10/11/2018 505136168

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2

EPAS ID: PAT5182931

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
TARUN SONI	10/06/2018
NIPUN RAMAKRISHNAN	10/08/2018

RECEIVING PARTY DATA

Name:	NORTHROP GRUMMAN SYSTEMS CORPORATION	
Street Address:	2980 FAIRVIEW PARK DRIVE	
City:	FALLS CHURCH	
State/Country:	VIRGINIA	
Postal Code:	22042-4511	

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	16156866

CORRESPONDENCE DATA

Fax Number: (216)621-4072

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: 216-621-2234 Email: lpringle@tarolli.com

Correspondent Name: TAROLLI, SUNDHEIM, COVELL & TUMMINO LLP

Address Line 1: 1300 EAST NINTH STREET

Address Line 2: **SUITE 1700**

Address Line 4: CLEVELAND, OHIO 44114

ATTORNEY DOCKET NUMBER: NG(MS)027491 US PRI NAME OF SUBMITTER: CHRISTOPHER P. HARRIS	
DATE SIGNED:	10/11/2018

Total Attachments: 3

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> **PATENT REEL: 047129 FRAME: 0553** 505136168

Notary's Signature

ASSIGNMENT

WHEREAS, I, Tarun Soni, together with Nipun Ramakrishnan, hereinafter referred to as Assignor have jointly invented certain new and useful improvements in PREDICTED NETWORK TRAFFIC, described in an application for United States Letters Patent, executed by me on the date as stated below;

WHEREAS, Northrop Grumman Systems Corporation, a Delaware corporation, having its principal place of business at 2980 Fairview Park Drive, Falls Church, VA 22042-4511, United States of America, hereinafter referred to as Assignee, is desirous of acquiring the entire right, title and interest in, to and under said improvements and said application:

NOW, THEREFORE, in consideration of Assignor's obligations to Northrop Grumman Systems Corporation, and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged. Assignor has sold, assigned, transferred and set over, and by these presents does hereby sell, assign, transfer and set over, unto Assignee, its successors, legal representatives and assigns. Assignor's entire right, title and interest in, to and under said improvements, and said application and all divisions, renewals, continuations, and continuations-in-part thereof, and all United States Letters patent that may be granted thereon and all reissues and extensions thereof, and all applications for Letters Patent that may hereafter be filed for said improvements in any country or countries foreign to the United States, including the full right to claim for any such application the priority benefits of the International Convention for the Protection of Industrial Property and other priority-conferring treaties, and all Letters Patent that may be granted for said improvements in any country or countries foreign to the United States and all extensions, divisions, continuations, continuations-in-part, renewals and reissues thereof; and Assignor hereby authorizes and requests the Commissioner of Patents and Trademarks of the United States, and any official of any country or countries foreign to the United States, whose duty it is to issue patents on applications as aforesaid, to issue all Letters Patent for said improvements to said Assignee, its successors, legal representatives and assigns, in accordance with the terms of this instrument;

Assignor hereby acknowledges that at the time of making the improvements herein identified, Assignor was under an obligation to assign to Assignee, Assignor's entire right, title and interest in, to and under said improvements;

Assignor hereby covenants that Assignor has full right to convey the interest herein assigned, and that Assignor has not executed, and will not execute, any agreement in conflict herewith and that Assignee, Northrop Grumman Systems Corporation, its successors, assigns and other legal representatives shall have the right to hold and enjoy for its and their own use and benefit, to the end of the term or terms for which such Letters Patent shall or may be granted, reissued or extended as fully and completely as the same right could have been held and enjoyed by Assignor had this Assignment not been made.

Assignor hereby further covenants and agrees to communicate to Assignee, its successors, legal representatives and assigns, any and all facts known to Assignor respecting said improvements; to promptly provide Assignee with all documents relating to said improvements, said invention, and said Letters Patent as may be known or accessible to Assignor; to testify as to the same in any interference or litigation or other legal proceedings related thereto; to sign all lawful papers, execute all extensions, continuations, continuations-in-part, divisional and reissue applications; and to make all rightful oaths or declarations and generally do everything possible to aid Assignee, its successors, legal representatives and assigns in obtaining and enforcing all the rights herein conveyed for said improvements in all countries without further compensation, but at the expense of Assignee, its successors, legal representatives and assigns.

IN WITNESS WHEREOF, the undersigned has executed an XXOSEK, 2018, and has executed the referenced patent application	on the own day of october, 2018.
TAI	To 10 RUN SONI
A notary public or other officer completing this certificate verifies only t to which this certificate is attached, and not the truthfulness, accuracy, or verificate is attached.	he identity of the individual who signed the document alidity of that document.
COUNTY OF San Diego) SS	
On 10/01/8-01% before me, Music C Jacob Havas Seprence to me on the basis of satisfactory evidence to be the person(s) acknowledged to me that he sac free executed the same in his/har/their author the instrument to be the person(s), or the entity upon behalf of which the	HORIZEE CADACHMARSI ADM IDSI DV Mie/Brethrie sinontnussi)
I certify under PENALTY OF PERJURY under the laws of the State of and correct.	Libraria that the foregoing paragraph is true
WITNESS my hand and official scal. M.L. Hand Shapel Annoyles	Michael Joseph Hannaberry? COMM. 82225080 NOTARY PUSIC - CALFORMA E SAN DEGO COUNTY

Page 1 of 2

ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or

Signature /_

validity of that document.	
State of California County of <u>Saw Dieg</u> c	***************************************
On <i>10 06 2018</i>	<u>Nuhae C Joseph HaumBay শুনিয়ে ০</u> 4 (insert name and title of the office r)
personally appeared TAPUN SONT who proved to me on the basis of satisfactory evid	ance to be the remarks where a valid
subscribed to the within instrument and acknowled his/her/their authorized capacity(hes), and that by he person(e), or the entity upon behalf of which the pe	Iged to me that he/she/they executed the same in
I certify under PENALTY OF PERJURY under the paragraph is true and correct.	
WITNESS my hand and official seal.	Michael Joseph Hannaberryš COMM #2223080
MARINA	NOTARY PUBLIC • CALIFORNIA È SAN DIEGO COLINTY Commission Exires Dec 11, 2021 è

(Seal)

PATENT

REEL: 047129 FRAME: 0555

	N WITNESS WHEREOF, the undersigned has executed and delivered this instrument this Ob day of October 2018.
	Malum/
	NIPUN RAMAKRISHNAN
	1918 (11) 030 340000
	A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document
į	to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.
٤	
	STATE OF LAUFORNIA
	COUNTY OF HIPMOND OF COUNTY OF HIPMOND
	On 1781 2018 before me, HADEW 1014AI JAPI. July personally appeared Nipun Ramakfishnan, proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is were subscribed to this
	Ramakrishnan, proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) island subscribed to this
	instrument and acknowledged to me that he/she/they executed the same in his/hea/their authorized capacity(1997), and may by
	his/haddheir signature(s) on the instrument to be the person(s), or the entity upon behalf of which the person(s) acted, executed the
	instrument.
	I certify under PENALTY OF PERJURY under the laws of the State of
	I certify under PENALTY OF PERJURY under the laws of the State of that the foregoing paragraph is true
	and correct.
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	(CCA3)
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RECORDED: 10/11/2018