

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
 Stylesheet Version v1.2

EPAS ID: PAT5702448

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
HUGH BRENDAN MCMAHAN	10/22/2015
JAKUB KONECNY	10/23/2015
EIDER BRANTLY MOORE	03/25/2016
DANIEL RAMAGE	03/25/2016
BLAISE H. AGUERA-ARCAS	03/23/2016
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	GOOGLE INC.
<b>Street Address:</b>	1600 AMPHITHEATRE PARKWAY
<b>City:</b>	MOUNTAIN VIEW
<b>State/Country:</b>	CALIFORNIA
<b>Postal Code:</b>	94043
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
<b>Application Number:</b>	16558945
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	(864)233-7342
<i>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.</i>	
<b>Phone:</b>	864-271-1592
<b>Email:</b>	usdocketing@dority-manning.com,anowell@dority-manning.com
<b>Correspondent Name:</b>	DORITY & MANNING, PA AND GOOGLE LLC
<b>Address Line 1:</b>	PO BOX 1449
<b>Address Line 4:</b>	GREENVILLE, SOUTH CAROLINA 29602
<b>ATTORNEY DOCKET NUMBER:</b>	GGL-1127-CON
<b>NAME OF SUBMITTER:</b>	JOSEPH J. PROBST
<b>SIGNATURE:</b>	/Joseph J. Probst/
<b>DATE SIGNED:</b>	09/05/2019
<b>Total Attachments: 4</b>	
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**PATENT**

**REEL: 050277 FRAME: 0501**

**JOINT INVENTION ASSIGNMENT OF WORLDWIDE RIGHTS**

**WHEREAS**, we, Hugh Brendan McMahan, a citizen of the United States, residing in Seattle, Washington; and Jakub Konecny, a citizen of Slovakia, residing in Edinburgh, United Kingdom, as assignors, have made an invention entitled

**“SYSTEMS AND METHODS OF DISTRIBUTED OPTIMIZATION”**

as described in a patent application for U.S. Letters Patent bearing U.S. Serial No. 62/242,771, which was filed in the U.S. Patent and Trademark Office on October 16, 2015; and

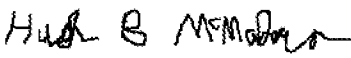
**WHEREAS**, Google Inc., 1600 Amphitheatre Parkway, Mountain View, California 94043, a corporation organized and existing under the laws of the State of California, as assignee, is desirous of securing the entire right, title and interest in and to this invention in all countries throughout the world, and in and to the application for United States Letters Patent on this invention and the Letters Patent to be issued upon this application;

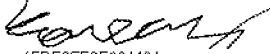
**NOW, THEREFORE**, be it known that for good and valuable consideration the receipt of which from assignee is hereby acknowledged, we, as assignors, have sold, assigned, transferred, and set over, and do hereby sell, assign, transfer, and set over unto the assignee, its lawful successors and assigns, our entire right, title, and interest in and to this invention and this application, and all divisions, and continuations thereof, and all Letters Patent of the United States which may be granted thereon, and all reissues thereof, and all rights to claim priority on the basis of such applications, 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, and all extensions, renewals, and reissues thereof, and all rights to sue and recover for past, present, and future infringement thereof, and we hereby authorize and request the Commissioner for Patents 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 Agreement.

**AND, WE HEREBY** covenant that we have the full right to convey the interest assigned by this Assignment, and we have not executed, and will not execute any agreement in conflict with this Assignment;

**AND, WE HEREBY** further covenant and agree that we will, without further consideration, communicate with assignee, its successors and assigns, any facts known to us respecting this invention, and testify in any 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 of this invention in said assignee, its successors and assigns, execute all divisional, continuation, and reissue applications, make all rightful oaths and generally do everything possible to aid assignee, its successors and assigns, 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, its successors and assigns.

**IN WITNESS WHEREOF**, the Assignors have executed this document on the date indicated below:

DocuSigned by:  
  
88DCECAA508C450...  
Hnroh Brendan McMahan

DocuSigned by:  
  
1FDE2FE8E604494...  
Jakub Konecny

10/22/2015

Date

10/23/2015

Date

**JOINT INVENTION ASSIGNMENT OF WORLDWIDE RIGHTS**

**WHEREAS**, we, Eider Brantly Moore, a citizen of United States, residing in Seattle, Washington; Daniel Ramage, a citizen of United States, residing in Seattle, Washington; and Blaise H. Aguera-Arcas, a citizen of United States, residing in Seattle, Washington, as assignors, have made an invention entitled

**“SYSTEMS AND METHODS OF DISTRIBUTED OPTIMIZATION”**

as described in a patent application for U.S. Letters Patent bearing U.S. Serial No. 15/045,707, which was filed in the U.S. Patent and Trademark Office on February 17, 2016; and



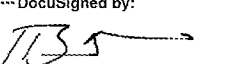
**WHEREAS**, Google Inc., 1600 Amphitheatre Parkway, Mountain View, California 94043, a corporation organized and existing under the laws of the State of Delaware, as assignee, is desirous of securing the entire right, title and interest in and to this invention in all countries throughout the world, and in and to the application for United States Letters Patent on this invention and the Letters Patent to be issued upon this application;

**NOW, THEREFORE**, be it known that for good and valuable consideration the receipt of which from assignee is hereby acknowledged, we, as assignors, have sold, assigned, transferred, and set over, and do hereby sell, assign, transfer, and set over unto the assignee, its lawful successors and assigns, our entire right, title, and interest in and to this invention and this application, and all divisions, and continuations thereof, and all Letters Patent of the United States which may be granted thereon, and all reissues thereof, and all rights to claim priority on the basis of such applications, 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, and all extensions, renewals, and reissues thereof, and all rights to sue and recover for past, present, and future infringement thereof, and we hereby authorize and request the Commissioner for Patents 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 Agreement.

**AND, WE HEREBY** covenant that we have the full right to convey the interest assigned by this Assignment, and we have not executed, and will not execute any agreement in conflict with this Assignment;

**AND, WE HEREBY** further covenant and agree that we will, without further consideration, communicate with assignee, its successors and assigns, any facts known to us respecting this invention, and testify in any 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 of this invention in said assignee, its successors and assigns, execute all divisional, continuation, and reissue applications, make all rightful oaths and generally do everything possible to aid assignee, its successors and assigns, 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, its successors and assigns.

**IN WITNESS WHEREOF**, the Assignors have executed this document on the date indicated below:

DocuSigned by:  EB720152B465478	Eider Brantly Moore
DocuSigned by:  4444CC772006413	Daniel Ramage
DocuSigned by:  AA352C807CE5442	Blaise H. Aguera-Arcas

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3/25/2016

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Date

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3/25/2016

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Date

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3/23/2016

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Date