

## PATENT ASSIGNMENT COVER SHEET

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 Stylesheet Version v1.2

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|                                   |                    |                       |
|-----------------------------------|--------------------|-----------------------|
| <b>SUBMISSION TYPE:</b>           | NEW ASSIGNMENT     |                       |
| <b>NATURE OF CONVEYANCE:</b>      | ASSIGNMENT         |                       |
| <b>CONVEYING PARTY DATA</b>       |                    |                       |
| <b>Name</b>                       |                    | <b>Execution Date</b> |
| DELL PRODUCTS L.P.                |                    | 10/31/2016            |
| <b>RECEIVING PARTY DATA</b>       |                    |                       |
| <b>Name:</b>                      | DELL SOFTWARE INC. |                       |
| <b>Street Address:</b>            | 5 POLARIS WAY      |                       |
| <b>City:</b>                      | ALISO VIEJO        |                       |
| <b>State/Country:</b>             | CALIFORNIA         |                       |
| <b>Postal Code:</b>               | 92656              |                       |
| <b>PROPERTY NUMBERS Total: 47</b> |                    |                       |
| <b>Property Type</b>              | <b>Number</b>      |                       |
| Application Number:               | 14640706           |                       |
| Application Number:               | 14722125           |                       |
| Application Number:               | 14815221           |                       |
| Application Number:               | 14869758           |                       |
| Patent Number:                    | 7890615            |                       |
| Patent Number:                    | 8103751            |                       |
| Patent Number:                    | 8301737            |                       |
| Patent Number:                    | 9064027            |                       |
| Patent Number:                    | 8381231            |                       |
| Patent Number:                    | D564522            |                       |
| Patent Number:                    | 7941599            |                       |
| Patent Number:                    | 8140748            |                       |
| Patent Number:                    | 7814190            |                       |
| Patent Number:                    | 7818427            |                       |
| Application Number:               | 14718804           |                       |
| Application Number:               | 13081378           |                       |
| Application Number:               | 13070168           |                       |
| Application Number:               | 15040793           |                       |
| Application Number:               | 14797010           |                       |
| Application Number:               | 14942776           |                       |

PATENT

| Property Type       | Number   |
|---------------------|----------|
| Application Number: | 15048563 |
| Patent Number:      | 7864083  |
| Patent Number:      | 8396899  |
| Patent Number:      | 8671116  |
| Patent Number:      | 8200641  |
| Patent Number:      | 8543555  |
| Patent Number:      | 8510275  |
| Patent Number:      | 8612401  |
| Patent Number:      | 8849774  |
| Patent Number:      | 8396843  |
| Patent Number:      | 9020909  |
| Patent Number:      | 8762349  |
| Patent Number:      | 8825985  |
| Patent Number:      | 8521705  |
| Patent Number:      | 9201800  |
| Patent Number:      | 9690576  |
| Application Number: | 14603197 |
| Application Number: | 14588181 |
| Application Number: | 14706060 |
| Application Number: | 14840739 |
| Application Number: | 14812823 |
| Application Number: | 14867615 |
| Application Number: | 14879657 |
| Application Number: | 14845467 |
| Application Number: | 14861608 |
| Application Number: | 14948133 |
| Application Number: | 14705878 |

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|--------------------------------|---------|
| <b>ATTORNEY DOCKET NUMBER:</b> | Q3035.0 |
|--------------------------------|---------|

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|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|
| <b>NAME OF SUBMITTER:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                       | ERIC L. MASCHOFF                   |
| <b>SIGNATURE:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                               | /ERIC L. MASCHOFF, Reg. no. 36596/ |
| <b>DATE SIGNED:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                             | 02/16/2018                         |
| <b>Total Attachments: 6</b><br>source=QSI - Patent Assignment to Dell Software 10.31.16#page1.tif<br>source=QSI - Patent Assignment to Dell Software 10.31.16#page2.tif<br>source=QSI - Patent Assignment to Dell Software 10.31.16#page3.tif<br>source=QSI - Patent Assignment to Dell Software 10.31.16#page4.tif<br>source=QSI - Patent Assignment to Dell Software 10.31.16#page5.tif<br>source=QSI - Patent Assignment to Dell Software 10.31.16#page6.tif |                                    |

**U.S. PATENT AND TRADEMARK OFFICE**

**PATENT ASSIGNMENT**

**THIS PATENT ASSIGNMENT** (this "Assignment") is made and entered into as of October 31, 2016 ("Effective Date"), by and between **Dell Products L.P.**, a Texas limited partnership ("Assignor"), and **Dell Software Inc.**, a Delaware corporation ("Assignee").

