#### 06/11/2018 504954530

### PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT5001277

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

#### **CONVEYING PARTY DATA**

Name	Execution Date
YUANYUAN TIAN	05/23/2018
VIJAYSHANKAR RAMAN	06/07/2018
RONALD J. BARBER	06/06/2018
RICHARD S. SIDLE	05/31/2018
PINAR TOZUN	05/23/2018
RENE MUELLER	05/30/2018
RONEN GROSMAN	05/24/2018
ADAM J. STORM	05/24/2018
CHRISTIAN M. GARCIA-ARELLANO	05/24/2018
GUY M. LOHMAN	05/25/2018

#### **RECEIVING PARTY DATA**

Name:	INTERNATIONAL BUSINESS MACHINES CORPORATION
Street Address:	NEW ORCHARD ROAD
City:	ARMONK
State/Country:	NEW YORK
Postal Code:	10504

#### **PROPERTY NUMBERS Total: 1**

Property Type	Number
Application Number:	16005485

#### CORRESPONDENCE DATA

Fax Number: (424)229-6815

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: 424-229-6800

Email: patent@shermanip.com

SHERMAN IP LLP (IBM2/IBM2-S) Correspondent Name:

Address Line 1: 1519 26TH STREET

Address Line 4: SANTA MONICA, CALIFORNIA 90404

ATTORNEY DOCKET NUMBER: P201700781US01

> **PATENT REEL: 046337 FRAME: 0280**

504954530

NAME OF SUBMITTER:	STEVEN LAUT, REG. NO. 47736
SIGNATURE:	/Steven Laut/
DATE SIGNED:	06/11/2018
	This document serves as an Oath/Declaration (37 CFR 1.63).
Total Attachments: 21	•
source=P201700781US01_Declara	tion_Oath_Signed-p#page1.tif
course-P201700791LIS01 Declara	tion Oath Signed n#page? tif

### source=P201700781US01 Declaration Oath Signed-p#page2.tif source=P201700781US01\_Declaration\_Oath\_Signed-p#page3.tif source=P201700781US01\_Declaration\_Oath\_Signed-p#page4.tif source=P201700781US01\_Declaration\_Oath\_Signed-p#page5.tif source=P201700781US01 Declaration Oath Signed-p#page6.tif source=P201700781US01 Declaration Oath Signed-p#page7.tif source=P201700781US01\_Declaration\_Oath\_Signed-p#page8.tif source=P201700781US01 Declaration Oath Signed-p#page9.tif source=P201700781US01 Declaration Oath Signed-p#page10.tif source=P201700781US01 Declaration Oath Signed-p#page11.tif source=P201700781US01\_Declaration\_Oath\_Signed-p#page12.tif source=P201700781US01 Declaration Oath Signed-p#page13.tif source=P201700781US01 Declaration Oath Signed-p#page14.tif source=P201700781US01 Declaration Oath Signed-p#page15.tif source=P201700781US01\_Declaration\_Oath\_Signed-p#page16.tif source=P201700781US01 Declaration Oath Signed-p#page17.tif source=P201700781US01 Declaration Oath Signed-p#page18.tif source=P201700781US01 Declaration Oath Signed-p#page19.tif source=P201700781US01 Declaration Oath Signed-p#page20.tif source=P201700781US01 Declaration Oath Signed-p#page21.tif

PATENT REEL: 046337 FRAME: 0281

## Title of Invention: RESOLVING VERSIONS IN AN APPEND-ONLY LARGE-SCALE DATA STORE IN DISTRIBUTED DATA MANAGEMENT SYSTEMS

As a below named and undersigned inventor, I hereby declare that:

known to me to be material to patentability as defined in 37 C.F.R. § 1.56.

