

<b>PATENT ASSIGNMENT COVER SHEET</b>
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Electronic Version v1.1  
 Stylesheet Version v1.2

EPAS ID: PAT5350112

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
CHARLES WRIGHT	05/10/2018
RYAN CAUDY	05/10/2018
DAVID R. KENT IV	05/10/2018
MARK ZELDIS	05/11/2018
BRIAN RIES	05/11/2018
ANDREW BARANEC	05/14/2018
RADU TEODORESCU	05/13/2018
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	DEEPHAVEN DATA LABS LLC
<b>Street Address:</b>	2800 NIAGARA LANE NORTH
<b>City:</b>	PLYMOUTH
<b>State/Country:</b>	MINNESOTA
<b>Postal Code:</b>	55447
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
<b>Application Number:</b>	16253404
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	
<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>	7036469255
<b>Email:</b>	susan@carmichaelip.com
<b>Correspondent Name:</b>	JAMES T. CARMICHAEL
<b>Address Line 1:</b>	CARMICHAEL IP, PLLC
<b>Address Line 2:</b>	8000 TOWERS CRESCENT DRIVE, 13TH FLOOR
<b>Address Line 4:</b>	TYSONS CORNER, VIRGINIA 22182
<b>ATTORNEY DOCKET NUMBER:</b>	W3.9-10113US02
<b>NAME OF SUBMITTER:</b>	SUSAN STILES
<b>SIGNATURE:</b>	/SUSAN STILES/
<b>DATE SIGNED:</b>	01/30/2019

PATENT

**Total Attachments: 14**

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**ASSIGNMENT**

WHEREAS, I, Charles Wright, have invented or co-invented inventions disclosed in one or more of the patent applications listed in Table A that were filed in the United States Patent and Trademark Office (referred to hereinafter as "the applications"); and

WHEREAS, Illumon LLC ("ASSIGNEE"), a corporation or other business entity duly organized under the laws of the State of Delaware in the United States of America, desires to acquire the entire right, title, and interest in and to the inventions, the applications, and any Letters Patent granted or to be granted for the inventions in the United States and in all foreign countries;

NOW, THEREFORE, in consideration of One Dollar (\$1.00) paid to me by ASSIGNEE, and other good and valuable consideration, the receipt and sufficiency of which I acknowledge, I have sold, assigned, transferred, and set over, and do hereby sell, assign, transfer, and set over unto ASSIGNEE, its successors, legal representatives, and assigns, my entire interest, if any, in and to the inventions, the applications, all applications claiming benefit of the applications, including, but not limited to, all divisions, continuations, and continuations-in-part of the applications, and all Letters Patent that have been granted or may be granted thereon in the United States and in all foreign countries, and all reissues thereof, together with the right to claim priority under the International Convention in all member countries; and I authorize and request the United States Patent and Trademark Office to issue all Letters Patent for the inventions to ASSIGNEE, its successors, legal representatives, and assigns in accordance with the terms of this Assignment;

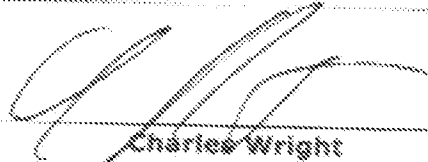
AND I covenant and agree that I have the full right to convey the entire interest herein assigned and that I have not executed and will not execute any assignment or other instrument in conflict with this Assignment;

AND I further covenant and agree that upon request by ASSIGNEE, its successors, legal representatives, and/or assigns, and without further consideration, I will do all lawful acts that may be necessary or desirable to assist ASSIGNEE, its successors, legal representatives, and/or assigns to obtain and enforce patent protection for the inventions in the United States and in all foreign countries, including, but not limited to, communicate with ASSIGNEE, its successors, legal representatives, and/or assigns any facts known to me regarding the inventions, testify in any legal proceeding, sign all lawful papers, execute and deliver all papers that may be necessary or desirable to perfect the title to the inventions in ASSIGNEE, its successors, legal representatives, and/or assigns, execute all divisional, continuation, and reissue applications, and make all rightful oaths, it being understood that any expense incident to the rendering of such assistance will be borne by ASSIGNEE, its successors, legal representatives, and/or assigns, and it being further understood that I will render such assistance even if my employment, if any, by ASSIGNEE, its successors, legal representatives, and/or assigns, has been terminated.

