolongations thereto;

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AND, I HEREBY authorize and request the Commissioner of Patents and Trademarks of the United States and any official of any foreign country whose duty it is to issue patents on applications as described above, to issue all Letters Patent for this invention to Assignee, its successors and assigns, in accordance with the terms of this Assignment;

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AND, I HEREBY further covenant and agree, for the Assignor and the Assignor's legal representatives, that I will, without further consideration, communicate with Assignee, its successors and assigns, any facts known to us respecting this invention; assist the Assignee in the prosecution of the patent application identified above; assist in the making and prosecution of any other patent applications that the Assignee may elect to make covering the invention identified above; testify in any interference, litigation, or other legal proceeding; sign all lawful papers when called upon to do so; execute and deliver any and all papers that may be necessary or desirable to perfect the title to this invention in said Assignee, its successors or assigns; execute all divisional, continuation, and reissue applications; make all rightful oaths and generally do everything possible to aid Assignee, to obtain and enforce proper patent protection for this invention in the United States and any foreign country, it being understood that any expense incident to the execution of such papers shall be borne by the Assignee; and hereby instruct, and further covenant and agree to bind my heirs, legal representatives, and assigns, to do same, without compensation, but at the expense of Assignee or its representatives.

Page 1 of 2

PATENT REEL: 049687 FRAME: 0768 AND, I HEREBY consent that a copy of this assignment shall be deemed a full legal and formal equivalent of any document which may be required in any country in proof of the right of AT&T Intellectual Property I, L.P. to apply for patent or other form of protection for said inventions and to claim the aforesaid benefit of the right of priority.

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IN TESTIMONY	WHEREC	F. I have hereunto set my hands MAY 2424By of
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Somerset) 88.)	
and State, personal	ly appeared	4 2017 , 2017, before me a Notary Public in and for the Richard Schlichting, and acknowledged the execution of didect for the purpose herein set forth. RICHARD SETO YEE NOTARY PUBLIC OF NEW ARREY (D # 2430881) Notary Public
	, 2017. Somerset On thisdand State, personal	, 2017. Somerset On thisday of MAY 2 and State, personally appeared