This declaration is directed to the attached application, or (if following box is checked):	
[ ] United States application or PCT international application number	••
The above-identified application was made or authorized to be made by me.	
I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.	
I have reviewed and understand the contents of the application, including the claims.	
I am aware of the duty to disclose to the United States Patent and Trademark Office all information	

Whereas, I ("ASSIGNOR") have made certain inventions, improvements, and discoveries (herein referred to as the "Invention") disclosed in the above-identified patent application and further identified by the IBM Docket Number provided above in the header of this document:

Whereas, International Business Machines Corporation (herein referred to as the "ASSIGNEE"), a corporation of New York having a place of business at Armonk, New York, desires to acquire, and I desire to grant to the ASSIGNEE, my entire worldwide right, title, and interest in and to the Invention and in and to any and all patent applications and patents directed thereto;

Now, therefore, for good and valuable consideration, the receipt and sufficiency thereof being hereby acknowledged. I hereby sell or have sold, assign or have assigned, and otherwise transfer or have transferred to the ASSIGNEE, its successors, legal representatives, and assigns, my entire worldwide right, title, and interest in and to the Invention, the above-identified United States patent application, and any and all other patent applications and patents for the Invention which may be applied for or granted therefor in the United States and in all foreign countries and jurisdictions, including all divisions. continuations, reissues, reexaminations, renewals, extensions, counterparts, substitutes, and extensions thereof, and all rights of priority resulting from the filing of such applications and granting of such patents. In addition, I hereby authorize and request the Director of the United States Patent and Trademark Office to issue any United States Patent, and foreign patent authorities to issue any foreign patent, granted for the Invention, to the ASSIGNEE, its successors, legal representatives, and assigns, my entire worldwide right, title, and interest in and to the same to be held and enjoyed by the ASSIGNEE, its successors, legal representatives, and assigns to the full end of the terms for which any and all such patents may be granted, as fully and entirely as would have been held and enjoyed by me had this Assignment not been made; and I agree to execute any and all documents and instruments and perform all lawful acts reasonably related to recording this Assignment or perfecting title to the invention and all related patents and applications, in the ASSIGNEE, its successors, legal representatives, and assigns, whenever requested by the ASSIGNEE, its successors, legal representatives, or assigns.

I acknowledge my prior and ongoing obligations to sell, assign, and transfer my rights under this Assignment to the ASSIGNEE and am unaware of any reason why I may not have the full and unencumbered right to sell, assign, and transfer my rights hereby sold, assigned, and transferred, and have not executed, and will not execute, any document or instrument in conflict herewith. I also hereby grant the ASSIGNEE, its successors, legal representatives, and assigns, the right to insert in this Assignment any further identification (including, but not limited to, patent Application Number) which may be necessary or desirable for recordation of this Assignment. This Assignment is governed by the substantive laws of the State of New York, and any disputes will be resolved in a New York state court or federal court sited in New York.

Thereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. § 1001 by fine or imprisonment of not more than five (5) years, or both.

Signature:	Date: 5/23/2018
(1) Legal Name of Inventor: Yuanyuan Tian	
Signature:	Date:
(2) Legal Name of Inventor: Vijayshankar Raman	
Signature:	Date:
(3) Legal Name of Inventor: Ronald J. Barber	
Signature:	Date:
(4) Legal Name of Inventor: Richard S. Sidie	

Signature:	Date:
(5) Legal Name of Inventor: Pinar Tozun	
Signature:	Date:
(6) Legal Name of Inventor: Rene Mueller	
Signature:	Date:
(7) Legal Name of Inventor: Ronen Grosman	
Signature:	Date:
(8) Legal Name of Inventor: Adam J. Storm	
Signature:	Date:
(9) Legal Name of Inventor: Christian M. Garcia-Arellano	
Signature:	Date:
(10) Legal Name of Inventor: Guy M. Lohman	

Page 3 of 3

## Title of Invention: RESOLVING VERSIONS IN AN APPEND-ONLY LARGE-SCALE DATA STORE IN DISTRIBUTED DATA MANAGEMENT SYSTEMS

This declaration is directed to the attached application, or (if following box is checked):
United States application or PCT international application number

The above-identified application was made or authorized to be made by me.

As a below named and undersigned inventor, I hereby declare that:

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I have reviewed and understand the contents of the application, including the claims.

I am aware of the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in 37 C.F.R. § 1.56.

