



# UNITED STATES PATENT AND TRADEMARK OFFICE

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|                                                                            |             |                      |                     |                  |
|----------------------------------------------------------------------------|-------------|----------------------|---------------------|------------------|
| APPLICATION NO.                                                            | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
| 12/857,836                                                                 | 08/17/2010  | Robert Paul Morris   | 0123-SP             | 4718             |
| 92045                                                                      | 7590        | 12/11/2013           | EXAMINER            |                  |
| The Caldwell Firm, LLC<br>PO Box 59655<br>Dept. SVIPGP<br>Dallas, TX 75229 |             |                      | LABUD, JONATHAN R   |                  |
|                                                                            |             |                      | ART UNIT            | PAPER NUMBER     |
|                                                                            |             |                      | 2196                |                  |
|                                                                            |             |                      | NOTIFICATION DATE   | DELIVERY MODE    |
|                                                                            |             |                      | 12/11/2013          | ELECTRONIC       |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

pcaldwell@thecaldwellfirm.com  
lcaldwell@thecaldwellfirm.com  
andrew.gordon@stragent.com

|                              |                        |                     |
|------------------------------|------------------------|---------------------|
| <b>Notice of Abandonment</b> | <b>Application No.</b> | <b>Applicant(s)</b> |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |
|                              | 12/857,836             | MORRIS, ROBERT PAUL |
|                              | JONATHAN R. LABUD      | 2196                |

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

This application is abandoned in view of:

1. ☒ Applicant's failure to timely file a proper reply to the Office letter mailed on 16 May 2013.
  - (a) ☐ A reply was received on \_\_\_\_\_ (with a Certificate of Mailing or Transmission dated \_\_\_\_\_), which is after the expiration of the period for reply (including a total extension of time of \_\_\_\_\_ month(s)) which expired on \_\_\_\_\_.
  - (b) ☐ A proposed reply was received on \_\_\_\_\_, but it does not constitute a proper reply under 37 CFR 1.113 (a) to the final rejection. (A proper reply under 37 CFR 1.113 to a final rejection consists only of: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114).
  - (c) ☐ A reply was received on \_\_\_\_\_ but it does not constitute a proper reply, or a bona fide attempt at a proper reply, to the non-final rejection. See 37 CFR 1.85(a) and 1.111. (See explanation in box 7 below).
  - (d) ☒ No reply has been received.
2. ☐ Applicant's failure to timely pay the required issue fee and publication fee, if applicable, within the statutory period of three months from the mailing date of the Notice of Allowance (PTOL-85).
  - (a) ☐ The issue fee and publication fee, if applicable, was received on \_\_\_\_\_ (with a Certificate of Mailing or Transmission dated \_\_\_\_\_), which is after the expiration of the statutory period for payment of the issue fee (and publication fee) set in the Notice of Allowance (PTOL-85).
  - (b) ☐ The submitted fee of \$\_\_\_\_\_ is insufficient. A balance of \$\_\_\_\_\_ is due.  
The issue fee required by 37 CFR 1.18 is \$\_\_\_\_\_. The publication fee, if required by 37 CFR 1.18(d), is \$\_\_\_\_\_.
  - (c) ☐ The issue fee and publication fee, if applicable, has not been received.
3. ☐ Applicant's failure to timely file corrected drawings as required by, and within the three-month period set in, the Notice of Allowability (PTO-37).
  - (a) ☐ Proposed corrected drawings were received on \_\_\_\_\_ (with a Certificate of Mailing or Transmission dated \_\_\_\_\_), which is after the expiration of the period for reply.
  - (b) ☐ No corrected drawings have been received.
4. ☐ The letter of express abandonment which is signed by the attorney or agent of record, the assignee of the entire interest, or all of the applicants.
5. ☐ The letter of express abandonment which is signed by an attorney or agent (acting in a representative capacity under 37 CFR 1.34(a)) upon the filing of a continuing application.
6. ☐ The decision by the Board of Patent Appeals and Interference rendered on \_\_\_\_\_ and because the period for seeking court review of the decision has expired and there are no allowed claims.
7. ☐ The reason(s) below:

|                                                                |  |
|----------------------------------------------------------------|--|
| /EMERSON PUENTE/<br>Supervisory Patent Examiner, Art Unit 2196 |  |
|----------------------------------------------------------------|--|

Petitions to revive under 37 CFR 1.137(a) or (b), or requests to withdraw the holding of abandonment under 37 CFR 1.181, should be promptly filed to minimize any negative effects on patent term.

# PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
 Stylesheet Version v1.2

EPAS ID: PAT2601318

|                                   |                       |
|-----------------------------------|-----------------------|
| <b>SUBMISSION TYPE:</b>           | NEW ASSIGNMENT        |
| <b>NATURE OF CONVEYANCE:</b>      | ASSIGNMENT            |
| <b>CONVEYING PARTY DATA</b>       |                       |
| <b>Name</b>                       | <b>Execution Date</b> |
| ROBERT PAUL MORRIS                | 09/05/2013            |
| <b>RECEIVING PARTY DATA</b>       |                       |
| <b>Name:</b>                      | SITTING MAN, LLC      |
| <b>Street Address:</b>            | 712 LATTA ST          |
| <b>City:</b>                      | RALEIGH               |
| <b>State/Country:</b>             | NORTH CAROLINA        |
| <b>Postal Code:</b>               | 27607                 |
| <b>PROPERTY NUMBERS Total: 48</b> |                       |
| <b>Property Type</b>              | <b>Number</b>         |
| Application Number:               | 12688996              |
| Application Number:               | 13023883              |
| Patent Number:                    | 8422858               |
| Application Number:               | 13790082              |
| Application Number:               | 12696854              |
| Application Number:               | 12689168              |
| Application Number:               | 12868767              |
| Application Number:               | 13045556              |
| Application Number:               | 12689177              |
| Application Number:               | 12955993              |
| Patent Number:                    | 8346853               |
| Application Number:               | 13685739              |
| Application Number:               | 12714063              |
| Application Number:               | 12705638              |
| Patent Number:                    | 8219606               |

CH \$1920.00 12688996

|                     |          |
|---------------------|----------|
| Application Number: | 13477402 |
| Application Number: | 12857836 |
| Application Number: | 12857847 |
| Application Number: | 12758125 |
| Application Number: | 12956008 |
| Application Number: | 12788373 |
| Application Number: | 13023916 |
| Application Number: | 12857857 |
| Application Number: | 12758828 |
| Patent Number:      | 8233482  |
| Application Number: | 13531544 |
| Application Number: | 12819214 |
| Patent Number:      | 8331372  |
| Application Number: | 13663513 |
| Application Number: | 12830385 |
| Application Number: | 12789538 |
| Application Number: | 12789550 |
| Application Number: | 12789568 |
| Application Number: | 12819215 |
| Patent Number:      | 8447819  |
| Application Number: | 13867040 |
| Application Number: | 12833016 |
| Application Number: | 12830389 |
| Application Number: | 12830388 |
| Application Number: | 12857851 |
| Application Number: | 12830392 |
| Application Number: | 13025939 |
| Application Number: | 13025944 |
| Application Number: | 13024444 |
| Application Number: | 13023932 |
| Application Number: | 13023952 |
| Application Number: | 13024466 |
| Application Number: | 12788381 |

CORRESPONDENCE DATA

Fax Number:

Email: pcalwell@thecaldwellfirm.com

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

Correspondent Name: PATRICK E. CALDWELL, ESQ.

Address Line 1: PO BOX 59655

Address Line 4: DALLAS, TEXAS 75229

NAME OF SUBMITTER:

PATRICK E. CALDWELL, ESQ.

Signature:

/Patrick E. Caldwell/

Date:

11/03/2013

This document serves as an Oath/Declaration (37 CFR 1.63).

Total Attachments: 9

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### **ASSIGNMENT OF PATENT RIGHTS**

For valuable consideration, the receipt and sufficiency of which is hereby acknowledged, on this 5<sup>th</sup> day of September, 2013, Robert Paul Morris of Wake County, Raleigh, North Carolina, a person, (“**Assignor**”), hereby sells, assigns, and transfers to Sitting Man, LLC, a Delaware limited liability company (“**Assignee**”), the full extent of all right, title, and interest in and to any and all of the following (collectively, the “**Rights**”):

1. The patents, provisional patent applications and patent applications listed in the table below (individually and collectively referred to herein as the “**Patents**”);
2. All inventions claimed or described in the Patents (collectively, the “**Inventions**”);
3. All rights with respect to the Inventions, including all U.S. patents or other governmental grants or issuances that may be granted with respect to the Inventions or from any direct or indirect divisionals, continuations, continuations-in-part, or other patent applications claiming priority rights from the Patents (“**Potential Patents**”);
4. All reissues, reexaminations, extensions, registrations, or any and all priority patent application(s) of the Patents or Potential Patents;
5. All non-United States patents, patent applications, and counterparts relating to any or all of the Inventions, the Patents, or Potential Patents, including, without limitation, certificates of invention, utility models, industrial design protection, design patent protection, and other governmental grants or issuances (“**Foreign Rights**”), and including the right to file foreign applications directly in the name of Assignee, its successors and assigns;
6. The right to claim priority rights deriving from the Patents;
7. All causes of action and remedies related to the Patents, the Inventions, Potential Patents, or Foreign Rights (including, without limitation, the right to sue for past, present, or future infringement, misappropriation or violation of rights related to any of the foregoing and the right to collect royalties and other payments under or on account of any of the foregoing); and
8. Any and all other rights and interests arising out of, in connection with, or in relation to, the Patents, the Inventions, Potential Patents, or Foreign Rights.

| <b>Patent or Application No.</b> | <b>Filing Date</b> | <b>Title of Patent and First Named Inventor</b>                                                                                                         |
|----------------------------------|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| 12/688,996                       | 01-18-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR TRAVERSING NODES IN PATH ON A DISPLAY DEVICE<br><br>Robert Paul Morris                              |
| 13/023,883                       | 02-09-2011         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR DIRECTING ATTENTION OF AN OCCUPANT OF AN AUTOMOTIVE VEHICLE TO A VIEWPORT<br><br>Robert Paul Morris |

| <b>Patent or Application No.</b> | <b>Filing Date</b> | <b>Title of Patent and First Named Inventor</b>                                                                                                      |
|----------------------------------|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8,422,858                        | 01-21-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR COORDINATING PLAYING OF MEDIA STREAMS<br><br>Robert Paul Morris                                  |
| 13/790,082                       | 03-08-2013         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR COORDINATING PLAYING OF MEDIA STREAMS<br><br>Robert Paul Morris                                  |
| 12/696,854                       | 01-29-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR CONTROLLING PLAY OF MEDIA STREAMS<br><br>Robert Paul Morris                                      |
| 12/689,169                       | 01-18-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR AUTOMATICALLY SELECTING OBJECTS IN A PLURALITY OF OBJECTS<br><br>Robert Paul Morris              |
| 12/868,767                       | 08-26-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR NAVIGATING BETWEEN VISUAL COMPONENTS<br><br>Robert Paul Morris                                   |
| 13/045,556                       | 03-11-2011         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR PROVIDING FEEDBACK TO A USER OF A PORTABLE ELECTRONIC DEVICE IN MOTION<br><br>Robert Paul Morris |
| 12/689,177                       | 01-18-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR AUTOMATING OPERATIONS ON A PLURALITY OF OBJECTS<br><br>Robert Paul Morris                        |

| <b>Patent or Application No.</b> | <b>Filing Date</b> | <b>Title of Patent and First Named Inventor</b>                                                                                        |
|----------------------------------|--------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| 12/955,993                       | 11-30-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR AUTOMATICALLY SCROLLING ITEMS IN A SELECTION CONTROL<br><br>Robert Paul Morris     |
| 8,346,853                        | 05-27-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR PROCESSING AN ATTACHED COMMAND RESPONSE<br><br>Robert Paul Morris                  |
| 13/685,739                       | 11-27-2012         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR PROCESSING AN ATTACHED COMMAND RESPONSE<br><br>Robert Paul Morris                  |
| 12/714,063                       | 02-26-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR DETECTING AN IDLE TCP CONNECTION<br><br>Robert Paul Morris                         |
| 12/705,638                       | 02-15-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR DELAYING PRESENTATION OF AN UPDATE TO A USER INTERFACE<br><br>Robert Paul Morris   |
| 8,219,606                        | 02-27-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION<br><br>Robert Paul Morris |
| 13/477,402                       | 05-22-2012         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION<br><br>Robert Paul Morris |

| <b>Patent or Application No.</b> | <b>Filing Date</b> | <b>Title of Patent and First Named Inventor</b>                                                                                                       |
|----------------------------------|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| 12/857,836                       | 08-17-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR MAINTAINING A RESOURCE BASED ON A COST OF ENERGY<br><br>Robert Paul Morris                        |
| 12/857,847                       | 08-17-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR PRESENTING AN INDICATION OF A COST OF PROCESSING A RESOURCE<br><br>Robert Paul Morris             |
| 12/758,125                       | 04-12-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR MANAGING AN IDLE COMPUTING COMPONENT<br><br>Robert Paul Morris                                    |
| 12/956,008                       | 11-30-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR BINDING ATTRIBUTES BETWEEN VISUAL COMPONENTS<br><br>Robert Paul Morris                            |
| 12/788,373                       | 05-27-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR PREVENTING PROCESSING OF AN HTTP RESPONSE<br><br>Robert Paul Morris                               |
| 13/023,916                       | 02-09-2011         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR DIRECTING ATTENTION TO A SEQUENCE OF VIEWPORTS OF AN AUTOMOTIVE VEHICLE<br><br>Robert Paul Morris |
| 12/857,857                       | 08-17-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SELECTING A RESOURCE IN RESPONSE TO A CHANGE IN AVAILABLE ENERGY<br><br>Robert Paul Morris        |

| <b>Patent or Application No.</b> | <b>Filing Date</b> | <b>Title of Patent and First Named Inventor</b>                                                                                                 |
|----------------------------------|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| 12/758,828                       | 04-13-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR IDENTIFYING AN IDLE USER INTERFACE ELEMENT<br><br>Robert Paul Morris                        |
| 8,233,482                        | 04-22-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR DISABLING AN OPERATIVE COUPLING TO A NETWORK<br><br>Robert Paul Morris                      |
| 13/531,544                       | 06-24-2012         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR DISABLING AN OPERATIVE COUPLING TO A NETWORK<br><br>Robert Paul Morris                      |
| 12/819,214                       | 06-20-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR IDENTIFYING A CONTACTEE IN A COMMUNICATION<br><br>Robert Paul Morris                        |
| 8,331,372                        | 04-22-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR ENABLING AN OPERATIVE COUPLING TO A NETWORK<br><br>Robert Paul Morris                       |
| 13/663,513                       | 10-30-2012         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR ENABLING AN OPERATIVE COUPLING TO A NETWORK<br><br>Robert Paul Morris                       |
| 12/830,385                       | 07-05-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR CONFIGURING ACCESS TO A DATA SOURCE BASED ON A CHANNEL IDENTIFIER<br><br>Robert Paul Morris |

| <b>Patent or Application No.</b> | <b>Filing Date</b> | <b>Title of Patent and First Named Inventor</b>                                                                                                      |
|----------------------------------|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| 12/789,538                       | 05-28-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR PROCESSING AN ATTACHED COMMAND RESPONSE BASED ON A MARKUP ELEMENT<br><br>Robert Paul Morris      |
| 12/789,550                       | 05-28-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR PROCESSING A NON-RETURNABLE COMMAND RESPONSE BASED ON A MARKUP ELEMENT<br><br>Robert Paul Morris |
| 13/941,502                       | 07-14-2013         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR PROCESSING A NON-RETURNABLE COMMAND RESPONSE BASED ON A MARKUP ELEMENT<br><br>Robert Paul Morris |
| 12/788,381                       | 05-27-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR PROCESSING A COMBINED COMMAND RESPONSE<br><br>Robert Paul Morris                                 |
| 12/789,568                       | 05-28-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR PROCESSING A COMBINED COMMAND RESPONSE BASED ON A MARKUP ELEMENT<br><br>Robert Paul Morris       |
| 12/819,215                       | 06-20-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR IDENTIFYING A COMMICANT IN A COMMUNICATION<br><br>Robert Paul Morris                             |

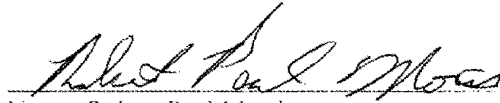
| <b>Patent or Application No.</b> | <b>Filing Date</b> | <b>Title of Patent and First Named Inventor</b>                                                                                            |
|----------------------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| 8,447,819                        | 07-09-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR PROCESSING A REQUEST FOR A RESOURCE IN A COMMUNICATION<br><br>Robert Paul Morris       |
| 13/867,040                       | 04-20-2013         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR PROCESSING A REQUEST FOR A RESOURCE IN A COMMUNICATION<br><br>Robert Paul Morris       |
| 12/833,016                       | 07-09-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR REFERENCING AN ATTACHMENT IN A COMMUNICATION<br><br>Robert Paul Morris                 |
| 12/830,389                       | 07-05-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR PROCESSING A CONTEXTUAL CHANNEL IDENTIFIER<br><br>Robert Paul Morris                   |
| 12/830,388                       | 07-05-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SELECTING A DATA SOURCE BASED ON A CHANNEL IDENTIFIER<br><br>Robert Paul Morris        |
| 12/857,851                       | 08-17-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SELECTING A RESOURCE BASED ON A MEASURE OF A PROCESSING COST<br><br>Robert Paul Morris |
| 12/830,392                       | 07-05-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR CONFIGURING A CONTEXTUAL CHANNEL IDENTIFIER<br><br>Robert Paul Morris                  |

| <b>Patent or Application No.</b> | <b>Filing Date</b> | <b>Title of Patent and First Named Inventor</b>                                                                                                           |
|----------------------------------|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| 13/025,939                       | 02-11-2011         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR PROVIDING STEERING-CONTROL FEEDBACK TO AN OPERATOR OF AN AUTOMOTIVE VEHICLE<br><br>Robert Paul Morris |
| 13/025,944                       | 02-11-2011         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR MANAGING ATTENTION OF A USER OF A PORTABLE ELECTRONIC DEVICE<br><br>Robert Paul Morris                |
| 13/024,444                       | 02-10-2011         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR MANAGING OPERATION OF A PORTABLE ELECTRONIC DEVICE<br><br>Robert Paul Morris                          |
| 13/023,932                       | 02-09-2011         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR ALTERING ATTENTION OF AN AUTOMOTIVE VEHICLE OPERATOR<br><br>Robert Paul Morris                        |
| 13/023,952                       | 02-09-2011         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR MANAGING ATTENTION OF AN OPERATOR AN AUTOMOTIVE VEHICLE<br><br>Robert Paul Morris                     |
| 13/024,466                       | 02-10-2011         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR MANAGING OPERATION OF AN AUTOMOTIVE VEHICLE<br><br>Robert Paul Morris                                 |

Assignors will not sign any writing or do any act conflicting with this Assignment, and, without further compensation, will sign all documents and do such additional acts as Assignee, its successors, legal representatives, and assigns deem necessary or desirable to perfect enjoyment of the Rights, conduct proceedings regarding the Rights (including any litigation or interference proceedings), or perfect or defend title to the Rights. Assignors request the respective patent office

or governmental agency in each jurisdiction to issue any and all patents, certificates of invention, utility models, or other governmental grants or issuances that may be granted upon any of the Rights in the name of the Assignee, as the assignee to the entire interest therein.

The terms and conditions of this Assignment will inure to the benefit of Assignee, its successors, legal representatives, and assigns and will be binding upon Assignors, their successors, legal representatives and assigns.



Name: Robert Paul Morris  
(Signature MUST be attested)

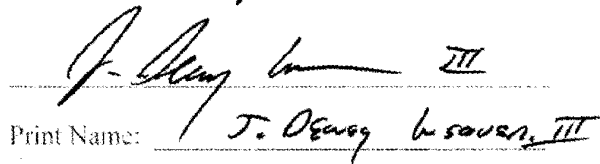
**ATTESTATION OF SIGNATURE PURSUANT TO 28 U.S.C. § 1746**

The undersigned witnessed the signature of Robert Paul Morris to the above Assignment of Patent Rights and makes the following statements:

1. I am over the age of 18 and competent to testify as to the facts in this Attestation block if called upon to do so.
2. Robert Paul Morris is personally known to me (or proved to me on the basis of satisfactory evidence) and appeared before me on \_\_\_\_\_, 2013 to execute the above Assignment of Patent Rights.
3. Robert Paul Morris subscribed to the above Assignment of Patent Rights.

I declare under penalty of perjury under the laws of the United States of America that the statements made in the three (3) numbered paragraphs immediately above are true and correct.

EXECUTED on Sept 27, 2013



Print Name: J. DeWay Bowers, III



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
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www.uspto.gov

| APPLICATION NUMBER | FILING OR 371(C) DATE | FIRST NAMED APPLICANT | ATTY. DOCKET NO./TITLE |
|--------------------|-----------------------|-----------------------|------------------------|
| 12/857,836         | 08/17/2010            | Robert Paul Morris    | 0123-SP                |

**CONFIRMATION NO. 4718**

**POA ACCEPTANCE LETTER**



\*OC00000064599391\*

92045  
The Caldwell Firm, LLC  
PO Box 59655  
Dept. SVIPGP  
Dallas, TX 75229

Date Mailed: 10/31/2013

## NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 10/23/2013.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

/masfaw/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

### **ASSIGNMENT OF PATENT RIGHTS**

For valuable consideration, the receipt and sufficiency of which is hereby acknowledged, on this 5<sup>th</sup> day of September, 2013, Robert Paul Morris of Wake County, Raleigh, North Carolina, a person, (“**Assignor**”), hereby sells, assigns, and transfers to Sitting Man, LLC, a Delaware limited liability company (“**Assignee**”), the full extent of all right, title, and interest in and to any and all of the following (collectively, the “**Rights**”):

1. The patents, provisional patent applications and patent applications listed in the table below (individually and collectively referred to herein as the “**Patents**”);
2. All inventions claimed or described in the Patents (collectively, the “**Inventions**”);
3. All rights with respect to the Inventions, including all U.S. patents or other governmental grants or issuances that may be granted with respect to the Inventions or from any direct or indirect divisionals, continuations, continuations-in-part, or other patent applications claiming priority rights from the Patents (“**Potential Patents**”);
4. All reissues, reexaminations, extensions, registrations, or any and all priority patent application(s) of the Patents or Potential Patents;
5. All non-United States patents, patent applications, and counterparts relating to any or all of the Inventions, the Patents, or Potential Patents, including, without limitation, certificates of invention, utility models, industrial design protection, design patent protection, and other governmental grants or issuances (“**Foreign Rights**”), and including the right to file foreign applications directly in the name of Assignee, its successors and assigns;
6. The right to claim priority rights deriving from the Patents;
7. All causes of action and remedies related to the Patents, the Inventions, Potential Patents, or Foreign Rights (including, without limitation, the right to sue for past, present, or future infringement, misappropriation or violation of rights related to any of the foregoing and the right to collect royalties and other payments under or on account of any of the foregoing); and
8. Any and all other rights and interests arising out of, in connection with, or in relation to, the Patents, the Inventions, Potential Patents, or Foreign Rights.

| <b>Patent or Application No.</b> | <b>Filing Date</b> | <b>Title of Patent and First Named Inventor</b>                                                                                                         |
|----------------------------------|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| 12/688,996                       | 01-18-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR TRAVERSING NODES IN PATH ON A DISPLAY DEVICE<br><br>Robert Paul Morris                              |
| 13/023,883                       | 02-09-2011         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR DIRECTING ATTENTION OF AN OCCUPANT OF AN AUTOMOTIVE VEHICLE TO A VIEWPORT<br><br>Robert Paul Morris |

| <b>Patent or Application No.</b> | <b>Filing Date</b> | <b>Title of Patent and First Named Inventor</b>                                                                                                      |
|----------------------------------|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8,422,858                        | 01-21-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR COORDINATING PLAYING OF MEDIA STREAMS<br><br>Robert Paul Morris                                  |
| 13/790,082                       | 03-08-2013         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR COORDINATING PLAYING OF MEDIA STREAMS<br><br>Robert Paul Morris                                  |
| 12/696,854                       | 01-29-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR CONTROLLING PLAY OF MEDIA STREAMS<br><br>Robert Paul Morris                                      |
| 12/689,169                       | 01-18-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR AUTOMATICALLY SELECTING OBJECTS IN A PLURALITY OF OBJECTS<br><br>Robert Paul Morris              |
| 12/868,767                       | 08-26-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR NAVIGATING BETWEEN VISUAL COMPONENTS<br><br>Robert Paul Morris                                   |
| 13/045,556                       | 03-11-2011         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR PROVIDING FEEDBACK TO A USER OF A PORTABLE ELECTRONIC DEVICE IN MOTION<br><br>Robert Paul Morris |
| 12/689,177                       | 01-18-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR AUTOMATING OPERATIONS ON A PLURALITY OF OBJECTS<br><br>Robert Paul Morris                        |

| <b>Patent or Application No.</b> | <b>Filing Date</b> | <b>Title of Patent and First Named Inventor</b>                                                                                        |
|----------------------------------|--------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| 12/955,993                       | 11-30-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR AUTOMATICALLY SCROLLING ITEMS IN A SELECTION CONTROL<br><br>Robert Paul Morris     |
| 8,346,853                        | 05-27-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR PROCESSING AN ATTACHED COMMAND RESPONSE<br><br>Robert Paul Morris                  |
| 13/685,739                       | 11-27-2012         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR PROCESSING AN ATTACHED COMMAND RESPONSE<br><br>Robert Paul Morris                  |
| 12/714,063                       | 02-26-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR DETECTING AN IDLE TCP CONNECTION<br><br>Robert Paul Morris                         |
| 12/705,638                       | 02-15-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR DELAYING PRESENTATION OF AN UPDATE TO A USER INTERFACE<br><br>Robert Paul Morris   |
| 8,219,606                        | 02-27-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION<br><br>Robert Paul Morris |
| 13/477,402                       | 05-22-2012         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION<br><br>Robert Paul Morris |

| <b>Patent or Application No.</b> | <b>Filing Date</b> | <b>Title of Patent and First Named Inventor</b>                                                                                                       |
|----------------------------------|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| 12/857,836                       | 08-17-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR MAINTAINING A RESOURCE BASED ON A COST OF ENERGY<br><br>Robert Paul Morris                        |
| 12/857,847                       | 08-17-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR PRESENTING AN INDICATION OF A COST OF PROCESSING A RESOURCE<br><br>Robert Paul Morris             |
| 12/758,125                       | 04-12-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR MANAGING AN IDLE COMPUTING COMPONENT<br><br>Robert Paul Morris                                    |
| 12/956,008                       | 11-30-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR BINDING ATTRIBUTES BETWEEN VISUAL COMPONENTS<br><br>Robert Paul Morris                            |
| 12/788,373                       | 05-27-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR PREVENTING PROCESSING OF AN HTTP RESPONSE<br><br>Robert Paul Morris                               |
| 13/023,916                       | 02-09-2011         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR DIRECTING ATTENTION TO A SEQUENCE OF VIEWPORTS OF AN AUTOMOTIVE VEHICLE<br><br>Robert Paul Morris |
| 12/857,857                       | 08-17-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SELECTING A RESOURCE IN RESPONSE TO A CHANGE IN AVAILABLE ENERGY<br><br>Robert Paul Morris        |

| <b>Patent or Application No.</b> | <b>Filing Date</b> | <b>Title of Patent and First Named Inventor</b>                                                                                                 |
|----------------------------------|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| 12/758,828                       | 04-13-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR IDENTIFYING AN IDLE USER INTERFACE ELEMENT<br><br>Robert Paul Morris                        |
| 8,233,482                        | 04-22-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR DISABLING AN OPERATIVE COUPLING TO A NETWORK<br><br>Robert Paul Morris                      |
| 13/531,544                       | 06-24-2012         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR DISABLING AN OPERATIVE COUPLING TO A NETWORK<br><br>Robert Paul Morris                      |
| 12/819,214                       | 06-20-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR IDENTIFYING A CONTACTEE IN A COMMUNICATION<br><br>Robert Paul Morris                        |
| 8,331,372                        | 04-22-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR ENABLING AN OPERATIVE COUPLING TO A NETWORK<br><br>Robert Paul Morris                       |
| 13/663,513                       | 10-30-2012         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR ENABLING AN OPERATIVE COUPLING TO A NETWORK<br><br>Robert Paul Morris                       |
| 12/830,385                       | 07-05-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR CONFIGURING ACCESS TO A DATA SOURCE BASED ON A CHANNEL IDENTIFIER<br><br>Robert Paul Morris |

| <b>Patent or Application No.</b> | <b>Filing Date</b> | <b>Title of Patent and First Named Inventor</b>                                                                                                      |
|----------------------------------|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| 12/789,538                       | 05-28-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR PROCESSING AN ATTACHED COMMAND RESPONSE BASED ON A MARKUP ELEMENT<br><br>Robert Paul Morris      |
| 12/789,550                       | 05-28-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR PROCESSING A NON-RETURNABLE COMMAND RESPONSE BASED ON A MARKUP ELEMENT<br><br>Robert Paul Morris |
| 13/941,502                       | 07-14-2013         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR PROCESSING A NON-RETURNABLE COMMAND RESPONSE BASED ON A MARKUP ELEMENT<br><br>Robert Paul Morris |
| 12/788,381                       | 05-27-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR PROCESSING A COMBINED COMMAND RESPONSE<br><br>Robert Paul Morris                                 |
| 12/789,568                       | 05-28-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR PROCESSING A COMBINED COMMAND RESPONSE BASED ON A MARKUP ELEMENT<br><br>Robert Paul Morris       |
| 12/819,215                       | 06-20-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR IDENTIFYING A COMMUNICANT IN A COMMUNICATION<br><br>Robert Paul Morris                           |

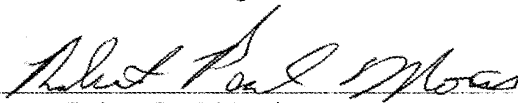
| <b>Patent or Application No.</b> | <b>Filing Date</b> | <b>Title of Patent and First Named Inventor</b>                                                                                            |
|----------------------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| 8,447,819                        | 07-09-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR PROCESSING A REQUEST FOR A RESOURCE IN A COMMUNICATION<br><br>Robert Paul Morris       |
| 13/867,040                       | 04-20-2013         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR PROCESSING A REQUEST FOR A RESOURCE IN A COMMUNICATION<br><br>Robert Paul Morris       |
| 12/833,016                       | 07-09-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR REFERENCING AN ATTACHMENT IN A COMMUNICATION<br><br>Robert Paul Morris                 |
| 12/830,389                       | 07-05-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR PROCESSING A CONTEXTUAL CHANNEL IDENTIFIER<br><br>Robert Paul Morris                   |
| 12/830,388                       | 07-05-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SELECTING A DATA SOURCE BASED ON A CHANNEL IDENTIFIER<br><br>Robert Paul Morris        |
| 12/857,851                       | 08-17-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SELECTING A RESOURCE BASED ON A MEASURE OF A PROCESSING COST<br><br>Robert Paul Morris |
| 12/830,392                       | 07-05-2010         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR CONFIGURING A CONTEXTUAL CHANNEL IDENTIFIER<br><br>Robert Paul Morris                  |

| <b>Patent or Application No.</b> | <b>Filing Date</b> | <b>Title of Patent and First Named Inventor</b>                                                                                                           |
|----------------------------------|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| 13/025,939                       | 02-11-2011         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR PROVIDING STEERING-CONTROL FEEDBACK TO AN OPERATOR OF AN AUTOMOTIVE VEHICLE<br><br>Robert Paul Morris |
| 13/025,944                       | 02-11-2011         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR MANAGING ATTENTION OF A USER OF A PORTABLE ELECTRONIC DEVICE<br><br>Robert Paul Morris                |
| 13/024,444                       | 02-10-2011         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR MANAGING OPERATION OF A PORTABLE ELECTRONIC DEVICE<br><br>Robert Paul Morris                          |
| 13/023,932                       | 02-09-2011         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR ALTERING ATTENTION OF AN AUTOMOTIVE VEHICLE OPERATOR<br><br>Robert Paul Morris                        |
| 13/023,952                       | 02-09-2011         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR MANAGING ATTENTION OF AN OPERATOR AN AUTOMOTIVE VEHICLE<br><br>Robert Paul Morris                     |
| 13/024,466                       | 02-10-2011         | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR MANAGING OPERATION OF AN AUTOMOTIVE VEHICLE<br><br>Robert Paul Morris                                 |

Assignors will not sign any writing or do any act conflicting with this Assignment, and, without further compensation, will sign all documents and do such additional acts as Assignee, its successors, legal representatives, and assigns deem necessary or desirable to perfect enjoyment of the Rights, conduct proceedings regarding the Rights (including any litigation or interference proceedings), or perfect or defend title to the Rights. Assignors request the respective patent office

or governmental agency in each jurisdiction to issue any and all patents, certificates of invention, utility models, or other governmental grants or issuances that may be granted upon any of the Rights in the name of the Assignee, as the assignee to the entire interest therein.