**WHEREAS**, Assignor is the sole and exclusive owner of the entire right, title and interest in, to and under the patents and patent applications set forth on Schedule A hereof (collectively, the "Patents"); and

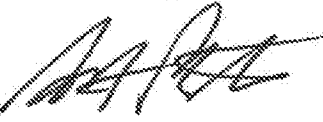
**WHEREAS**, Assignor wishes to assign to Assignee, and Assignee wishes to acquire from Assignor, all right, title and interest to the Patents;

**NOW, THEREFORE**, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Assignor hereby irrevocably sells, conveys, assigns, transfers and delivers to Assignee its entire right, title and interest in and to the Patents, for the United States and for all foreign countries, and the inventions they claim (including subject matter capable of being reduced to a patent claim in a reissue or reexamination proceeding relating to any of the Patents and subject matter that could have been included as a claim in any of the Patents), and any and all continuations, divisionals, continuations-in-part, provisionals, reissues, reexaminations, extensions, international applications or foreign equivalents thereof which may be obtained therefrom, and the priority rights thereto, for its own use and enjoyment, and for the use and enjoyment of its successors, assigns or other legal representatives, as fully and entirely as the same would have been held and enjoyed by Assignor if this Assignment had not been made, together with all income, royalties, or payments due or payable as of the Effective Date or thereafter, including, without limitation, all claims for damages by reason of past, present or future infringement or other unauthorized use of the Patents, with the right to sue for, and collect the same for its own use and enjoyment, and for the use and enjoyment of its successors, assigns, or other legal representatives. Assignor hereby requests the Commissioner for Patents in the United States Patent and Trademark Office, and the corresponding entities or agencies in any applicable foreign jurisdictions, to record and register Assignee as the assignee and owner of the Patents.

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ASSIGNOR

DELL PRODUCTS L.P.

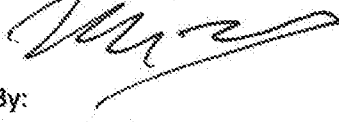
By: 

Name: Anthony Peterman

Title: Vice President, Intellectual Property

ASSIGNEE

DELL SOFTWARE INC.

By: 

Name: Brad Haque

Title: General Counsel

[Signature Page to Patent Assignment]

**SCHEDULE A****PATENTS AND PATENT APPLICATIONS**

| Application No. | Patent No. | Title                                                                                   | Country                  | Owner              |
|-----------------|------------|-----------------------------------------------------------------------------------------|--------------------------|--------------------|
| 14/840,706      | N/A        | DISCOVERY OF POTENTIAL PROBLEMATIC EXECUTION PLANS IN A BIND-SENSITIVE QUERY STATEMENT  | United States of America | DELL PRODUCTS L.P. |
| 14/722,125      | N/A        | SYSTEM AND METHOD FOR ADAPTIVE PATHS LOCATOR FOR VIRTUAL NETWORK FUNCTION LINKS         | United States of America | DELL PRODUCTS L.P. |
| 14/815,221      | N/A        | AUTOMATIC DETERMINATION OF OPTIMAL TIME WINDOW FOR MIGRATION, BACKUP OR OTHER PROCESSES | United States of America | DELL PRODUCTS L.P. |
| 14/869,758      | N/A        | SIZING OF ONE OR MORE JOBS WITHIN ONE OR MORE TIME WINDOWS                              | United States of America | DELL PRODUCTS L.P. |
| 12/206,635      | 7,890,815  | ARCHITECTURE AND PROTOCOL FOR EXTENSIBLE AND SCALABLE COMMUNICATION                     | United States of America | DELL PRODUCTS L.P. |
| 13/014,922      | 8,103,751  | ARCHITECTURE AND PROTOCOL FOR EXTENSIBLE AND SCALABLE COMMUNICATION                     | United States of America | DELL PRODUCTS L.P. |
| 13/356,282      | 8,301,737  | ARCHITECTURE AND PROTOCOL FOR EXTENSIBLE AND SCALABLE COMMUNICATION                     | United States of America | DELL PRODUCTS L.P. |
| 12/137,115      | 8,064,027  | CROSS-ENTERPRISE IT INFORMATION SHARING PLATFORM                                        | United States of America | DELL PRODUCTS L.P. |
| 12/556,525      | 8,381,231  | DEPLOYMENT AND MANAGEMENT OF VIRTUAL CONTAINERS                                         | United States of America | DELL PRODUCTS L.P. |
| 29/257,598      | D564,522   | FRONT PANEL FOR INFORMATION TECHNOLOGY AUTOMATION APPLIANCE                             | United States of America | DELL PRODUCTS L.P. |
| 12/021,143      | 7,841,599  | IT AUTOMATION APPLIANCE IMAGING SYSTEM AND METHOD                                       | United States of America | DELL PRODUCTS L.P. |
| 13/074,194      | 8,140,748  | IT AUTOMATION APPLIANCE IMAGING SYSTEM AND METHOD                                       | United States of America | DELL PRODUCTS L.P. |
| 11/689,478      | 7,814,190  | IT AUTOMATION FILTERING AND LABELING SYSTEM AND APPLIANCE                               | United States of America | DELL PRODUCTS L.P. |
| 11/689,486      | 7,818,427  | IT AUTOMATION SCRIPTING MODULE AND APPLIANCE                                            | United States of America | DELL PRODUCTS L.P. |
| 14/718,804      |            | SYSTEM AND METHOD FOR AGGLOMERATIVE CLUSTERING                                          | United States of America | DELL PRODUCTS L.P. |