Whereas, I ("ASSIGNOR") have made certain inventions, improvements, and discoveries (herein referred to as the "Invention") disclosed in the above-identified patent application and further identified by the IBM Docket Number provided above in the header of this document;

Whereas, International Business Machines Corporation (herein referred to as the "ASSIGNEE"), a corporation of New York having a place of business at Armonk, New York, desires to acquire, and I desire to grant to the ASSIGNEE, my entire worldwide right, title, and interest in and to the Invention and in and to any and all patent applications and patents directed thereto;

Now, therefore, for good and valuable consideration, the receipt and sufficiency thereof being hereby acknowledged, I hereby sell or have sold, assign or have assigned, and otherwise transfer or have transferred to the ASSIGNEE, its successors, legal representatives, and assigns, my entire worldwide right, title, and interest in and to the Invention, the above-identified United States patent application, and any and all other patent applications and patents for the Invention which may be applied for or granted therefor in the United States and in all foreign countries and jurisdictions, including all divisions, continuations, reissues, reexaminations, renewals, extensions, counterparts, substitutes, and extensions thereof, and all rights of priority resulting from the filing of such applications and granting of such patents. In addition, I hereby authorize and request the Director of the United States Patent and Trademark Office to issue any United States Patent, and foreign patent authorities to issue any foreign patent, granted for the Invention, to the ASSIGNEE, its successors, legal representatives, and assigns, my entire worldwide right, title, and interest in and to the same to be held and enjoyed by the ASSIGNEE, its successors, legal representatives, and assigns to the full end of the terms for which any and all such patents may be granted, as fully and entirely as would have been held and enjoyed by me had this Assignment not been made; and I agree to execute any and all documents and instruments and perform all lawful acts reasonably related to recording this Assignment or perfecting title to the Invention and all related patents and applications, in the ASSIGNEE, its successors, legal representatives, and assigns, whenever requested by the ASSIGNEE, its successors, legal representatives, or assigns.

I acknowledge my prior and ongoing obligations to sell, assign, and transfer my rights under this Assignment to the ASSIGNEE and am unaware of any reason why I may not have the full and unencumbered right to sell, assign, and transfer my rights hereby sold, assigned, and transferred, and have not executed, and will not execute, any document or instrument in conflict herewith. I also hereby grant the ASSIGNEE, its successors, legal representatives, and assigns, the right to insert in this Assignment any further identification (including, but not limited to, patent Application Number) which may be necessary or desirable for recordation of this Assignment. This Assignment is governed by the substantive laws of the State of New York, and any disputes will be resolved in a New York state court or federal court sited in New York.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. § 1001 by fine or imprisonment of not more than five (5) years, or both.

Signature:	Date:
(1) Legal Name of Inventor: Yuanyuan Tian	
Signature:  (2) Legal Name of Inventor: Vijayshankar Raman	
Signature:	Date:
Signature:	Date:

Page 2 of 3

(4) Legal Name of Inventor: Richard S. Sidle

Signature:	Date:	
(5) Legal Name of Inventor: Pinar Tozun		
Signature:	Date:	
(6) Legal Name of Inventor: Rene Mueller		
Signature:	Date:	
(7) Legal Name of Inventor: Ronen Grosman		
Signature:	Date:	
(8) Legal Name of Inventor: Adam J. Storm		
Signature:	Date:	
(9) Legal Name of Inventor: Christian M. Garcia-Arellano		
Signature:	Date:	
(10) Legal Name of Inventor: Guy M. Lohman		

Page 3 of 3

## Title of Invention: RESOLVING VERSIONS IN AN APPEND-ONLY LARGE-SCALE DATA STORE IN DISTRIBUTED DATA MANAGEMENT SYSTEMS

As a below named and undersigned inventor, I hereby declare that:

known to me to be material to patentability as defined in 37 C.F.R. § 1.56.