Table A

Appn. No.	Filing Date	Title
15/813,142	11/14/2017	COMPUTER DATA SYSTEM DATA SOURCE HAVING AN UPDATE PROPAGATION GRAPH WITH FEEDBACK CYCLICABILITY
15/813,127	11/14/2017	COMPUTER DATA DISTRIBUTION ARCHITECTURE CONNECTING AN UPDATE PROPAGATION GRAPH MULTIPLE REMOTE QUERY PROCESSORS
15/813,119	11/14/2017	KEYED ROW SELECTION
15/813,112	11/14/2017	COMPUTER DATA SYSTEM DATA SOURCE REFRESHING USING AN UPDATE PROPAGATION GRAPH A MERGED JOIN LISTENER
62/608,320	12/20/2017	COMPUTER DATA SYSTEM
62/635,544	2/27/2018	COMPUTER DATA SYSTEM

Dated: 5/10/18



Charles Wright

**ASSIGNMENT**

WHEREAS, I, Ryan Caudy, have invented or co-invented inventions disclosed in one or more of the patent applications listed in **Table A** that were filed in the United States Patent and Trademark Office (referred to hereinafter as "the applications"); and

WHEREAS, Illumon LLC ("ASSIGNEE"), a corporation or other business entity duly organized under the laws of the State of Delaware in the United States of America, desires to acquire the entire right, title, and interest in and to the inventions, the applications, and any Letters Patent granted or to be granted for the inventions in the United States and in all foreign countries;

NOW, THEREFORE, in consideration of One Dollar (\$1.00) paid to me by ASSIGNEE, and other good and valuable consideration, the receipt and sufficiency of which I acknowledge, I have sold, assigned, transferred, and set over, and do hereby sell, assign, transfer, and set over unto ASSIGNEE, its successors, legal representatives, and assigns, my entire interest, if any, in and to the inventions, the applications, all applications claiming benefit of the applications, including, but not limited to, all divisions, continuations, and continuations-in-part of the applications, and all Letters Patent that have been granted or may be granted thereon in the United States and in all foreign countries, and all reissues thereof, together with the right to claim priority under the International Convention in all member countries; and I authorize and request the United States Patent and Trademark Office to issue all Letters Patent for the inventions to ASSIGNEE, its successors, legal representatives, and assigns in accordance with the terms of this Assignment;

AND I covenant and agree that I have the full right to convey the entire interest herein assigned and that I have not executed and will not execute any assignment or other instrument in conflict with this Assignment;

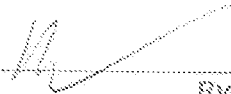
AND I further covenant and agree that upon request by ASSIGNEE, its successors, legal representatives, and/or assigns, and without further consideration, I will do all lawful acts that may be necessary or desirable to assist ASSIGNEE, its successors, legal representatives, and/or assigns to obtain and enforce patent protection for the inventions in the United States and in all foreign countries, including, but not limited to, communicate with ASSIGNEE, its successors, legal representatives, and/or assigns any facts known to me regarding the inventions, testify in any legal proceeding, sign all lawful papers, execute and deliver all papers that may be necessary or desirable to perfect the title to the inventions in ASSIGNEE, its successors, legal representatives, and/or assigns, execute all divisional, continuation, and reissue applications, and make all rightful oaths, it being understood that any expense incident to the rendering of such assistance will be borne by ASSIGNEE, its successors, legal representatives, and/or assigns, and it being further understood that I will render such assistance even if my employment, if any, by ASSIGNEE, its successors, legal representatives, and/or assigns, has been terminated.

Table A

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15/813,142	11/14/2017	COMPUTER DATA SYSTEM DATA SOURCE HAVING AN UPDATE PROPAGATION GRAPH WITH FEEDBACK CYCLICABILITY
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15/813,119	11/14/2017	KEYED ROW SELECTION
15/813,112	11/14/2017	COMPUTER DATA SYSTEM DATA SOURCE REFRESHING USING AN UPDATE PROPAGATION GRAPH A MERGED JOIN LISTENER
62/608,320	12/20/2017	COMPUTER DATA SYSTEM
62/625,544	2/27/2018	COMPUTER DATA SYSTEM

Dated:

5/10/2018



Ryan Caudy

ASSIGNMENT

WHEREAS, I, David R. Kent IV, have invented or co-invented inventions disclosed in one or more of the patent applications listed in Table A that were filed in the United States Patent and Trademark Office (referred to hereinafter as "the applications"); and

WHEREAS, Illumon LLC ("ASSIGNEE"), a corporation or other business entity duly organized under the laws of the State of Delaware in the United States of America, desires to acquire the entire right, title, and interest in and to the inventions, the applications, and any Letters Patent granted or to be granted for the inventions in the United States and in all foreign countries;