The terms and conditions of this Assignment will inure to the benefit of Assignee, its successors, legal representatives, and assigns and will be binding upon Assignors, their successors, legal representatives and assigns.



Name: Robert Paul Morris  
(Signature MUST be attested)

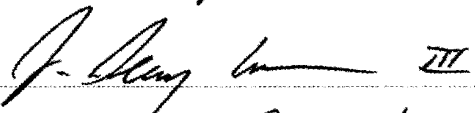
**ATTESTATION OF SIGNATURE PURSUANT TO 28 U.S.C. § 1746**

The undersigned witnessed the signature of Robert Paul Morris to the above Assignment of Patent Rights and makes the following statements:

1. I am over the age of 18 and competent to testify as to the facts in this Attestation block if called upon to do so.
2. Robert Paul Morris is personally known to me (or proved to me on the basis of satisfactory evidence) and appeared before me on \_\_\_\_\_, 2013 to execute the above Assignment of Patent Rights.
3. Robert Paul Morris subscribed to the above Assignment of Patent Rights.

I declare under penalty of perjury under the laws of the United States of America that the statements made in the three (3) numbered paragraphs immediately above are true and correct.

EXECUTED on Sept 27, 2013



Print Name: J. Deary, Esq., III

| Electronic Acknowledgement Receipt          |                                                                                                      |
|---------------------------------------------|------------------------------------------------------------------------------------------------------|
| <b>EFS ID:</b>                              | 17236909                                                                                             |
| <b>Application Number:</b>                  | 12857836                                                                                             |
| <b>International Application Number:</b>    |                                                                                                      |
| <b>Confirmation Number:</b>                 | 4718                                                                                                 |
| <b>Title of Invention:</b>                  | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR MAINTAINING A RESOURCE BASED ON A COST OF ENERGY |
| <b>First Named Inventor/Applicant Name:</b> | Robert Paul Morris                                                                                   |
| <b>Customer Number:</b>                     | 92045                                                                                                |
| <b>Filer:</b>                               | Patrick Edgar Caldwell                                                                               |
| <b>Filer Authorized By:</b>                 |                                                                                                      |
| <b>Attorney Docket Number:</b>              | 0123-SP                                                                                              |
| <b>Receipt Date:</b>                        | 27-OCT-2013                                                                                          |
| <b>Filing Date:</b>                         | 17-AUG-2010                                                                                          |
| <b>Time Stamp:</b>                          | 20:36:03                                                                                             |
| <b>Application Type:</b>                    | Utility under 35 USC 111(a)                                                                          |

### Payment information:

|                        |    |
|------------------------|----|
| Submitted with Payment | no |
|------------------------|----|

### File Listing:

| Document Number | Document Description          | File Name                                  | File Size(Bytes)/ Message Digest                   | Multi Part /.zip | Pages (if appl.) |
|-----------------|-------------------------------|--------------------------------------------|----------------------------------------------------|------------------|------------------|
| 1               | Miscellaneous Incoming Letter | Morris-SittingMan_Assignment_vF_9-5-13.pdf | 769618<br>5dd85c282cf6ef37223a412e0cec878eb779f594 | no               | 9                |

### Warnings:

### Information:

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

**New Applications Under 35 U.S.C. 111**

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

**National Stage of an International Application under 35 U.S.C. 371**

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

**New International Application Filed with the USPTO as a Receiving Office**

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

## POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(b).

I hereby appoint:



Practitioners associated with the Customer Number:

92045

OR



Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

| Name | Registration Number | Name | Registration Number |
|------|---------------------|------|---------------------|
|      |                     |      |                     |
|      |                     |      |                     |
|      |                     |      |                     |
|      |                     |      |                     |
|      |                     |      |                     |
|      |                     |      |                     |

as attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignment documents attached to this form in accordance with 37 CFR 3.73(b).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(b) to:



The address associated with Customer Number:

92045

OR

|                                                  |       |     |       |
|--------------------------------------------------|-------|-----|-------|
| <input type="checkbox"/> Firm or Individual Name |       |     |       |
| Address                                          |       |     |       |
| City                                             | State | Zip |       |
| Country                                          |       |     |       |
| Telephone                                        |       |     | Email |

Assignee Name and Address:

Sitting Man, LLC  
712 Latta St  
Raleigh, NC 27607

**A copy of this form, together with a statement under 37 CFR 3.73(b) (Form PTO/SB/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(b) may be completed by one of the practitioners appointed in this form if the appointed practitioner is authorized to act on behalf of the assignee, and must identify the application in which this Power of Attorney is to be filed.**

### SIGNATURE of Assignee of Record

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee

|           |                      |           |
|-----------|----------------------|-----------|
| Signature | /Robert Paul Morris/ | Date      |
| Name      | Robert Paul Morris   | Telephone |
| Title     | Managing Member      |           |

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

*If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.*

## Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

**STATEMENT UNDER 37 CFR 3.73(b)**Applicant/Patent Owner: Robert Paul MorrisApplication No./Patent No.: 12/857,836Filed/Issue Date: 08-17-2010Titled: **METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR MAINTAINING A RESOURCE  
BASED ON A COST OF ENERGY**Sitting Man, LLC, a Limited Liability Company

(Name of Assignee)

(Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that it is:

1. ☒ the assignee of the entire right, title, and interest in;
2. ☐ an assignee of less than the entire right, title, and interest in  
(The extent (by percentage) of its ownership interest is \_\_\_\_\_ %); or
3. ☐ the assignee of an undivided interest in the entirety of (a complete assignment from one of the joint inventors was made)

the patent application/patent identified above, by virtue of either:

- A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy therefore is attached.

**OR**

- B. ☒ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: Robert Paul Morris To: Sitting Man, LLC

The document was recorded in the United States Patent and Trademark Office at

Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy thereof is attached.

2. From: \_\_\_\_\_ To: \_\_\_\_\_

The document was recorded in the United States Patent and Trademark Office at

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3. From: \_\_\_\_\_ To: \_\_\_\_\_

The document was recorded in the United States Patent and Trademark Office at

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☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

- ☒ As required by 37 CFR 3.73(b)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Robert Paul Morris/

10/17/2013

Signature

Date

Robert Paul Morris

Managing Member

Printed or Typed Name

Title

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

| Electronic Acknowledgement Receipt          |                                                                                                      |
|---------------------------------------------|------------------------------------------------------------------------------------------------------|
| <b>EFS ID:</b>                              | 17202527                                                                                             |
| <b>Application Number:</b>                  | 12857836                                                                                             |
| <b>International Application Number:</b>    |                                                                                                      |
| <b>Confirmation Number:</b>                 | 4718                                                                                                 |
| <b>Title of Invention:</b>                  | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR MAINTAINING A RESOURCE BASED ON A COST OF ENERGY |
| <b>First Named Inventor/Applicant Name:</b> | Robert Paul Morris                                                                                   |
| <b>Customer Number:</b>                     | 92924                                                                                                |
| <b>Filer:</b>                               | Patrick Edgar Caldwell                                                                               |
| <b>Filer Authorized By:</b>                 |                                                                                                      |
| <b>Attorney Docket Number:</b>              | 0123-SP                                                                                              |
| <b>Receipt Date:</b>                        | 23-OCT-2013                                                                                          |
| <b>Filing Date:</b>                         | 17-AUG-2010                                                                                          |
| <b>Time Stamp:</b>                          | 11:06:22                                                                                             |
| <b>Application Type:</b>                    | Utility under 35 USC 111(a)                                                                          |

### Payment information:

|                        |    |
|------------------------|----|
| Submitted with Payment | no |
|------------------------|----|

### File Listing:

| Document Number | Document Description | File Name               | File Size(Bytes)/<br>Message Digest               | Multi Part /.zip | Pages (if appl.) |
|-----------------|----------------------|-------------------------|---------------------------------------------------|------------------|------------------|
| 1               | Power of Attorney    | Morris_POA_pre_2012.pdf | 435724<br>16c4e6143c6e06d8305afa69a2cfd95096a8d40 | no               | 2                |

### Warnings:

### Information:

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                |                   |                                                    |    |   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|-------------------|----------------------------------------------------|----|---|
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Assignee showing of ownership per 37 CFR 3.73. | PMOR0123_373b.pdf | 423110<br>3b277752659e0ab9fb913ef871b3b69034c6d19e | no | 2 |
| <b>Warnings:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                |                   |                                                    |    |   |
| <b>Information:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                |                   |                                                    |    |   |
| <b>Total Files Size (in bytes):</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                |                   | 858834                                             |    |   |
| <p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><b><u>New Applications Under 35 U.S.C. 111</u></b><br/> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><b><u>National Stage of an International Application under 35 U.S.C. 371</u></b><br/> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><b><u>New International Application Filed with the USPTO as a Receiving Office</u></b><br/> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p> |                                                |                   |                                                    |    |   |



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|                 |             |                      |                     |                  |
|-----------------|-------------|----------------------|---------------------|------------------|
| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
| 12/857,836      | 08/17/2010  | Robert Paul Morris   | 0123-SP             | 4718             |

|                            |      |            |
|----------------------------|------|------------|
| 92924                      | 7590 | 08/28/2013 |
| Small Pond Associates, LLC |      |            |
| Robert Paul Morris         |      |            |
| 712 Latta Street           |      |            |
| Raleigh, NC 27607          |      |            |

|                   |  |
|-------------------|--|
| EXAMINER          |  |
| LABUD, JONATHAN R |  |

|          |              |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
| 2196     |              |

|                   |               |
|-------------------|---------------|
| NOTIFICATION DATE | DELIVERY MODE |
| 08/28/2013        | ELECTRONIC    |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

paul.morris@nc.rr.com  
paul.morris@deeprv.com  
dewey.weaver@deeprv.com

|                                                                       |                                      |                                            |
|-----------------------------------------------------------------------|--------------------------------------|--------------------------------------------|
| <b>Advisory Action</b><br><b>Before the Filing of an Appeal Brief</b> | <b>Application No.</b><br>12/857,836 | <b>Applicant(s)</b><br>MORRIS, ROBERT PAUL |
|                                                                       | <b>Examiner</b><br>JONATHAN R. LABUD | <b>Art Unit</b><br>2196                    |

**--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

THE REPLY FILED 23 June 2013 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

**NO NOTICE OF APPEAL FILED**

1. ☒ The reply was filed after a final rejection. No Notice of Appeal has been filed. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114 if this is a utility or plant application. Note that RCEs are not permitted in design applications. The reply must be filed within one of the following time periods:

a) ☐ The period for reply expires \_\_\_\_\_ months from the mailing date of the final rejection.

b) ☒ The period for reply expires on: (1) the mailing date of this Advisory Action; or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.

c) ☐ A prior Advisory Action was mailed more than 3 months after the mailing date of the final rejection in response to a first after-final reply filed within 2 months of the mailing date of the final rejection. The current period for reply expires \_\_\_\_\_ months from the mailing date of the prior Advisory Action or SIX MONTHS from the mailing date of the final rejection, whichever is earlier.

*Examiner Note: If box 1 is checked, check either box (a), (b) or (c). ONLY CHECK BOX (b) WHEN THIS ADVISORY ACTION IS THE FIRST RESPONSE TO APPLICANT'S FIRST AFTER-FINAL REPLY WHICH WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. ONLY CHECK BOX (c) IN THE LIMITED SITUATION SET FORTH UNDER BOX (c). See MPEP 706.07(f).*

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) or (c) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**NOTICE OF APPEAL**

2. ☐ The Notice of Appeal was filed on \_\_\_\_\_. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

**AMENDMENTS**

3. ☒ The proposed amendments filed after a final rejection, but prior to the date of filing a brief, will not be entered because

a) ☒ They raise new issues that would require further consideration and/or search (see NOTE below);

b) ☐ They raise the issue of new matter (see NOTE below);

c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or

d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: \_\_\_\_\_. (See 37 CFR 1.116 and 41.33(a)).

4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).

5. ☐ Applicant's reply has overcome the following rejection(s): \_\_\_\_\_.

6. ☐ Newly proposed or amended claim(s) \_\_\_\_\_ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).

7. ☒ For purposes of appeal, the proposed amendment(s): (a) ☒ will not be entered, or (b) ☐ will be entered, and an explanation of how the new or amended claims would be rejected is provided below or appended.

**AFFIDAVIT OR OTHER EVIDENCE**

8. ☐ The affidavit or other evidence filed after final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).

9. ☐ The affidavit or other evidence filed after the date of filing the Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing of good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).

10. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

**REQUEST FOR RECONSIDERATION/OTHER**

11. ☒ The request for reconsideration has been considered but does NOT place the application in condition for allowance because:  
See Continuation Sheet.

12. ☐ Note the attached Information *Disclosure Statement(s)*. (PTO/SB/08) Paper No(s). \_\_\_\_\_

13. ☐ Other: \_\_\_\_\_.

**STATUS OF CLAIMS**

14. The status of the claim(s) is (or will be) as follows:

Claim(s) allowed: \_\_\_\_\_.

Claim(s) objected to: \_\_\_\_\_.

Claim(s) rejected: 1-20 as filed 02/22/2013.

Claim(s) withdrawn from consideration: \_\_\_\_\_.

|                                                                  |  |
|------------------------------------------------------------------|--|
| /Emerson C Puente/<br>Supervisory Patent Examiner, Art Unit 2196 |  |
|------------------------------------------------------------------|--|

Continuation of 11. The request for reconsideration has been considered but does NOT place the application in condition for allowance because:

Applicant's request for entry into AFCP 2.0 is acknowledged, but is denied because the response cannot be review and a search conducted in the limited amount of time authorized for this pilot program. Therefore, the response is being reviewed under pre-pilot practice.

The amendments raise new issues that would require further consideration and search.

For example, amended independent claim 1 recites the language "determining, based on the first energy cost, an energy cost benefit of performing an identified maintenance operation, wherein the performing the maintenance operation includes transforming the first data to reduce the first energy cost to a third energy cost for accessing, in performing the first operation, the transformed first data" (see page 4 lines [-8] of the claims filed 06/23/2013), and claims 19 and 20 as amended raise similar new issues.

DO NOT ENTER: /J.L./

Application No. 12/857,836  
Paper filed June 23, 2013  
Reply to final Office Action mailed May 24, 2013

Docket No. 0123-SP  
Page 1 of 15

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

|                                             |                             |
|---------------------------------------------|-----------------------------|
| In re Patent Application of:                | Mail Stop: Amendment        |
| Robert Paul Morris                          | T.C./Art Unit: 2196         |
| Application No.: 12/857,836                 | Examiner: Labud, Jonathan R |
| Filed: July 17, 2010                        | Confirmation No.: 4718      |
| For: Method, Systems, and Computer          |                             |
| Program Products for Maintaining a Resource |                             |
| Based on a Cost of Energy                   |                             |

.....

RESPONSE AFTER FINAL REJECTION UNDER 37 C.F.R. §1.116

Mail Stop: Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

This paper is responsive to the final Office Action mailed May 24, 2013, for which a shortened statutory period for reply is set to expire on August 24, 2013.

Applicant requests consideration of his paper under AFCP 2.0. Applicant is willing and available to participate in any interview initiated by the examiner concerning this response. Applicant/Inventor respectfully requests that the Examiner favorably consider the following remarks.

**Amendments to the Specification** begin on page 2 of this paper.

**Amendments to the Claims** are reflected in the Listing of Claims that begins on page 4 of this paper.

**Remarks** begin on page 9 of this paper.

Doc Code: A.NE.AFCP

Document Description: After Final Consideration Pilot Program Request

PTO/SB/434 (05-13)

| CERTIFICATION AND REQUEST FOR CONSIDERATION UNDER THE<br>AFTER FINAL CONSIDERATION PILOT PROGRAM 2.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                |                                   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|-----------------------------------|
| Practitioner Docket No.:<br><b>0123-SP</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Application No.:<br><b>12857836</b>                                                                            | Filing Date:<br><b>2010-08-17</b> |
| First Named Inventor:<br><b>Robert Paul Morris</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Title:<br>Methods, Systems, and Computer Program Products for Maintaining a Resource Based on a Cost of Energy |                                   |
| <p>APPLICANT HEREBY CERTIFIES THE FOLLOWING AND REQUESTS CONSIDERATION UNDER THE AFTER FINAL CONSIDERATION PILOT PROGRAM 2.0 (AFCP 2.0) OF THE ACCOMPANYING RESPONSE UNDER 37 CFR 1.116.</p> <ol style="list-style-type: none"><li>The above-identified application is (i) an original utility, plant, or design nonprovisional application filed under 35 U.S.C. 111(a) [a continuing application (<i>e.g.</i>, a continuation or divisional application) is filed under 35 U.S.C. 111(a) and is eligible under (i)], or (ii) an international application that has entered the national stage in compliance with 35 U.S.C. 371(c).</li><li>The above-identified application contains an outstanding final rejection.</li><li>Submitted herewith is a response under 37 CFR 1.116 to the outstanding final rejection. The response includes an amendment to at least one independent claim, and the amendment does not broaden the scope of the independent claim in any aspect.</li><li>This certification and request for consideration under AFCP 2.0 is the only AFCP 2.0 certification and request filed in response to the outstanding final rejection.</li><li>Applicant is willing and available to participate in any interview requested by the examiner concerning the present response.</li><li>This certification and request is being filed electronically using the Office's electronic filing system (EFS-Web).</li><li>Any fees that would be necessary consistent with current practice concerning responses after final rejection under 37 CFR 1.116, <i>e.g.</i>, extension of time fees, are being concurrently filed herewith. [There is no additional fee required to request consideration under AFCP 2.0.]</li><li>By filing this certification and request, applicant acknowledges the following:<ul style="list-style-type: none"><li>Reissue applications and reexamination proceedings are not eligible to participate in AFCP 2.0.</li><li>The examiner will verify that the AFCP 2.0 submission is compliant, <i>i.e.</i>, that the requirements of the program have been met (see items 1 to 7 above). For compliant submissions:<ul style="list-style-type: none"><li>The examiner will review the response under 37 CFR 1.116 to determine if additional search and/or consideration (i) is necessitated by the amendment and (ii) could be completed within the time allotted under AFCP 2.0. If additional search and/or consideration is required but cannot be completed within the allotted time, the examiner will process the submission consistent with current practice concerning responses after final rejection under 37 CFR 1.116, <i>e.g.</i>, by mailing an advisory action.</li><li>If the examiner determines that the amendment does not necessitate additional search and/or consideration, or if the examiner determines that additional search and/or consideration is required and could be completed within the allotted time, then the examiner will consider whether the amendment places the application in condition for allowance (after completing the additional search and/or consideration, if required). If the examiner determines that the amendment does not place the application in condition for allowance, then the examiner will contact the applicant and request an interview.<ul style="list-style-type: none"><li>The interview will be conducted by the examiner, and if the examiner does not have negotiation authority, a primary examiner and/or supervisory patent examiner will also participate.</li><li>If the applicant declines the interview, or if the interview cannot be scheduled within ten (10) calendar days from the date that the examiner first contacts the applicant, then the examiner will proceed consistent with current practice concerning responses after final rejection under 37 CFR 1.116.</li></ul></li></ul></li></ul></li></ol> |                                                                                                                |                                   |
| Signature<br>/Robert Paul Morris/                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                | Date<br>2013-06-23                |
| Name<br>(Print/Typed) Robert Paul Morris                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                | Practitioner<br>Registration No.  |
| <b>Note:</b> This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                |                                   |
| <input type="checkbox"/> * Total of _____ forms are submitted.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                |                                   |

## Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Application No. 12/857,836  
Paper filed June 23, 2013  
Reply to final Office Action mailed May 24, 2013

Docket No. 0123-SP  
Page 1 of 15

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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|---------------------------------------------|-----------------------------|
| In re Patent Application of:                | Mail Stop: Amendment        |
| Robert Paul Morris                          | T.C./Art Unit: 2196         |
| Application No.: 12/857,836                 | Examiner: Labud, Jonathan R |
| Filed: July 17, 2010                        | Confirmation No.: 4718      |
| For: Method, Systems, and Computer          |                             |
| Program Products for Maintaining a Resource |                             |
| Based on a Cost of Energy                   |                             |

\*\*\*\*\*

RESPONSE AFTER FINAL REJECTION UNDER 37 C.F.R. §1.116

Mail Stop: Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

This paper is responsive to the final Office Action mailed May 24, 2013, for which a shortened statutory period for reply is set to expire on August 24, 2013.

Applicant requests consideration of his paper under AFCP 2.0. Applicant is willing and available to participate in any interview initiated by the examiner concerning this response. Applicant/Inventor respectfully requests that the Examiner favorably consider the following remarks.

**Amendments to the Specification** begin on page 2 of this paper.

**Amendments to the Claims** are reflected in the Listing of Claims that begins on page 4 of this paper.

**Remarks** begin on page 9 of this paper.

**Amendments to the Specification:**

Note: Amendments to the spec are strikethrough deletions and underline insertions. Only a marked up copy is required.

Please replace paragraphs 0008:

[0008] Further, a system for maintaining a resource based on a cost of energy is described. The system includes a cost monitor component, a maintenance test component, a maintenance link component, and a maintenance operations component adapted for operation in an execution environment. The system includes the cost monitor component configured for detecting a first energy cost, measured according to a specified metric, for accessing a resource via an energy consuming component in an execution environment. The system further includes the maintenance test component configured[[.]] for determining that a configured maintenance condition is met based on the energy cost. The system still further includes the maintenance link component configured for identifying a maintenance operation for configuring at least one of the resource and the energy consuming component for accessing the resource at a second energy cost that is less than the first energy cost. The system also includes the maintenance operations component configured for, in response to determining that the maintenance condition is met, sending an indication to start the maintenance operation.

Please replace paragraph 0045:

[0045] An access cost may be determined and/or expressed according to any metric, directly and/or indirectly, providing an indication of cost of energy associated with accessing a resource via an energy consuming component, such as an electronic component, in an execution

environment. A metric for determining an energy cost in terms of electrical power may be determined by monitoring a rate of electrical energy utilized over time period by a hardware component that is included in accessing a resource. For example, a flow of electricity to a network interface adapter may be monitored[[,]] for resources where processing the resources includes sending and/or receiving data via a network. Some of the data may be included in the resources. The metric may represent the cost, for example, in kilowatt-hours, in kilowatts per hour, in transmission time, in bandwidth utilization, in latency, and/or in monetary units. In Fig. 4, cost monitor component 452 may be invoked to determine and/or otherwise identify a measure of an energy cost for accessing a particular resource in performing an operation.

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method for maintaining a resource based on a cost of energy, the method comprising:
  - detecting a first energy cost for accessing, in performing a first operation, ~~a resource~~ first data via an energy consuming component in an execution environment;
  - determining, based on the first energy cost, an energy cost benefit of performing an identified maintenance operation, wherein the performing the maintenance operation includes transforming the first data to reduce the first energy cost to a third energy cost for accessing, in performing the first operation, the transformed first data;
  - determining that a configured maintenance condition is met ~~when the energy cost benefit exceeds based on~~ a second energy cost for performing the ~~a~~ identified maintenance operation ~~on at least one of the~~ first data ~~resource and the energy consuming component;~~ and
  - in response to determining that the maintenance condition is met, sending an indication to start the maintenance operation,
  - wherein performing at least one of the preceding actions comprising the method includes execution of an instruction by a processor.
2. (Currently Amended) The method of claim 1 wherein the ~~at least one of the resource and the energy consuming component~~ is ~~includes at least one of a data storage~~ hardware component ~~medium,~~ an output hardware component, a mechanical component, an optical component, ~~a registry, a directory, a database, a file, an addressable entity in a program component generated from source code, a~~ hardware cache, and a network hardware component, ~~and an input hardware component.~~
3. (Currently Amended) The method of claim 1 wherein the first energy cost is measured according to a non-monetary ~~metric based on at least one of electrical energy, money, time, kinetic energy, chemical energy, heat, mechanical resistance,~~

~~electrical resistance, magnetism, a count of an energy consuming operation, light, movement, mass metric, and weight.~~ (Original claim 3)

4. (Currently-Amended) The method of claim 1 wherein accessing includes at least one of receiving, transmitting, storing, requesting, copying, moving, creating, modifying, deleting, transforming, detecting, presenting, and processing-a the first data resource.

5. (Cancelled)

6. (Cancelled)

7. (Cancelled)

8. (Cancelled)

9. (Cancelled)

10. (Cancelled)

11. (Cancelled)

12. (Cancelled)

13. (Cancelled)

14. (Currently Amended) The method of claim 1[[2]] wherein the first data is stored in a data store ~~is at least one of included in and~~ that includes at least one of a data base, a registry, and a file system.

15. (Currently-Amended) The method of claim 1 wherein the first data includes a path identifier for a location of a stored resource and the maintenance operation includes at least one of transforming ~~modifying~~ the path identifier and changing a location of the path identifier in a plurality of path identifiers..

16. (Cancelled)

17. (Cancelled)

18. (Cancelled)

19. (Currently Amended) A system for maintaining a resource based on a cost of energy, the system comprising:

a cost monitor component that during operation of the system detects a first measure of energy utilized~~cost~~ for accessing first data in a data resource included in performing a first operation via an energy consuming component in an execution environment;

a maintenance test component that during operation of the system determines, based on the first energy cost, an energy cost benefit of performing an identified maintenance operation, wherein the performing the maintenance operation includes transforming the first data to reduce the first energy cost to a third energy cost for accessing, in performing the first operation, the transformed first data

~~[[a]]~~the maintenance test component that during operation of the system determines that a configured maintenance condition is met when the energy cost benefit exceeds~~based on~~ a second energy cost for performing the~~a~~ identified maintenance operation ~~on at least one of the first data resource and the energy consuming component;~~

a maintenance operations component that during operation of the system, in response to determining that the maintenance condition is met, sends an indication to start the maintenance operation; and

a processor that executes an instruction included in at least one of the cost monitor component, the maintenance test component, and the maintenance operations component during operation of the system.

