502515400 09/30/2013

PATENT ASSIGNMENT

Electronic Version v1.1 Stylesheet Version v1.1

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

CONVEYING PARTY DATA

| Name | Execution Date |
|----------------|----------------|
| Varun Shah | 09/19/2013 |
| Madhukar Anand | 09/19/2013 |

RECEIVING PARTY DATA

| Name: | Cisco Technology, Inc. | |
|-----------------|------------------------|--|
| Street Address: | 170 West Tasman Drive | |
| City: | San Jose | |
| State/Country: | CALIFORNIA | |
| Postal Code: | 95134 | |

PROPERTY NUMBERS Total: 1

| Property Type | Number |
|---------------------|----------|
| Application Number: | 14042347 |

CORRESPONDENCE DATA

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Correspondent Name: Patent Capital Group - Cisco
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| ATTORNEY DOCKET NUMBER: | 03919.0605 (980805) |
|-------------------------|---------------------|
| NAME OF SUBMITTER: | Thomas J. Frame |
| Signature: | /Thomas J. Frame/ |
| Date: | 09/30/2013 |

Total Attachments: 3

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> PATENT REEL: 031312 FRAME: 0611

CH \$40.00 1404234

ASSIGNMENT

WHEREAS, I, the undersigned inventor (or one of the undersigned joint inventors), of residence as listed, having invented certain new and useful improvements as below entitled, for which application for United States Letters Patent is made, said application having been executed on the date set forth below; and

WHEREAS, Cisco Technology, Inc. (hereinafter referred to as "Assignee"), a California Corporation, with an address of 170 West Tasman Drive, San Jose, California 95134, desires to acquire my entire right, title and interest in and to the invention, and in and to the said application and any Letters Patent that may issue thereon;

NOW, THEREFORE, for and in consideration of One United States Dollar (\$1.00) and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, I assign to Assignee, all right, title and interest in and to said invention and in and to said application and all patents which may be granted therefore, and all provisional, divisions, reissues, continuations, continuations-in-part and extensions thereof; and I hereby authorize and request the Commissioner of Patents and Trademarks to issue all patents for said invention, or patents resulting therefrom, insofar as my interest is concerned, to Assignee.

I also assign to Assignee, all right, title and interest to the invention disclosed in said application throughout the world, including the right to file applications and obtain patents, utility models, industrial models and designs for said invention in its own name throughout the world including all rights to publish cautionary notices reserving ownership of said invention and all rights to register said invention in appropriate registries; and I further agree to execute any and all powers of attorney, applications, assignments, declarations, affidavits, and any other papers in connection therewith necessary to perfect such right, title and interest in Assignee.

I will communicate to Assignee any facts known to me respecting any improvements; and, at the expense of Assignee, I will testify in any legal proceedings, sign all lawful papers, execute all provisional, divisional, continuation, continuation-in-part, reissue and substitute applications, make lawful oaths and declarations, and generally do everything possible to vest title in Assignee and to aid Assignee to obtain and enforce proper protection for said invention in all countries.

This Assignment shall be binding on the parties' successors, assigns and legal representatives.

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Title of Invention:

METHOD AND SYSTEM TO CALCULATE MULTIPLE

SHORTEST PATH FIRST TREES

Full name of inventor:

Varun Shah

Inventor signature:

09/19/2013

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3

Title of Invention:

METHOD AND SYSTEM TO CALCULATE MULTIPLE

SHORTEST PATH FIRST TREES

Full name of inventor:

Madhukar Anand

Inventor signature:

1 14 (600)

Date:

09/19/2013

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> PATENT REEL: 031312 FRAME: 0614

RECORDED: 09/30/2013