

PATENT ASSIGNMENT COVER SHEET

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 Stylesheet Version v1.2

EPAS ID: PAT4125213

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| SUBMISSION TYPE: | NEW ASSIGNMENT |
| NATURE OF CONVEYANCE: | ASSIGNMENT |
| CONVEYING PARTY DATA | |
| Name | Execution Date |
| ROBERT P. FOLEY | 09/29/2016 |
| PETER PUHOV | 09/29/2016 |
| LILI CHEN | 09/30/2016 |
| MARC CASSANO | 10/02/2016 |
| RECEIVING PARTY DATA | |
| Name: | EMC IP HOLDING COMPANY LLC |
| Street Address: | 176 SOUTH STREET |
| City: | HOPKINTON |
| State/Country: | MASSACHUSETTS |
| Postal Code: | 01748 |
| PROPERTY NUMBERS Total: 1 | |
| Property Type | Number |
| Application Number: | 15281365 |
| CORRESPONDENCE DATA | |
| Fax Number: | |
| <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> | |
| Phone: | 508-435-1000 |
| Email: | Docketing@emc.com |
| Correspondent Name: | EMC IP HOLDING COMPANY LLC |
| Address Line 1: | 176 SOUTH STREET |
| Address Line 4: | HOPKINTON, MASSACHUSETTS 01748 |
| ATTORNEY DOCKET NUMBER: | EMC-16-0300 |
| NAME OF SUBMITTER: | DEEPIKA BHAYANA |
| SIGNATURE: | /Deepika Bhayana/ |
| DATE SIGNED: | 11/02/2016 |
| Total Attachments: 5 | |
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ASSIGNMENT

WHEREAS, we, Robert P. Foley, Peter Puhov, Lili Chen and Marc Cassano, have invented an invention comprising and/or embodying certain improvements or discoveries or both as described in an application for Letters Patent of the United States entitled, *MANAGING MAPPING METADATA IN STORAGE SYSTEMS* (Application), the specification of which:

☒ is being executed on even date herewith and is about to be filed in the United States Patent Office;

☒ was filed on September 30, 2016 as U.S. Application No. 15/281,365;

☐ was patented under U.S. Patent No. _____ on _____.

WHEREAS, EMC IP Holding Company LLC (hereinafter "ASSIGNEE"), a corporation organized and existing under the laws of the Commonwealth of Massachusetts and having a usual place of business at 176 South Street, Hopkinton, Massachusetts 01748 desires to acquire an interest therein in accordance with agreements duly entered into with us;

NOW, THEREFORE, to all whom it may concern be it known that for and in consideration of said agreements and of other good and valuable consideration, the receipt of which is hereby acknowledged, we have sold, assigned and transferred and by these presents do hereby sell, assign and transfer unto said ASSIGNEE, its successors, assigns and legal representatives, the entire right, title and interest in and throughout the United States of America, its territories and all foreign countries, in and to said invention as described in said application, together with the entire right, title and interest in and to said application and such Letters Patent as may issue thereon; said invention, application and Letters Patent to be held and enjoyed by said ASSIGNEE for its own use and behalf and for its successors, assigns and legal representatives, to the full end of the term for which said Letters Patent may be granted as fully and entirely as the same would have been held by us had this assignment and sale not been made; we hereby convey to ASSIGNEE all rights arising under or pursuant to any and all international agreements, treaties or laws relating to the protection of industrial property by filing any such applications for Letters Patent. We hereby acknowledge that this assignment, being of the entire right, title and interest in and to said invention, carries with it the right in ASSIGNEE to apply for and obtain from competent authorities in all countries of the world any and all Letters Patent by attorneys and agents of ASSIGNEE's selection and the right to procure the grant of all such Letters Patent to ASSIGNEE for its own name as assignee of the entire right, title and interest therein;

AND, we hereby further agree for ourselves and our executors and administrators to execute upon request any other lawful documents and likewise to perform any other lawful acts which may be deemed necessary to secure fully the aforesaid invention to said ASSIGNEE, its successors, assigns and legal representatives, but at its or their expense and charges, including the execution of applications for patents in foreign countries, and the execution of substitution, reissue, divisional or continuation applications and preliminary or other statements and the

giving of testimony in any interference or other proceeding in which said invention or any application or patent directed thereto may be involved;

AND, we do hereby authorize and request the Commissioner of Patents of the United States to issue such Letters Patent as shall be granted upon said application or applications based thereon to said ASSIGNEE, its successors, assigns, and legal representatives;

AND, we hereby authorize our attorneys, EMC IP Holding Company LLC, to insert here in parenthesis () the application number and filing date of said Application (or foreign counterpart application) to facilitate the recording or other official processing of this Assignment.