20. (Currently Amended) A non-transitory computer readable medium embodying a computer program, executable by a machine, for maintaining a resource based on a cost of energy, the computer program comprising executable instructions for:

detecting a first energy cost for accessing, in performing a first operation,~~a resource~~ first data via an energy consuming component in an execution environment;

determining, based on the first energy cost, an energy cost benefit of performing an identified maintenance operation, wherein the performing the maintenance operation includes transforming the first data to reduce the first energy cost to a third energy cost for accessing, in performing the first operation, the transformed first data;

determining that a configured maintenance condition is met when the energy cost benefit exceeds ~~based on~~ a second energy cost for performing ~~the~~ a identified maintenance operation on ~~at least one of the~~ first data resource and the energy consuming component; and

in response to determining that the maintenance condition is met, sending an indication to start the maintenance operation.

21. (New) The method of claim 3 wherein the first energy cost is a first measure of energy utilized to access the first data in performing the first operation.

22. (New) The method of claim 21 wherein the first measure identifies one of an amount of energy utilized and a rate of energy utilized per a specified unit of time.

23. (New) The method of claim 21 wherein the first measure is a measure of energy utilized to at least one of exchange the data resource via a network between a first node and a second node, present the data resource via an output device, and access the data resource from a data storage medium.

24. (New) The method of claim 21 wherein the first measure is a measure of power quality.

25. (New) The method of claim 21 wherein the first measure is a measure of heat.

26. (New) The method of claim 1 wherein the energy consuming component is not a processor.

27. (New) The method of claim 1 wherein the operation is performed by a web browser.

28. (New) The method of claim 1 wherein, in performing the first operation, the first data is accessed from at least one of a file, a folder, a string, image data, audio data, a document, data in a network message, a web page, and a script.

29. (New) The method of claim 1 the first operation includes at least one of encoding, decoding, filtering, translating, and transforming at least a portion of the data resource.

30. (New) The method of claim 1 wherein the first data is a network cache that includes at least one resource accessed via a network.

31. (New) The method of claim 1 wherein the maintenance operation to transform the first data when performed translates a first representation of the first data into a second representation, wherein the first measure is based on accessing the first representation and the third measure is based on accessing the second representation.

32. (New) The method of claim 31 wherein the first representation and the second representation are accessed from a memory in the execution environment.

**REMARKS:**

Status Summary

Claims 1-20 are pending in the present application, of which claims 1, 19, and 20 are presented in independent form. Claims 1-20 stand rejected. Claims 5-13, and 16-18 are cancelled by this response. Claims 1-4, 14-15, and 19- 20 are currently amended. Claims 21-32 are newly added by this response.

Amendments to the Specification

Applicant respectfully submits that the amendments to the specification correct typographical errors, grammatical errors, punctuation errors, and/or spelling errors.

Applicant submits that none of the amendments to the specification adds new matter.

Amendments to the Claims

Amendments to claim 1 are supported by at least original claims 1, 6, and 8; and paragraphs 0044-0045, 0074-0076, 0081-0082, 0085, 0088-0089, 0091 of the present application. For example, the cited support can be mapped to the amendments as follows, "detecting a first energy cost for accessing, in performing a first operation, (0045 and 0088)–a ~~resource~~ first data (0049-0054 and 0080) via an energy consuming component in an execution environment; determining, based on the first energy cost, an energy cost benefit of performing an identified maintenance operation, wherein the performing the maintenance operation includes transforming (0081-0082 and 0091) the first data to reduce the first energy cost to third energy cost for accessing, in performing the first operation, the transformed first data (original claim 1 and paragraphs 0074-0076); determining that a configured maintenance condition is met when the energy cost benefit exceeds ~~based on~~ (0089, 0085) a second energy cost for performing the a identified maintenance operation ~~on-at least one of the first data resource and the energy consuming component~~"

Support for the amendments to claim 2 is found in at least paragraphs 0050-0052, 0054, and 0057 of the present application.

Support for the amendments to claim 3 is found in at least original claim 3.

Support for the amendments to claim 4 is found in at least paragraphs 0049-54 and is made to maintain proper antecedent basis in light of amendments to claim 1.

Support for the amendments to claim 13 is found in at least original claim 13.

Support for the amendments to claim 14 is found in at least original claims 12 and 14.

Support for the amendments to claim 15 is found in at least paragraphs 0049-54 and is made to maintain proper antecedent basis in light of amendments to claim 1.

Amendments to claims 19 and 20 are analogous to those made to claim 1 and are supported for at least the same reasons as described above.

Support for new claim 21 is found in at least paragraph 0044 of the present application.

Support for new claim 22 is found in at least paragraph 0044 of the present application.

Support for new claim 23 is found in at least paragraph 0045 of the present application.

Support for new claim 24 is found in at least paragraph 0048 of the present application.

Support for new claim 25 is found in at least paragraphs 0057 and 0060 of the present application.

Support for new claim 26 is found in at least paragraph 0045 of the present application.

Support for new claim 27 is found in at least paragraph 0053 of the present application.

Support for new claim 28 is found in at least paragraphs 0062-0067 of the present application.

Support for new claim 29 is found in at least paragraph 0065 of the present application.

Support for new claim 30 is found in at least paragraph 0094 of the present application.

Support for new claim 31 is found in at least paragraph 0081 of the present application.

Support for new claim 32 is found in at least paragraph 0081 of the present application.

#### Applicant Note on Examiner's Response to Arguments

While applicant continues to disagree with the Office's rejections, applicant nonetheless found examiner's remarks helpful. Applicant expresses appreciation for examiner's detailed remarks.

#### Claim Rejection(s) - 35 U.S.C. § 102

Claims 1-13 and 17-20 stand rejected under 35 U.S.C. 102(e) as being anticipated by Fadell, Anthony (U.S. 2010/0010857) (hereinafter Fadell). This ground of rejection is respectfully traversed.

Applicant respectfully disagrees with the rejections to each of claims 1-13 and 17-20, and reserves all rights to pursue the original as well as any previously presented claims 1-13 and 17-20 in future prosecution, such as in a continuation and/or a broadening reissue.

Applicant respectfully submits that as currently amended, Fadell does not disclose, teach, or suggest at least the feature of claim 1 of "...performing the maintenance operation includes transforming the first data to reduce the first energy cost to a third energy cost for accessing, in performing the first operation, the transformed first data". Applicant further respectfully submits that Fadell does not disclose, teach, or suggest at least the feature of claim 1 of "determining that a configured maintenance condition is met when the energy cost benefit exceeds a second energy cost for performing the identified maintenance operation on the first data".

Fadell relates to controlling performance of electronic device operations based on power costs associated with the operations (Fadell paragraph 0004). Note that Fadell is not concerned with managing the energy utilized, either the amount or rate (i.e. power), in performing any particular operation. More particularly, Fadell is not concerned with reducing the energy cost of accessing any particular resource (much less accessing any particular data) in performing any particular operation. Fadell relates to controlling processes (i.e. a computing context for executable code such as in an application) based on power cost. (Fadell paragraph 0006-0007).

Fadell's teaching relate to monitoring and managing such processes. Fadell identifies a virus scan process and a data transfer process as examples (Fadell paragraph 0004). Fadell manages processes by running, delaying, assigning priorities to, or otherwise controlling when a process is executed by a processor (Fadell paragraph 0009).

Applicant respectfully submits that nowhere does Fadell describe, teach, or suggest transforming particular data to reduce the energy cost of accessing the data in performing a particular operation. As such, applicant further respectfully submits that Fadell necessarily cannot describe, teach, or suggest determining that a condition is met when an energy cost benefit of performing an operation to transform the data exceeds the energy cost of performing the operation itself. For example, applicant has found no teaching or suggestion in Fadell that a virus scan is to be run when it is determined that the cost of running the virus scan on a particular resource is less than an energy benefit gained or to be gained as a result of performing the virus scan on the resource.

In view of the foregoing, it is respectfully submitted that Fadell does not disclose all of the features of claim 1 as currently amended, which is believed to be patentable for at least the reasons described above. Claims 2-4 and 17-18 are dependent upon currently amended claim 1 and are believed to be patentable for at least the same reasons.

Regarding claim 3, applicant respectfully submits that, as currently amended, Fadell does not disclose, teach, or suggest at least the feature of claim 3 of "wherein the first energy measure is a non-monetary measure". Power cost in Fadell is clearly monetary cost (Fadell paragraph 0006, 0012, 0069). Applicant understands that the Office, in the current office action, particularly pointed out this aspect of "energy cost" as taught by Fadell.

In view of the foregoing, it is respectfully submitted that Fadell does not disclose all of the features of claim 3 as currently amended, which is believed to be patentable for at least the reasons described above.

Regarding claim 19, the Office states it is a system claim having similar limitations cited in claim 1. Applicant respectfully submits that currently amended claim 19 is analogous to currently amended claim 1. As such, applicant believes claim 19 to be patentable for at least the same reasons as claim 1.

Regarding claim 20, the Office states it is a medium claim having similar limitations cited in claim 1. Applicant respectfully submits that currently amended claim 20 is analogous to currently amended claim 1. As such, applicant believes claim 19 to be patentable for at least the same reasons as claim 1.

In view of the foregoing, it is respectfully submitted that Fadell fails to disclose all of the features of independent claims 1, 19, and 20. Claims 2-12 and 17-18 depend from claim 1 and are believed to be at least as patentable for the reasons set forth for claim 1.

Applicant respectfully requests the rejections of claims 1-12 and 17-20 under 35 U.S.C. § 102(e) be withdrawn.

Claim Rejection(s) - 35 U.S.C. § 103

Claims 14-16 stand rejected under 35 U.S.C. 103(a). Claim 14 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Fadell (U.S. 2010/0010857) as applied to claim 13 above, and further in view of Powell et al. (U.S. 2006/0036605) (Hereinafter Powell). Claim 15

stands rejected under 35 U.S.C. 103(a) as being unpatentable over Fadell (U.S. 201010010857) as applied to claim 1 above, and further in view of Fujiwara et al. (U.S. 2003/0140051) (Hereinafter Fujiwara). Claim 16 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Fadell (U.S. 201010010857) as applied to claim 1 above, and further in view of May et al. (U.S. 2007/0294550) (Hereinafter May).

Applicant respectfully disagrees with respect to each of claims 14-16, and reserves all rights to pursue the original claims 14-16 in future prosecution, such as in a continuation and/or a broadening reissue.

Claims 14-16 are dependent upon currently amended claim 1 and are believed to be patentable for at least the same reasons as claim 1.

Regarding claim 14, applicant respectfully submits that, as currently amended, Fadell does not disclose, teach, or suggest at least the feature of claim 14 of "wherein the first data is stored in a data store that includes at least one of a data base, a registry, and a file system. Applicant disagrees that Fadell and Powell can be combined to teach the claim 14. As the Office acknowledges, Fadell manages processes based on energy costs, not data stored in a data store that includes at least one of database, a registry, and a file system. Fadell teaches scheduling processes based on energy cost. Powell manages power for storage systems. How management of computing processes relates to power management for storage devices is unclear to the applicant and unexplained by the Office. The Office states that both Fadell and Powell relate to "systems management". Applicant respectfully submits "systems management" is an extremely broad area and that it is not at all clear (as in this case) that the teachings of Fadell and Powell are combinable just because they relate to systems management. Applicant respectfully believes that managing processes based on energy cost, in some cases, may not lead to efficient power management of a data storage system; nor vice versa. Further, Powell is concerned with heat and power (i.e. the rate at which energy is used) while Fadell is concerned with energy pricing and costs. Again, it is not clear to the applicant that managing heat and power of storage devices is not in conflict with managing monetary costs of energy, at least in some instances. As such, applicant questions the Office's stated motivation for combining Powell and Fadell.

In view of the foregoing, it is respectfully submitted that Fadell does not disclose all of the features of claim 14 as currently amended, which is believed to be patentable for at least the reasons described above.

Regarding claim 15, applicant respectfully submits that, as currently amended, Fadell does not disclose, teach, or suggest at least the feature of claim 15 of "wherein the data resource includes a path identifier for a location of a stored resource and the maintenance operation includes at least one of modifying the path identifier and changing a location of the path identifier in a plurality of path identifiers." Fujiwara is concerned with virtualized storage. As with Powell and Fadell, for reasons similar to those described with respect to the combination of Powell and Fadell, it is not clear to the applicant that the teaching of Fujiwara and Fadell are combinable, much less combinable in a manner that results in any benefits.

In view of the foregoing, it is respectfully submitted that Fadell does not disclose all of the features of claim 15 as currently amended, which is believed to be patentable for at least the reasons described above

In view of the foregoing, Applicant respectfully requests the rejections of claims 14-15 under 35 U.S.C. § 103(a) be withdrawn.

#### NEW CLAIMS

Applicant respectfully submits that new claims 21-32 depend from claim 1. As such, new claims 21-32 are believed to be patentable for at least the same reasons as claim 1.

#### CONCLUSION

In view of the above, it is respectfully submitted that the present application is now in proper condition for allowance, and an early notice to such effect is earnestly solicited. The Examiner is respectfully requested to telephone the undersigned inventor at the below-listed number if, after reviewing the above Remarks, the Examiner believes outstanding matters remain that may be resolved without the issuance of a subsequent Official Action.

Application No. 12/857,836  
Paper filed June 23, 2013  
Reply to final Office Action mailed May 24, 2013

Docket No. 0123-SP  
Page 15 of 15

DEPOSIT ACCOUNT

The Commissioner is hereby authorized to charge any additional fees, or credit any overpayment, associated with the filing of this paper to Deposit Account No. 50-5171

Respectfully submitted,

/Robert Paul Morris/

Robert Paul Morris

Inventor/Applicant

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| Electronic Acknowledgement Receipt          |                                                                                                      |
|---------------------------------------------|------------------------------------------------------------------------------------------------------|
| <b>EFS ID:</b>                              | 16126799                                                                                             |
| <b>Application Number:</b>                  | 12857836                                                                                             |
| <b>International Application Number:</b>    |                                                                                                      |
| <b>Confirmation Number:</b>                 | 4718                                                                                                 |
| <b>Title of Invention:</b>                  | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR MAINTAINING A RESOURCE BASED ON A COST OF ENERGY |
| <b>First Named Inventor/Applicant Name:</b> | Robert Paul Morris                                                                                   |
| <b>Customer Number:</b>                     | 92924                                                                                                |
| <b>Filer:</b>                               | Robert Paul Morris                                                                                   |
| <b>Filer Authorized By:</b>                 |                                                                                                      |
| <b>Attorney Docket Number:</b>              | 0123-SP                                                                                              |
| <b>Receipt Date:</b>                        | 23-JUN-2013                                                                                          |
| <b>Filing Date:</b>                         | 17-AUG-2010                                                                                          |
| <b>Time Stamp:</b>                          | 13:46:57                                                                                             |
| <b>Application Type:</b>                    | Utility under 35 USC 111(a)                                                                          |

### Payment information:

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|------------------------|----|
| Submitted with Payment | no |
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### File Listing:

| Document Number | Document Description                      | File Name                                  | File Size(Bytes)/<br>Message Digest                               | Multi Part /.zip | Pages (if appl.) |
|-----------------|-------------------------------------------|--------------------------------------------|-------------------------------------------------------------------|------------------|------------------|
| 1               | After Final Consideration Program Request | 0123-OA-F-1-<br>AfterFinalPilotRequest.pdf | 226137<br><small>59f567fd629ee53ebf80da7efe98a179249a32c6</small> | no               | 2                |

### Warnings:

### Information:

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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Claims                                                     |                                      | 4                                        | 8          |    |
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| <b>Warnings:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                            |                                      |                                          |            |    |
| <b>Information:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                            |                                      |                                          |            |    |
| <b>Total Files Size (in bytes):</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                            |                                      | 393476                                   |            |    |
| <p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><b><u>New Applications Under 35 U.S.C. 111</u></b><br/> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><b><u>National Stage of an International Application under 35 U.S.C. 371</u></b><br/> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><b><u>New International Application Filed with the USPTO as a Receiving Office</u></b><br/> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p> |                                                            |                                      |                                          |            |    |

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|-----------------------------------------------------------------------------------|---------------------------------------------------|----------------------------------|---------------------------------------|
| <b>PATENT APPLICATION FEE DETERMINATION RECORD</b><br>Substitute for Form PTO-875 | Application or Docket Number<br><b>12/857,836</b> | Filing Date<br><b>08/17/2010</b> | <input type="checkbox"/> To be Mailed |
|-----------------------------------------------------------------------------------|---------------------------------------------------|----------------------------------|---------------------------------------|

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

**APPLICATION AS FILED – PART I**

| FOR                                                                        | NUMBER FILED<br>(Column 1)                                                                                                                                                                                                    | NUMBER EXTRA<br>(Column 2) | RATE (\$) | FEE (\$) |
|----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|-----------|----------|
| <input type="checkbox"/> BASIC FEE<br>(37 CFR 1.16(a), (b), or (c))        | N/A                                                                                                                                                                                                                           | N/A                        | N/A       |          |
| <input type="checkbox"/> SEARCH FEE<br>(37 CFR 1.16(k), (j), or (m))       | N/A                                                                                                                                                                                                                           | N/A                        | N/A       |          |
| <input type="checkbox"/> EXAMINATION FEE<br>(37 CFR 1.16(o), (p), or (q))  | N/A                                                                                                                                                                                                                           | N/A                        | N/A       |          |
| TOTAL CLAIMS<br>(37 CFR 1.16(i))                                           | minus 20 =                                                                                                                                                                                                                    | *                          | X \$ =    |          |
| INDEPENDENT CLAIMS<br>(37 CFR 1.16(h))                                     | minus 3 =                                                                                                                                                                                                                     | *                          | X \$ =    |          |
| <input type="checkbox"/> APPLICATION SIZE FEE<br>(37 CFR 1.16(s))          | If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s). |                            |           |          |
| <input type="checkbox"/> MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j)) |                                                                                                                                                                                                                               |                            |           |          |
|                                                                            |                                                                                                                                                                                                                               |                            | TOTAL     |          |

\* If the difference in column 1 is less than zero, enter "0" in column 2.

**APPLICATION AS AMENDED – PART II**

| AMENDMENT | (Column 1)                                                                               | (Column 2)                       | (Column 3) | HIGHEST NUMBER PREVIOUSLY PAID FOR | PRESENT EXTRA | RATE (\$)       | ADDITIONAL FEE (\$) |
|-----------|------------------------------------------------------------------------------------------|----------------------------------|------------|------------------------------------|---------------|-----------------|---------------------|
|           | <b>06/23/2013</b>                                                                        | CLAIMS REMAINING AFTER AMENDMENT |            |                                    |               |                 |                     |
|           | Total (37 CFR 1.16(i))                                                                   | * 22                             | Minus      | ** 5                               | = 17          | x \$40 =        | 680                 |
|           | Independent (37 CFR 1.16(h))                                                             | * 5                              | Minus      | *** 3                              | = 2           | x \$210 =       | 420                 |
|           | <input type="checkbox"/> Application Size Fee (37 CFR 1.16(s))                           |                                  |            |                                    |               |                 |                     |
|           | <input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j)) |                                  |            |                                    |               |                 |                     |
|           |                                                                                          |                                  |            |                                    |               | TOTAL ADD'L FEE | <b>1100</b>         |

| AMENDMENT | (Column 1)                                                                               | (Column 2)                       | (Column 3) | HIGHEST NUMBER PREVIOUSLY PAID FOR | PRESENT EXTRA | RATE (\$)       | ADDITIONAL FEE (\$) |
|-----------|------------------------------------------------------------------------------------------|----------------------------------|------------|------------------------------------|---------------|-----------------|---------------------|
|           |                                                                                          | CLAIMS REMAINING AFTER AMENDMENT |            |                                    |               |                 |                     |
|           | Total (37 CFR 1.16(i))                                                                   | *                                | Minus      | **                                 | =             | X \$ =          |                     |
|           | Independent (37 CFR 1.16(h))                                                             | *                                | Minus      | ***                                | =             | X \$ =          |                     |
|           | <input type="checkbox"/> Application Size Fee (37 CFR 1.16(s))                           |                                  |            |                                    |               |                 |                     |
|           | <input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j)) |                                  |            |                                    |               |                 |                     |
|           |                                                                                          |                                  |            |                                    |               | TOTAL ADD'L FEE |                     |

\* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

\*\* If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

\*\*\* If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

SLIE  
/DARRYL FORTE/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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| APPLICATION NO.            | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
| 12/857,836                 | 08/17/2010  | Robert Paul Morris   | 0123-SP             | 4718             |
| 92924                      | 7590        | 05/24/2013           | EXAMINER            |                  |
| Small Pond Associates, LLC |             |                      | LABUD, JONATHAN R   |                  |
| Robert Paul Morris         |             |                      | ART UNIT            |                  |
| 712 Latta Street           |             |                      | PAPER NUMBER        |                  |
| Raleigh, NC 27607          |             |                      | 2196                |                  |
|                            |             |                      | NOTIFICATION DATE   | DELIVERY MODE    |
|                            |             |                      | 05/24/2013          | ELECTRONIC       |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

paul.morris@nc.rr.com  
rpmorris@yahoo.com

|                              |                                      |                                            |                                                  |
|------------------------------|--------------------------------------|--------------------------------------------|--------------------------------------------------|
| <b>Office Action Summary</b> | <b>Application No.</b><br>12/857,836 | <b>Applicant(s)</b><br>MORRIS, ROBERT PAUL |                                                  |
|                              | <b>Examiner</b><br>JONATHAN R. LABUD | <b>Art Unit</b><br>2196                    | <b>AIA (First Inventor to File) Status</b><br>No |

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 February 2013.  
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on \_\_\_\_; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 5) ☒ Claim(s) 1-20 is/are pending in the application.  
5a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 6) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 7) ☒ Claim(s) 1-20 is/are rejected.
- 8) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 9) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

\* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see [http://www.uspto.gov/patents/init\\_events/pph/index.jsp](http://www.uspto.gov/patents/init_events/pph/index.jsp) or send an inquiry to [PPHfeedback@uspto.gov](mailto:PPHfeedback@uspto.gov).

**Application Papers**

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☒ The drawing(s) filed on 17 August 2010 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

**Certified copies:**

- a) ☐ All    b) ☐ Some \*    c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Interim copies:**

- a) ☐ All    b) ☐ Some    c) ☐ None of the: Interim copies of the priority documents have been received.

**Attachment(s)**

- |                                                                                                                                           |                                                                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                                                          | 3) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>22 February 2013</u> . | 4) <input type="checkbox"/> Other: ____.                                                |

**DETAILED ACTION**

1. This communication is responsive to Applicant's amendment for application 12/857,836 dated 22 February 2013, responding to the 8 November 2012 Office Action provided in the rejection of claims 1-20, wherein claims 1, 3, 6, 19 and 20 have been amended.

In view of Applicant's arguments and the amendments to the claims, the 35 U.S.C. 101 rejection of claims 19 and 20 has been withdrawn.

Claims 1-20 remain pending in the application and have been fully considered by the examiner.

***Examiner Notes***

2. Examiner cites particular paragraphs or columns and lines in the references as applied to the claims below for the convenience of the applicant. Although the specified citations are representative of the teachings in the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested that, in preparing responses, the applicant fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the examiner.

*Information Disclosure Statement*

3. As required by M.P.E.P. 609, the applicant's submissions of the Information Disclosure Statement dated 22 February 2013 is acknowledged by the examiner and the cited references have been considered in the examination of the claims now pending.

*Response to Arguments*

4. Applicant's primary argument is directed to:

(A) Claim 1 is patentable over the cited references because they do not "describe, teach, or suggest an energy cost for performing an identified maintenance operation, much less determining that a maintenance condition is met based such an energy cost" (see Applicant's remarks, page 13 first paragraph), and claims 2-20 are patentable for similar reasons.

Regarding (A), Examiner respectfully disagrees with this argument. In light of Applicant's instant specification and the plain language of the claim, Examiner interprets Applicant's claimed "maintenance operation" as an operation to correct faults or improve performance. In view of this interpretation, Fadell discloses that each particular process such as a virus scan (i.e. a maintenance operation designed to correct faults) has defined power cost conditions (i.e. configured maintenance condition) to allow the electronic device determine whether an initial power cost (i.e. first energy cost) is met (i.e. **determining that a maintenance condition is met based such an energy cost**), and if it is determined that the power cost of a

particular process (e.g. said virus scan) does not satisfy the set conditions, the electronic device attempts to reschedule the operation for a later time when the power cost (i.e. second energy cost) is determined to satisfy the power cost conditions (determining that a configured maintenance condition is met based on a second energy cost for performing the identified maintenance operation) via the processor (i.e. performing on the energy consuming component) (see paragraphs [0005]-[0012] and [0039]). Therefore, this argument is unpersuasive.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-13 and 17-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Fadell, Anthony (U.S. 2010/0010857) (Hereinafter Fadell).

As per claim 1, Fadell discloses a method for maintaining a resource based on a cost of energy (see for example Fadell, paragraphs [0004]-[0007], this limitation is disclosed such that the performance of electronic device (i.e. resource) operations is controlled based on the power cost (i.e. cost of energy) associated with the operations), the method comprising:

detecting a first energy cost for accessing a resource via an energy consuming component in an execution environment (see for example Fadell, paragraphs [0005]-[0012] and [0039], this limitation is disclosed such that the initial power requirements (i.e. first energy cost) for

accessing a particular electronic device via required components such as the processor (i.e. an energy consuming component) are determined);

determining that a configured maintenance condition is met based on a second energy cost for performing an identified maintenance operation on at least one of the resource and the energy consuming component (see for example Fadell, Figure 5 and associated text, paragraphs [0005]-[0012] and [0039], this limitation is disclosed such that each particular process such as a virus scan (i.e. a maintenance operation) has defined power cost conditions (i.e. configured maintenance condition) to allow the electronic device determine whether an initial power cost (i.e. first energy cost) is met, and if it is determined that the power cost of a particular process (e.g. said virus scan) does not satisfy the set conditions, the electronic device attempts to reschedule the operation for a later time when the power cost (i.e. second energy cost) is determined to satisfy the power cost conditions (determining that a configured maintenance condition is met based on a second energy cost for performing the identified maintenance operation) via the processor (i.e. performing on the energy consuming component)); and

in response to determining that the maintenance condition is met, sending an indication to start the maintenance operation (see for example Fadell, Figure 9 and associated text, this limitation is disclosed such that if the power consumption limit (i.e. maintenance condition) is met in step 908, processing is performed in step 914 (i.e. an indication to start the operation is sent)),

wherein performing at least one of the preceding actions comprising the method includes execution of an instruction by a processor (see for example Fadell, Figure 1 Item 102 and

associated text, this limitation is disclosed such that operations are controlled by a processor 102).

As per claim 2, Fadell discloses the limitation wherein the at least one of the resource and the energy consuming component includes at least one of a data storage medium, an output component, a mechanical component, an optical component, a registry, a directory, a database, a file, an addressable entity in a program component generated from source code, a cache, a network component, and an input component (see for example Fadell, paragraph [0005]).

As per claim 3, Fadell discloses the limitation wherein the first energy cost is measured according to a metric based on at least one of electrical energy, money, time, kinetic energy, chemical energy, heat, mechanical resistance, electrical resistance, magnetism, a count of an energy consuming operation, light, movement, mass metric, and weight (see for example Fadell, paragraphs [0007]-[0009]).

As per claim 4, Fadell discloses the limitation wherein accessing includes at least one of receiving, transmitting, storing, requesting, copying, moving, creating, modifying, deleting, transforming, detecting, presenting, and processing a resource (see for example Fadell, paragraph [0005]).

As per claim 5, Fadell discloses the limitation wherein the maintenance condition is based on at least one of electrical energy, money, time, kinetic energy, chemical energy, heat, mechanical resistance, electrical resistance, magnetism, a count of an energy consuming activity, light, movement, mass, and weight (see for example Fadell, paragraph [0009]).

As per claim 6, Fadell discloses the limitation wherein the maintenance condition is based on the first energy cost (see for example Fadell, Figure 5 and associated text, this

limitation is disclosed such that a process has an initial power cost setting (i.e. maintenance condition based on first energy cost) for determining when processing occurs).

As per claim 7, Fadell discloses receiving maintenance information identifying the maintenance condition from at least one of a remote node via a network, the resource, the energy consuming component, and a user (see for example Fadell, paragraph [0037], this limitation is disclosed such that power management settings (i.e. maintenance information identifying maintenance conditions) can be set by a user).

As per claim 8, Fadell discloses the limitation wherein determining that the maintenance condition is met includes at least one of a comparison based on the first energy cost, a calculation based on the first energy cost, and an evaluation of an expression based on the first energy cost (see for example Fadell, Figures 5, 7 and associated text).

As per claim 9, Fadell discloses the limitation wherein the maintenance operation includes at least one of defragmenting data, deleting stored data, moving data, copying data, restructuring data, transforming data, flushing at least a portion of a data store, changing a size of a resource, installing a component, removing a component, updating a component, stopping a component, starting a component, setting a clock, and presenting an indication message to a user to perform an action (see for example Fadell, paragraph [0005], this limitation is disclosed such that the operation includes a file transfer operation (i.e. moving data)).