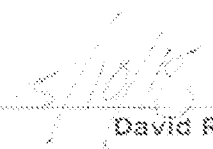
NOW, THEREFORE, in consideration of One Dollar (\$1.00) paid to me by ASSIGNEE, and other good and valuable consideration, the receipt and sufficiency of which I acknowledge, I have sold, assigned, transferred, and set over, and do hereby sell, assign, transfer, and set over unto ASSIGNEE, its successors, legal representatives, and assigns, my entire interest, if any, in and to the inventions, the applications, all applications claiming benefit of the applications, including, but not limited to, all divisions, continuations, and continuations-in-part of the applications, and all Letters Patent that have been granted or may be granted thereon in the United States and in all foreign countries, and all reissues thereof, together with the right to claim priority under the International Convention in all member countries; and I authorize and request the United States Patent and Trademark Office to issue all Letters Patent for the inventions to ASSIGNEE, its successors, legal representatives, and assigns in accordance with the terms of this Assignment;

AND I covenant and agree that I have the full right to convey the entire interest herein assigned and that I have not executed and will not execute any assignment or other instrument in conflict with this Assignment;

AND I further covenant and agree that upon request by ASSIGNEE, its successors, legal representatives, and/or assigns, and without further consideration, I will do all lawful acts that may be necessary or desirable to assist ASSIGNEE, its successors, legal representatives, and/or assigns to obtain and enforce patent protection for the inventions in the United States and in all foreign countries, including, but not limited to, communicate with ASSIGNEE, its successors, legal representatives, and/or assigns any facts known to me regarding the inventions, testify in any legal proceeding, sign all lawful papers, execute and deliver all papers that may be necessary or desirable to perfect the title to the inventions in ASSIGNEE, its successors, legal representatives, and/or assigns, execute all divisional, continuation, and reissue applications, and make all rightful oaths, it being understood that any expense incident to the rendering of such assistance will be borne by ASSIGNEE, its successors, legal representatives, and/or assigns, and it being further understood that I will render such assistance even if my employment, if any, by ASSIGNEE, its successors, legal representatives, and/or assigns, has been terminated.

Table A

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62/608,320	12/20/2017	COMPUTER DATA SYSTEM
62/635,544	2/27/2018	COMPUTER DATA SYSTEM

Dated:  \_\_\_\_\_  \_\_\_\_\_  
David R. Kent IV



**ASSIGNMENT**

WHEREAS, I, Mark Zeldis, have invented or co-invented inventions disclosed in one or more of the patent applications listed in Table A that were filed in the United States Patent and Trademark Office (referred to hereinafter as "the applications"); and

WHEREAS, Illumon LLC ("ASSIGNEE"), a corporation or other business entity duly organized under the laws of the State of Delaware in the United States of America, desires to acquire the entire right, title, and interest in and to the inventions, the applications, and any Letters Patent granted or to be granted for the inventions in the United States and in all foreign countries;

NOW, THEREFORE, in consideration of One Dollar (\$1.00) paid to me by ASSIGNEE, and other good and valuable consideration, the receipt and sufficiency of which I acknowledge, I have sold, assigned, transferred, and set over, and do hereby sell, assign, transfer, and set over unto ASSIGNEE, its successors, legal representatives, and assigns, my entire interest, if any, in and to the inventions, the applications, all applications claiming benefit of the applications, including, but not limited to, all divisions, continuations, and continuations-in-part of the applications, and all Letters Patent that have been granted or may be granted thereon in the United States and in all foreign countries, and all reissues thereof, together with the right to claim priority under the International Convention in all member countries; and I authorize and request the United States Patent and Trademark Office to issue all Letters Patent for the inventions to ASSIGNEE, its successors, legal representatives, and assigns in accordance with the terms of this Assignment;

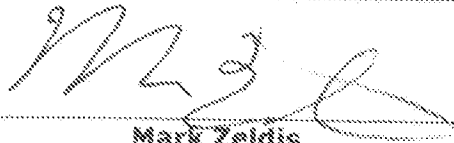
AND I covenant and agree that I have the full right to convey the entire interest herein assigned and that I have not executed and will not execute any assignment or other instrument in conflict with this Assignment;