| Application No. | Patent No. | Title                                                                                                                 | Country                  | Owner              |
|-----------------|------------|-----------------------------------------------------------------------------------------------------------------------|--------------------------|--------------------|
| 13/081,378      | N/A        | HYPERCASTING                                                                                                          | United States of America | DELL PRODUCTS L.P. |
| 13/070,168      | N/A        | PORTABLE VIRTUAL APPLICATIONS                                                                                         | United States of America | DELL PRODUCTS L.P. |
| 15/040,793      | N/A        | NETWORK CHANGE AUDITING SYSTEM                                                                                        | United States of America | DELL PRODUCTS L.P. |
| 14/797,010      | N/A        | SYSTEM AND METHOD FOR IMPROVING SECURITY INTELLIGENCE THROUGH INVENTORY DISCOVERY                                     | United States of America | DELL PRODUCTS L.P. |
| 14/942,776      | N/A        | METHOD TO AUTOMATICALLY CREATE COLLABORATION GROUPS USING MULTIFACTOR RELATIONSHIP DATA PROVIDED BY USERS AND SYSTEMS | United States of America | DELL PRODUCTS L.P. |
| 15/048,563      | N/A        | SYSTEM AND METHOD FOR CONTROL OF PRINTED DOCUMENTS BASED ON CLASSIFICATION                                            | United States of America | DELL PRODUCTS L.P. |
| 12/470,469      | 7,864,083  | EFFICIENT DATA COMPRESSION & DECOMPRESSION OF NUMERIC SEQUENCES                                                       | United States of America | DELL PRODUCTS L.P. |
| 12/624,280      | 8,396,899  | EFFICIENT SEGMENT DETECTION FOR DEDUPLICATION                                                                         | United States of America | DELL PRODUCTS L.P. |
| 13/760,131      | 8,671,116  | EFFICIENT SEGMENT DETECTION FOR DEDUPLICATION                                                                         | United States of America | DELL PRODUCTS L.P. |
| 12/858,230      | 8,200,641  | DICTIONARY FOR DATA DEDUPLICATION                                                                                     | United States of America | DELL PRODUCTS L.P. |
| 13/436,388      | 8,543,555  | DICTIONARY FOR DATA DEDUPLICATION                                                                                     | United States of America | DELL PRODUCTS L.P. |
| 12/858,259      | 8,510,275  | FILE AWARE BLOCK LEVEL DEDUPLICATION                                                                                  | United States of America | DELL PRODUCTS L.P. |
| 13/041,268      | 8,612,401  | HEAT INDICES FOR FILE SYSTEMS AND BLOCK STORAGE                                                                       | United States of America | DELL PRODUCTS L.P. |
| 14/098,156      | 8,849,774  | HEAT INDICES FOR FILE SYSTEMS AND BLOCK STORAGE                                                                       | United States of America | DELL PRODUCTS L.P. |
| 13/076,271      | 8,396,843  | ACTIVE FILE INSTANT CLONING                                                                                           | United States of America | DELL PRODUCTS L.P. |
| 13/761,400      | 9,020,909  | ACTIVE FILE INSTANT CLONING                                                                                           | United States of America | DELL PRODUCTS L.P. |