As per claim 10, Fadell discloses the limitation wherein the maintenance operation is identified based on at least one of the resource, the energy consuming component, a type of access, an attribute of the resource, an attribute of the energy consuming component, the first energy access cost, a user input, and a message received via a network (see for example Fadell,

Figure 8 and associated text, this limitation is disclosed such that a process to be performed is identified by the electronic device (i.e. process is identified based on the resource)).

As per claim 11, Fadell discloses the limitation wherein sending an indication includes at least one of invoking an executable addressable entity via a processor memory address, sending a message via a network, sending a message via an inter-process communication mechanism, receiving a request and sending the indication in response, and scheduling a start time (see for example Fadell, paragraph [0025]).

As per claim 12, Fadell discloses the limitation wherein the resource is included in a data store accessed via the energy consuming component and the first energy access cost is based on an access time for accessing the resource (see for example Fadell, paragraphs [0005] and [0040], this limitation is disclosed such that the cost of power varies according to time (i.e. energy access time is based on an access time), and a file transfer operation (i.e. transfer operation on a file resource) can require a hard drive (i.e. data store)).

As per claim 13, Fadell discloses the limitation wherein the maintenance operation includes at least one of cleaning data, flushing data, moving data, copying data at least one of to and from the energy consuming component, restructuring the resource, translating the resource into a different representation, at least one of stopping and starting the energy consuming component, adjusting an attribute of power received by the energy consuming component, at least one of adding, modifying, and removing a source of energy for the energy consuming component, modifying an access control attribute, and prompting a user to perform an action (see for example Fadell, Figure 6 Item 612 and associated text, this limitation is disclosed such that power consumption characteristics can be redefined (i.e. attribute of power is adjusted)).

As per claim 17, Fadell discloses the limitation wherein the resource is accessed via a network from a remote node and the maintenance operation includes modifying a cache for storing at least a portion of the resource (see for example Fadell, paragraphs [0010] and [0026], this limitation is disclosed such that electronic devices can be connected to other electronic devices in a network, and a cache memory is used).

As per claim 18, Fadell discloses the limitation wherein the energy consuming component is an instruction-processing unit and the maintenance operation includes at least one of modifying a processor speed, modifying a cache included in the instruction-processing unit, stopping the instruction-processing unit, and starting the instruction-processing unit (see for example Fadell, Figure 1 Item 102 and associated text, paragraph [0048], this limitation is disclosed such that there exists a processor (i.e. energy consuming component which is an instruction-processing unit), wherein execution of a process can started and stopped in response to amount of power available (maintenance operation includes starting and stopping of instruction-processing unit)).

Regarding claim 19, it is a system claim having similar limitations cited in claim 1. Moreover, Fadell discloses a cost monitor component (see for example Fadell, Figure 7 and associated text), a maintenance test component (see for example Fadell, Figure 5 and associated text), a maintenance link component (see for example, Figure 6 and associated text), and a maintenance operations component (see for example Fadell, Figure 1 Item 110 and associated text). Thus, claim 19 is also rejected under the same rationales as cited in the rejection of claim 1.

Regarding claim 20, it is a medium claim having similar limitations cited in claim 1. Thus, claim 20 is also rejected under the same rationales as cited in the rejection of claim 1.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fadell (U.S. 2010/0010857) as applied to claim 13 above, and further in view of Powell et al. (U.S. 2006/0036605) (Hereinafter Powell).

As per claim 14, Fadell discloses the method of claim 13 (see rejection of claim 13 above), but does not explicitly teach the limitation wherein the data store is at least one of included in and includes at least one of a data base, a registry, and/or a file system.

However, Powell discloses the limitation wherein the data store is at least one of included in and includes at least one of a data base, a registry, and/or a file system (see for example Powell, paragraph [0025], this limitation is disclosed such that a policy manager implementing a power management scheme monitors the status of files and objects accessible via a file system).

Fadell in view of Powell is analogous art because they are from the same field of endeavor, system management.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method as taught by Fadell by managing file systems as taught by Powell because it would enhance the teaching of Fadell with an effective means of implementing power management techniques in regard to file access activity (as suggested by Powell, see for example paragraph [0025]).

9. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fadell (U.S. 2010/0010857) as applied to claim 1 above, and further in view of Fujiwara et al. (U.S. 2003/0140051) (Hereinafter Fujiwara).

As per claim 15, Fadell discloses the method of claim 1 (see rejection of claim 1 above), but does not explicitly teach the limitation wherein the resource includes a path identifier for a location of a stored resource and the maintenance operation includes at least one of modifying the path identifier and changing a location of the path identifier in a plurality of path identifiers.

However, Fujiwara discloses the limitation wherein the resource includes a path identifier for a location of a stored resource and the maintenance operation includes at least one of modifying the path identifier and changing a location of the path identifier in a plurality of path identifiers (see for example Fujiwara, paragraph [0043], this limitation is disclosed such that the file path name (i.e. path identifier) of a file stored in a storage location is updated (i.e. modified in a maintenance operation) in a configuration change).

Fadell in view of Fujiwara is analogous art because they are from the same field of endeavor, system management.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method as taught by Fadell by updating a file path as taught by Fujiwara because it would enhance the teaching of Fadell with an effective means of reducing maintenance overheads (as suggested by Fujiwara, see for example paragraph [0043]).

10. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fadell (U.S. 2010/0010857) as applied to claim 1 above, and further in view of May et al. (U.S. 2007/0294550) (Hereinafter May).

As per claim 16, Fadell discloses the method of claim 1 (see rejection of claim 1 above), but does not explicitly teach the limitation wherein the energy consuming component includes a data storage medium and the maintenance operation includes defragmenting the resource stored in the data storage medium.

However, May discloses the limitation wherein the energy consuming component includes a data storage medium and the maintenance operation includes defragmenting the resource stored in the data storage medium (see for example May, paragraph [0029], this limitation is disclosed such that defragmentation (i.e. maintenance operation) is performed on RAM (i.e. data storage medium)).

Fadell in view of May is analogous art because they are from the same field of endeavor, system management.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method as taught by Fadell by considering power as factor in defragmentation as

taught by May because it would enhance the teaching of Fadell with an effective means of defragmenting in a very power efficient reduced power mode (as suggested by May, see for example paragraph [0029]).

### *Conclusion*

11. The rejections over the prior art disclosed in the previous office action is maintained. In addition, any new ground(s) of rejection presented in this Office Action were necessitated by the Applicant's amendment. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Labud whose telephone number is 571-270-5174. The examiner can normally be reached on Monday to Thursday 10:00 AM to 4:00 PM.

Application/Control Number: 12/857,836  
Art Unit: 2196

Page 14

If attempts to reach the above noted Examiner by telephone are unsuccessful, the Examiner's supervisor, Emerson Puente, can be reached at the following telephone number: (571) 272-3652.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

May 16, 2013  
/J. R. L./  
Jonathan Labud  
Examiner Art Unit 2196

/Emerson C Puente/  
Supervisory Patent Examiner, Art Unit 2196

|                                                                                                              |                                                |                                                                           |
|--------------------------------------------------------------------------------------------------------------|------------------------------------------------|---------------------------------------------------------------------------|
| <b>Search Notes</b><br><br> | <b>Application/Control No.</b><br><br>12857836 | <b>Applicant(s)/Patent Under Reexamination</b><br><br>MORRIS, ROBERT PAUL |
|                                                                                                              | <b>Examiner</b><br><br>JONATHAN R LABUD        | <b>Art Unit</b><br><br>2196                                               |

| CPC- SEARCHED |      |          |
|---------------|------|----------|
| Symbol        | Date | Examiner |
|               |      |          |

| CPC COMBINATION SETS - SEARCHED |      |          |
|---------------------------------|------|----------|
| Symbol                          | Date | Examiner |
|                                 |      |          |

| US CLASSIFICATION SEARCHED |          |      |          |
|----------------------------|----------|------|----------|
| Class                      | Subclass | Date | Examiner |
|                            |          |      |          |

| SEARCH NOTES                                                         |          |          |
|----------------------------------------------------------------------|----------|----------|
| Search Notes                                                         | Date     | Examiner |
| EAST (see search history printout)                                   | 11/08/12 | /J.R.L./ |
| NPL Search (www.google.com, www.scholar.google.com, IEEE, ACM)       | 11/08/12 | /J.R.L./ |
| EIC 2100 NPL Resources                                               | 11/08/12 | /J.R.L./ |
| Consulted SPE in Art Unit 2196                                       | 11/08/12 | /J.R.L./ |
| Inventors Search (EAST and PALM)                                     | 11/08/12 | /J.R.L./ |
| 718/100,102,104,105 (text search only - see search history printout) | 11/08/12 | /J.R.L./ |
| Updated EAST Search (see search history printout)                    | 06/16/13 | /J.R.L./ |
| Consulted SPE in Art Unit 2196                                       | 06/16/13 | /J.R.L./ |

| INTERFERENCE SEARCH     |                         |      |          |
|-------------------------|-------------------------|------|----------|
| US Class/<br>CPC Symbol | US Subclass / CPC Group | Date | Examiner |
|                         |                         |      |          |

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Receipt date: 02/22/2013

Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Filed

12857836 - GALL:2196

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| <b>INFORMATION DISCLOSURE<br/>STATEMENT BY APPLICANT</b><br>( Not for submission under 37 CFR 1.99) | Application Number     |                    | 12857836   |
|                                                                                                     | Filing Date            |                    | 2010-08-17 |
|                                                                                                     | First Named Inventor   | Robert Paul Morris |            |
|                                                                                                     | Art Unit               | 2196               |            |
|                                                                                                     | Examiner Name          | Labud, Jonathan R  |            |
|                                                                                                     | Attorney Docket Number | 0123               |            |

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| Examiner Initial* | Cite No | Patent Number | Kind Code <sup>1</sup> | Issue Date | Name of Patentee or Applicant of cited Document | Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear |
|                   | 1       | 8150539       | B2                     | 2012-04-03 | Numano                                          |                                                                        |
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|                                     | 1       | 20090150787        | A1                     | 2009-06-11       | Maehira                                         |                                                                        |
|                                     | 2       | 20080319926        | A1                     | 2008-12-25       | Alam                                            |                                                                        |
|                                     | 3       | 20020166117        | A1                     | 2002-11-07       | Abrams                                          |                                                                        |
|                                     | 4       | 20040174823        | A1                     | 2004-09-09       | Steele                                          |                                                                        |

|                                                                                                                                                   |                        |                    |            |                      |
|---------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|--------------------|------------|----------------------|
| <b>Receipt date: 02/22/2013</b><br><br><b>INFORMATION DISCLOSURE<br/>STATEMENT BY APPLICANT</b><br><b>( Not for submission under 37 CFR 1.99)</b> | Application Number     |                    | 12857836   | 12857836 - GAU: 2196 |
|                                                                                                                                                   | Filing Date            |                    | 2010-08-17 |                      |
|                                                                                                                                                   | First Named Inventor   | Robert Paul Morris |            |                      |
|                                                                                                                                                   | Art Unit               | 2196               |            |                      |
|                                                                                                                                                   | Examiner Name          | Labud, Jonathan R  |            |                      |
|                                                                                                                                                   | Attorney Docket Number | 0123               |            |                      |

|  |    |             |    |            |                 |  |
|--|----|-------------|----|------------|-----------------|--|
|  | 5  | 20050060163 | A1 | 2005-03-17 | Barsness        |  |
|  | 6  | 20060020573 | A1 | 2006-01-26 | Galindo-Legaria |  |
|  | 7  | 20070074174 | A1 | 2007-03-29 | Thornton        |  |
|  | 8  | 20100293163 | A1 | 2010-11-18 | McLachlan       |  |
|  | 9  | 20100332262 | A1 | 2010-12-30 | Hovitz          |  |
|  | 10 | 20110015802 | A1 | 2011-01-20 | Imes            |  |
|  | 11 | 20110072292 | A1 | 2011-03-24 | Mazzaferri      |  |
|  | 12 | 20120016721 | A1 | 2012-01-19 | Weinman         |  |
|  | 13 | 20070211743 | A1 | 2007-09-13 | Zwernemann      |  |

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|                                                                                                     |                        |                    |            |                      |
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| <b>INFORMATION DISCLOSURE<br/>STATEMENT BY APPLICANT</b><br>( Not for submission under 37 CFR 1.99) | Application Number     |                    | 12857836   | 12857836 - GAU: 2196 |
|                                                                                                     | Filing Date            |                    | 2010-08-17 |                      |
|                                                                                                     | First Named Inventor   | Robert Paul Morris |            |                      |
|                                                                                                     | Art Unit               | 2196               |            |                      |
|                                                                                                     | Examiner Name          | Labud, Jonathan R  |            |                      |
|                                                                                                     | Attorney Docket Number | 0123               |            |                      |

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| <b>INFORMATION DISCLOSURE<br/>STATEMENT BY APPLICANT</b><br>( Not for submission under 37 CFR 1.99) | Application Number     | 12857836           | 12857836 - GAU: 2196 |
|                                                                                                     | Filing Date            | 2010-08-17         |                      |
|                                                                                                     | First Named Inventor   | Robert Paul Morris |                      |
|                                                                                                     | Art Unit               | 2196               |                      |
|                                                                                                     | Examiner Name          | Labud, Jonathan R  |                      |
|                                                                                                     | Attorney Docket Number | 0123               |                      |

### CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

**OR**

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☐ See attached certification statement.

☐ Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ None

### SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

|            |                      |                     |            |
|------------|----------------------|---------------------|------------|
| Signature  | /Robert Paul Morris/ | Date (YYYY-MM-DD)   | 2013-02-22 |
| Name/Print | Robert Paul Morris   | Registration Number |            |

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## EAST Search History

## EAST Search History (Prior Art)

| Ref # | Hits | Search Query                                                                                                                                                                                                                                                                   | DBs                                                                        | Default Operator | Plurals | Time Stamp          |
|-------|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|------------------|---------|---------------------|
| L1    | 12   | US-8150539-\$.DID. OR US-8131843-\$.DID. OR US-20090150787-\$.DID. OR US-20080319926-\$.DID. OR US-20020166117-\$.DID. OR US-20040174823-\$.DID. OR US-20050060163-\$.DID. OR US-20060020573-\$.DID. OR US-20070074174-\$.DID. OR US-20070211743-\$.DID. OR US-1331018-\$.DID. | US-PGPUB;<br>USPAT;<br>USOCR                                               | OR               | OFF     | 2013/05/16<br>13:05 |
| S1    | 25   | morris-robert.in.                                                                                                                                                                                                                                                              | US-PGPUB;<br>USPAT;<br>USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR               | OFF     | 2012/11/01<br>12:37 |
| S2    | 2    | US-7242920-\$.DID. OR US-20080263375-\$.DID.                                                                                                                                                                                                                                   | US-PGPUB;<br>USPAT;<br>USOCR                                               | OR               | OFF     | 2012/11/01<br>12:37 |
| S3    | 315  | morris-robert-p\$.in.                                                                                                                                                                                                                                                          | US-PGPUB;<br>USPAT;<br>USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR               | OFF     | 2012/11/01<br>12:38 |
| S4    | 41   | morris-robert-p\$.in. and power and manag\$5                                                                                                                                                                                                                                   | US-PGPUB;<br>USPAT;<br>USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR               | OFF     | 2012/11/01<br>12:39 |
| S5    | 4    | morris-robert-p\$.in. and (energy same cost).clm.                                                                                                                                                                                                                              | US-PGPUB;<br>USPAT;<br>USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR               | OFF     | 2012/11/01<br>12:39 |
| S6    | 3    | US-20070211743-\$.DID. OR US-7941427-\$.DID. OR US-8131843-\$.DID.                                                                                                                                                                                                             | US-PGPUB;<br>USPAT;<br>USOCR                                               | OR               | OFF     | 2012/11/01<br>12:45 |
| S7    | 2    | "8150539".did.                                                                                                                                                                                                                                                                 | US-PGPUB;<br>USPAT;<br>USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;            | OR               | OFF     | 2012/11/01<br>12:45 |

|     |      |                                                                                                         |                                                                            |    |     |                     |
|-----|------|---------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|----|-----|---------------------|
|     |      |                                                                                                         | IBM_TDB                                                                    |    |     |                     |
| S8  | 2    | "20080313477".did.                                                                                      | US-PGPUB;<br>USPAT;<br>USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/01<br>12:50 |
| S9  | 1    | "20120047504".did.                                                                                      | US-PGPUB;<br>USPAT;<br>USOCR                                               | OR | OFF | 2012/11/01<br>16:00 |
| S10 | 2    | "6724403".did.                                                                                          | US-PGPUB;<br>USPAT;<br>USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/02<br>12:06 |
| S11 | 2    | "20100010857".did.                                                                                      | US-PGPUB;<br>USPAT;<br>USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/02<br>13:43 |
| S12 | 3    | ((US-20080313477-\$ or US-20100010857-\$).did. or (US-8150539-\$).did.                                  | US-PGPUB;<br>USPAT                                                         | OR | OFF | 2012/11/02<br>21:30 |
| S13 | 2    | ((US-20080313477-\$ or US-20100010857-\$).did. or (US-8150539-\$).did. and (resource\$1 same stor\$2)   | US-PGPUB;<br>USPAT                                                         | OR | OFF | 2012/11/02<br>21:31 |
| S14 | 0    | ((US-20080313477-\$ or US-20100010857-\$).did. or (US-8150539-\$).did.) and (resource\$1 same stor\$2)  | US-PGPUB;<br>USPAT                                                         | OR | OFF | 2012/11/02<br>21:31 |
| S15 | 1    | ((US-20080313477-\$ or US-20100010857-\$).did. or (US-8150539-\$).did.) and (resource\$1 same drive\$1) | US-PGPUB;<br>USPAT                                                         | OR | OFF | 2012/11/02<br>21:32 |
| S16 | 17   | power same manag\$5 same energy same cost\$1 same (registry (file adj system\$1))                       | US-PGPUB;<br>USPAT;<br>USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/05<br>10:18 |
| S17 | 2502 | power same manag\$5 same (database registry (file adj system\$1)) same access\$3                        | US-PGPUB;<br>USPAT;<br>USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/05<br>11:08 |
| S18 | 425  | power same manag\$5 same (database registry (file adj system\$1)) same access\$3 same resource\$1       | US-PGPUB;<br>USPAT;<br>USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/05<br>11:08 |
| S19 | 61   | power same manag\$5 same (database registry (file adj system\$1)) same access\$3 same resource\$1 same  | US-PGPUB;<br>USPAT;<br>USOCR;                                              | OR | OFF | 2012/11/05<br>11:08 |

|     |     |                                                                                                                                                                                 |                                                                            |    |     |                     |
|-----|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|----|-----|---------------------|
|     |     | maintenance                                                                                                                                                                     | FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB                                  |    |     |                     |
| S20 | 13  | power same manag\$5 same (database registry (file adj system\$1)) same access\$3 same resource\$1 same maintenance same (path\$1 location\$1)                                   | US-PGPUB;<br>USPAT;<br>USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/05<br>11:10 |
| S21 | 0   | power same manag\$5 same (database registry (file adj system\$1)) same access\$3 same resource\$1 same maintenance same (path\$1 location\$1) same (defrag\$4 defragment\$3)    | US-PGPUB;<br>USPAT;<br>USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/05<br>11:11 |
| S22 | 0   | power same manag\$5 same (database registry (file adj system\$1)) same access\$3 same resource\$1 same maintenance same (defrag\$4 defragment\$3)                               | US-PGPUB;<br>USPAT;<br>USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/05<br>11:11 |
| S23 | 4   | power same manag\$5 same (database registry (file adj system\$1)) same access\$3 same resource\$1 same maintenance same (path\$1 location\$1) same (modif\$4 chang\$3 updat\$3) | US-PGPUB;<br>USPAT;<br>USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/05<br>11:11 |
| S24 | 47  | power same manag\$5 same access\$3 same resource\$1 same maintenance same (path\$1 location\$1)                                                                                 | US-PGPUB;<br>USPAT;<br>USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/05<br>11:14 |
| S25 | 13  | power same manag\$5 same access\$3 same resource\$1 same maintenance same (path\$1 location\$1) same (updat\$3 chang\$3 modif\$4)                                               | US-PGPUB;<br>USPAT;<br>USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/05<br>11:14 |
| S26 | 241 | (database registry (file adj system\$1)) same access\$3 same resource\$1 same maintenance same (path\$1 location\$1)                                                            | US-PGPUB;<br>USPAT;<br>USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/05<br>15:20 |
| S27 | 134 | (database registry (file adj system\$1)) same access\$3 same resource\$1 same maintenance same (path\$1 location\$1) same (modif\$4 updat\$3 chang\$3)                          | US-PGPUB;<br>USPAT;<br>USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/05<br>15:20 |
| S28 | 0   | (database registry (file adj system\$1))                                                                                                                                        | US-PGPUB;                                                                  | OR | OFF | 2012/11/05          |

|     |    |                                                                                                                                         |                                                                            |    |     |                     |
|-----|----|-----------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|----|-----|---------------------|
|     |    | same access\$3 same resource\$1 same maintenance same (path\$1 location\$1) same (modif\$4 updat\$3 chang\$3) same defragment\$3        | USPAT;<br>USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB              |    |     | 15:21               |
| S29 | 0  | (database registry (file adj system\$1)) same access\$3 same resource\$1 same maintenance same (path\$1 location\$1) same defragment\$3 | US-PGPUB;<br>USPAT;<br>USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/05<br>15:21 |
| S30 | 0  | (database registry (file adj system\$1)) same access\$3 same resource\$1 same maintenance same defragment\$3                            | US-PGPUB;<br>USPAT;<br>USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/05<br>15:21 |
| S31 | 1  | data same storage same (device\$1 medium\$1) same access\$3 same resource\$1 same maintenance same defragment\$3                        | US-PGPUB;<br>USPAT;<br>USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/05<br>15:24 |
| S32 | 8  | data same storage same (device\$1 medium\$1) same maintenance same defragment\$3                                                        | US-PGPUB;<br>USPAT;<br>USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/05<br>15:25 |
| S33 | 20 | data same storage same (device\$1 medium\$1) same maintenance same (defragment\$5 defrag\$4)                                            | US-PGPUB;<br>USPAT;<br>USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/05<br>15:26 |
| S34 | 5  | (data same storage same (device\$1 medium\$1) same maintenance same (defragment\$5 defrag\$4)) and (power same manag\$5)                | US-PGPUB;<br>USPAT;<br>USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/05<br>15:27 |
| S35 | 1  | "8289845".did.                                                                                                                          | US-PGPUB;<br>USPAT;<br>USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/05<br>15:56 |
| S38 | 3  | (energy power) same manag\$5 same defragment\$3 same file\$1                                                                            | US-PGPUB;<br>USPAT;<br>USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;            | OR | OFF | 2012/11/07<br>13:12 |

|     |     |                                                                                                                                    |                                                                            |    |     |                     |
|-----|-----|------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|----|-----|---------------------|
|     |     |                                                                                                                                    | IBM_TDB                                                                    |    |     |                     |
| S39 | 11  | power same efficient same defragment\$5                                                                                            | US-PGPUB;<br>USPAT;<br>USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/07<br>13:12 |
| S40 | 171 | maintenance same (modif\$5 chang\$3<br>updat\$3) same file\$1 same path same (id<br>identifier\$1)                                 | US-PGPUB;<br>USPAT;<br>USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/08<br>15:03 |
| S41 | 11  | (maintenance same (modif\$5 chang\$3<br>updat\$3) same file\$1 same path same (id<br>identifier\$1)) and (power same<br>manage\$4) | US-PGPUB;<br>USPAT;<br>USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/08<br>15:03 |
| S42 | 13  | maintenance same (modif\$5 chang\$3<br>updat\$3) same (id identifier\$1) same<br>(file\$1 near\$5 path)                            | US-PGPUB;<br>USPAT;<br>USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/08<br>15:05 |
| S43 | 35  | ("718/100,102,104,105").ccls. and (power<br>same manag\$5 same (database registry<br>(file adj system\$1)) same access\$3)         | US-PGPUB;<br>USPAT;<br>USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/08<br>16:39 |

**EAST Search History (Interference)**

&lt; This search history is empty &gt;

**5/ 16/ 2013 1:06:38 PM****C:\Users\jlabud\Documents\EAST\Workspaces\12857836.wsp**

|                                                                                                                        |                                                |                                                                           |
|------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|---------------------------------------------------------------------------|
| <b><i>Index of Claims</i></b><br><br> | <b>Application/Control No.</b><br><br>12857836 | <b>Applicant(s)/Patent Under Reexamination</b><br><br>MORRIS, ROBERT PAUL |
|                                                                                                                        | <b>Examiner</b><br><br>JONATHAN R LABUD        | <b>Art Unit</b><br><br>2196                                               |

|   |                 |   |                   |   |                     |   |                 |
|---|-----------------|---|-------------------|---|---------------------|---|-----------------|
| ✓ | <b>Rejected</b> | - | <b>Cancelled</b>  | N | <b>Non-Elected</b>  | A | <b>Appeal</b>   |
| = | <b>Allowed</b>  | ÷ | <b>Restricted</b> | I | <b>Interference</b> | O | <b>Objected</b> |

| <input type="checkbox"/> Claims renumbered in the same order as presented by applicant |          |            |            |  |  |  |  |  |  | <input type="checkbox"/> CPA |  | <input type="checkbox"/> T.D. |  | <input type="checkbox"/> R.1.47 |  |
|----------------------------------------------------------------------------------------|----------|------------|------------|--|--|--|--|--|--|------------------------------|--|-------------------------------|--|---------------------------------|--|
| CLAIM                                                                                  |          | DATE       |            |  |  |  |  |  |  |                              |  |                               |  |                                 |  |
| Final                                                                                  | Original | 11/08/2012 | 05/16/2013 |  |  |  |  |  |  |                              |  |                               |  |                                 |  |
|                                                                                        | 1        | ✓          | ✓          |  |  |  |  |  |  |                              |  |                               |  |                                 |  |
|                                                                                        | 2        | ✓          | ✓          |  |  |  |  |  |  |                              |  |                               |  |                                 |  |
|                                                                                        | 3        | ✓          | ✓          |  |  |  |  |  |  |                              |  |                               |  |                                 |  |
|                                                                                        | 4        | ✓          | ✓          |  |  |  |  |  |  |                              |  |                               |  |                                 |  |
|                                                                                        | 5        | ✓          | ✓          |  |  |  |  |  |  |                              |  |                               |  |                                 |  |
|                                                                                        | 6        | ✓          | ✓          |  |  |  |  |  |  |                              |  |                               |  |                                 |  |
|                                                                                        | 7        | ✓          | ✓          |  |  |  |  |  |  |                              |  |                               |  |                                 |  |
|                                                                                        | 8        | ✓          | ✓          |  |  |  |  |  |  |                              |  |                               |  |                                 |  |
|                                                                                        | 9        | ✓          | ✓          |  |  |  |  |  |  |                              |  |                               |  |                                 |  |
|                                                                                        | 10       | ✓          | ✓          |  |  |  |  |  |  |                              |  |                               |  |                                 |  |
|                                                                                        | 11       | ✓          | ✓          |  |  |  |  |  |  |                              |  |                               |  |                                 |  |
|                                                                                        | 12       | ✓          | ✓          |  |  |  |  |  |  |                              |  |                               |  |                                 |  |
|                                                                                        | 13       | ✓          | ✓          |  |  |  |  |  |  |                              |  |                               |  |                                 |  |
|                                                                                        | 14       | ✓          | ✓          |  |  |  |  |  |  |                              |  |                               |  |                                 |  |
|                                                                                        | 15       | ✓          | ✓          |  |  |  |  |  |  |                              |  |                               |  |                                 |  |
|                                                                                        | 16       | ✓          | ✓          |  |  |  |  |  |  |                              |  |                               |  |                                 |  |
|                                                                                        | 17       | ✓          | ✓          |  |  |  |  |  |  |                              |  |                               |  |                                 |  |
|                                                                                        | 18       | ✓          | ✓          |  |  |  |  |  |  |                              |  |                               |  |                                 |  |
|                                                                                        | 19       | ✓          | ✓          |  |  |  |  |  |  |                              |  |                               |  |                                 |  |
|                                                                                        | 20       | ✓          | ✓          |  |  |  |  |  |  |                              |  |                               |  |                                 |  |

Application No. 12/857,836  
Paper filed February 22, 2013  
Reply to Office Action mailed November 23, 2012

Docket No. 0123  
Page 1 of 14

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

|                                           |                              |
|-------------------------------------------|------------------------------|
| In re Patent Application of:              | Mail Stop: Amendment         |
| Robert Paul Morris                        | Group Art Unit: 2196         |
| Application No.:12/857,836                | Examiner: Labud, Jonathan R. |
| Filed: August 17, 2010                    | Confirmation No.: 4718       |
| For: Methods, Systems, and Program        |                              |
| Products for Maintaining a Resource Based |                              |
| on a Cost of Energy                       |                              |

\*\*\*\*\*

AMENDMENT UNDER 37 C.F.R. §1.111

Mail Stop: Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

This paper is responsive to the Office Action mailed November 23, 2012, for which a shortened statutory period for reply is set to expire on February 23, 2013. Entry and favorable consideration of the following Amendments and/or Remarks is respectfully requested.