AND I further covenant and agree that upon request by ASSIGNEE, its successors, legal representatives, and/or assigns, and without further consideration, I will do all lawful acts that may be necessary or desirable to assist ASSIGNEE, its successors, legal representatives, and/or assigns to obtain and enforce patent protection for the inventions in the United States and in all foreign countries, including, but not limited to, communicate with ASSIGNEE, its successors, legal representatives, and/or assigns any facts known to me regarding the inventions, testify in any legal proceeding, sign all lawful papers, execute and deliver all papers that may be necessary or desirable to perfect the title to the inventions in ASSIGNEE, its successors, legal representatives, and/or assigns, execute all divisional, continuation, and reissue applications, and make all rightful oaths, it being understood that any expense incident to the rendering of such assistance will be borne by ASSIGNEE, its successors, legal representatives, and/or assigns, and it being further understood that I will render such assistance even if my employment, if any, by ASSIGNEE, its successors, legal representatives, and/or assigns, has been terminated.

**Table A**

<b>Appl. No.</b>	<b>Filing Date</b>	<b>Title</b>
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62/608,320	12/20/2017	COMPUTER DATA SYSTEM
62/635,544	2/27/2018	COMPUTER DATA SYSTEM

Dated: 5/11/18

  
Mark Zeldis

**ASSIGNMENT**

WHEREAS, I, Brian Ries, have invented or co-invented inventions disclosed in one or more of the patent applications listed in Table A that were filed in the United States Patent and Trademark Office (referred to hereinafter as "the applications"); and

WHEREAS, Illumon LLC ("ASSIGNEE"), a corporation or other business entity duly organized under the laws of the State of Delaware in the United States of America, desires to acquire the entire right, title, and interest in and to the inventions, the applications, and any Letters Patent granted or to be granted for the inventions in the United States and in all foreign countries;

NOW, THEREFORE, in consideration of One Dollar (\$1.00) paid to me by ASSIGNEE, and other good and valuable consideration, the receipt and sufficiency of which I acknowledge, I have sold, assigned, transferred, and set over, and do hereby sell, assign, transfer, and set over unto ASSIGNEE, its successors, legal representatives, and assigns, my entire interest, if any, in and to the inventions, the applications, all applications claiming benefit of the applications, including, but not limited to, all divisions, continuations, and continuations-in-part of the applications, and all Letters Patent that have been granted or may be granted thereon in the United States and in all foreign countries, and all reissues thereof, together with the right to claim priority under the International Convention in all member countries; and I authorize and request the United States Patent and Trademark Office to issue all Letters Patent for the inventions to ASSIGNEE, its successors, legal representatives, and assigns in accordance with the terms of this Assignment;

AND I covenant and agree that I have the full right to convey the entire interest herein assigned and that I have not executed and will not execute any assignment or other instrument in conflict with this Assignment;

AND I further covenant and agree that upon request by ASSIGNEE, its successors, legal representatives, and/or assigns, and without further consideration, I will do all lawful acts that may be necessary or desirable to assist ASSIGNEE, its successors, legal representatives, and/or assigns to obtain and enforce patent protection for the inventions in the United States and in all foreign countries, including, but not limited to, communicate with ASSIGNEE, its successors, legal representatives, and/or assigns any facts known to me regarding the inventions, testify in any legal proceeding, sign all lawful papers, execute and deliver all papers that may be necessary or desirable to perfect the title to the inventions in ASSIGNEE, its successors, legal representatives, and/or assigns, execute all divisional, continuation, and reissue applications, and make all rightful oaths, it being understood that any expense incident to the rendering of such assistance will be borne by ASSIGNEE, its successors, legal representatives, and/or assigns, and it being further understood that I will render such assistance even if my employment, if any, by ASSIGNEE, its successors, legal representatives, and/or assigns, has been terminated.

Table A

<u>Appn. No.</u>	<u>Filing Date</u>	<u>Title</u>
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62/608,320	12/20/2017	COMPUTER DATA SYSTEM
62/635,544	2/27/2018	COMPUTER DATA SYSTEM

Dated: 5/11/2018

  
Brian Ries

**ASSIGNMENT**

WHEREAS, I, Andrew Baranec, have invented or co-invented inventions disclosed in one or more of the patent applications listed in Table A that were filed in the United States Patent and Trademark Office (referred to hereinafter as "the applications"); and

WHEREAS, Illumon LLC ("ASSIGNEE"), a corporation or other business entity duly organized under the laws of the State of Delaware in the United States of America, desires to acquire the entire right, title, and interest in and to the inventions, the applications, and any Letters Patent granted or to be granted for the inventions in the United States and in all foreign countries;