| Application No. | Patent No. | Title                                                                                  | Country                        | Owner                 |
|-----------------|------------|----------------------------------------------------------------------------------------|--------------------------------|-----------------------|
| 13/182,951      | 8,762,349  | INTELLIGENT DEDUPLICATION<br>DATA PREFETCHING                                          | United<br>States of<br>America | DELL PRODUCTS<br>L.P. |
| 13/183,054      | 8,825,985  | DATA TRANSFER REDUCTION IN<br>SCALE OUT ARCHITECTURES                                  | United<br>States of<br>America | DELL PRODUCTS<br>L.P. |
| 13/309,455      | 8,521,705  | ACCELERATED DEDUPLICATION                                                              | United<br>States of<br>America | DELL PRODUCTS<br>L.P. |
| 13/936,344      | 9,201,800  | RESTORING TEMPORAL<br>LOCALITY IN GLOBAL AND LOCAL<br>DEDUPLICATION STORAGE<br>SYSTEMS | United<br>States of<br>America | DELL PRODUCTS<br>L.P. |
| 14/619,853      | 9,690,576  | SELECTIVE DATA COLLECTION<br>USING A MANAGEMENT SYSTEM                                 | United<br>States of<br>America | DELL PRODUCTS<br>L.P. |
| 14/603,197      | N/A        | SECURE SHELL PUBLIC KEY<br>AUDIT SYSTEM                                                | United<br>States of<br>America | DELL PRODUCTS<br>L.P. |
| 14/688,181      | N/A        | EMAIL AND IDENTITY MIGRATION<br>BASED ON RELATIONSHIP<br>INFORMATION                   | United<br>States of<br>America | DELL PRODUCTS<br>L.P. |
| 14/706,060      | N/A        | SELECTING A CLOUD FROM A<br>PLURALITY OF CLOUDS FOR A<br>WORKLOAD                      | United<br>States of<br>America | DELL PRODUCTS<br>L.P. |
| 14/840,739      | N/A        | CORRELATING EVENT LOGS TO<br>IDENTIFY A POTENTIAL SECURITY<br>BREACH                   | United<br>States of<br>America | DELL PRODUCTS<br>L.P. |
| 14/812,823      | N/A        | MANAGING ALERT PROFILES                                                                | United<br>States of<br>America | DELL PRODUCTS<br>L.P. |
| 14/867,615      | N/A        | ELECTRONIC-MESSAGING<br>SYSTEM INTERCEPTOR<br>FORWARDING CLIENT<br>NOTIFICATIONS       | United<br>States of<br>America | DELL PRODUCTS<br>L.P. |
| 14/879,657      | N/A        | IDENTIFYING A POTENTIAL<br>MENTOR FOR A COMPUTER-<br>ADMINISTERED TEST                 | United<br>States of<br>America | DELL PRODUCTS<br>L.P. |
| 14/845,467      | N/A        | IDENTIFYING ISSUES PRIOR TO<br>DEPLOYING SOFTWARE                                      | United<br>States of<br>America | DELL PRODUCTS<br>L.P. |
| 14/861,606      | N/A        | REPRODUCING PROBLEMS IN A<br>CLOUD-BASED REPLICA OF A<br>NETWORK                       | United<br>States of<br>America | DELL PRODUCTS<br>L.P. |
| 14/948,133      | N/A        | RESOURCE AWARE<br>CLASSIFICATION SYSTEM                                                | United<br>States of<br>America | DELL PRODUCTS<br>L.P. |

| Application No. | Patent No. | Title                                                                                               | Country                  | Owner              |
|-----------------|------------|-----------------------------------------------------------------------------------------------------|--------------------------|--------------------|
| 14/705,878      | N/A        | DEVICE ASSET TRACKING AND SERVICE DESK USING AN EXTERNAL NETWORK MANAGEMENT SYSTEM AS A DATA SOURCE | United States of America | DELL PRODUCTS L.P. |
| 14/718,804      | N/A        | SYSTEM AND METHOD FOR AGGLOMERATIVE CLUSTERING                                                      | United States of America | DELL PRODUCTS L.P. |