IN TESTIMONY WHEREOF, we have hereunto set our hands and affixed our seals as set forth below:

Date: 9/29/16

Robert P. Foley
Inventor's Signature

Print full name of first inventor:

Robert P. Foley

Residence:

705C Ridgefield Circle, Clinton, MA 01510

Citizenship:

United States of America

Mailing Address:

Same as above

STATE/COMMONWEALTH OF

Massachusetts

COUNTY OF

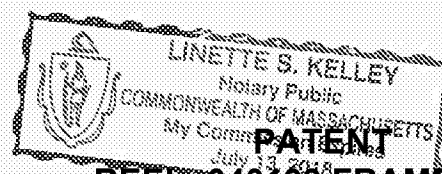
Middlesex

On this 29th day of September, 2016, then personally appeared before me the above-named Robert P. Foley known to me through satisfactory evidence of identification ☒ employee identification card; ☐ driver's license; ☐ (other) _____ to be the person whose name is subscribed to the foregoing Assignment and acknowledged that he/she executed the same as his/her free act and deed for the purposes therein contained.

Linette S. Kelley
Notary Public

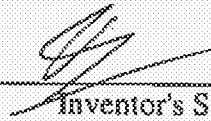
Print Name: Linette S. Kelley

My Commission expires 07/13/2018



Date:

09/29/2016



Inventor's Signature

Print full name of second inventor:

Peter Puhov

Residence:

521 Grafton Street, Shrewsbury, MA 01545

Citizenship:

United States of America

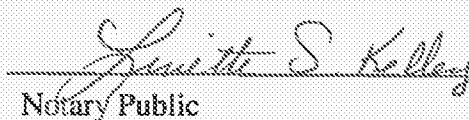
Mailing Address:

Same as above

STATE/Commonwealth of
COUNTY OF

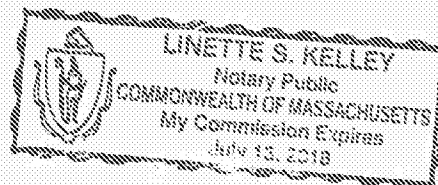
Massachusetts
Middlesex

On this 29th day of September, 2016, then personally appeared before me the above-named Peter Puhov known to me through satisfactory evidence of identification ☐ employee identification card; ☒ driver's license; ☐ (other) _____ to be the person whose name is subscribed to the foregoing Assignment and acknowledged that he/she executed the same as his/her free act and deed for the purposes therein contained.


Notary Public

Print Name: Linette S. Kelley

My Commission expires 07/13/2018



Date: 9/30/2016

Lili Chen
Inventor's Signature

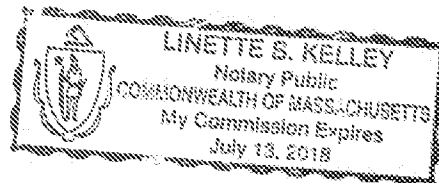
Print full name of third inventor: **Lili Chen**
Residence: 27 Wedgewood Drive, Hopkinton, MA 01748
Citizenship: China (People's Republic)
Mailing Address: Same as above

STATE/Commonwealth of Massachusetts
COUNTY OF Middlesex

On this 30th day of September, 2016, then personally appeared before me the above-named Lili Chen known to me through satisfactory evidence of identification ☐ employee identification card; ☒ driver's license; ☐ (other) _____ to be the person whose name is subscribed to the foregoing Assignment and acknowledged that he/she executed the same as his/her free act and deed for the purposes therein contained.

Linette S. Kelley
Notary Public

Print Name: Linette S. Kelley
My Commission expires 07/13/2018



Date: 10/2/16

Marc Cassano
Inventor's Signature

Print full name of fourth inventor:

Marc Cassano

Residence:

2 Robinson Road, Mendon, MA 01756

Citizenship:

United States of America

Mailing Address:

Same as above

STATE/Commonwealth of Massachusetts
COUNTY OF Middlesex

On this 2nd day of October, 2016, then personally appeared before me the above-named Marc Cassano known to me through satisfactory evidence of identification [☒] employee identification card; [☐] driver's license; [☐] (other) _____ to be the person whose name is subscribed to the foregoing Assignment and acknowledged that he/she executed the same as his/her free act and deed for the purposes therein contained.

Linette S. Kelley
Notary Public

Print Name: Linette S. Kelley

My Commission expires 07/13/2018