This declaration is directed to the attached application, or (if following box is checked):	
this decision is directed to the stracted application, or (it renowing out is encored).	
United States application or PCT international application number	
The above-identified application was made or authorized to be made by me.	
believe that I am the original inventor or an original joint inventor of a claimed invention in the application.	
have reviewed and understand the contents of the application, including the claims.	
am aware of the duty to disclose to the United States Patent and Trademark Office all information	

Whereas, I ("ASSIGNOR") have made certain inventions, improvements, and discoveries (herein referred to as the "Invention") disclosed in the above-identified patent application and further identified by the IBM Docket Number provided above in the header of this document;

Whereas, International Business Machines Corporation (herein referred to as the "ASSIGNEE"), a corporation of New York having a place of business at Armonk, New York, desires to acquire, and I desire to grant to the ASSIGNEE, my entire worldwide right, title, and interest in and to the Invention and in and to any and all patent applications and patents directed thereto;

Now, therefore, for good and valuable consideration, the receipt and sufficiency thereof being hereby acknowledged, I hereby sell or have sold, assign or have assigned, and otherwise transfer or have transferred to the ASSIGNEE, its successors, legal representatives, and assigns, my entire worldwide right, title, and interest in and to the Invention, the above-identified United States patent application, and any and all other patent applications and patents for the Invention which may be applied for or granted therefor in the United States and in all foreign countries and jurisdictions, including all divisions, continuations, reissues, reexaminations, renewals, extensions, counterparts, substitutes, and extensions thereof, and all rights of priority resulting from the filing of such applications and granting of such patents. In addition, I hereby authorize and request the Director of the United States Patent and Trademark Office to issue any United States Patent, and foreign patent authorities to issue any foreign patent, granted for the Invention, to the ASSIGNEE, its successors, legal representatives, and assigns, my entire worldwide right, title, and interest in and to the same to be held and enjoyed by the ASSIGNEE, its successors, legal representatives, and assigns to the full end of the terms for which any and all such patents may be granted, as fully and entirely as would have been held and enjoyed by me had this Assignment not been made; and I agree to execute any and all documents and instruments and perform all lawful acts reasonably related to recording this Assignment or perfecting title to the Invention and all related patents and applications, in the ASSIGNEE, its successors, legal representatives, and assigns, whenever requested by the ASSIGNEE, its successors, legal representatives, or assigns.

I acknowledge my prior and ongoing obligations to sell, assign, and transfer my rights under this Assignment to the ASSIGNEE and am unaware of any reason why I may not have the full and unencumbered right to sell, assign, and transfer my rights hereby sold, assigned, and transferred, and have not executed, and will not execute, any document or instrument in conflict herewith. I also hereby grant the ASSIGNEE, its successors, legal representatives, and assigns, the right to insert in this Assignment any further identification (including, but not limited to, patent Application Number) which may be necessary or desirable for recordation of this Assignment. This Assignment is governed by the substantive laws of the State of New York, and any disputes will be resolved in a New York state court or federal court sited in New York.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. § 1001 by fine or imprisonment of not more than five (5) years, or both.

Signature:	Date:	
(1) Legal Name of Inventor: Yuanyuan Tian		
Signature:	Date:	
(2) Legal Name of Inventor: Vijayshankar Raman		
Signature:	Date:	
(3) Legal Name of Inventor: Ronald J. Barber		
Signature: Klil		

(4) Legal Name of Inventor: Richard S. Sidle

Page 2 of 3

Signature:	Date:
(5) Legal Name of Inventor: Pinar Tozun	
Signature:	Date:
(6) Legal Name of Inventor: Rene Mueller	
Signature:	Date:
(7) Legal Name of Inventor: Ronen Grosman	
Signature:	Pater
(8) Legal Name of Inventor: Adam J. Storm	Date
Signature:	Date:
(9) Legal Name of Inventor: Christian M. Garcia-Arellano	
Signature:	Date:
(10) Legal Name of Inventor: Guy M. Lohman	

Page 3 of 3

## Title of Invention: RESOLVING VERSIONS IN AN APPEND-ONLY LARGE-SCALE DATA STORE IN DISTRIBUTED DATA MANAGEMENT SYSTEMS

•	· ·	•	
This declaration is directed to the	attached application	n, or (if following box is o	checked):
[ ] United States application or Po	CT international ap	pplication number	
filed on			

The above-identified application was made or authorized to be made by me.