**Amendments to the Specification** begin on page 2 of this paper.

**Amendments to the Claims** are reflected in the Listing of Claims that begins on page 5 of this paper.

**Remarks** begin on page 9 of this paper.

**Amendments to the Specification:**

Note: Amendments to the spec are strikethrough deletions and underline insertions. Only a marked up copy is required.

Please replace paragraphs 0001-0003:

[0001] This application is related to the following commonly owned, pending U.S. Patent Applications, the entire disclosure of each being incorporated by reference herein: Application No. 12/857,857~~—/—, —~~ (Docket No. 0137) filed on 2010/08/17, entitled “Methods, Systems, and Program Products for Selecting a Resource in Response to a Change in Available Energy”;

[0002] Application No. 12/857,851~~—/—, —~~ (Docket No. 0162) filed on 2010/08/17, entitled “Methods, Systems, and Program Products for Selecting a Resource Based on a Measure of a Processing Cost”; and

[0003] Application No. 12/857,847~~—/—, —~~ (Docket No. 0125) filed on 2010/08/17, entitled “Methods, Systems, and Program Products for Presenting an Indication of a Cost of Processing a Resource”.

Please replace paragraph 0032:

[0032] A “user interface (UI) element handler” component, as the term is used in this document, includes a component configured to send information representing a program entity for presenting a user detectable representation of the program entity by an output device, such as a display. A “program entity” is an object included in and/or otherwise processed by an application or executable. The user detectable representation is presented based on the sent information. The sent information is referred to herein as “presentation information”. Presentation information may include data in one or more formats. Exemplary formats include image formats such as JPEG, video formats such as MP4, audio formats, markup language data such as HTML and other XML-based markup, and/or instructions such as those defined by various script languages, byte code, and/or machine code. For example, a web page received by a browser from a remote application provider may include HTML,

ECMAScript, and/or byte code for presenting one or more user interface elements included in a user interface of the remote application. Components configured to send information representing one or more program entities for presenting particular types of output by particular types of output devices include visual interface element handler components, audio interface element handler components, tactile interface element handler components, and the like.

Please replace paragraph 0044:

[0044] A metric defines a unit of measure. For example, an “inch” is a unit of measure for measuring length. A “kilowatt-hour” (kWh) is a unit of measurement in a metric for measuring an amount of energy. Instead of or in addition to measuring an amount, a metric may measure a rate. “Kilowatts per hour” (kWh/h) is an energy or power metric for measuring a rate of energy used. A “measure” is a result of a particular measuring or measurement process. For example, 3 inches is a measure according to the length metric for inches, and 1000 kWh is a measure of an energy metric identifying an amount of energy. As used herein, a “measure of a processing cost” refers to a result of a measuring process for determining a processing cost according to a specified metric. Measuring may include estimating a measurement. A used herein, a “measure of energy”, also referred as an “energy cost”, is a result of a measuring and/or estimating process, based on a metric, for determining a measure of energy associated with accessing a resource. The phrases “energy cost”, “energy access cost”, and “access cost” are used interchangeably herein.

Please replace paragraph 0045:

[0045] An access cost may be determined and/or expressed according to any metric, directly and/or indirectly, providing an indication of cost of energy associated with accessing a resource via an energy consuming component, such as an electronic component, in an execution environment. A metric for determining an energy cost in terms of electrical power may be determined by monitoring a rate of electrical energy utilized over time period by a hardware component that is included in accessing a resource. For example, a flow of electricity to a network interface adapter may be monitored, for resources where processing

the resources includes sending and/or receiving data via a network. Some of the data may be included in the resources. The metric may represent the cost, for example, in kilowatt-hours, in kilowatts per hour, in transmission time, in bandwidth utilization, in latency, and/or in monetary units. In Fig\_4[[.]], cost monitor component **452** may be invoked to determine and/or otherwise identify a measure of an energy cost for accessing a particular resource in performing an operation.

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method for maintaining a resource based on a cost of energy, the method comprising:
  - detecting a first energy cost, ~~measured according to a specified metric,~~ for accessing a resource via an energy consuming component in an execution environment;
  - determining that a configured maintenance condition is met based on [[the]] a second energy cost for performing an identified maintenance operation on at least one of the resource and the energy consuming component;
  - ~~identifying a maintenance operation for configuring at least one of the resource and the energy consuming component for accessing the resource at a second energy cost that is less than the first energy cost;~~ and
  - in response to determining that the maintenance condition is met, sending an indication to start the maintenance operation,
  - wherein performing at least one of the preceding actions comprising the method includes execution of an instruction by a processor.
2. (Original) The method of claim 1 wherein the at least one of the resource and the energy consuming component includes at least one of a data storage medium, an output component, a mechanical component, an optical component, a registry, a directory, a database, a file, an addressable entity in a program component generated from source code, a cache, a network component, and an input component.
3. (Currently Amended) The method of claim 1 wherein the first energy cost is measured according to a metric [[is]] based on at least one of electrical energy, money, time, kinetic energy, chemical energy, heat, mechanical resistance, electrical resistance, magnetism, a count of an energy consuming operation, light, movement, mass metric, and weight.
4. (Original) The method of claim 1 wherein accessing includes at least one of receiving, transmitting, storing, requesting, copying, moving, creating, modifying, deleting, transforming, detecting, presenting, and processing a resource.

5. (Original) The method of claim 1 wherein the maintenance condition is based on at least one of electrical energy, money, time, kinetic energy, chemical energy, heat, mechanical resistance, electrical resistance, magnetism, a count of an energy consuming activity, light, movement, mass, and weight.

6. (Currently Amended) The method of claim 1 wherein the maintenance condition is based on the first energy cost ~~for performing the maintenance operation~~.

7. (Currently Amended) The measure of claim 1 further comprising receiving ~~maintenance~~ information identifying the maintenance condition from at least one of a remote node via a network, the resource, the energy consuming component, and a user.

8. (Original) The method of claim 1 wherein determining that the maintenance condition is met includes at least one of a comparison based on the first energy cost, a calculation based on the first energy cost, and an evaluation of an expression based on the first energy cost.

9. (Original) The method of claim 1 wherein the maintenance operation includes at least one of defragmenting data, deleting stored data, moving data, copying data, restructuring data, transforming data, flushing at least a portion of a data store, changing a size of a resource, installing a component, removing a component, updating a component, stopping a component, starting a component, setting a clock, and presenting an indication message to a user to perform an action.

10. (Original) The method of claim 1 wherein the maintenance operation is identified based on at least one of the resource, the energy consuming component, a type of access, an attribute of the resource, an attribute of the energy consuming component, the first energy access cost, a user input, and a message received via a network.

11. (Original) The method of claim 1 wherein sending an indication includes at least one of invoking an executable addressable entity via a processor memory address, sending a message via a network, sending a message via an inter-process communication mechanism, receiving a request and sending the indication in response, and scheduling a start time.

12. (Currently Amended) The method of claim 1 wherein the resource is included in a data store accessed via the energy consuming component and the first energy ~~access~~ cost is based on an access time for accessing the resource.

13. (Original) The method of claim 12 wherein the maintenance operation includes at least one of cleaning data, flushing data, moving data, copying data at least one of to and from the energy consuming component, restructuring the resource, translating the resource into a different representation, at least one of stopping and starting the energy consuming component, adjusting an attribute of power received by the energy consuming component, at least one of adding, modifying, and removing a source of energy for the energy consuming component, modifying an access control attribute, and prompting a user to perform an action.

14. (Currently Amended) The method of claim 12[[3]] wherein the data store is at least one of included in and includes at least one of a data base, a registry, and[[/or]] a file system.

15. (Original) The method of claim 1 wherein the resource includes a path identifier for a location of a stored resource and the maintenance operation includes at least one of modifying the path identifier and changing a location of the path identifier in a plurality of path identifiers.

16. (Original) The method of claim 1 wherein the energy consuming component includes a data storage medium and the maintenance operation includes defragmenting the resource stored in the data storage medium.

17. (Original) The method of claim 1 wherein the resource is accessed via a network from a remote node and the maintenance operation includes modifying a cache for storing at least a portion of the resource.

18. (Original) The method of claim 1 wherein the energy consuming component is an instruction-processing unit and the maintenance operation includes at least one of modifying a processor speed, modifying a cache included in the instruction-processing unit, stopping the instruction-processing unit, and starting the instruction-processing unit.

19. (Currently Amended) A system for maintaining a resource based on a cost of energy, the system comprising:

~~a cost monitor component, a maintenance test component, a maintenance link component, and a maintenance operations component adapted for operation in an execution environment;~~

a[[the]] cost monitor component that during operation of the system~~configured for~~  
~~detects[[ing]] a first energy cost, measured according to a specified metric, for accessing a~~  
~~resource via an energy consuming component in an execution environment;~~

~~a[[the]] maintenance test component that during operation of the system configured for determining[[ing]] that a configured maintenance condition is met based on [[the]] a second energy cost for performing a identified maintenance operation on at least one of the resource and the energy consuming component;~~

~~the maintenance link component configured for identifying a maintenance operation for configuring at least one of the resource and the energy consuming component for accessing the resource at a second energy cost that is less than the first energy cost; and~~

~~a[[the]] maintenance operations component that during operation of the system configured for in response to determining that the maintenance condition is met, sends[[ing]] an indication to start the maintenance operation; and~~

~~a processor that executes an instruction included in at least one of the cost monitor component, the maintenance test component, and the maintenance operations component during operation of the system.~~

20. (Currently Amended) A non-transitory computer readable medium embodying a computer program, executable by a machine, for maintaining a resource based on a cost of energy, the computer program comprising executable instructions for:

detecting a first energy cost, ~~measured according to a specified metric,~~ for accessing a resource via an energy consuming component in an execution environment;

determining that a configured maintenance condition is met based on [[the]] a second energy cost for performing an identified maintenance operation on at least one of the resource and the energy consuming component;

~~identifying a maintenance operation for configuring at least one of the resource and the energy consuming component for accessing the resource at a second energy cost that is less than the first energy cost; and~~

**REMARKS:**

Status Summary

Claims 1-20 are pending in the present application, of which claims 1, 19, and 20 are presented in independent form. Claims 1-20 stand rejected. No new claims are added by this response. Claims 1, 3, 6, 7, 12, 14, 19, and 20 are currently amended.

Amendments to the Specification

Paragraphs 0001-0003 are currently amended to provide application numbers and status of related applications incorporated by reference.

Paragraph 0032 is currently amended to recite “visual interface element handler components” as opposed to “visual interface elements” as recited in the original specification. Support for this amended is found in at least paragraph 0032 which describes “user interface element handler components” which include visual interface element handler components, audio interface element handlers, etc. Applicant submits that the amendment does not add new matter.

Applicant respectfully submits that the remaining amendments to the specification correct typographical errors, grammatical errors, punctuation errors, and/or spelling errors.

Applicant submits that none of the amendments to the specification adds new matter.

Amendments to the Claims

Claim 1 is currently amended to recite, “wherein performing at least one of the preceding actions comprising the method includes execution of an instruction by a processor”. This amendment is supported by at least paragraphs 0018-0019, 0023-0024, 0037-0041, 0043, 0069, and 0098-0099 and Figs. 1, 3, 4, and 5 of the present application. For example, paragraph 0037, in part, recites, “The system illustrated includes a cost monitor component **352**, a maintenance test component **354**, a maintenance link component **356**, and a maintenance operations component **358**. The execution environment includes an instruction-processing unit, such as IPU **104**, for processing an instruction in at least one of the cost monitor component **352**, the maintenance test component **354**, the maintenance link component **356**, and the maintenance operations component **358**”. Relating to the first element of claim 1, paragraph 0043 ties the performing the first element of claim 1 to cost monitor component **352** in reciting, “...cost monitor

component **352** is configured for detecting a first energy cost, measured according to a specified metric, for accessing a resource via an energy consuming component in an execution environment." Paragraphs 0069 and 007 tie the remaining elements respectively to maintenance test component **354** and a maintenance operations component **358**.

The second element of claim 1 is currently amended to recite, "...that a configured maintenance condition is met based on [[the]] a second energy cost for performing an identified maintenance operation on at least one of the resource and the energy consuming component". Support for this amendment and remaining amendments to claim 1 is found in at least paragraph 0089 of the present application and in claim 1 as originally presented. For example, paragraph 0089 recites, "A maintenance condition may be further based on an energy cost for performing the maintenance operation".

Claim 3 is amended to insert "...1 wherein the first energy cost is measured according to a metric is based...". Support for this amendment is found in at least original claim 1.

Regarding claim 6, support for claim 6 as currently amended is found in at least original claim 6.

Regarding claim 7, support for claim 7 as currently amended is found in at least original claim 7.

Claim 12 is amended to correct a typographical error that resulted in an error regarding antecedent basis for "first energy access cost". Support is found in at least original claim 12 and original claim 1.

Claim 14 is amended to correct a grammatical error and to depend from claim 12 rather than from claim 13. Support is found in at least original claims 12 and 14.

Claims 19 is currently amended to recite, "a processor that executes an instruction included in at least one of the cost monitor component, the maintenance test component, and the maintenance operations component during operation of the system". Support for these amendments can be found in at least paragraphs 0018-0019, 0023-0024, 0037-0041, 0043, 0069, and 0098-0099 and Figs. 1, 3, 4, and 5 of the present application for reasons analogous to those described above with respect to claim 1. Further, instances of the phrase "configured for" in claim 19 are each amended to recite "that during operation of the system". Support for the first amended instance is found in at least paragraphs 0043-0084 of the present application. For example, paragraph 0046 with respect to Fig. 4 recites, "Fig. 4 illustrates cost monitor component **452** coupled directly and/or indirectly to an electrical circuit .... Cost monitor component **452** in various aspects may determine an access cost according to one or more specified metrics. For

example, cost monitor component **452** may determine a cost based on a metric for measuring energy transferred from energy source **406** to electronic energy consuming component **404** over a period of time". Support for the second amended instance is found in at least paragraphs 0069-0073 of the present application. Support for the third amended instance is found in at least paragraphs 0077-0084 of the present application. See Claim Rejection(s) - 35 U.S.C. § 101 below for additional remarks. Further amendments to claim 19 are analogous to those in claim 1 and are supported for at least the same reasons identified for claim 1.

Claim 20 is currently amended to recite, "A non-transitory computer readable medium..." to clarify the respective scope of the claim. This amendment is supported in the present application by at least paragraph 0099, which identifies a number of non-transitory computer readable media. See Claim Rejection(s) - 35 U.S.C. § 101 below for additional remarks. Further amendments to claim 20 are analogous to those in claim 1 and are supported for at least the same reasons identified for claim 1.

Claim Rejection(s) - 35 U.S.C. § 101

Claims 19 and 20 stand rejected under 35 U.S.C. 101 by the Examiner for being directed to non-statutory subject matter.

With respect to claim 19, the Examiner states that claim 19 is directed to non-statutory subject matter of software, per se. The Examiner states that the claim lacks the necessary physical articles or objects to constitute a machine or manufacture within the meaning of 35 U.S.C. 101. The Examiner asserts that claim 19, "...is at best, function descriptive material per se".

Applicant has amended claims 19 to recite "a processor that executes an instruction included in at least one of the cost monitor component, the maintenance test component, and the maintenance operations component during operation of the system". Further, the phrase "configured for" in claim 19 is amended to recite "that during operation of the system". Support for these amendments is described above (see remarks in Amendments to the Claims).

In claim 19 the elements are performed by components, identified in the previous paragraph. The components operate in an execution environment including an instruction processing unit (See paragraph 0019 which states that an IPU is a processor) for processing an instruction in at least one the components (see remarks in Amendments to the Claims). As

currently amended, claim 19 cannot be performed through mental steps only, since purely mental steps do not include executing or processing at least one instruction by an IPU/processor as claimed.

Accordingly, applicant respectfully submits that currently amended claim 19 is directed to statutory subject matter and can no longer be construed, in any embodiment, as being directed to only software, since claim 19 includes a processor.

Claim 20 stands rejected under 35 U.S.C. 101 by the Examiner for failing to place the invention squarely within one statutory class of invention. The Examiner states, based on paragraph 0099 of the present application, that propagation and communication mediums are not a type of non-transitory hardware storage that can be read by a computer, as functional descriptive material can be recorded on this medium, nor can it become structurally and functionally interrelated to the medium. As such, the claim is drawn to non-statutory subject matter.

Applicant has amended claim 20, as suggested by the Examiner, to recite “non-transitory computer readable medium”. The amendment is supported by at least paragraph 0099 of the present application, which applicant respectfully submits identifies examples of non-transitory computer readable media.

For at least the above reasons, the applicant requests that the rejections of independent claims 19 and 20 under 35 U.S.C. §101 be withdrawn.

#### Claim Rejection(s) - 35 U.S.C. § 102

Claims 1-13 and 17-20 stand rejected under 35 U.S.C. 102(e) as being anticipated by Fadell, Anthony (U.S. 2010/0010857) (Hereinafter Fadell). This ground of rejection is respectfully traversed.

Applicant respectfully disagrees with respect to each of claims 1-13 and 17-20, and reserves all rights to pursue the original claims 1-13 and 17-20 in future prosecution, such as in a continuation and/or a broadening reissue.

As per claim 1, the Examiner states that Fadell discloses all the features of claim 1.

Applicant respectfully submits that as currently amended, Fadell does not disclose, teach, or suggest at least the feature of claim 1 of “determining that a configured maintenance condition is met based on a second energy cost for performing an identified maintenance operation on at

least one of the resource and the energy consuming component". Nowhere does Fadell describe, teach, or suggest an energy cost for performing an identified maintenance operation, much less determining that a maintenance condition is met based such an energy cost.

In view of the foregoing, it is respectfully submitted that Fadell does not disclose all of the features of claim 1 as currently amended, which is believed to be patentable for at least the reasons described above. Claims 2-13 and 17-18 are dependent upon currently amended claim 1 and are believed to be patentable for at least the same reasons.

Regarding claim 19, the Examiner states it is a system claim having similar limitations cited in claim 1. Applicant respectfully submits that currently amended claim 19 is analogous to currently amended claim 1. As such, applicant believes claim 19 to be patentable for at least the same reasons as claim 1.

Regarding claim 20, the Examiner states it is a medium claim having similar limitations cited in claim 1. Applicant respectfully submits that currently amended claim 20 is analogous to currently amended claim 1. As such, applicant believes claim 19 to be patentable for at least the same reasons as claim 1.

In view of the foregoing, it is respectfully submitted that Fadell fails to disclose all of the features of independent claims 1, 19, and 20. Claims 2-13 and 17-18 depend from claim 1 and are believed to be at least as patentable for the reasons set forth for claim 1.

Applicant respectfully requests the rejections of claims 1-13 and 17-19 under 35 U.S.C. § 102(e) be withdrawn.

Claim Rejection(s) - 35 U.S.C. § 103

Claims 14-16 stand rejected under 35 U.S.C. 103(a). Claim 14 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Fadell (U.S. 2010/0010857) as applied to claim 13 above, and further in view of Powell et al. (U.S. 2006/0036605) (Hereinafter Powell). Claim 15 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Fadell (U.S. 2010/0010857) as applied to claim 1 above, and further in view of Fujiwara et al. (U.S. 2003/0140051) (Hereinafter Fujiwara). Claim 16 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Fadell (U.S. 2010/0010857) as applied to claim 1 above, and further in view of May et al. (U.S. 2007/0294550) (Hereinafter May).

Applicant respectfully disagrees with respect to each of claims 14-16, and reserves all rights to pursue the original claims 14-16 in future prosecution, such as in a continuation and/or a broadening reissue.

Claims 14-16 are dependent upon currently amended claim 1 and are believed to be patentable for at least the same reasons as claim 1.

In view of the foregoing, Applicant respectfully requests the rejections of claims 14-16 under 35 U.S.C. § 103(a) be withdrawn.

CONCLUSION

In view of the above, it is respectfully submitted that the present application is now in proper condition for allowance, and an early notice to such effect is earnestly solicited

The Examiner is respectfully requested to telephone the undersigned inventor at the below-listed number if, after reviewing the above Remarks, the Examiner believes outstanding matters remain that may be resolved without the issuance of a subsequent Official Action.

Further, if outstanding matters remain, Applicant respectfully reminds the Examiner that under MPEP 707.07(j) that "When, during the examination of a pro se application it becomes apparent to the examiner that there is patentable subject matter disclosed in the application, the examiner should draft one or more claims for the applicant and indicate in his or her action that such claims would be allowed if incorporated in the application by amendment."

DEPOSIT ACCOUNT The Commissioner is hereby authorized to charge any additional fees, or credit any overpayment, associated with the filing of this paper to Deposit Account No. 50-5171

Respectfully submitted,

/Robert Paul Morris/

Robert Paul Morris

Applicant/Inventor

Date: February 22, 2013  
Customer No: 92924  
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Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-10)

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| <b>INFORMATION DISCLOSURE<br/>STATEMENT BY APPLICANT</b><br>( Not for submission under 37 CFR 1.99) | Application Number     |                    | 12857836   |
|                                                                                                     | Filing Date            |                    | 2010-08-17 |
|                                                                                                     | First Named Inventor   | Robert Paul Morris |            |
|                                                                                                     | Art Unit               | 2196               |            |
|                                                                                                     | Examiner Name          | Labud, Jonathan R  |            |
|                                                                                                     | Attorney Docket Number | 0123               |            |

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|                                                                                                     | Filing Date            |                    | 2010-08-17 |  |
|                                                                                                     | First Named Inventor   | Robert Paul Morris |            |  |
|                                                                                                     | Art Unit               | 2196               |            |  |
|                                                                                                     | Examiner Name          | Labud, Jonathan R  |            |  |
|                                                                                                     | Attorney Docket Number | 0123               |            |  |

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|--|----|-------------|----|------------|-----------------|--|
|  | 5  | 20050060163 | A1 | 2005-03-17 | Barsness        |  |
|  | 6  | 20060020573 | A1 | 2006-01-26 | Galindo-Legaria |  |
|  | 7  | 20070074174 | A1 | 2007-03-29 | Thornton        |  |
|  | 8  | 20100293163 | A1 | 2010-11-18 | McLachlan       |  |
|  | 9  | 20100332262 | A1 | 2010-12-30 | Hovitz          |  |
|  | 10 | 20110015802 | A1 | 2011-01-20 | Imes            |  |
|  | 11 | 20110072292 | A1 | 2011-03-24 | Mazzaferri      |  |
|  | 12 | 20120016721 | A1 | 2012-01-19 | Weinman         |  |
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| <b>INFORMATION DISCLOSURE<br/>STATEMENT BY APPLICANT</b><br>( Not for submission under 37 CFR 1.99) | Application Number     |                    | 12857836   |
|                                                                                                     | Filing Date            |                    | 2010-08-17 |
|                                                                                                     | First Named Inventor   | Robert Paul Morris |            |
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|                                                                                                     | Examiner Name          | Labud, Jonathan R  |            |
|                                                                                                     | Attorney Docket Number | 0123               |            |

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<sup>1</sup> See Kind Codes of USPTO Patent Documents at [www.USPTO.GOV](http://www.USPTO.GOV) or MPEP 901.04. <sup>2</sup> Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>3</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>4</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>5</sup> Applicant is to place a check mark here if English language translation is attached.

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| <b>INFORMATION DISCLOSURE<br/>STATEMENT BY APPLICANT</b><br>( Not for submission under 37 CFR 1.99) | Application Number     | 12857836           |
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|                                                                                                     | First Named Inventor   | Robert Paul Morris |
|                                                                                                     | Art Unit               | 2196               |
|                                                                                                     | Examiner Name          | Labud, Jonathan R  |
|                                                                                                     | Attorney Docket Number | 0123               |

### CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

**OR**

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☐ See attached certification statement.

☐ Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ None

### SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

|            |                      |                     |            |
|------------|----------------------|---------------------|------------|
| Signature  | /Robert Paul Morris/ | Date (YYYY-MM-DD)   | 2013-02-22 |
| Name/Print | Robert Paul Morris   | Registration Number |            |

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
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|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|---------------|-----------------|---------------------|-------------------------------------------------|---------------------|-------------------------------|--|
| Substitute for Form PTO-875                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                               |                                    |               |                 |                     |                                                 |                     |                               |  |
| <b>APPLICATION AS FILED – PART I</b>                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                               |                                    |               |                 |                     |                                                 |                     |                               |  |
| (Column 1)                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                               | (Column 2)                         |               | SMALL ENTITY    |                     | OR<br>OTHER THAN SMALL ENTITY                   |                     |                               |  |
| FOR                                                                                                                                                                                                                                                                                                                                                                                                                                  | NUMBER FILED                                                                                                                                                                                                                  | NUMBER EXTRA                       | RATE (\$)     | FEE (\$)        | RATE (\$)           | FEE (\$)                                        |                     |                               |  |
| BASIC FEE<br>(37 CFR 1.16(a), (b), or (c))                                                                                                                                                                                                                                                                                                                                                                                           | N/A                                                                                                                                                                                                                           | N/A                                | N/A           |                 | N/A                 |                                                 |                     |                               |  |
| SEARCH FEE<br>(37 CFR 1.16(k), (l), or (m))                                                                                                                                                                                                                                                                                                                                                                                          | N/A                                                                                                                                                                                                                           | N/A                                | N/A           |                 | N/A                 |                                                 |                     |                               |  |
| EXAMINATION FEE<br>(37 CFR 1.16(o), (p), or (q))                                                                                                                                                                                                                                                                                                                                                                                     | N/A                                                                                                                                                                                                                           | N/A                                | N/A           |                 | N/A                 |                                                 |                     |                               |  |
| TOTAL CLAIMS<br>(37 CFR 1.16(i))                                                                                                                                                                                                                                                                                                                                                                                                     | 20                                                                                                                                                                                                                            | minus 20 = *                       | 0             | x 30 =          | 0                   | x =                                             |                     |                               |  |
| INDEPENDENT CLAIMS<br>(37 CFR 1.16(h))                                                                                                                                                                                                                                                                                                                                                                                               | 3                                                                                                                                                                                                                             | minus 3 = *                        | 3             | x 125 =         | 0                   | x =                                             |                     |                               |  |
| APPLICATION SIZE FEE<br>(37 CFR 1.16(s))                                                                                                                                                                                                                                                                                                                                                                                             | If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s). |                                    |               |                 |                     |                                                 |                     |                               |  |
| MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                               |                                    |               |                 |                     |                                                 |                     |                               |  |
| * If the difference in column 1 is less than zero, enter "0" in column 2.                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                               |                                    |               |                 |                     |                                                 |                     |                               |  |
| <b>APPLICATION AS AMENDED – PART II</b>                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                               |                                    |               |                 |                     |                                                 |                     |                               |  |
| (Column 1)                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                               | (Column 2)                         |               | (Column 3)      |                     | SMALL ENTITY                                    |                     | OR<br>OTHER THAN SMALL ENTITY |  |
| <b>AMENDMENT A</b>                                                                                                                                                                                                                                                                                                                                                                                                                   | CLAIMS REMAINING AFTER AMENDMENT                                                                                                                                                                                              | HIGHEST NUMBER PREVIOUSLY PAID FOR | PRESENT EXTRA | RATE (\$)       | ADDITIONAL FEE (\$) | RATE (\$)                                       | ADDITIONAL FEE (\$) |                               |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      | Total<br>(37 CFR 1.16(i))                                                                                                                                                                                                     | * 20                               | Minus ** 20   | = 0             | x 30 =              | 0                                               | x =                 |                               |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      | Independent<br>(37 CFR 1.16(h))                                                                                                                                                                                               | * 3                                | Minus *** 3   | = 0             | x 125 =             | 0                                               | x =                 |                               |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      | Application Size Fee (37 CFR 1.16(s))                                                                                                                                                                                         |                                    |               |                 |                     |                                                 |                     |                               |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      | FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))                                                                                                                                                               |                                    |               |                 |                     |                                                 |                     |                               |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                               |                                    |               | TOTAL ADD'L FEE | 0                   |                                                 |                     |                               |  |
| <b>AMENDMENT B</b>                                                                                                                                                                                                                                                                                                                                                                                                                   | CLAIMS REMAINING AFTER AMENDMENT                                                                                                                                                                                              | HIGHEST NUMBER PREVIOUSLY PAID FOR | PRESENT EXTRA | RATE (\$)       | ADDITIONAL FEE (\$) | RATE (\$)                                       | ADDITIONAL FEE (\$) |                               |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      | Total<br>(37 CFR 1.16(i))                                                                                                                                                                                                     | *                                  | Minus **      | =               | x =                 |                                                 | x =                 |                               |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      | Independent<br>(37 CFR 1.16(h))                                                                                                                                                                                               | *                                  | Minus ***     | =               | x =                 |                                                 | x =                 |                               |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      | Application Size Fee (37 CFR 1.16(s))                                                                                                                                                                                         |                                    |               |                 |                     |                                                 |                     |                               |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      | FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))                                                                                                                                                               |                                    |               |                 |                     |                                                 |                     |                               |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                               |                                    |               | TOTAL ADD'L FEE | 0                   |                                                 |                     |                               |  |
| <p>* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.</p> <p>** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".</p> <p>*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".</p> <p>The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.</p> |                                                                                                                                                                                                                               |                                    |               |                 |                     |                                                 |                     |                               |  |

