

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
 Stylesheet Version v1.2

EPAS ID: PAT4705808

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
CHANGYONG YU	10/26/2017
ALEXANDER S. MATHEWS	10/30/2017
XIANLONG LIU	10/27/2017
RUILING DOU	10/26/2017
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	EMC IP HOLDING COMPANY LLC
<b>Street Address:</b>	176 SOUTH STREET
<b>City:</b>	HOPKINTON
<b>State/Country:</b>	MASSACHUSETTS
<b>Postal Code:</b>	01748
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
<b>Application Number:</b>	15797284
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	(508)366-4688
<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>	508-616-2900
<b>Email:</b>	Docket@BainwoodHuang.com
<b>Correspondent Name:</b>	BAINWOOD, HUANG & ASSOCIATES, LLC
<b>Address Line 1:</b>	2 CONNECTOR ROAD
<b>Address Line 4:</b>	WESTBOROUGH, MASSACHUSETTS 01581
<b>ATTORNEY DOCKET NUMBER:</b>	1003-581
<b>NAME OF SUBMITTER:</b>	JAMES F. THOMPSON, ESQ.
<b>SIGNATURE:</b>	/James F. Thompson/
<b>DATE SIGNED:</b>	11/28/2017
<b>Total Attachments: 12</b>	
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source=1003-581-Executed-Assignment-Inv4#page2.tif  
source=1003-581-Executed-Assignment-Inv4#page3.tif

**ASSIGNMENT**

**WHEREAS**, I, Changyong Yu, as the original inventor or an original joint inventor 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

**DATA STORAGE SYSTEM DYNAMICALLY RE-MARKING SLICES FOR  
RECLAMATION FROM INTERNAL FILE SYSTEM TO POOL STORAGE**

which is further identified by Attorney Docket Number 1003-581;

**WHEREAS**, EMC IP Holding Company LLC (hereinafter "ASSIGNEE"), a limited liability company organized and existing under the laws of the state of Delaware and having a usual place of business at 176 South Street, Hopkinton, MA, 01748, USA, desires to acquire an interest therein in accordance with agreements duly entered into with me;

**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, I 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 me had this assignment and sale not been made; I 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. I 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**, I hereby further agree for myself and my 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**, I 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** I hereby authorize the attorneys at Bainwood Huang & Associates LLC to insert here in parentheses

( 15/797,284 , filed 10/30/2017 )

the application number and filing date of said application (or foreign counterpart application) to facilitate the recording or other official processing of this Assignment.

Date: Oct. 26, 2017

Changyong Yu

Inventor's Signature

Legal name of inventor:

Changyong Yu

Residence:

No. 501, Building 36  
No. 925, Shangzhong Road West  
Minhang District  
Shanghai, 200237  
China (People's Republic)

Mailing Address:

Same as Above

Citizenship:

CN

I Banghui Luo (name) whose residential address is  
No. 234 Songhu Road, Yangpu District, Shanghai  
was personally present and did see Changyong Yu (name of person signing the  
assignment) who is personally known to me, execute the above assignment.

Banghui Luo (signature of first witness)

Signed at Shanghai (location of witness signature)

on this day 10. 26 of 2017. (date of signature)

I Yuetao Jiang (name) whose residential address is  
No. 87, Minzhu St., Jiaoding District, Shanghai  
was personally present and did see Changyong Yu (name of person signing the  
assignment) who is personally known to me, execute the above assignment.

Yuetao Jiang (signature of second witness)

Signed at Shanghai (location of witness signature)

on this day 26th, Oct of 2017. (date of signature)

**ASSIGNMENT**

**WHEREAS**, I, Alexander S. Mathews, as the original inventor or an original joint inventor 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

**DATA STORAGE SYSTEM DYNAMICALLY RE-MARKING SLICES FOR  
RECLAMATION FROM INTERNAL FILE SYSTEM TO POOL STORAGE**

which is further identified by Attorney Docket Number 1003-581;

**WHEREAS**, EMC IP Holding Company LLC (hereinafter "ASSIGNEE"), a limited liability company organized and existing under the laws of the state of Delaware and having a usual place of business at 176 South Street, Hopkinton, MA, 01748, USA, desires to acquire an interest therein in accordance with agreements duly entered into with me;

**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, I 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 me had this assignment and sale not been made; I 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. I 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**, I hereby further agree for myself and my 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**, I 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** I hereby authorize the attorneys at Bainwood Huang & Associates LLC to insert here in parentheses

( 15/797,284 , filed 10/30/2017 )

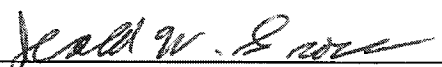
the application number and filing date of said application (or foreign counterpart application) to facilitate the recording or other official processing of this Assignment.