As a below named and undersigned inventor. I hereby declare that:

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I have reviewed and understand the contents of the application, including the claims.

I am aware of the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in 37 C.F.R. § 1.56.

Whereas, I ("ASSIGNOR") have made certain inventions, improvements, and discoveries (herein referred to as the "Invention") disclosed in the above-identified patent application and further identified by the IBM Docket Number provided above in the header of this document;

Whereas, International Business Machines Corporation (herein referred to as the "ASSIGNEE"), a corporation of New York having a place of business at Armonk, New York, desires to acquire, and I desire to grant to the ASSIGNEE, my entire worldwide right, title, and interest in and to the Invention and in and to any and all patent applications and patents directed thereto;

Now, therefore, for good and valuable consideration, the receipt and sufficiency thereof being hereby acknowledged, I hereby sell or have sold, assign or have assigned, and otherwise transfer or have transferred to the ASSIGNEE, its successors, legal representatives, and assigns, my entire worldwide right, title, and interest in and to the Invention, the above-identified United States patent application, and any and all other patent applications and patents for the Invention which may be applied for or granted therefor in the United States and in all foreign countries and jurisdictions, including all divisions, continuations, reissues, reexaminations, renewals, extensions, counterparts, substitutes, and extensions thereof, and all rights of priority resulting from the filing of such applications and granting of such patents. In addition, I hereby authorize and request the Director of the United States Patent and Trademark Office to issue any United States Patent, and foreign patent authorities to issue any foreign patent, granted for the Invention, to the ASSIGNEE, its successors, legal representatives, and assigns, my entire worldwide right, title, and interest in and to the same to be held and enjoyed by the ASSIGNEE, its successors, legal representatives, and assigns to the full end of the terms for which any and all such patents may be granted, as fully and entirely as would have been held and enjoyed by me had this Assignment not been made; and I agree to execute any and all documents and instruments and perform all lawful acts reasonably related to recording this Assignment or perfecting title to the Invention and all related patents and applications, in the ASSIGNEE, its successors, legal representatives, and assigns, whenever requested by the ASSIGNEE, its successors, legal representatives, or assigns.

I acknowledge my prior and ongoing obligations to sell, assign, and transfer my rights under this Assignment to the ASSIGNEE and am unaware of any reason why I may not have the full and unencumbered right to sell, assign, and transfer my rights hereby sold, assigned, and transferred, and have not executed, and will not execute, any document or instrument in conflict herewith. I also hereby grant the ASSIGNEE, its successors, legal representatives, and assigns, the right to insert in this Assignment any further identification (including, but not limited to, patent Application Number) which may be necessary or desirable for recordation of this Assignment. This Assignment is governed by the substantive laws of the State of New York, and any disputes will be resolved in a New York state court or federal court sited in New York.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. § 1001 by fine or imprisonment of not more than five (5) years, or both.

Signature:	Date:
(1) Legal Name of Inventor: Yuanyuan Tian	
Signature:	Date:
(2) Legal Name of Inventor: Vijayshankar Raman	
Signature:	Date:
(3) Legal Name of Inventor: Ronald J. Barber	
Signature:	Date:
(4) Legal Name of Inventor: Richard S. Sidle	

Signature:	Date:	05/23/2018
(5) Legal Name of Inventor: Pinar Tozun		
Signature:	Date:_	
(6) Legal Name of Inventor: Rene Mueller		
Signature:	Date:_	
(7) Legal Name of Inventor: Ronen Grosman		
Signature:	Date:	· · · · · · · · · · · · · · · · · · ·
(8) Legal Name of Inventor: Adam J. Storm		
Signature:	Date:	
(9) Legal Name of Inventor: Christian M. Garcia-Arellano		
Signature:	Date:	

Page 3 of 3

(10) Legal Name of Inventor: Guy M. Lohman

## DECLARATION (37 C.F.R. § 1.63) FOR UTILITY PATENT APPLICATION USING AN APPLICATION DATA SHEET (37 C.F.R. § 1.76) AND ASSIGNMENT

Title of Invention: RESOLVING VERSIONS IN AN APPEND-ONLY LARGE-SCALE DATA STORE IN DISTRIBUTED DATA MANAGEMENT SYSTEMS

to a below mained and undersigned inventor, t hereby decime man	
This declaration is directed to the attached application, or (if following	box is checked);
[ ] United States application or PCT international application number filed on	

The above-identified application was made or authorized to be made by me.

