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PATENT ASSIGNMENT COVER SHEET

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SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
FRANK HUANG	07/25/2018
CHERAMI LIU	07/25/2018
AARON REN WANG	07/25/2018
HANSON WANG	07/25/2018

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:	16118133

CORRESPONDENCE DATA

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WOMBLE BOND DICKINSON (US) LLP **Correspondent Name:**

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ATTORNEY DOCKET NUMBER: 206368.0440.5 (P276) **NAME OF SUBMITTER:** TRI C. DANG, REG. NO. 71853 **SIGNATURE:** / Tri C. Dang / **DATE SIGNED:** 08/31/2018

Total Attachments: 6

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PATENT REEL: 046769 FRAME: 0771

ASSIGNMENT

WHEREAS, we, <u>Frank Huang</u>, <u>Cherami Liu</u>, <u>Aaron Ren Wang</u>, and <u>Hanson Wang</u>, 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 <u>METHODS</u> <u>AND SYSTEMS FOR SEARCHING DIRECTORY ACCESS GROUPS</u> (Application), the specification of which:

[X]	States Patent Office;	is date herewith and is about to be filed in t	ne United
[]	was filed on	as U.S. Application No.	;
[]	was patented under U.S.	Patent Noon	······································

WHEREAS, EMC IP Holding Company LLC (hereinafter "ASSIGNEE"), a limited liability company 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

PATENT/Joint Assignment Attorney Docket No.: 206368.0440.5 (P276)

EMC Docket No.: 111581.01

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 parentheses (<u>App. No. 16/118,133; Filed 08/30/2018</u>) 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: July 25th. 2018	黄一帆
J	Inventor's Signature
Print full name of first inventor:	Frank Huang
Residence:	No. 25, Lane 1080, FuChang road, Shanghai China
Citizenship:	China
Mailing Address:	Same as above
I Yuanyi Liu (name) v	whose residential address is was personally
present and did see Yifan Huang known to me, execute the above assignment.	nanghai China was personally (name of person signing the assignment) who is personally
(signature	of first witness)
Signed at No. 234, Songhu Road, Shanghai (location	
on this day	ate of signature)
I Yixing Sheng (name) v	tyboga mai dantial addussa is
Room 1701, No. 5, 80 nong, Dehua road, Shar	nghai China was personally
present and did see Yifan Huang	(name of person signing the assignment) who is personally
known to me, execute the above assignment.	
(signature	of second witness)
Signed at No. 234, Songhu Road, Shanghai	(location of witness signature)
on this day July 25th of 20 <u>18</u> . (d	

Date: JMM V5. 2018	Inventor's Signature
Print full name of first inventor:	Cherami Liu
Residence:	Room 303, No. 1, 1458 nong, PuJian Road, shanghai
Citizenship:	China
Mailing Address:	Same as above
I Yuanyi Liu (name) Room 302, No.9, 399 nong, Yuezhou road, Shang present and did see Min Liu known to me, execute the above assignment. Signed at No. 234, Songhu Road, Shanghai (location this day July 25th of 20 18. ((name of person signing the assignment) who is personally re of first witness) on of witness signature)
I Yixing Sheng (name) Room 1701, No. 5, 80 nong, Dehua road, Shanghai present and did see Min Liu known to me, execute the above assignment. (signatur	
Signed at No. 234, Songhu Road, Shanghai	(location of witness signature)
on this day of 20 18 . (date of signature)

Date: July 25.2018	Inventor's Signature
Print full name of first inventor: Residence: Citizenship: Mailing Address:	Aaron Ren Wang #33-2001 room, 399 Nong, Zhujiagang RD., Shanghai China China Same as above
I Yuanyi Liu (name) Room 302, No.9, 399 nong, Yuezhou road, Shan present and did see Ren Wang known to me, execute the above assignment. (signatu Signed at No. 234, Songhu Road, Shanghai (location) on this day July 25th of 20 18	ghai China was personally (name of person signing the assignment) who is personally re of first witness) on of witness signature)
1 Yixing Sheng (name) Room 1701, No. 5, 80 nong, Dehua road, Shangh present and did see Ren Wang known to me, execute the above assignment. (signatu Signed at No. 234, Songhu Road, Shanghai on this day July 25th of 20 18	was personally (name of person signing the assignment) who is personally re of second witness) (location of witness signature)

Date: July 15th 2018	主战的。
	Inventor's Signature
Print full name of first inventor:	Hanson Wang
Residence:	Room 702, No. 5, Lane 860, HaiYang Road, Shanghai China
Citizenship:	China
Mailing Address:	Same as above
	e) whose residential address is
Room 302, No.9, 399 nong, Yuezhou road, Shang	thai China was personally was personally (name of person signing the assignment) who is personally
present and did see Xiaolan Wang known to me, execute the above assignment.	(name of person signing the assignment) who is personally
× . +7"	ure of first witness)
Signed at No. 234, Songhu Road, Shanghai (locat	ion of witness signature)
on this day July 25th of 20 18	. (date of signature)
Room 1701, No. 5, 80 nong, Dehua road, Shangha	e) whose residential address is ai China was personally
present and did see Xiaolan Wang	(name of person signing the assignment) who is personally
known to me, execute the above assignment.	ure of second witness)
Signed atNo. 234, Songhu Road, Shanghai	(location of witness signature)
on this day July 25th of 20 18	

RECORDED: 08/31/2018