Date: 10/30/2017

  
Inventor's Signature

Legal name of inventor: Alexander S. Mathews  
Residence: 4 Prince Edward Road  
Morganville, NJ 07751  
United States of America  
Mailing Address: Same as Above  
Citizenship: US

I Jerald W. Gross (name) whose residential address is  
6 Traci Lane Edison, NJ 08817,  
was personally present and did see Alexander S. Mathews (name of person signing the  
assignment) who is personally known to me, execute the above assignment.

  
(signature of first witness)

Signed at Warren, NJ (location of witness signature)

on this day October 30 of 20 17 (date of signature)

---

I AHSAN RASHID (name) whose residential address is  
1207 YOSKO DR EDISON NJ 08817,

was personally present and did see Alexander S. Mathews (name of person signing the  
assignment) who is personally known to me, execute the above assignment.

  
(signature of second witness)

Signed at <sup>184</sup>Liberty Corner Rd, Warren NJ (location of witness signature)

on this day October 30 of 20 17 (date of signature)



**ASSIGNMENT**

**WHEREAS**, I, Xianlong Liu, as the original inventor or an original joint inventor 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

**DATA STORAGE SYSTEM DYNAMICALLY RE-MARKING SLICES FOR  
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which is further identified by Attorney Docket Number 1003-581;

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**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, I 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 me had this assignment and sale not been made; I 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. I 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**, I hereby further agree for myself and my 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**, I 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 I** hereby authorize the attorneys at Bainwood Huang & Associates LLC to insert here in parentheses

( 15/797,284 , filed 10/30/2017 )

the application number and filing date of said application (or foreign counterpart application) to facilitate the recording or other official processing of this Assignment.

PATENT ASSIGNMENT  
Attorney Docket No.: 1003-581  
Client Docket No.: EMC-17-0168-US

Date: Oct 27, 2017

Xianlong Liu  
Inventor's Signature

Legal name of inventor:

Xianlong Liu

Residence:

Room 502, No. 16, Lane 777, Linghe Road  
Pudong District  
Shanghai, 200129  
China (People's Republic)

Mailing Address:

Same as Above

Citizenship:

CN

I Ying Huang (name) whose residential address is  
NO. 95 Chifeng Rd, Yangpu District, Shanghai

was personally present and did see Xianlong Liu (name of person signing the assignment) who is personally known to me, execute the above assignment.

Ying Huang (signature of first witness)

Signed at Shanghai (location of witness signature)

on this day 26th, NOV of 2017. (date of signature)

I Yuetan Jiang (name) whose residential address is  
NO. 87, Minzhu St, Jia Ding District, Shanghai

was personally present and did see Xianlong Liu (name of person signing the assignment) who is personally known to me, execute the above assignment.

Yuetan Jiang (signature of second witness)

Signed at Shanghai (location of witness signature)

on this day 26th, Oct of 2017. (date of signature)

**ASSIGNMENT**

**WHEREAS**, I, Ruiling Dou, as the original inventor or an original joint inventor 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

**DATA STORAGE SYSTEM DYNAMICALLY RE-MARKING SLICES FOR  
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which is further identified by Attorney Docket Number 1003-581;

**WHEREAS**, EMC IP Holding Company LLC (hereinafter "ASSIGNEE"), a limited liability company organized and existing under the laws of the state of Delaware and having a usual place of business at 176 South Street, Hopkinton, MA, 01748, USA, desires to acquire an interest therein in accordance with agreements duly entered into with me;

**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, I 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 me had this assignment and sale not been made; I 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. I 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**, I hereby further agree for myself and my 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**, I 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** I hereby authorize the attorneys at Bainwood Huang & Associates LLC to insert here in parentheses

( 15/797,284 , filed 10/30/2017 )

the application number and filing date of said application (or foreign counterpart application) to facilitate the recording or other official processing of this Assignment.

Date: 2017. 10. 26

Ruiling Dou

Inventor's Signature

Legal name of inventor:

Ruiling Dou

Residence:

478 FangHua Road  
Shanghai  
China (People's Republic)

Mailing Address:

Same as Above

Citizenship:

CN

I Xing Huang (name) whose residential address is

No. 2 Songhua Road, Yangpu District, Shanghai

was personally present and did see Ruiling Dou (name of person signing the assignment) who is personally known to me, execute the above assignment.

Xing Huang

(signature of first witness)

Signed at Shanghai (location of witness signature)

on this day 26th, Nov of 20 17. (date of signature)

I Yue-tao Jiang (name) whose residential address is

No. 87, Minzhu St, Jiaping District, Shanghai

was personally present and did see Ruiling Dou (name of person signing the assignment) who is personally known to me, execute the above assignment.

Yue-tao Jiang

(signature of second witness)

Signed at Shanghai (location of witness signature)

on this day 26th, Oct of 20 17 (date of signature)