As a habitu regressed and undersigned inventor I bounds, dealing that

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I have reviewed and understand the contents of the application, including the claims.

I am aware of the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in 37 C.F.R. § 1.56.

Whereas, I ("ASSIGNOR") have made certain inventions, improvements, and discoveries (herein referred to as the "Invention") disclosed in the above-identified patent application and further identified by the IBM Docket Number provided above in the header of this document;

Whereas, International Business Machines Corporation (herein referred to as the "ASSIGNEE"), a corporation of New York having a place of business at Armonk, New York, desires to acquire, and I desire to grant to the ASSIGNEE, my entire worldwide right, title, and interest in and to the Invention and in and to any and all patent applications and patents directed thereto;

Now, therefore, for good and valuable consideration, the receipt and sufficiency thereof being hereby acknowledged, I hereby sell or have sold, assign or have assigned, and otherwise transfer or have transferred to the ASSIGNEE, its successors, legal representatives, and assigns, my entire worldwide right, title, and interest in and to the Invention, the above-identified United States patent application, and any and all other patent applications and patents for the Invention which may be applied for or granted therefor in the United States and in all foreign countries and jurisdictions, including all divisions, continuations, reissues, reexaminations, renewals, extensions, counterparts, substitutes, and extensions thereof, and all rights of priority resulting from the filing of such applications and granting of such patents. In addition, I hereby authorize and request the Director of the United States Patent and Trademark Office to issue any United States Patent, and foreign patent authorities to issue any foreign patent, granted for the Invention, to the ASSIGNEE, its successors, legal representatives, and assigns, my entire worldwide right, title, and interest in and to the same to be held and enjoyed by the ASSIGNEE, its successors, legal representatives, and assigns to the full end of the terms for which any and all such patents may be granted, as fully and entirely as would have been held and enjoyed by me had this Assignment not been made; and I agree to execute any and all documents and instruments and perform all lawful acts reasonably related to recording this Assignment or perfecting title to the Invention and all related patents and applications, in the ASSIGNEE, its successors, legal representatives, and assigns, whenever requested by the ASSIGNEE, its successors, legal representatives, or assigns.

I acknowledge my prior and ongoing obligations to sell, assign, and transfer my rights under this Assignment to the ASSIGNEE and am unaware of any reason why I may not have the full and unencumbered right to sell, assign, and transfer my rights hereby sold, assigned, and transferred, and have not executed, and will not execute, any document or instrument in conflict herewith. I also hereby grant the ASSIGNEE, its successors, legal representatives, and assigns, the right to insert in this Assignment any further identification (including, but not limited to, patent Application Number) which may be necessary or desirable for recordation of this Assignment. This Assignment is governed by the substantive laws of the State of New York, and any disputes will be resolved in a New York state court or federal court sited in New York.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. § 1001 by fine or imprisonment of not more than five (5) years, or both.

Signature:	Date:
(1) Legal Name of Inventor: Yuanyuan Tian	
Signature:	Date:
(2) Legal Name of Inventor: Vijayshankar Raman	
Signature:	Date:
(3) Legal Name of Inventor: Ronald J. Barber	
Signature:	Date:
(4) Legal Name of inventor: Richard S. Sidie	

Page 2 of 3

Date: 5/30/20(&
Date: 5/30/20(&
Date:
Dates
Date:
Date:

Page 3 of 3

# Title of Invention: RESOLVING VERSIONS IN AN APPEND-ONLY LARGE-SCALE DATA STORE IN DISTRIBUTED DATA MANAGEMENT SYSTEMS

As a below named and undersigned inventor, I hereby declare that:

This declaration is directed to the attached application, or (if following box is checked):
[ ] United States application or PCT international application number
The above-identified application was made or authorized to be made by me.
I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.
I have reviewed and understand the contents of the application, including the claims.
I am aware of the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in 37 C.F.R. § 1.56.
Whereas, I ("ASSIGNOR") have made certain inventions, improvements, and discoveries (herein referred

IBM Docket Number provided above in the header of this document;

Whereas, International Business Machines Corporation (herein referred to as the "ASSIGNEE"), a corporation of New York having a place of business at Armonk, New York, desires to acquire, and I

to as the "Invention") disclosed in the above-identified patent application and further identified by the

Whereas, International Business Machines Corporation (herein referred to as the "ASSIGNEE"), a corporation of New York having a place of business at Armonk, New York, desires to acquire, and I desire to grant to the ASSIGNEE, my entire worldwide right, title, and interest in and to the Invention and in and to any and all patent applications and patents directed thereto;

Now, therefore, for good and valuable consideration, the receipt and sufficiency thereof being hereby acknowledged, I hereby sell or have sold, assign or have assigned, and otherwise transfer or have transferred to the ASSIGNEE, its successors, legal representatives, and assigns, my entire worldwide right, title, and interest in and to the Invention, the above-identified United States patent application, and any and all other patent applications and patents for the Invention which may be applied for or granted therefor in the United States and in all foreign countries and jurisdictions, including all divisions, continuations, reissues, reexaminations, renewals, extensions, counterparts, substitutes, and extensions thereof, and all rights of priority resulting from the filing of such applications and granting of such patents. In addition, I hereby authorize and request the Director of the United States Patent and Trademark Office to issue any United States Patent, and foreign patent authorities to issue any foreign patent, granted for the Invention, to the ASSIGNEE, its successors, legal representatives, and assigns, my entire worldwide right, title, and interest in and to the same to be held and enjoyed by the ASSIGNEE, its successors, legal representatives, and assigns to the full end of the terms for which any and all such patents may be granted, as fully and entirely as would have been held and enjoyed by me had this Assignment not been made; and I agree to execute any and all documents and instruments and perform all lawful acts reasonably related to recording this Assignment or perfecting title to the Invention and all related patents and applications, in the ASSIGNEE, its successors, legal representatives, and assigns, whenever requested by the ASSIGNEE, its successors, legal representatives, or assigns.

I acknowledge my prior and ongoing obligations to sell, assign, and transfer my rights under this Assignment to the ASSIGNEE and am unaware of any reason why I may not have the full and unencumbered right to sell, assign, and transfer my rights hereby sold, assigned, and transferred, and have not executed, and will not execute, any document or instrument in conflict herewith. I also hereby grant the ASSIGNEE, its successors, legal representatives, and assigns, the right to insert in this Assignment any further identification (including, but not limited to, patent Application Number) which may be necessary or desirable for recordation of this Assignment. This Assignment is governed by the substantive laws of the State of New York, and any disputes will be resolved in a New York state court or federal court sited in New York.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. § 1001 by fine or imprisonment of not more than five (5) years, or both.

Signature:	Date:
(1) Legal Name of Inventor: Yuanyuan Tian	
Signature:	Date:
(2) Legal Name of Inventor: Vijayshankar Raman	
Signature:	Date:
(3) Legal Name of Inventor: Ronald J. Barber	
Signature:	Date:
(4) Legal Name of Inventor: Richard S. Sidle	

Page 2 of 3

Signature:	Date:
(5) Legal Name of Inventor: Pinar Tozun	
Signature:	Date:
(6) Legal Name of Inventor: Rene Mueller	
Signature:	Date: <u>5/24/25)</u> {
(7) Legal Name of Inventor: Ronen Grosman	
Signature:	Date:5/2 <sup>1</sup> /20/8
(8) Legal Name of Inventor: Adam J. Storm	
Signature:	Date: <u>24/05/2018</u>
(9) Legal Name of Inventor: Christian M. Garcia-Arellano	
Signature:	Date:
(10) Legal Name of Inventor: Guy M. Lohman	

## Title of Invention: RESOLVING VERSIONS IN AN APPEND-ONLY LARGE-SCALE DATA STORE IN DISTRIBUTED DATA MANAGEMENT SYSTEMS

This declaration is directed to the attached application, or (if following box is checked):	
United States application or PCT international application number	

The above-identified application was made or authorized to be made by me.