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

| Electronic Patent Application Fee Transmittal  |                 |                                                                                                      |               |                             |
|------------------------------------------------|-----------------|------------------------------------------------------------------------------------------------------|---------------|-----------------------------|
| <b>Application Number:</b>                     |                 | 12857836                                                                                             |               |                             |
| <b>Filing Date:</b>                            |                 | 17-Aug-2010                                                                                          |               |                             |
| <b>Title of Invention:</b>                     |                 | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR MAINTAINING A RESOURCE BASED ON A COST OF ENERGY |               |                             |
| <b>First Named Inventor/Applicant Name:</b>    |                 | Robert Paul Morris                                                                                   |               |                             |
| <b>Filer:</b>                                  |                 | Robert Paul Morris                                                                                   |               |                             |
| <b>Attorney Docket Number:</b>                 |                 | 0123                                                                                                 |               |                             |
| Filed as Small Entity                          |                 |                                                                                                      |               |                             |
| <b>Utility under 35 USC 111(a) Filing Fees</b> |                 |                                                                                                      |               |                             |
| <b>Description</b>                             | <b>Fee Code</b> | <b>Quantity</b>                                                                                      | <b>Amount</b> | <b>Sub-Total in USD(\$)</b> |
| <b>Basic Filing:</b>                           |                 |                                                                                                      |               |                             |
| <b>Pages:</b>                                  |                 |                                                                                                      |               |                             |
| <b>Claims:</b>                                 |                 |                                                                                                      |               |                             |
| <b>Miscellaneous-Filing:</b>                   |                 |                                                                                                      |               |                             |
| <b>Petition:</b>                               |                 |                                                                                                      |               |                             |
| <b>Patent-Appeals-and-Interference:</b>        |                 |                                                                                                      |               |                             |
| <b>Post-Allowance-and-Post-Issuance:</b>       |                 |                                                                                                      |               |                             |
| <b>Extension-of-Time:</b>                      |                 |                                                                                                      |               |                             |

| Description                             | Fee Code | Quantity | Amount | Sub-Total in USD(\$) |
|-----------------------------------------|----------|----------|--------|----------------------|
| <b>Miscellaneous:</b>                   |          |          |        |                      |
| Submission- Information Disclosure Stmt | 1806     | 1        | 180    | 180                  |
| <b>Total in USD (\$)</b>                |          |          |        | <b>180</b>           |

| Electronic Acknowledgement Receipt          |                                                                                                      |
|---------------------------------------------|------------------------------------------------------------------------------------------------------|
| <b>EFS ID:</b>                              | 15022114                                                                                             |
| <b>Application Number:</b>                  | 12857836                                                                                             |
| <b>International Application Number:</b>    |                                                                                                      |
| <b>Confirmation Number:</b>                 | 4718                                                                                                 |
| <b>Title of Invention:</b>                  | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR MAINTAINING A RESOURCE BASED ON A COST OF ENERGY |
| <b>First Named Inventor/Applicant Name:</b> | Robert Paul Morris                                                                                   |
| <b>Customer Number:</b>                     | 92924                                                                                                |
| <b>Filer:</b>                               | Robert Paul Morris                                                                                   |
| <b>Filer Authorized By:</b>                 |                                                                                                      |
| <b>Attorney Docket Number:</b>              | 0123                                                                                                 |
| <b>Receipt Date:</b>                        | 22-FEB-2013                                                                                          |
| <b>Filing Date:</b>                         | 17-AUG-2010                                                                                          |
| <b>Time Stamp:</b>                          | 06:18:55                                                                                             |
| <b>Application Type:</b>                    | Utility under 35 USC 111(a)                                                                          |

### Payment information:

|                                                                                                                                                                                                                                                                                                                                                     |                     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| Submitted with Payment                                                                                                                                                                                                                                                                                                                              | yes                 |
| Payment Type                                                                                                                                                                                                                                                                                                                                        | Credit Card         |
| Payment was successfully received in RAM                                                                                                                                                                                                                                                                                                            | \$180               |
| RAM confirmation Number                                                                                                                                                                                                                                                                                                                             | 7902                |
| Deposit Account                                                                                                                                                                                                                                                                                                                                     | 505171              |
| Authorized User                                                                                                                                                                                                                                                                                                                                     | MORRIS, ROBERT PAUL |
| <p>The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:</p> <p>Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)</p> <p>Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)</p> |                     |

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# File Listing:

| Document Number              | Document Description                                  | File Name                    | File Size(Bytes)/ Message Digest                   | Multi Part /.zip | Pages (if appl.) |
|------------------------------|-------------------------------------------------------|------------------------------|----------------------------------------------------|------------------|------------------|
| 1                            |                                                       | 0123-OA-NF-Response-1.pdf    | 202361<br>2febcb15e2a7641c419d45346664af0ba2187183 | yes              | 14               |
|                              | Multipart Description/PDF files in .zip description   |                              |                                                    |                  |                  |
|                              | Document Description                                  |                              | Start                                              | End              |                  |
|                              | Amendment/Req. Reconsideration-After Non-Final Reject |                              | 1                                                  | 1                |                  |
|                              | Specification                                         |                              | 2                                                  | 4                |                  |
|                              | Claims                                                |                              | 5                                                  | 8                |                  |
|                              | Applicant Arguments/Remarks Made in an Amendment      |                              | 9                                                  | 14               |                  |
| Warnings:                    |                                                       |                              |                                                    |                  |                  |
| Information:                 |                                                       |                              |                                                    |                  |                  |
| 2                            | Information Disclosure Statement (IDS) Form (SB08)    | 0123-US_IDS_Form__SB_08a.pdf | 612771<br>791bf2d76a85e0a4e6352e073d4f70cc2b2f5a3c | no               | 5                |
| Warnings:                    |                                                       |                              |                                                    |                  |                  |
| Information:                 |                                                       |                              |                                                    |                  |                  |
| 3                            | Fee Worksheet (SB06)                                  | 0123-FeeWrkSheet-sb0006.pdf  | 162139<br>15df8ab6c3df67ba754fb9135a437d487b4c1181 | no               | 2                |
| Warnings:                    |                                                       |                              |                                                    |                  |                  |
| Information:                 |                                                       |                              |                                                    |                  |                  |
| 4                            | Fee Worksheet (SB06)                                  | fee-info.pdf                 | 30181<br>3caf213dba89cc153f02c445fa798df48411f998  | no               | 2                |
| Warnings:                    |                                                       |                              |                                                    |                  |                  |
| Information:                 |                                                       |                              |                                                    |                  |                  |
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**New Applications Under 35 U.S.C. 111**

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

**National Stage of an International Application under 35 U.S.C. 371**

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

**New International Application Filed with the USPTO as a Receiving Office**

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

| <b>PATENT APPLICATION FEE DETERMINATION RECORD</b><br>Substitute for Form PTO-875                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                               |                                  |           | Application or Docket Number<br><b>12/857,836</b>   |               | Filing Date<br><b>08/17/2010</b> |                     | <input type="checkbox"/> To be Mailed |                 |                     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|-----------|-----------------------------------------------------|---------------|----------------------------------|---------------------|---------------------------------------|-----------------|---------------------|
| <b>APPLICATION AS FILED – PART I</b>                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                               |                                  |           |                                                     |               |                                  |                     |                                       |                 |                     |
| (Column 1)                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                               | (Column 2)                       |           | SMALL ENTITY <input checked="" type="checkbox"/> OR |               | OTHER THAN SMALL ENTITY          |                     |                                       |                 |                     |
| FOR                                                                                                                                                                                                                                                                                                                                                                                                                                  | NUMBER FILED                                                                                                                                                                                                                  | NUMBER EXTRA                     | RATE (\$) | FEE (\$)                                            |               | RATE (\$)                        | FEE (\$)            |                                       |                 |                     |
| <input type="checkbox"/> BASIC FEE<br>(37 CFR 1.16(a), (b), or (c))                                                                                                                                                                                                                                                                                                                                                                  | N/A                                                                                                                                                                                                                           | N/A                              | N/A       |                                                     |               | N/A                              |                     |                                       |                 |                     |
| <input type="checkbox"/> SEARCH FEE<br>(37 CFR 1.16(k), (j), or (m))                                                                                                                                                                                                                                                                                                                                                                 | N/A                                                                                                                                                                                                                           | N/A                              | N/A       |                                                     |               | N/A                              |                     |                                       |                 |                     |
| <input type="checkbox"/> EXAMINATION FEE<br>(37 CFR 1.16(o), (p), or (q))                                                                                                                                                                                                                                                                                                                                                            | N/A                                                                                                                                                                                                                           | N/A                              | N/A       |                                                     |               | N/A                              |                     |                                       |                 |                     |
| TOTAL CLAIMS<br>(37 CFR 1.16(i))                                                                                                                                                                                                                                                                                                                                                                                                     | minus 20 =                                                                                                                                                                                                                    | *                                | X \$ =    |                                                     | OR            | X \$ =                           |                     |                                       |                 |                     |
| INDEPENDENT CLAIMS<br>(37 CFR 1.16(h))                                                                                                                                                                                                                                                                                                                                                                                               | minus 3 =                                                                                                                                                                                                                     | *                                | X \$ =    |                                                     |               | X \$ =                           |                     |                                       |                 |                     |
| <input type="checkbox"/> APPLICATION SIZE FEE<br>(37 CFR 1.16(s))                                                                                                                                                                                                                                                                                                                                                                    | If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s). |                                  |           |                                                     |               |                                  |                     |                                       |                 |                     |
| <input type="checkbox"/> MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                               |                                  |           |                                                     |               |                                  |                     |                                       |                 |                     |
| * If the difference in column 1 is less than zero, enter "0" in column 2.                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                               |                                  | TOTAL     |                                                     |               | TOTAL                            |                     |                                       |                 |                     |
| <b>APPLICATION AS AMENDED – PART II</b>                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                               |                                  |           |                                                     |               |                                  |                     |                                       |                 |                     |
| (Column 1)                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                               | (Column 2)                       |           | (Column 3)                                          |               | SMALL ENTITY OR                  |                     | OTHER THAN SMALL ENTITY               |                 |                     |
| <b>AMENDMENT</b>                                                                                                                                                                                                                                                                                                                                                                                                                     | <b>02/22/2013</b>                                                                                                                                                                                                             | CLAIMS REMAINING AFTER AMENDMENT |           | HIGHEST NUMBER PREVIOUSLY PAID FOR                  | PRESENT EXTRA | RATE (\$)                        | ADDITIONAL FEE (\$) |                                       | RATE (\$)       | ADDITIONAL FEE (\$) |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      | Total (37 CFR 1.16(j))                                                                                                                                                                                                        | * 20                             | Minus     | ** 20                                               | = 0           | X \$31 =                         | 0                   | OR                                    | X \$ =          |                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      | Independent (37 CFR 1.16(h))                                                                                                                                                                                                  | * 3                              | Minus     | *** 3                                               | = 0           | X \$125 =                        | 0                   | OR                                    | X \$ =          |                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      | <input type="checkbox"/> Application Size Fee (37 CFR 1.16(s))                                                                                                                                                                |                                  |           |                                                     |               |                                  |                     |                                       |                 |                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      | <input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))                                                                                                                                      |                                  |           |                                                     |               |                                  |                     | OR                                    |                 |                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                               |                                  |           |                                                     |               | TOTAL ADD'L FEE                  | <b>0</b>            | OR                                    | TOTAL ADD'L FEE |                     |
| <b>AMENDMENT</b>                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                               | CLAIMS REMAINING AFTER AMENDMENT |           | HIGHEST NUMBER PREVIOUSLY PAID FOR                  | PRESENT EXTRA | RATE (\$)                        | ADDITIONAL FEE (\$) |                                       | RATE (\$)       | ADDITIONAL FEE (\$) |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      | Total (37 CFR 1.16(j))                                                                                                                                                                                                        | *                                | Minus     | **                                                  | =             | X \$ =                           |                     | OR                                    | X \$ =          |                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      | Independent (37 CFR 1.16(h))                                                                                                                                                                                                  | *                                | Minus     | ***                                                 | =             | X \$ =                           |                     | OR                                    | X \$ =          |                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      | <input type="checkbox"/> Application Size Fee (37 CFR 1.16(s))                                                                                                                                                                |                                  |           |                                                     |               |                                  |                     |                                       |                 |                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      | <input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))                                                                                                                                      |                                  |           |                                                     |               |                                  |                     | OR                                    |                 |                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                               |                                  |           |                                                     |               | TOTAL ADD'L FEE                  |                     | OR                                    | TOTAL ADD'L FEE |                     |
| <p>* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.</p> <p>** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".</p> <p>*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".</p> <p>The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.</p> |                                                                                                                                                                                                                               |                                  |           |                                                     |               |                                  |                     |                                       |                 |                     |

Legal Instrument Examiner:  
/TRINA STEPTOE/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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|                 |             |                      |                     |                  |
|-----------------|-------------|----------------------|---------------------|------------------|
| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
| 12/857,836      | 08/17/2010  | Robert Paul Morris   | 0123                | 4718             |

|                            |      |            |
|----------------------------|------|------------|
| 92924                      | 7590 | 11/23/2012 |
| Small Pond Associates, LLC |      |            |
| Robert Paul Morris         |      |            |
| 712 Latta Street           |      |            |
| Raleigh, NC 27607          |      |            |

|                   |  |
|-------------------|--|
| EXAMINER          |  |
| LABUD, JONATHAN R |  |

|          |              |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
| 2196     |              |

|                   |               |
|-------------------|---------------|
| NOTIFICATION DATE | DELIVERY MODE |
| 11/23/2012        | ELECTRONIC    |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

paul.morris@nc.rr.com  
rpmorris@yahoo.com

|                              |                                      |                                            |  |
|------------------------------|--------------------------------------|--------------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>12/857,836 | <b>Applicant(s)</b><br>MORRIS, ROBERT PAUL |  |
|                              | <b>Examiner</b><br>JONATHAN R. LABUD | <b>Art Unit</b><br>2196                    |  |

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) ☒ Responsive to communication(s) filed on 17 August 2010.

2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.

3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on \_\_\_\_; the restriction requirement and election have been incorporated into this action.

4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

5) ☒ Claim(s) 1-20 is/are pending in the application.  
5a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.

6) ☐ Claim(s) \_\_\_\_ is/are allowed.

7) ☒ Claim(s) 1-20 is/are rejected.

8) ☐ Claim(s) \_\_\_\_ is/are objected to.

9) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

\* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see [http://www.uspto.gov/patents/init\\_events/pph/index.jsp](http://www.uspto.gov/patents/init_events/pph/index.jsp) or send an inquiry to [PPHfeedback@uspto.gov](mailto:PPHfeedback@uspto.gov).

**Application Papers**

10) ☐ The specification is objected to by the Examiner.

11) ☒ The drawing(s) filed on 17 August 2010 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

**Priority under 35 U.S.C. § 119**

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some    \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)

2) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 08/17/2010.

3) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.

4) ☐ Other: \_\_\_\_.

**DETAILED ACTION**

1. The instant application having Application No. 12/857,836 filed on 17 August 2010 where claims 1-20 are presented for examination by the examiner.

***Examiner Notes***

2. Examiner cites particular paragraphs or columns and lines in the references as applied to the claims below for the convenience of the applicant. Although the specified citations are representative of the teachings in the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested that, in preparing responses, the applicant fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the examiner.

***Information Disclosure Statement***

3. As required by M.P.E.P. 609, the applicant's submissions of the Information Disclosure Statement dated 17 August 2010 is acknowledged by the examiner and the cited references have been considered in the examination of the claims now pending.

***Claim Rejections - 35 USC § 101***

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 19 and 20 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 19 is rejected under 35 U.S.C. 101 as directed to non-statutory subject matter of software, *per se*. The claim lacks the necessary physical articles or objects to constitute a machine or manufacture within the meaning of 35 U.S.C. 101. It is clearly not a series of steps or acts to be a process nor is it a combination of chemical compounds to be a composition of matter. As such, it fails to fall within a statutory category. It is at best, function descriptive material *per se*. In this case, applicant has claimed "A system for maintaining...the system comprising: a cost monitor component, a maintenance test component, a maintenance link component, and a maintenance operations component adapted for operation in an execution environment..." In paragraph [0023] of the instant specification, Applicants state that "execution environment 102 may include software components..." Therefore, the components of claim 19 are directed to non-statutory subject matter as computer programs, *per se*, i.e. the descriptions or expressions of the programs, are not physical "things." They are neither computer components nor statutory processes, as they are not "acts" being performed. Such claimed computer programs do not define any structural and functional interrelationships between the computer program and other claimed elements of a computer, which permit the computer program's functionality to be realized.

Claim 20 is rejected under 35 U.S.C. 101 because the claim fails to place the invention squarely within one statutory class of invention. Applicants claim a “computer readable medium embodying a computer program...” (see claim 20 line 1), however, in paragraph [0099] the instant specification, Applicants have provided evidence that said computer readable medium “may include one or more of any suitable media for storing the executable instructions of a computer program in one or more of an electronic, magnetic, optical, electromagnetic, and infrared form...”

Propagation and communication mediums are not a type of non-transitory hardware storage that can be read by a computer, as functional descriptive material can be recorded on this medium, nor can it become structurally and functionally interrelated to the medium. As such, the claim is drawn to non-statutory subject matter.

Examiner suggests changes to claim 20 such as a “non-transitory computer readable storage medium embodying a computer program...” in order to draw the claim to a non-transitory computer readable storage medium, such as a portable compact disc (CD), a portable digital video disc (DVD), a high definition DVD, and a Blu-ray, such forms of non-transitory computer readable storage media disclosed in paragraph [0099] of the instant specification.

### ***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-13 and 17-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Fadell, Anthony (U.S. 2010/0010857) (Hereinafter Fadell).

As per claim 1, Fadell discloses a method for maintaining a resource based on a cost of energy (see for example Fadell, paragraphs [0004]-[0007], this limitation is disclosed such that the performance of electronic device (i.e. resource) operations is controlled based on the power cost (i.e. cost of energy) associated with the operations), the method comprising:

detecting a first energy cost, measured according to a specified metric, for accessing a resource via an energy consuming component in an execution environment (see for example Fadell, paragraph [0005], this limitation is disclosed such that the power requirements (i.e. energy cost) for accessing a particular electronic device via required components such as the processor (i.e. an energy consuming component) are determined);

determining that a configured maintenance condition is met based on the energy cost (see for example Fadell, Figure 5 and associated text, this limitation is disclosed such that a process (i.e. maintenance operation) has settings (i.e. configured condition) to determine whether a power cost (i.e. energy cost) is met);

identifying a maintenance operation for configuring at least one of the resource and the energy consuming component for accessing the resource at a second energy cost that is less than the first energy cost (see for example Fadell, Figure 6 and associated text, this limitation is disclosed such that power consumption characteristic are redefined for a process (i.e. a second

energy cost less than the first energy cost are found by a process 600 (i.e. maintenance operation for configuring access at a second energy cost)); and

in response to determining that the maintenance condition is met, sending an indication to start the maintenance operation (see for example Fadell, Figure 9 and associated text, this limitation is disclosed such that if the power consumption limit (i.e. maintenance condition) is met in step 908, processing is performed in step 914 (i.e. an indication to start the operation is sent)).

As per claim 2, Fadell discloses the limitation wherein the at least one of the resource and the energy consuming component includes at least one of a data storage medium, an output component, a mechanical component, an optical component, a registry, a directory, a database, a file, an addressable entity in a program component generated from source code, a cache, a network component, and an input component (see for example Fadell, paragraph [0005]).

As per claim 3, Fadell discloses the limitation wherein the metric is based on at least one of electrical energy, money, time, kinetic energy, chemical energy, heat, mechanical resistance, electrical resistance, magnetism, a count of an energy consuming operation, light, movement, mass metric, and weight (see for example Fadell, paragraphs [0007]-[0009]).

As per claim 4, Fadell discloses the limitation wherein accessing includes at least one of receiving, transmitting, storing, requesting, copying, moving, creating, modifying, deleting, transforming, detecting, presenting, and processing a resource (see for example Fadell, paragraph [0005]).

As per claim 5, Fadell discloses the limitation wherein the maintenance condition is based on at least one of electrical energy, money, time, kinetic energy, chemical energy, heat,

mechanical resistance, electrical resistance, magnetism, a count of an energy consuming activity, light, movement, mass, and weight (see for example Fadell, paragraph [0009]).

As per claim 6, Fadell discloses the limitation wherein the maintenance condition is based on the first energy cost for performing the maintenance operation (see for example Fadell, Figure 5 and associated text, this limitation is disclosed such that a process has an initial power cost setting (i.e. maintenance condition based on first energy cost) for determining when processing occurs).

As per claim 7, Fadell discloses receiving maintenance information identifying the maintenance condition from at least one of a remote node via a network, the resource, the energy consuming component, and a user (see for example Fadell, paragraph [0037], this limitation is disclosed such that power management settings (i.e. maintenance information identifying maintenance conditions) can be set by a user).

As per claim 8, Fadell discloses the limitation wherein determining that the maintenance condition is met includes at least one of a comparison based on the first energy cost, a calculation based on the first energy cost, and an evaluation of an expression based on the first energy cost (see for example Fadell, Figures 5, 7 and associated text).

As per claim 9, Fadell discloses the limitation wherein the maintenance operation includes at least one of defragmenting data, deleting stored data, moving data, copying data, restructuring data, transforming data, flushing at least a portion of a data store, changing a size of a resource, installing a component, removing a component, updating a component, stopping a component, starting a component, setting a clock, and presenting an indication message to a user

to perform an action (see for example Fadell, paragraph [0005], this limitation is disclosed such that the operation includes a file transfer operation (i.e. moving data)).

As per claim 10, Fadell discloses the limitation wherein the maintenance operation is identified based on at least one of the resource, the energy consuming component, a type of access, an attribute of the resource, an attribute of the energy consuming component, the first energy access cost, a user input, and a message received via a network (see for example Fadell, Figure 8 and associated text, this limitation is disclosed such that a process to be performed is identified by the electronic device (i.e. process is identified based on the resource)).

As per claim 11, Fadell discloses the limitation wherein sending an indication includes at least one of invoking an executable addressable entity via a processor memory address, sending a message via a network, sending a message via an inter-process communication mechanism, receiving a request and sending the indication in response, and scheduling a start time (see for example Fadell, paragraph [0025]).

As per claim 12, Fadell discloses the limitation wherein the resource is included in a data store accessed via the energy consuming component and the first energy access cost is based on an access time for accessing the resource (see for example Fadell, paragraphs [0005] and [0040], this limitation is disclosed such that the cost of power varies according to time (i.e. energy access time is based on an access time), and a file transfer operation (i.e. transfer operation on a file resource) can require a hard drive (i.e. data store)).

As per claim 13, Fadell discloses the limitation wherein the maintenance operation includes at least one of cleaning data, flushing data, moving data, copying data at least one of to and from the energy consuming component, restructuring the resource, translating the resource

into a different representation, at least one of stopping and starting the energy consuming component, adjusting an attribute of power received by the energy consuming component, at least one of adding, modifying, and removing a source of energy for the energy consuming component, modifying an access control attribute, and prompting a user to perform an action (see for example Fadell, Figure 6 Item 612 and associated text, this limitation is disclosed such that power consumption characteristics can be redefined (i.e. attribute of power is adjusted)).

As per claim 17, Fadell discloses the limitation wherein the resource is accessed via a network from a remote node and the maintenance operation includes modifying a cache for storing at least a portion of the resource (see for example Fadell, paragraphs [0010] and [0026], this limitation is disclosed such that electronic devices can be connected to other electronic devices in a network, and a cache memory is used).

As per claim 18, Fadell discloses the limitation wherein the energy consuming component is an instruction-processing unit and the maintenance operation includes at least one of modifying a processor speed, modifying a cache included in the instruction-processing unit, stopping the instruction-processing unit, and starting the instruction-processing unit (see for example Fadell, Figure 1 Item 102 and associated text, paragraph [0048], this limitation is disclosed such that there exists a processor (i.e. energy consuming component which is an instruction-processing unit), wherein execution of a process can started and stopped in response to amount of power available (maintenance operation includes starting and stopping of instruction-processing unit)).

Regarding claim 19, it is a system claim having similar limitations cited in claim 1. Moreover, Fadell discloses a cost monitor component (see for example Fadell, Figure 7 and

associated text), a maintenance test component (see for example Fadell, Figure 5 and associated text), a maintenance link component (see for example, Figure 6 and associated text), and a maintenance operations component (see for example Fadell, Figure 1 Item 110 and associated text). Thus, claim 19 is also rejected under the same rationales as cited in the rejection of claim 1.

Regarding claim 20, it is a medium claim having similar limitations cited in claim 1. Thus, claim 20 is also rejected under the same rationales as cited in the rejection of claim 1.

### ***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fadell (U.S. 2010/0010857) as applied to claim 13 above, and further in view of Powell et al. (U.S. 2006/0036605) (Hereinafter Powell).

As per claim 14, Fadell discloses the method of claim 13 (see rejection of claim 13 above), but does not explicitly teach the limitation wherein the data store is at least one of included in and includes at least one of a data base, a registry, and/or a file system.

However, Powell discloses the limitation wherein the data store is at least one of included in and includes at least one of a data base, a registry, and/or a file system (see for example

Powell, paragraph [0025], this limitation is disclosed such that a policy manager implementing a power management scheme monitors the status of files and objects accessible via a file system).

Fadell in view of Powell is analogous art because they are from the same field of endeavor, system management.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method as taught by Fadell by managing file systems as taught by Powell because it would enhance the teaching of Fadell with an effective means of implementing power management techniques in regard to file access activity (as suggested by Powell, see for example paragraph [0025]).

10. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fadell (U.S. 2010/0010857) as applied to claim 1 above, and further in view of Fujiwara et al. (U.S. 2003/0140051) (Hereinafter Fujiwara).

As per claim 15, Fadell discloses the method of claim 1 (see rejection of claim 1 above), but does not explicitly teach the limitation wherein the resource includes a path identifier for a location of a stored resource and the maintenance operation includes at least one of modifying the path identifier and changing a location of the path identifier in a plurality of path identifiers.

However, Fujiwara discloses the limitation wherein the resource includes a path identifier for a location of a stored resource and the maintenance operation includes at least one of modifying the path identifier and changing a location of the path identifier in a plurality of path identifiers (see for example Fujiwara, paragraph [0043], this limitation is disclosed such that the

file path name (i.e. path identifier) of a file stored in a storage location is updated (i.e. modified in a maintenance operation) in a configuration change).

Fadell in view of Fujiwara is analogous art because they are from the same field of endeavor, system management.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method as taught by Fadell by updating a file path as taught by Fujiwara because it would enhance the teaching of Fadell with an effective means of reducing maintenance overheads (as suggested by Fujiwara, see for example paragraph [0043]).

11. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fadell (U.S. 2010/0010857) as applied to claim 1 above, and further in view of May et al. (U.S. 2007/0294550) (Hereinafter May).

As per claim 16, Fadell discloses the method of claim 1 (see rejection of claim 1 above), but does not explicitly teach the limitation wherein the energy consuming component includes a data storage medium and the maintenance operation includes defragmenting the resource stored in the data storage medium.

However, May discloses the limitation wherein the energy consuming component includes a data storage medium and the maintenance operation includes defragmenting the resource stored in the data storage medium (see for example May, paragraph [0029], this limitation is disclosed such that defragmentation (i.e. maintenance operation) is performed on RAM (i.e. data storage medium)).

Fadell in view of May is analogous art because they are from the same field of endeavor, system management.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method as taught by Fadell by considering power as factor in defragmentation as taught by May because it would enhance the teaching of Fadell with an effective means of defragmenting in a very power efficient reduced power mode (as suggested by May, see for example paragraph [0029]).

### *Conclusion*

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Labud whose telephone number is 571-270-5174. The examiner can normally be reached on Monday to Thursday 10:00 AM to 4:00 PM.