NOW, THEREFORE, in consideration of One Dollar (\$1.00) paid to me by ASSIGNEE, and other good and valuable consideration, the receipt and sufficiency of which I acknowledge, I have sold, assigned, transferred, and set over, and do hereby sell, assign, transfer, and set over unto ASSIGNEE, its successors, legal representatives, and assigns, my entire interest, if any, in and to the inventions, the applications, all applications claiming benefit of the applications, including, but not limited to, all divisions, continuations, and continuations-in-part of the applications, and all Letters Patent that have been granted or may be granted thereon in the United States and in all foreign countries, and all reissues thereof, together with the right to claim priority under the International Convention in all member countries; and I authorize and request the United States Patent and Trademark Office to issue all Letters Patent for the inventions to ASSIGNEE, its successors, legal representatives, and assigns in accordance with the terms of this Assignment;

AND I covenant and agree that I have the full right to convey the entire interest herein assigned and that I have not executed and will not execute any assignment or other instrument in conflict with this Assignment;

AND I further covenant and agree that upon request by ASSIGNEE, its successors, legal representatives, and/or assigns, and without further consideration, I will do all lawful acts that may be necessary or desirable to assist ASSIGNEE, its successors, legal representatives, and/or assigns to obtain and enforce patent protection for the inventions in the United States and in all foreign countries, including, but not limited to, communicate with ASSIGNEE, its successors, legal representatives, and/or assigns any facts known to me regarding the inventions, testify in any legal proceeding, sign all lawful papers, execute and deliver all papers that may be necessary or desirable to perfect the title to the inventions in ASSIGNEE, its successors, legal representatives, and/or assigns, execute all divisional, continuation, and reissue applications, and make all rightful oaths, it being understood that any expense incident to the rendering of such assistance will be borne by ASSIGNEE, its successors, legal representatives, and/or assigns, and it being further understood that I will render such assistance even if my employment, if any, by ASSIGNEE, its successors, legal representatives, and/or assigns, has been terminated.

**Table A**

<u>Appin. No.</u>	<u>Filing Date</u>	<u>Title</u>
15/813,142	11/14/2017	COMPUTER DATA SYSTEM DATA SOURCE HAVING AN UPDATE PROPAGATION GRAPH WITH FEEDBACK CYCLICABILITY
15/813,127	11/14/2017	COMPUTER DATA DISTRIBUTION ARCHITECTURE CONNECTING AN UPDATE PROPAGATION GRAPH MULTIPLE REMOTE QUERY PROCESSORS
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62/608,320	12/20/2017	COMPUTER DATA SYSTEM
62/635,544	2/27/2018	COMPUTER DATA SYSTEM

Dated: 5/14/18  
Andrew Baranec

### ASSIGNMENT

WHEREAS, I, Radu Teodorescu, have invented or co-invented inventions disclosed in one or more of the patent applications listed in **Table A** that were filed in the United States Patent and Trademark Office (referred to hereinafter as "the applications"); and

WHEREAS, Ilumon LLC ("ASSIGNEE"), a corporation or other business entity duly organized under the laws of the State of Delaware in the United States of America, desires to acquire the entire right, title, and interest in and to the inventions, the applications, and any Letters Patent granted or to be granted for the inventions in the United States and in all foreign countries;

NOW, THEREFORE, in consideration of One Dollar (\$1.00) paid to me by ASSIGNEE, and other good and valuable consideration, the receipt and sufficiency of which I acknowledge, I have sold, assigned, transferred, and set over, and do hereby sell, assign, transfer, and set over unto ASSIGNEE, its successors, legal representatives, and assigns, my entire interest, if any, in and to the inventions, the applications, all applications claiming benefit of the applications, including, but not limited to, all divisions, continuations, and continuations-in-part of the applications, and all Letters Patent that have been granted or may be granted hereon in the United States and in all foreign countries, and all reissues thereof, together with the right to claim priority under the International Convention in all member countries; and I authorize and request the United States Patent and Trademark Office to issue all Letters Patent for the inventions to ASSIGNEE, its successors, legal representatives, and assigns in accordance with the terms of this Assignment;

AND I covenant and agree that I have the full right to convey the entire interest herein assigned and that I have not executed and will not execute any assignment or other instrument in conflict with this Assignment;

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62/608,320	12/20/2017	COMPUTER DATA SYSTEM
62/635,544	2/27/2018	COMPUTER DATA SYSTEM

Dated: 02/13/2018 \_\_\_\_\_ /Radu Teodorescu\_\_\_\_\_  
**Radu Teodorescu**