PATENT ASSIGNMENT

Electronic Version v1.1 Stylesheet Version v1.1

| SUBMISSION TYPE: | NEW ASSIGNMENT |
|-----------------------|----------------|
| NATURE OF CONVEYANCE: | ASSIGNMENT |

CONVEYING PARTY DATA

| Name | Execution Date | |
|----------------|----------------|--|
| Deepak KAKADIA | 08/16/2013 | |
| Thomas H. TAN | 08/02/2013 | |
| Sagiv DRAZNIN | 08/27/2013 | |

RECEIVING PARTY DATA

| Name: | Verizon Patent and Licensing Inc. |
|-----------------|-----------------------------------|
| Street Address: | One Verizon Way |
| City: | Basking Ridge |
| State/Country: | VIRGINIA |
| Postal Code: | 22030 |

PROPERTY NUMBERS Total: 1

| Property Type | Number | |
|---------------------|----------|--|
| Application Number: | 14011298 | |

CORRESPONDENCE DATA

Fax Number: 5714320808

Correspondence will be sent via US Mail when the fax attempt is unsuccessful.

Phone: 5714320800

Email: neways@harrityllp.com
Correspondent Name: Harrity & Harrity LLP
Address Line 1: 11350 Random Hills Rd

Address Line 2: Suite 600

Address Line 4: Fairfax, VIRGINIA 22030

| ATTORNEY DOCKET NUMBER: | 20130628 |
|-------------------------|--|
| NAME OF SUBMITTER: | Christopher T. Braniff |
| Signature: | /Christopher T Braniff, Reg. No. 71,725/ |
| | |

REEL: 031093 FRAME: 0379

PATENT

| Date: | 08/27/2013 |
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| | This document serves as an Oath/Declaration (37 CFR 1.63). |
| Total Attachments: 6 source=20130628_Declaration-Assignments source=20130628_Declaration-Assignments source=20130628_Declaration-Assignments source=20130628_Declaration-Assignments source=20130628_Declaration-Assignments source=20130628_Declaration-Assignments | #page2.tif #page3.tif #page4.tif #page5.tif |

PATENT REEL: 031093 FRAME: 0380

DECLARATION AND ASSIGNMENT FOR UTILITY PATENT APPLICATION

Patent Application Title: PRIVATE MULTICAST NETWORKS

fine or imprisonment, or both, under 18 U.S.C. § 1001.

| me pate | ot application for which: | | | |
|--|---|--|--|--|
| is being filed concurrently herewith, Application Number to be assigned by the USPTO, or | | | | |
| was was | filed on as United States Application Number or PCT International | | | |
| | tion Number | | | |
| | | | | |
| Declara | tion of Inventor | | | |
| | | | | |
| As a be | ow named inventor, I hereby declare that: | | | |
| | | | | |
| Α. | I believe I am the original inventor or an original joint inventor of the subject matter which is | | | |
| | claimed and for which a patent is sought by the above-identified patent application; | | | |
| ъ | The share is a differ a continuous and a constraint state and because of | | | |
| D. | The above-identified application was made or authorized to be made by me; and | | | |
| | | | | |

C. I hereby acknowledge that any willful false statements made in this declaration are punishable by

Inventor Assignment Acknowledgement

For good and valuable consideration, the receipt of which is hereby acknowledged, I agree as follows:

- A. I have sold, assigned and transferred (directly or indirectly), and by this agreement do hereby sell, assign, and transfer, to the Verizon legal entity identified below ("Assignee") and its successors and assigns, my entire worldwide right, title and interest in and to any and all ideas, inventions, methods and improvements which are described in the above-identified patent application, and in and to said application, and all divisional, continuing (in whole or in part), substitute, renewal, reissue, provisional, and all other applications or registrations for Letters Patent which have been or shall be filed in the United States and all foreign countries based on any of said ideas, inventions, methods and improvements, or based on or claiming priority to said application; and in and to all original and reissued Letters Patent which have been or shall be issued in the United States and foreign countries from any of said applications or registrations; and in and to all rights of priority resulting from the filing of any of said applications or registrations (all collectively, the "Patent Rights"). Letters Patent as used herein shall include, without limitation, patents, utility models, industrial designs, and any other form of industrial property recognized under the Paris Convention for the Protection of Industrial Property.
- B. I agree (i) that Assignee may apply for and receive Letters Patent hased on the Patent Rights in its own name; (ii) that, when requested, without charge to, but at the expense of, said Assignee, its successors and/or assigns, to carry out in good faith the intent and purpose of this agreement, I will execute all divisional, continuing (in whole or in part), substitute, renewal, reissue, and all other applications or registrations included within the Patent Rights; (iii) to execute all rightful oaths, declarations, assignments, powers of attorney and other papers related to the Patent Rights; (iv) to communicate to said Assignee, its successors, assigns, representatives and agents, all facts known to the undersigned relating to said Patent Rights and the history thereof; and (v) to generally do everything which Assignee, its successors, assigns, representatives or agents shall consider desirable for aiding in securing and maintaining proper protection for said Patent Rights and for vesting title to said Patent Rights in Assignee, its successors and assigns.