If attempts to reach the above noted Examiner by telephone are unsuccessful, the Examiner's supervisor, Emerson Puente, can be reached at the following telephone number: (571) 272-3652.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have

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questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

November 8, 2012  
/J. R. L./  
Jonathan Labud  
Examiner Art Unit 2196

/Emerson C Puente/  
Supervisory Patent Examiner, Art Unit 2196

|                                   |                                       |                                                                   |             |
|-----------------------------------|---------------------------------------|-------------------------------------------------------------------|-------------|
| <b>Notice of References Cited</b> | Application/Control No.<br>12/857,836 | Applicant(s)/Patent Under<br>Reexamination<br>MORRIS, ROBERT PAUL |             |
|                                   | Examiner<br>JONATHAN R. LABUD         | Art Unit<br>2196                                                  | Page 1 of 1 |

**U.S. PATENT DOCUMENTS**

| * |   | Document Number<br>Country Code-Number-Kind Code | Date<br>MM-YYYY | Name            | Classification |
|---|---|--------------------------------------------------|-----------------|-----------------|----------------|
| * | A | US-2003/0140051 A1                               | 07-2003         | Fujiwara et al. | 707/100        |
| * | B | US-2006/0036605 A1                               | 02-2006         | Powell et al.   | 707/010        |
| * | C | US-2007/0294550 A1                               | 12-2007         | May et al.      | 713/320        |
| * | D | US-2010/0010857 A1                               | 01-2010         | Fadell, Anthony | 705/8          |
|   | E | US-                                              |                 |                 |                |
|   | F | US-                                              |                 |                 |                |
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|   | H | US-                                              |                 |                 |                |
|   | I | US-                                              |                 |                 |                |
|   | J | US-                                              |                 |                 |                |
|   | K | US-                                              |                 |                 |                |
|   | L | US-                                              |                 |                 |                |
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|   | S |                                                  |                 |         |      |                |
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**NON-PATENT DOCUMENTS**

| * |   | Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages) |
|---|---|-------------------------------------------------------------------------------------------|
|   | U |                                                                                           |
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\*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)  
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|--------------------------------------------------------------------------------------------------------------|------------------------------------------------|---------------------------------------------------------------------------|
| <b>Search Notes</b><br><br> | <b>Application/Control No.</b><br><br>12857836 | <b>Applicant(s)/Patent Under Reexamination</b><br><br>MORRIS, ROBERT PAUL |
|                                                                                                              | <b>Examiner</b><br><br>JONATHAN R LABUD        | <b>Art Unit</b><br><br>2196                                               |

| SEARCHED |          |      |          |
|----------|----------|------|----------|
| Class    | Subclass | Date | Examiner |
|          |          |      |          |

| SEARCH NOTES                                                         |          |          |
|----------------------------------------------------------------------|----------|----------|
| Search Notes                                                         | Date     | Examiner |
| EAST (see search history printout)                                   | 11/08/12 | /J.R.L./ |
| NPL Search (www.google.com, www.scholar.google.com, IEEE, ACM)       | 11/08/12 | /J.R.L./ |
| EIC 2100 NPL Resources                                               | 11/08/12 | /J.R.L./ |
| Consulted SPE in Art Unit 2196                                       | 11/08/12 | /J.R.L./ |
| Inventors Search (EAST and PALM)                                     | 11/08/12 | /J.R.L./ |
| 718/100,102,104,105 (text search only - see search history printout) | 11/08/12 | /J.R.L./ |

| INTERFERENCE SEARCH |          |      |          |
|---------------------|----------|------|----------|
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Receipt date: 08/17/2010

Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Filed

12857836 - GALL:2196

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| <b>INFORMATION DISCLOSURE<br/>STATEMENT BY APPLICANT</b><br>( Not for submission under 37 CFR 1.99) | Application Number     |                    | 12857836   |  |
|                                                                                                     | Filing Date            |                    | 2010-08-17 |  |
|                                                                                                     | First Named Inventor   | Robert Paul Morris |            |  |
|                                                                                                     | Art Unit               | 2196               |            |  |
|                                                                                                     | Examiner Name          | Jonathan Labud     |            |  |
|                                                                                                     | Attorney Docket Number | 0123               |            |  |

| U.S.PATENTS                                                                                                |         |                                      |                             |                        |                                                 |                                                                        | Remove                                                                 |                          |
|------------------------------------------------------------------------------------------------------------|---------|--------------------------------------|-----------------------------|------------------------|-------------------------------------------------|------------------------------------------------------------------------|------------------------------------------------------------------------|--------------------------|
| Examiner Initial*                                                                                          | Cite No | Patent Number                        | Kind Code <sup>1</sup>      | Issue Date             | Name of Patentee or Applicant of cited Document | Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear |                                                                        |                          |
|                                                                                                            | 1       | 7242920                              | B2                          | 2007-07-10             | Morris                                          |                                                                        |                                                                        |                          |
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|                                                                                                            | 1       | 20100157821                          | A1                          | 2010-06-24             | Morris                                          |                                                                        |                                                                        |                          |
|                                                                                                            | 2       | 20080263375                          | A1                          | 2008-10-23             | Sundstrom                                       |                                                                        |                                                                        |                          |
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| <b>INFORMATION DISCLOSURE<br/>STATEMENT BY APPLICANT</b><br>( Not for submission under 37 CFR 1.99) | Receipt date: 08/17/2010 |  | Application Number     | 12857836 - GAU: 2196 |  |
|                                                                                                     |                          |  | Filing Date            | 2010-08-17           |  |
|                                                                                                     |                          |  | First Named Inventor   | Robert Paul Morris   |  |
|                                                                                                     |                          |  | Art Unit               | 2196                 |  |
|                                                                                                     |                          |  | Examiner Name          | Jonathan Labud       |  |
|                                                                                                     |                          |  | Attorney Docket Number | 0123                 |  |

| Examiner Initials*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Cite No          | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published. | T <sup>5</sup>             |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 1                |                                                                                                                                                                                                                                                                 | <input type="checkbox"/>   |
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| <b>EXAMINER SIGNATURE</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                  |                                                                                                                                                                                                                                                                 |                            |
| Examiner Signature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | /Jonathan Labud/ |                                                                                                                                                                                                                                                                 | Date Considered 11/01/2012 |
| *EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.                                                                                                                                                                                                                                                                                                                                                                                                  |                  |                                                                                                                                                                                                                                                                 |                            |
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## EAST Search History

## EAST Search History (Prior Art)

| Ref # | Hits | Search Query                                                                                                         | DBs                                                                     | Default Operator | Plurals | Time Stamp       |
|-------|------|----------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|------------------|---------|------------------|
| L1    | 35   | ("718/100,102,104,105").ccls. and (power same manag\$5 same (database registry (file adj system\$1)) same access\$3) | US-PGPUB;<br>USPAT;<br>USOCR; FPRS;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR               | OFF     | 2012/11/08 16:39 |
| S1    | 25   | morris-robert.in.                                                                                                    | US-PGPUB;<br>USPAT;<br>USOCR; FPRS;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR               | OFF     | 2012/11/01 12:37 |
| S2    | 2    | US-7242920-\$.DID. OR US-20080263375-\$.DID.                                                                         | US-PGPUB;<br>USPAT;<br>USOCR                                            | OR               | OFF     | 2012/11/01 12:37 |
| S3    | 315  | morris-robert-p\$.in.                                                                                                | US-PGPUB;<br>USPAT;<br>USOCR; FPRS;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR               | OFF     | 2012/11/01 12:38 |
| S4    | 41   | morris-robert-p\$.in. and power and manag\$5                                                                         | US-PGPUB;<br>USPAT;<br>USOCR; FPRS;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR               | OFF     | 2012/11/01 12:39 |
| S5    | 4    | morris-robert-p\$.in. and (energy same cost).clm.                                                                    | US-PGPUB;<br>USPAT;<br>USOCR; FPRS;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR               | OFF     | 2012/11/01 12:39 |
| S6    | 3    | US-20070211743-\$.DID. OR US-7941427-\$.DID. OR US-8131843-\$.DID.                                                   | US-PGPUB;<br>USPAT;<br>USOCR                                            | OR               | OFF     | 2012/11/01 12:45 |
| S7    | 2    | "8150539".did.                                                                                                       | US-PGPUB;<br>USPAT;<br>USOCR; FPRS;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR               | OFF     | 2012/11/01 12:45 |
| S8    | 2    | "20080313477".did.                                                                                                   | US-PGPUB;<br>USPAT;<br>USOCR; FPRS;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR               | OFF     | 2012/11/01 12:50 |
| S9    | 1    | "20120047504".did.                                                                                                   | US-PGPUB;<br>USPAT;                                                     | OR               | OFF     | 2012/11/01 16:00 |

|     |      |                                                                                                                                                        |                                                                         |    |     |                     |
|-----|------|--------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|----|-----|---------------------|
|     |      |                                                                                                                                                        | USOCR                                                                   |    |     |                     |
| S10 | 2    | "6724403".did.                                                                                                                                         | US-PGPUB;<br>USPAT;<br>USOCR; FPRS;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/02<br>12:06 |
| S11 | 2    | "20100010857".did.                                                                                                                                     | US-PGPUB;<br>USPAT;<br>USOCR; FPRS;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/02<br>13:43 |
| S12 | 3    | (US-20080313477-\$ or US-<br>20100010857-\$).did. or (US-8150539-<br>\$).did.                                                                          | US-PGPUB;<br>USPAT                                                      | OR | OFF | 2012/11/02<br>21:30 |
| S13 | 2    | (US-20080313477-\$ or US-<br>20100010857-\$).did. or (US-8150539-<br>\$).did. and (resource\$1 same stor\$2)                                           | US-PGPUB;<br>USPAT                                                      | OR | OFF | 2012/11/02<br>21:31 |
| S14 | 0    | ((US-20080313477-\$ or US-<br>20100010857-\$).did. or (US-8150539-<br>\$).did.) and (resource\$1 same stor\$2)                                         | US-PGPUB;<br>USPAT                                                      | OR | OFF | 2012/11/02<br>21:31 |
| S15 | 1    | ((US-20080313477-\$ or US-<br>20100010857-\$).did. or (US-8150539-<br>\$).did.) and (resource\$1 same<br>drive\$1)                                     | US-PGPUB;<br>USPAT                                                      | OR | OFF | 2012/11/02<br>21:32 |
| S16 | 17   | power same manag\$5 same energy<br>same cost\$1 same (registry (file adj<br>system\$1))                                                                | US-PGPUB;<br>USPAT;<br>USOCR; FPRS;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/05<br>10:18 |
| S17 | 2502 | power same manag\$5 same (database<br>registry (file adj system\$1)) same<br>access\$3                                                                 | US-PGPUB;<br>USPAT;<br>USOCR; FPRS;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/05<br>11:08 |
| S18 | 425  | power same manag\$5 same (database<br>registry (file adj system\$1)) same<br>access\$3 same resource\$1                                                | US-PGPUB;<br>USPAT;<br>USOCR; FPRS;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/05<br>11:08 |
| S19 | 61   | power same manag\$5 same (database<br>registry (file adj system\$1)) same<br>access\$3 same resource\$1 same<br>maintenance                            | US-PGPUB;<br>USPAT;<br>USOCR; FPRS;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/05<br>11:08 |
| S20 | 13   | power same manag\$5 same (database<br>registry (file adj system\$1)) same<br>access\$3 same resource\$1 same<br>maintenance same (path\$1 location\$1) | US-PGPUB;<br>USPAT;<br>USOCR; FPRS;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/05<br>11:10 |
| S21 | 0    | power same manag\$5 same (database<br>registry (file adj system\$1)) same<br>access\$3 same resource\$1 same<br>maintenance same (path\$1 location\$1) | US-PGPUB;<br>USPAT;<br>USOCR; FPRS;<br>EPO; JPO;                        | OR | OFF | 2012/11/05<br>11:11 |

|     |     |                                                                                                                                                                                 |                                                                         |    |     |                     |
|-----|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|----|-----|---------------------|
|     |     | same (defrag\$4 defragment\$3)                                                                                                                                                  | DERWENT;<br>IBM_TDB                                                     |    |     |                     |
| S22 | 0   | power same manag\$5 same (database registry (file adj system\$1)) same access\$3 same resource\$1 same maintenance same (defrag\$4 defragment\$3)                               | US-PGPUB;<br>USPAT;<br>USOCR; FPRS;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/05<br>11:11 |
| S23 | 4   | power same manag\$5 same (database registry (file adj system\$1)) same access\$3 same resource\$1 same maintenance same (path\$1 location\$1) same (modif\$4 chang\$3 updat\$3) | US-PGPUB;<br>USPAT;<br>USOCR; FPRS;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/05<br>11:11 |
| S24 | 47  | power same manag\$5 same access\$3 same resource\$1 same maintenance same (path\$1 location\$1)                                                                                 | US-PGPUB;<br>USPAT;<br>USOCR; FPRS;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/05<br>11:14 |
| S25 | 13  | power same manag\$5 same access\$3 same resource\$1 same maintenance same (path\$1 location\$1) same (updat\$3 chang\$3 modif\$4)                                               | US-PGPUB;<br>USPAT;<br>USOCR; FPRS;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/05<br>11:14 |
| S26 | 241 | (database registry (file adj system\$1)) same access\$3 same resource\$1 same maintenance same (path\$1 location\$1)                                                            | US-PGPUB;<br>USPAT;<br>USOCR; FPRS;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/05<br>15:20 |
| S27 | 134 | (database registry (file adj system\$1)) same access\$3 same resource\$1 same maintenance same (path\$1 location\$1) same (modif\$4 updat\$3 chang\$3)                          | US-PGPUB;<br>USPAT;<br>USOCR; FPRS;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/05<br>15:20 |
| S28 | 0   | (database registry (file adj system\$1)) same access\$3 same resource\$1 same maintenance same (path\$1 location\$1) same (modif\$4 updat\$3 chang\$3) same defragment\$3       | US-PGPUB;<br>USPAT;<br>USOCR; FPRS;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/05<br>15:21 |
| S29 | 0   | (database registry (file adj system\$1)) same access\$3 same resource\$1 same maintenance same (path\$1 location\$1) same defragment\$3                                         | US-PGPUB;<br>USPAT;<br>USOCR; FPRS;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/05<br>15:21 |
| S30 | 0   | (database registry (file adj system\$1)) same access\$3 same resource\$1 same maintenance same defragment\$3                                                                    | US-PGPUB;<br>USPAT;<br>USOCR; FPRS;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/05<br>15:21 |
| S31 | 1   | data same storage same (device\$1 medium\$1) same access\$3 same resource\$1 same maintenance same defragment\$3                                                                | US-PGPUB;<br>USPAT;<br>USOCR; FPRS;<br>EPO; JPO;                        | OR | OFF | 2012/11/05<br>15:24 |

|     |     |                                                                                                                                    |                                                                         |    |     |                     |
|-----|-----|------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|----|-----|---------------------|
|     |     |                                                                                                                                    | DERWENT;<br>IBM_TDB                                                     |    |     |                     |
| S32 | 8   | data same storage same (device\$1<br>medium\$1) same maintenance same<br>defragment\$3                                             | US-PGPUB;<br>USPAT;<br>USOCR; FPRS;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/05<br>15:25 |
| S33 | 20  | data same storage same (device\$1<br>medium\$1) same maintenance same<br>(defragment\$5 defrag\$4)                                 | US-PGPUB;<br>USPAT;<br>USOCR; FPRS;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/05<br>15:26 |
| S34 | 5   | (data same storage same (device\$1<br>medium\$1) same maintenance same<br>(defragment\$5 defrag\$4)) and (power<br>same manag\$5)  | US-PGPUB;<br>USPAT;<br>USOCR; FPRS;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/05<br>15:27 |
| S35 | 1   | "8289845".did.                                                                                                                     | US-PGPUB;<br>USPAT;<br>USOCR; FPRS;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/05<br>15:56 |
| S38 | 3   | (energy power) same manag\$5 same<br>defragment\$3 same file\$1                                                                    | US-PGPUB;<br>USPAT;<br>USOCR; FPRS;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/07<br>13:12 |
| S39 | 11  | power same efficient same<br>defragment\$5                                                                                         | US-PGPUB;<br>USPAT;<br>USOCR; FPRS;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/07<br>13:12 |
| S40 | 171 | maintenance same (modif\$5 chang\$3<br>updat\$3) same file\$1 same path same<br>(id identifier\$1)                                 | US-PGPUB;<br>USPAT;<br>USOCR; FPRS;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/08<br>15:03 |
| S41 | 11  | (maintenance same (modif\$5 chang\$3<br>updat\$3) same file\$1 same path same<br>(id identifier\$1)) and (power same<br>manage\$4) | US-PGPUB;<br>USPAT;<br>USOCR; FPRS;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/08<br>15:03 |
| S42 | 13  | maintenance same (modif\$5 chang\$3<br>updat\$3) same (id identifier\$1) same<br>(file\$1 near\$5 path)                            | US-PGPUB;<br>USPAT;<br>USOCR; FPRS;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | OR | OFF | 2012/11/08<br>15:05 |

**EAST Search History (Interference)**

&lt; This search history is empty &gt;

**11/ 8/ 2012 4:40:05 PM**

**C:\Users\jlabud\Documents\EAST\Workspaces\12857836.wsp**



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## BIB DATA SHEET

CONFIRMATION NO. 4718

|                                                                                                                                                                                                                                                                            |                                                                                                                   |                                                          |                                                                                                                                                                                                                                                                           |                                    |                           |                                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|---------------------------|--------------------------------|
| <b>SERIAL NUMBER</b><br>12/857,836                                                                                                                                                                                                                                         | <b>FILING or 371(c) DATE</b><br>08/17/2010<br><b>RULE</b>                                                         | <b>CLASS</b><br>718                                      | <b>GROUP ART UNIT</b><br>2196                                                                                                                                                                                                                                             | <b>ATTORNEY DOCKET NO.</b><br>0123 |                           |                                |
| <b>APPLICANTS</b><br>Robert Paul Morris, Raleigh, NC;<br><b>** CONTINUING DATA ***** /J.R.L./</b><br><b>** FOREIGN APPLICATIONS ***** 11/8/12</b><br><b>** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** ** SMALL ENTITY **</b><br>08/30/2010                             |                                                                                                                   |                                                          |                                                                                                                                                                                                                                                                           |                                    |                           |                                |
| Foreign Priority claimed <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No<br>35 USC 119(a-d) conditions met <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No<br>Verified and /JONATHAN R LABUD/<br>Acknowledged Examiner's Signature |                                                                                                                   | <input type="checkbox"/> Met after Allowance<br>Initials | <b>STATE OR COUNTRY</b><br>NC                                                                                                                                                                                                                                             | <b>SHEETS DRAWINGS</b><br>6        | <b>TOTAL CLAIMS</b><br>20 | <b>INDEPENDENT CLAIMS</b><br>3 |
| <b>ADDRESS</b><br>Small Pond Associates, LLC<br>Robert Paul Morris<br>712 Latta Street<br>Raleigh, NC 27607<br>UNITED STATES                                                                                                                                               |                                                                                                                   |                                                          |                                                                                                                                                                                                                                                                           |                                    |                           |                                |
| <b>TITLE</b><br>METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR MAINTAINING A RESOURCE BASED ON A COST OF ENERGY                                                                                                                                                       |                                                                                                                   |                                                          |                                                                                                                                                                                                                                                                           |                                    |                           |                                |
| <b>FILING FEE RECEIVED</b><br>462                                                                                                                                                                                                                                          | FEES: Authority has been given in Paper<br>No. _____ to charge/credit DEPOSIT ACCOUNT<br>No. _____ for following: |                                                          | <input type="checkbox"/> All Fees<br><input type="checkbox"/> 1.16 Fees (Filing)<br><input type="checkbox"/> 1.17 Fees (Processing Ext. of time)<br><input type="checkbox"/> 1.18 Fees (Issue)<br><input type="checkbox"/> Other _____<br><input type="checkbox"/> Credit |                                    |                           |                                |

|                                                                                                                        |                                                |                                                                           |
|------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|---------------------------------------------------------------------------|
| <b><i>Index of Claims</i></b><br><br> | <b>Application/Control No.</b><br><br>12857836 | <b>Applicant(s)/Patent Under Reexamination</b><br><br>MORRIS, ROBERT PAUL |
|                                                                                                                        | <b>Examiner</b><br><br>JONATHAN R LABUD        | <b>Art Unit</b><br><br>2196                                               |

|   |                 |   |                   |   |                     |   |                 |
|---|-----------------|---|-------------------|---|---------------------|---|-----------------|
| ✓ | <b>Rejected</b> | - | <b>Cancelled</b>  | N | <b>Non-Elected</b>  | A | <b>Appeal</b>   |
| = | <b>Allowed</b>  | ÷ | <b>Restricted</b> | I | <b>Interference</b> | O | <b>Objected</b> |

| <input type="checkbox"/> <b>Claims renumbered in the same order as presented by applicant</b> <input type="checkbox"/> <b>CPA</b> <input type="checkbox"/> <b>T.D.</b> <input type="checkbox"/> <b>R.1.47</b> |          |            |  |  |  |  |  |  |  |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------------|--|--|--|--|--|--|--|--|
| CLAIM                                                                                                                                                                                                         |          | DATE       |  |  |  |  |  |  |  |  |
| Final                                                                                                                                                                                                         | Original | 11/08/2012 |  |  |  |  |  |  |  |  |
|                                                                                                                                                                                                               | 1        | ✓          |  |  |  |  |  |  |  |  |
|                                                                                                                                                                                                               | 2        | ✓          |  |  |  |  |  |  |  |  |
|                                                                                                                                                                                                               | 3        | ✓          |  |  |  |  |  |  |  |  |
|                                                                                                                                                                                                               | 4        | ✓          |  |  |  |  |  |  |  |  |
|                                                                                                                                                                                                               | 5        | ✓          |  |  |  |  |  |  |  |  |
|                                                                                                                                                                                                               | 6        | ✓          |  |  |  |  |  |  |  |  |
|                                                                                                                                                                                                               | 7        | ✓          |  |  |  |  |  |  |  |  |
|                                                                                                                                                                                                               | 8        | ✓          |  |  |  |  |  |  |  |  |
|                                                                                                                                                                                                               | 9        | ✓          |  |  |  |  |  |  |  |  |
|                                                                                                                                                                                                               | 10       | ✓          |  |  |  |  |  |  |  |  |
|                                                                                                                                                                                                               | 11       | ✓          |  |  |  |  |  |  |  |  |
|                                                                                                                                                                                                               | 12       | ✓          |  |  |  |  |  |  |  |  |
|                                                                                                                                                                                                               | 13       | ✓          |  |  |  |  |  |  |  |  |
|                                                                                                                                                                                                               | 14       | ✓          |  |  |  |  |  |  |  |  |
|                                                                                                                                                                                                               | 15       | ✓          |  |  |  |  |  |  |  |  |
|                                                                                                                                                                                                               | 16       | ✓          |  |  |  |  |  |  |  |  |
|                                                                                                                                                                                                               | 17       | ✓          |  |  |  |  |  |  |  |  |
|                                                                                                                                                                                                               | 18       | ✓          |  |  |  |  |  |  |  |  |
|                                                                                                                                                                                                               | 19       | ✓          |  |  |  |  |  |  |  |  |
|                                                                                                                                                                                                               | 20       | ✓          |  |  |  |  |  |  |  |  |



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| APPLICATION NUMBER | FILING OR 371(C) DATE | FIRST NAMED APPLICANT | ATTY. DOCKET NO./TITLE |
|--------------------|-----------------------|-----------------------|------------------------|
| 12/857,836         | 08/17/2010            | Robert Paul Morris    | 0123                   |

**CONFIRMATION NO. 4718**

## PUBLICATION NOTICE

92924  
Robert Paul Morris  
712 Latta Street  
Raleigh, NC 27607



\*OC000000052738570\*

**Title:**METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR MAINTAINING A RESOURCE BASED ON A COST OF ENERGY

**Publication No.**US-2012-0047504-A1

**Publication Date:**02/23/2012

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|-----------------------|--------------------------|-----------------|---------------|-----------------|------------|------------|
| 12/857,836            | 08/17/2010               | 3745            | 462           | 0123            | 20         | 3          |

CONFIRMATION NO. 4718

92924

Robert Paul Morris  
712 Latta Street  
Raleigh, NC 27607

## FILING RECEIPT



\*0C000000043275572\*

Date Mailed: 09/02/2010

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

### Applicant(s)

Robert Paul Morris, Raleigh, NC;

Power of Attorney: None

Domestic Priority data as claimed by applicant

Foreign Applications

If Required, Foreign Filing License Granted: 08/30/2010

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 12/857,836**

Projected Publication Date: 02/23/2012

Non-Publication Request: No

Early Publication Request: No

**\*\* SMALL ENTITY \*\***

**Title**

METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR MAINTAINING A  
RESOURCE BASED ON A COST OF ENERGY

**Preliminary Class**

415

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Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-10)

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| <b>INFORMATION DISCLOSURE<br/>STATEMENT BY APPLICANT</b><br>( Not for submission under 37 CFR 1.99) | Application Number     |                    |            |
|                                                                                                     | Filing Date            |                    | 2010-08-17 |
|                                                                                                     | First Named Inventor   | Robert Paul Morris |            |
|                                                                                                     | Art Unit               |                    |            |
|                                                                                                     | Examiner Name          |                    |            |
|                                                                                                     | Attorney Docket Number | 0123               |            |

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|                                                                                                            | 1       | 7242920                              | B2                          | 2007-07-10             | Morris                                          |                                                                        |                                                                        |                          |
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|                                                                                                            | 1       | 20100157821                          | A1                          | 2010-06-24             | Morris                                          |                                                                        |                                                                        |                          |
|                                                                                                            | 2       | 20080263375                          | A1                          | 2008-10-23             | Sundstrom                                       |                                                                        |                                                                        |                          |
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| <b>INFORMATION DISCLOSURE<br/>STATEMENT BY APPLICANT</b><br>( Not for submission under 37 CFR 1.99) | Application Number     |                    |            |
|                                                                                                     | Filing Date            |                    | 2010-08-17 |
|                                                                                                     | First Named Inventor   | Robert Paul Morris |            |
|                                                                                                     | Art Unit               |                    |            |
|                                                                                                     | Examiner Name          |                    |            |
|                                                                                                     | Attorney Docket Number | 0123               |            |

| Examiner Initials* | Cite No | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published. | T <sup>5</sup>           |
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<sup>1</sup> See Kind Codes of USPTO Patent Documents at [www.USPTO.GOV](http://www.USPTO.GOV) or MPEP 901.04. <sup>2</sup> Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>3</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>4</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>5</sup> Applicant is to place a check mark here if English language translation is attached.

|                                                                                                     |                        |                    |            |
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| <b>INFORMATION DISCLOSURE<br/>STATEMENT BY APPLICANT</b><br>( Not for submission under 37 CFR 1.99) | Application Number     |                    |            |
|                                                                                                     | Filing Date            |                    | 2010-08-17 |
|                                                                                                     | First Named Inventor   | Robert Paul Morris |            |
|                                                                                                     | Art Unit               |                    |            |
|                                                                                                     | Examiner Name          |                    |            |
|                                                                                                     | Attorney Docket Number | 0123               |            |

### CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

**OR**

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☐ See attached certification statement.

☐ Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ None

### SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

|            |                      |                     |            |
|------------|----------------------|---------------------|------------|
| Signature  | /Robert Paul Morris/ | Date (YYYY-MM-DD)   | 2010-08-17 |
| Name/Print | Robert Paul Morris   | Registration Number |            |

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

## ABSTRACT

Methods and systems are described for maintaining a resource based on a cost of energy. In one aspect, a first energy cost, for accessing a resource via an energy consuming component in an execution environment, is detected. The first energy cost is measured according to a specified metric. A determination is made that a configured maintenance condition is met based on the energy cost. A maintenance operation is identified for configuring at least one of the resource and the energy consuming component for accessing the resource at a second energy cost that is less than the first energy cost. An indication to start the maintenance operation is sent in response to determining that the maintenance condition is met.

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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                      |                        |      |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|------------------------|------|
| <b>Application Data Sheet 37 CFR 1.76</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                      | Attorney Docket Number | 0123 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                      | Application Number     |      |
| Title of Invention                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR MAINTAINING A RESOURCE BASED ON A COST OF ENERGY |                        |      |
| <p>The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76. This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.</p> |                                                                                                      |                        |      |

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☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

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|                                                                                                                                                                                 |                   |                                           |                    | <input type="radio"/> Party of Interest under 35 U.S.C. 118    |               |
| <b>Prefix</b>                                                                                                                                                                   | <b>Given Name</b> | <b>Middle Name</b>                        | <b>Family Name</b> | <b>Suffix</b>                                                  |               |
|                                                                                                                                                                                 | Robert            | Paul                                      | Morris             |                                                                |               |
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| <b>Citizenship under 37 CFR 1.41(b) i</b>                                                                                                                                       |                   | US                                        |                    |                                                                |               |
| <b>Mailing Address of Applicant:</b>                                                                                                                                            |                   |                                           |                    |                                                                |               |
| <b>Address 1</b>                                                                                                                                                                | 712 Latta Street  |                                           |                    |                                                                |               |
| <b>Address 2</b>                                                                                                                                                                |                   |                                           |                    |                                                                |               |
| <b>City</b>                                                                                                                                                                     | Raleigh           | <b>State/Province</b>                     | NC                 |                                                                |               |
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| <b>Email Address</b>                                                                                                               | paul.morris@nc.rr.com | <b>Add Email</b> | <b>Remove Email</b> |

**Application Information:**

|                                                |                                                                                                      |                                                  |                                     |
|------------------------------------------------|------------------------------------------------------------------------------------------------------|--------------------------------------------------|-------------------------------------|
| <b>Title of the Invention</b>                  | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR MAINTAINING A RESOURCE BASED ON A COST OF ENERGY |                                                  |                                     |
| <b>Attorney Docket Number</b>                  | 0123                                                                                                 | <b>Small Entity Status Claimed</b>               | <input checked="" type="checkbox"/> |
| <b>Application Type</b>                        | Nonprovisional                                                                                       |                                                  |                                     |
| <b>Subject Matter</b>                          | Utility                                                                                              |                                                  |                                     |
| <b>Suggested Class (if any)</b>                |                                                                                                      | <b>Sub Class (if any)</b>                        |                                     |
| <b>Suggested Technology Center (if any)</b>    |                                                                                                      |                                                  |                                     |
| <b>Total Number of Drawing Sheets (if any)</b> | 9                                                                                                    | <b>Suggested Figure for Publication (if any)</b> |                                     |

|                                           |                                                                                                      |                        |      |
|-------------------------------------------|------------------------------------------------------------------------------------------------------|------------------------|------|
| <b>Application Data Sheet 37 CFR 1.76</b> |                                                                                                      | Attorney Docket Number | 0123 |
|                                           |                                                                                                      | Application Number     |      |
| Title of Invention                        | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR MAINTAINING A RESOURCE BASED ON A COST OF ENERGY |                        |      |

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| Application Number                                                                                                                                                                                                                                                                                          | Country <sup>i</sup> | Parent Filing Date (YYYY-MM-DD) | Priority Claimed                                              |
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| <b>Application Data Sheet 37 CFR 1.76</b> |                                                                                                      | Attorney Docket Number | 0123 |
|                                           |                                                                                                      | Application Number     |      |
| Title of Invention                        | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR MAINTAINING A RESOURCE BASED ON A COST OF ENERGY |                        |      |

|                                                                                         |            |                |             |                                    |
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| A signature of the applicant or representative is required in accordance with 37 CFR 1.33 and 10.18. Please see 37 CFR 1.4(d) for the form of the signature. |                      |           |                   |                     |
| Signature                                                                                                                                                    | /Robert Paul Morris/ |           | Date (YYYY-MM-DD) | 2010-08-17          |
| First Name                                                                                                                                                   | Robert               | Last Name | Morris            | Registration Number |
|                                                                                                                                                              |                      |           |                   |                     |

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The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
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9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

**I CLAIM:**

1. A method for maintaining a resource based on a cost of energy, the method comprising:

detecting a first energy cost, measured according to a specified metric, for accessing a resource via an energy consuming component in an execution environment;

determining that a configured maintenance condition is met based on the energy cost;

identifying a maintenance operation for configuring at least one of the resource and the energy consuming component for accessing the resource at a second energy cost that is less than the first energy cost; and

in response to determining that the maintenance condition is met, sending an indication to start the maintenance operation.