As a below named and undersigned inventor, I hereby declare that:

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I have reviewed and understand the contents of the application, including the claims.

I am aware of the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in 37 C.F.R. § 1.56.

Whereas, I ("ASSIGNOR") have made certain inventions, improvements, and discoveries (herein referred to as the "Invention") disclosed in the above-identified patent application and further identified by the IBM Docket Number provided above in the header of this document;

Whereas, International Business Machines Corporation (herein referred to as the "ASSIGNEE"), a corporation of New York having a place of business at Armonk, New York, desires to acquire, and I desire to grant to the ASSIGNEE, my entire worldwide right, title, and interest in and to the Invention and in and to any and all patent applications and patents directed thereto;

Now, therefore, for good and valuable consideration, the receipt and sufficiency thereof being hereby acknowledged, I hereby sell or have sold, assign or have assigned, and otherwise transfer or have transferred to the ASSIGNEE, its successors, legal representatives, and assigns, my entire worldwide right, title, and interest in and to the Invention, the above-identified United States patent application, and any and all other patent applications and patents for the Invention which may be applied for or granted therefor in the United States and in all foreign countries and jurisdictions, including all divisions, continuations, reissues, reexaminations, renewals, extensions, counterparts, substitutes, and extensions thereof, and all rights of priority resulting from the filing of such applications and granting of such patents. In addition, I hereby authorize and request the Director of the United States Patent and Trademark Office to issue any United States Patent, and foreign patent authorities to issue any foreign patent, granted for the Invention, to the ASSIGNEE, its successors, legal representatives, and assigns, my entire worldwide right, title, and interest in and to the same to be held and enjoyed by the ASSIGNEE, its successors, legal representatives, and assigns to the full end of the terms for which any and all such patents may be granted, as fully and entirely as would have been held and enjoyed by me had this Assignment not been made; and I agree to execute any and all documents and instruments and perform all lawful acts reasonably related to recording this Assignment or perfecting title to the Invention and all related patents and applications, in the ASSIGNEE, its successors, legal representatives, and assigns, whenever requested by the ASSIGNEE, its successors, legal representatives, or assigns.

I acknowledge my prior and ongoing obligations to sell, assign, and transfer my rights under this Assignment to the ASSIGNEE and am unaware of any reason why I may not have the full and unencumbered right to sell, assign, and transfer my rights hereby sold, assigned, and transferred, and have not executed, and will not execute, any document or instrument in conflict herewith. I also hereby grant the ASSIGNEE, its successors, legal representatives, and assigns, the right to insert in this Assignment any further identification (including, but not limited to, patent Application Number) which may be necessary or desirable for recordation of this Assignment. This Assignment is governed by the substantive laws of the State of New York, and any disputes will be resolved in a New York state court or federal court sited in New York.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. § 1001 by fine or imprisonment of not more than five (5) years, or both.

Signature:	Date:
(1) Legal Name of Inventor: Yuanyuan Tian	
Signature:	Date:
(2) Legal Name of Inventor: Vijayshankar Raman	
Signature:	Date:
(3) Legal Name of Inventor: Ronald J. Barber	
Signature:	Date:
(4) Legal Name of Inventor: Richard S. Sidle	

Signature:	
(5) Legal Name of Inventor: Pinar Tozan	
Signature:	Date:
(6) Legal Name of Inventor: Rene Mueller	
Signature:	Date:
(7) Legal Name of Inventor: Ronen Grosman	
Signatore	Onic
(8) Legal Name of Inventor: Adam J. Storm	
Signature:	Date:
	CONTROL .
(9) Legal Name of Inventor: Christian M. Garcia-Arellano	
\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	sen And
Signaline Dely M. Cherry	_0=25/1eg20/8
(10) Legal Name of Squarkor: Guy M. Lohman	Name of State of Stat