C. I covenant with Assignee, its successors and assigns, that no assignment, grant, mortgage, license, or other agreement affecting the Patent Rights has been made to others by me, and that full right to convey the same as set forth herein is possessed by me.

ASSIGNEE: Verizon Patent and Licensing Inc., a Delaware Corporation with a place of business at One Verizon Way, Basking Ridge, NJ 07920 US

IN WITNESS to my agreement to the foregoing, I have executed as set forth below:

| run legat name of inventor: Deepak KAKADIA | | | | | |
|---|--------------|------|----|-----|----|
| | | | | | |
| Mailing Address: 32517 Spanish Bay Ct., Union City, CA 94 | <u> 4587</u> | Λ | | | |
| · MAS | , | Shor | 16 | 20 | 1- |
| Signature: | Date: | 110 | 10 | 0-U | (|

-02/03

VZ Docket No.: 20130628

DECLARATION AND ASSIGNMENT FOR UTILITY PATENT APPLICATION

Patent Application Title: PRIVATE MULTICAST NETWORKS

| the patent application for which: | |
|--|----------------------|
| is being filed concurrently herewith, Application Number to be assigned by | y the USPTO, or |
| was filed on as United States Application Number | or PCT International |
| Application Number | |
| Declaration of Inventor | |

As a below named inventor, I hereby declare that;

- A. I believe I am the original inventor or an original joint inventor of the subject matter which is claimed and for which a patent is sought by the above-identified patent application;
- B. The above-identified application was made or authorized to be made by me; and
- C. I hereby acknowledge that any willful false statements made in this declaration are punishable by fine or imprisonment, or both, under 18 U.S.C. § 1001.

Inventor Assignment Acknowledgement

For good and valuable consideration, the receipt of which is hereby acknowledged, I agree as follows:

- A. I have sold, assigned and transferred (directly or indirectly), and by this agreement do hereby sell, assign, and transfer, to the Verizon legal entity identified below ("Assignee") and its successors and assigns, my entire worldwide right, title and interest in and to any and all ideas, inventions, methods and improvements which are described in the above-identified patent application, and in and to said application, and all divisional, continuing (in whole or in part), substitute, renewal, reissue, provisional, and all other applications or registrations for Letters Patent which have been or shall be filed in the United States and all foreign countries based on any of said ideas, inventions, methods and improvements, or based on or claiming priority to said application; and in and to all original and reissued Letters Patent which have been or shall be issued in the United States and foreign countries from any of said applications or registrations; and in and to all rights of priority resulting from the filing of any of said applications or registrations (all collectively, the "Patent Rights"). Letters Patent as used herein shall include, without limitation, patents, utility models, industrial designs, and any other form of industrial property recognized under the Paris Convention for the Protection of Industrial Property.
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ASSIGNEE: Verizon Patent and Licensing Inc., a Delaware Corporation with a place of business at One Verizon Way, Basking Ridge, NJ 07920 US

IN WITNESS to my agreement to the foregoing, I have executed as set forth below:

Full legal name of Inventor: Thomas H. TAN

Mailing Address: 1302 Harefield Court, San Jose, CA 95131

Signature:

-2-

DECLARATION AND ASSIGNMENT FOR UTILITY PATENT APPLICATION

Patent Application Title: PRIVATE MULTICAST NETWORKS

| the patent application for which: is being filed concurrently herewith, Applicatio was filed on as United States App | n Number to be assigned | by the USPTO, or or PCT International |
|--|-------------------------|---------------------------------------|
| Application Number | | |
| Declaration of Inventor | | |
| As a below named inventor, I hereby declare that: | | |
| | | |

- A. I believe I am the original inventor or an original joint inventor of the subject matter which is claimed and for which a patent is sought by the above-identified patent application;
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ASSIGNEE: Verizon Patent and Licensing Inc., a Delaware Corporation with a place of business at One Verizon Way, Basking Ridge, NJ 07920 US

IN WITNESS to my agreement to the foregoing, I have executed as set forth below:

Full legal name of Inventor: Sagiv DRAZNIN

Mailing Address: 3424 Withersed Lane, Walfut Creek, CA 94598

Signature:

-2-