2. The method of claim 1 wherein the at least one of the resource and the energy consuming component includes at least one of a data storage medium, an output component, a mechanical component, an optical component, a registry, a directory, a database, a file, an addressable entity in a program component generated from source code, a cache, a network component, and an input component.

3. The method of claim 1 wherein the metric is based on at least one of electrical energy, money, time, kinetic energy, chemical energy, heat, mechanical resistance, electrical resistance, magnetism, a count of an energy consuming operation, light, movement, mass metric, and weight.

4. The method of claim 1 wherein accessing includes at least one of receiving, transmitting, storing, requesting, copying, moving, creating, modifying, deleting, transforming, detecting, presenting, and processing a resource.

5. The method of claim 1 wherein the maintenance condition is based on at least one of electrical energy, money, time, kinetic energy, chemical energy, heat, mechanical resistance, electrical resistance, magnetism, a count of an energy consuming activity, light, movement, mass, and weight.

6. The method of claim 1 wherein the maintenance condition is based on the first energy cost for performing the maintenance operation.

7. The measure of claim 1 further comprising receiving maintenance information identifying the maintenance condition from at least one of a remote node via a network, the resource, the energy consuming component, and a user .

8. The method of claim 1 wherein determining that the maintenance condition is met includes at least one of a comparison based on the first energy cost, a calculation based on the first energy cost, and an evaluation of an expression based on the first energy cost.

9. The method of claim 1 wherein the maintenance operation includes at least one of defragmenting data, deleting stored data, moving data, copying data, restructuring data, transforming data, flushing at least a portion of a data store, changing a size of a resource, installing a component, removing a component, updating a component, stopping a component, starting a component, setting a clock, and presenting an indication message to a user to perform an action.

10. The method of claim 1 wherein the maintenance operation is identified based on at least one of the resource, the energy consuming component, a type of access, an attribute of the resource, an attribute of the energy consuming component, the first energy access cost, a user input, and a message received via a network.

11. The method of claim 1 wherein sending an indication includes at least one of invoking an executable addressable entity via a processor memory address, sending a message via a network, sending a message via an inter-process communication mechanism, receiving a request and sending the indication in response, and scheduling a start time.

12. The method of claim 1 wherein the resource is included in a data store accessed via the energy consuming component and the first energy access cost is based on an access time for accessing the resource.

13. The method of claim 12 wherein the maintenance operation includes at least one of cleaning data, flushing data, moving data, copying data at least one of to and from the energy consuming component, restructuring the resource, translating the resource into a different representation, at least one of stopping and starting the energy consuming component, adjusting an attribute of power received by the energy consuming component, at least one of adding, modifying, and removing a source of energy for the energy consuming component, modifying an access control attribute, and prompting a user to perform an action.

14. The method of claim 13 wherein the data store is at least one of included in and includes at least one of a data base, a registry, and/or a file system.

15. The method of claim 1 wherein the resource includes a path identifier for a location of a stored resource and the maintenance operation includes at least one of modifying the path identifier and changing a location of the path identifier in a plurality of path identifiers.

16. The method of claim 1 wherein the energy consuming component includes a data storage medium and the maintenance operation includes defragmenting the resource stored in the data storage medium.

17. The method of claim 1 wherein the resource is accessed via a network from a remote node and the maintenance operation includes modifying a cache for storing at least a portion of the resource.

18. The method of claim 1 wherein the energy consuming component is an instruction-processing unit and the maintenance operation includes at least one of modifying a processor speed, modifying a cache included in the instruction-processing unit, stopping the instruction-processing unit, and starting the instruction-processing unit.

19. A system for maintaining a resource based on a cost of energy, the system comprising:

a cost monitor component, a maintenance test component, a maintenance link component, and a maintenance operations component adapted for operation in an execution environment;

the cost monitor component configured for detecting a first energy cost, measured according to a specified metric, for accessing a resource via an energy consuming component in an execution environment;

the maintenance test component configured for determining that a configured maintenance condition is met based on the energy cost;

the maintenance link component configured for identifying a maintenance operation for configuring at least one of the resource and the energy consuming component for accessing the resource at a second energy cost that is less than the first energy cost; and

the maintenance operations component configured for in response to determining that the maintenance condition is met, sending an indication to start the maintenance operation.

20. A computer readable medium embodying a computer program, executable by a machine, for maintaining a resource based on a cost of energy, the computer program comprising executable instructions for:

detecting a first energy cost, measured according to a specified metric, for accessing a resource via an energy consuming component in an execution environment;

determining that a configured maintenance condition is met based on the energy cost;

identifying a maintenance operation for configuring at least one of the resource and the energy consuming component for accessing the resource at a second energy cost that is less than the first energy cost; and

in response to determining that the maintenance condition is met, sending an indication to start the maintenance operation.

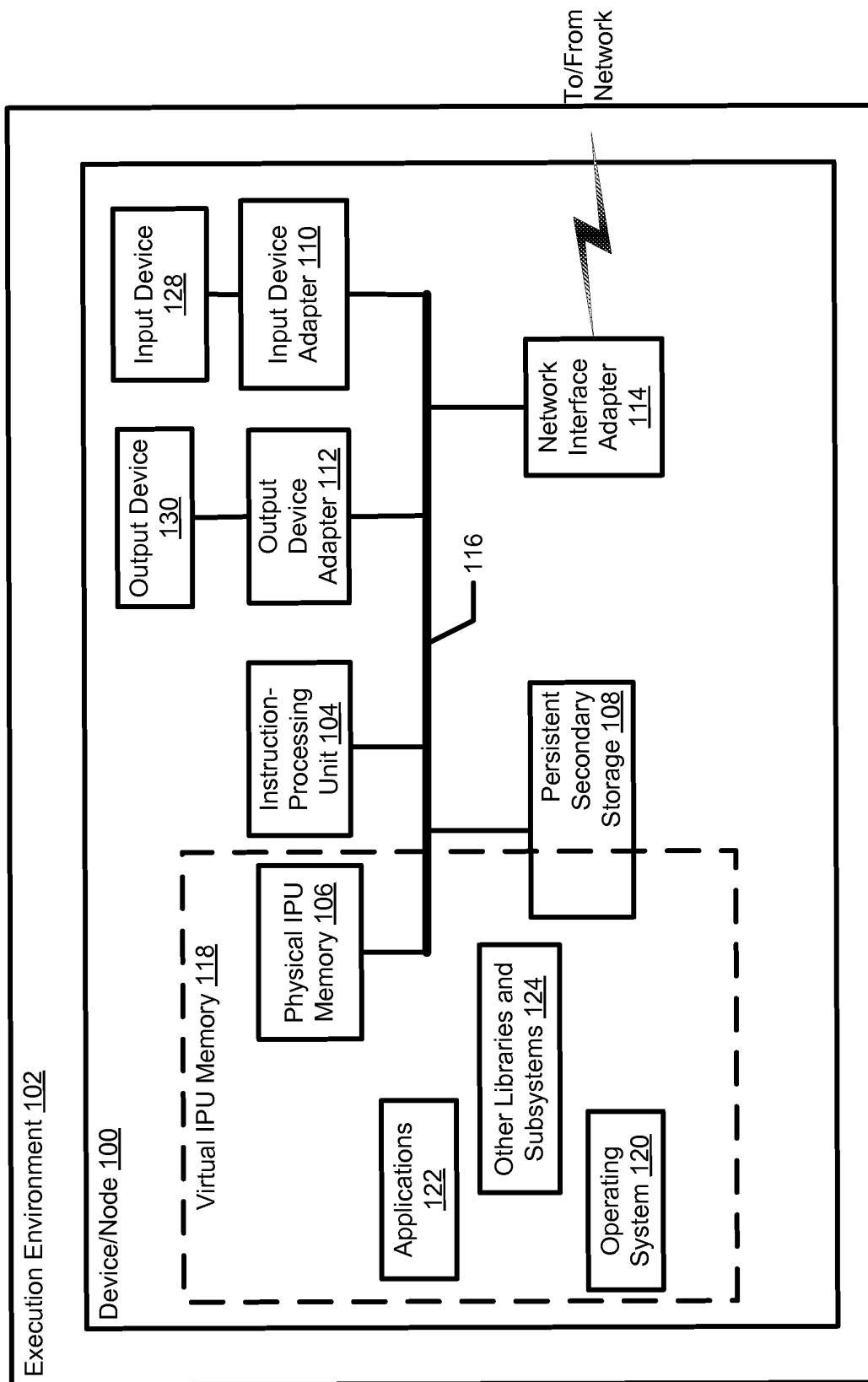


Fig. 1

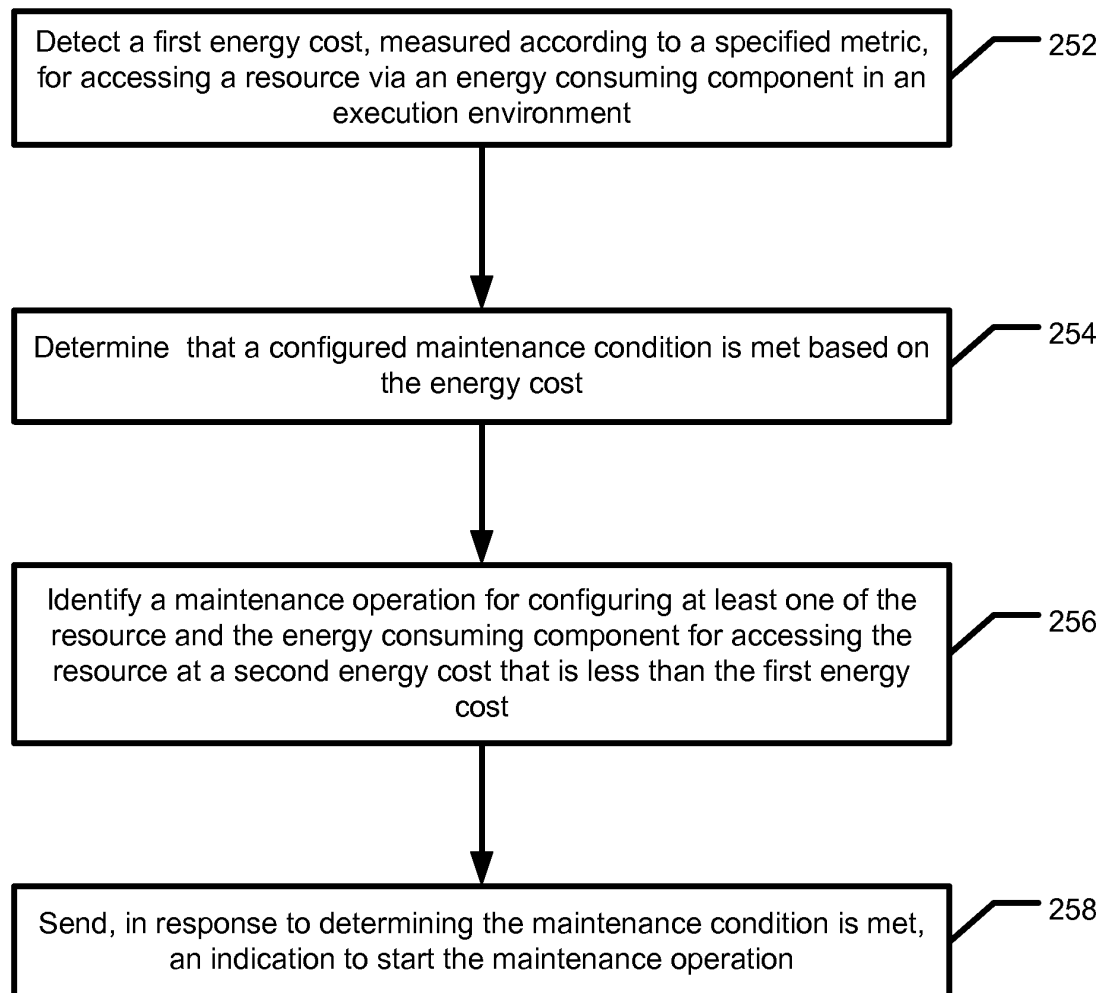


Fig. 2

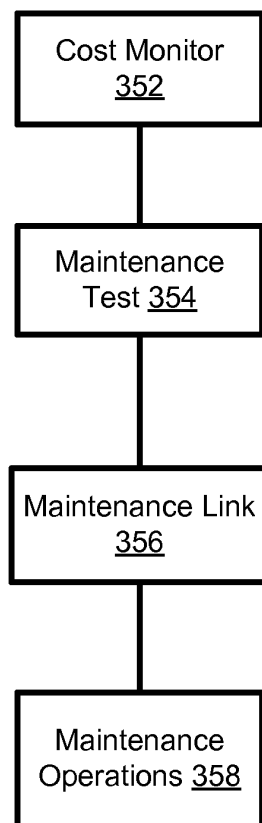


Fig. 3

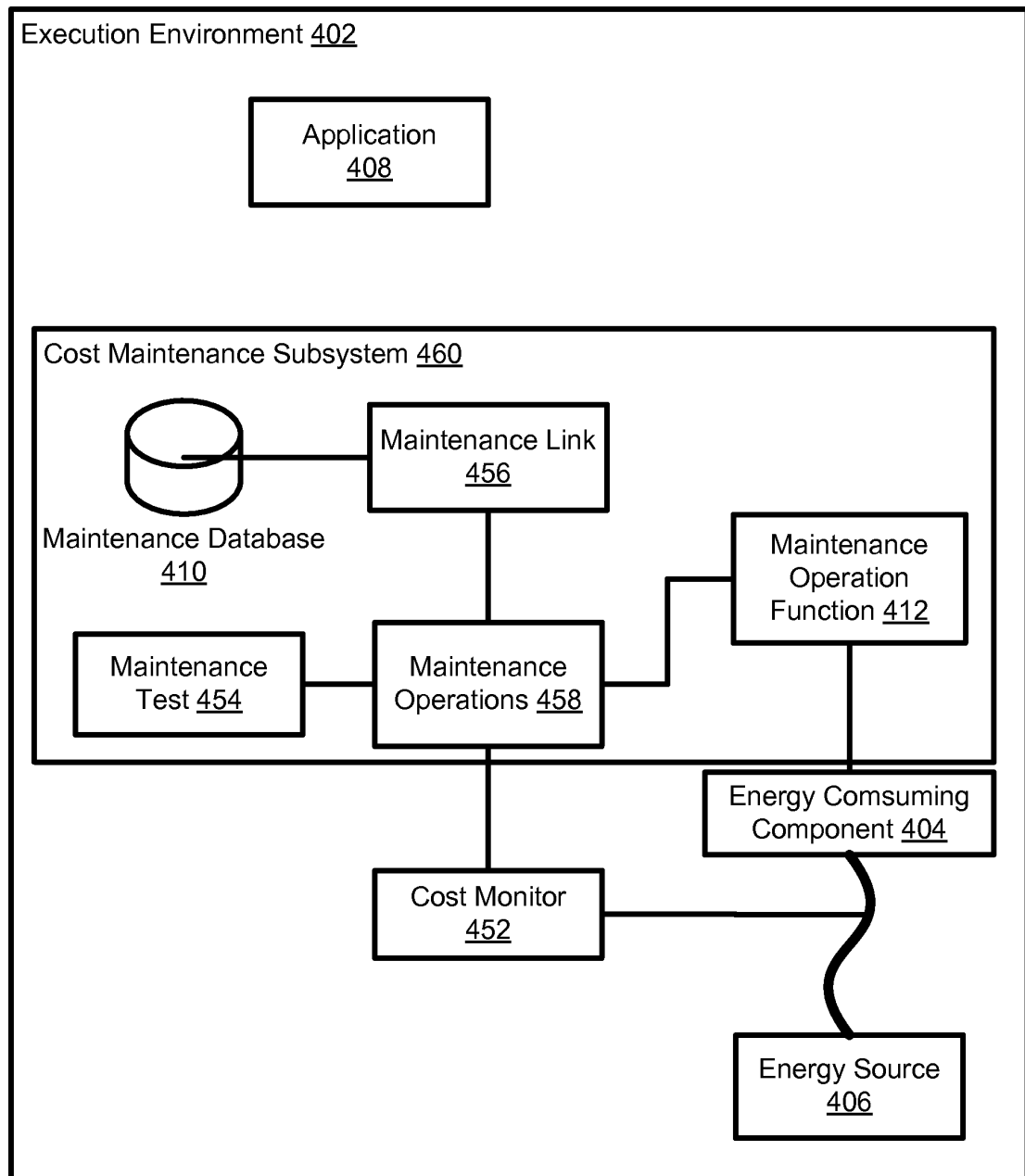


Fig. 4

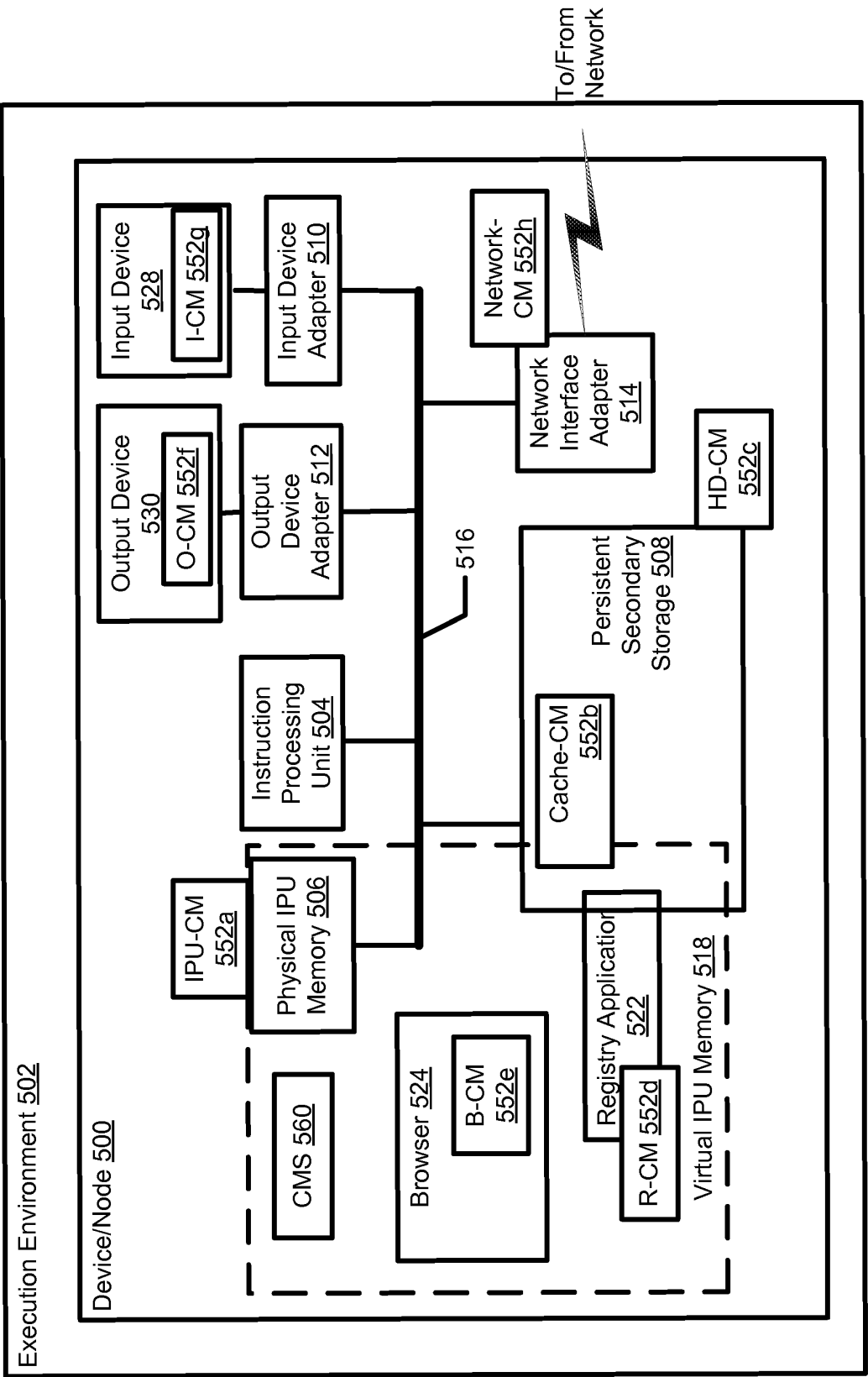


Fig. 5

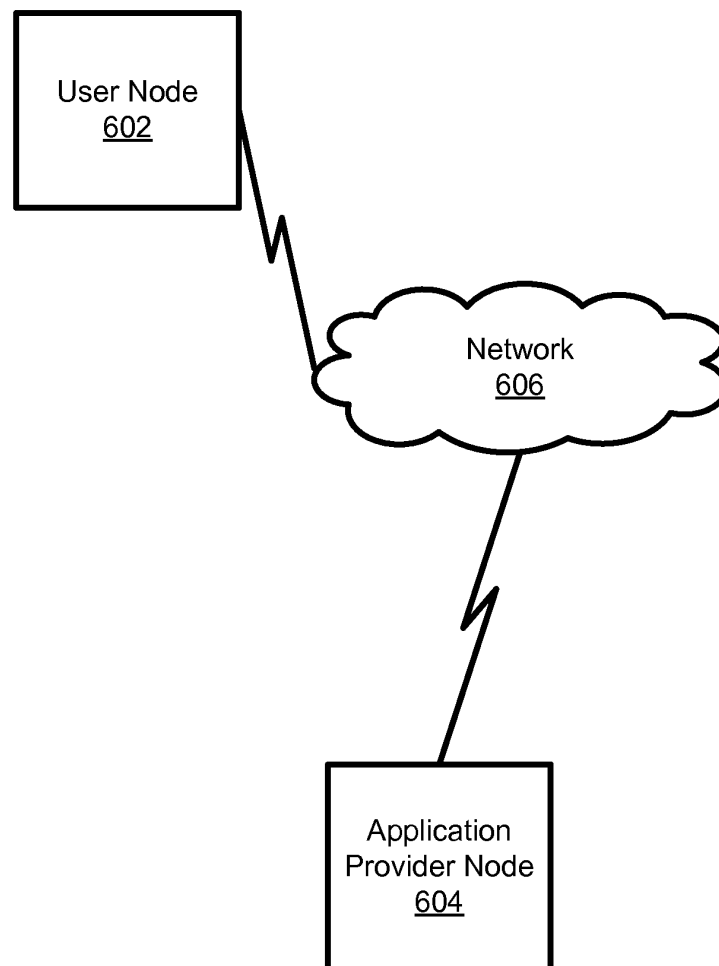


Fig. 6

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## DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                             |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| <b>Title of Invention</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR MAINTAINING A RESOURCE BASED ON A COST OF ENERGY</b> |
| <p>As the below named inventor(s), I/we declare that:</p> <p>This declaration is directed to:</p> <p style="margin-left: 40px;"> <input checked="checked" type="checkbox"/> The attached application, or<br/> <input type="checkbox"/> Application No. _____ filed on _____<br/> <input type="checkbox"/> As amended on _____ (if applicable);         </p> <p>I/we believe that I/we am/are the original and first inventor(s) of the subject matter which is claimed and for which a patent is sought;</p> <p>I/we have reviewed and understand the contents of the above-identified application, including the claims, as amended by any amendment specifically referred to above;</p> <p>I/we acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me/us to be material to patentability as defined in 37 CFR 1.56, including for continuation-in-part applications, material information which became available between the filing date of the prior application and the national or PCT International filing date of the continuation-in-part application.</p> <p style="text-align: center;"><b>WARNING:</b></p> <p>Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.</p> <p>All statements made herein of my/our own knowledge are true, all statements made herein on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001, and may jeopardize the validity of the application or any patent issuing thereon.</p> |                                                                                                             |
| <p><b>FULL NAME OF INVENTOR(S)</b></p> <p>Inventor one: <u>Robert Paul Morris</u> Date: <u>2010/08/17</u></p> <p>Signature: <u>/Robert Paul Morris/</u> Citizen of: <u>US</u></p> <hr/> <p>Inventor two: _____ Date: _____</p> <p>Signature: _____ Citizen of: _____</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                             |
| <p><input type="checkbox"/> Additional inventors or a legal representative are being named on _____ additional form(s) attached hereto.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                             |

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
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## METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR MAINTAINING A RESOURCE BASED ON A COST OF ENERGY

### RELATED APPLICATIONS

**[0001]** This application is related to the following commonly owned U.S. Patent Applications, the entire disclosure of each being incorporated by reference herein: Application No. \_\_/\_\_,\_\_ (Docket No. 0137) filed on 2010/08/17, entitled “Methods, Systems, and Program Products for Selecting a Resource in Response to a Change in Available Energy”;

**[0002]** Application No. \_\_/\_\_,\_\_ (Docket No. 0162) filed on 2010/08/17, entitled “Methods, Systems, and Program Products for Selecting a Resource Based on a Measure of a Processing Cost”; and

**[0003]** Application No. \_\_/\_\_,\_\_ (Docket No. 0125) filed on 2010/08/17, entitled “Methods, Systems, and Program Products for Presenting an Indication of a Cost of Processing a Resource”.

### BACKGROUND

**[0004]** Maintenance operations such as resizing of memory swap files, defragmentation of disks, cleaning caches, and deleting temporary files are performed to optimize the speed of a particular component of an electronic device. However, maintenance operations have respective energy costs. Maintenance operations are currently performed without regard to these energy costs. For example, many defragmenting programs run at set times whether defragmentation is needed or not. In

other cases, a defragmentation operation may be initiated when fragmentation reaches a specified threshold for a storage device. Whether the benefit is worth the energy cost is not a consideration.

**[0005]** Accordingly, there exists a need for methods, systems, and computer program products for maintaining a resource based on a cost of energy.

## SUMMARY

**[0006]** The following presents a simplified summary of the disclosure in order to provide a basic understanding to the reader. This summary is not an extensive overview of the disclosure and it does not identify key/critical elements of the invention or delineate the scope of the invention. Its sole purpose is to present some concepts disclosed herein in a simplified form as a prelude to the more detailed description that is presented later.

**[0007]** Methods and systems are described for maintaining a resource based on a cost of energy. In one aspect, the method includes detecting a first energy cost, measured according to a specified metric, for accessing a resource via an energy consuming component in an execution environment. The method further includes determining that a configured maintenance condition is met based on the energy cost. The method still further includes identifying a maintenance operation for configuring at least one of the resource and the energy consuming component for accessing the resource at a second energy cost that is less than the first energy cost. The method also includes, in response to determining that the maintenance condition is met, sending an indication to start the maintenance operation.

**[0008]** Further, a system for maintaining a resource based on a cost of energy is described. The system includes a cost monitor component, a maintenance test component, a maintenance link component, and a maintenance operations component adapted for operation in an execution environment. The system includes the cost monitor component configured for detecting a first energy cost, measured according to a specified metric, for accessing a resource via an energy consuming component in an execution environment. The system further includes the maintenance test component configured for determining that a configured maintenance condition is met based on the energy cost. The system still further includes the maintenance link component configured for identifying a maintenance operation for configuring at least one of the resource and the energy consuming component for accessing the resource at a second energy cost that is less than the first energy cost. The system also includes the maintenance operations component configured for, in response to determining that the maintenance condition is met, sending an indication to start the maintenance operation.

#### BRIEF DESCRIPTION OF THE DRAWINGS

**[0009]** Objects and advantages of the present invention will become apparent to those skilled in the art upon reading this description in conjunction with the accompanying drawings, in which like reference numerals have been used to designate like or analogous elements, and in which:

**[0010]** Fig. 1 is a block diagram illustrating an exemplary hardware device included in and/or otherwise providing an execution environment in which the subject matter may be implemented;

**[0011]** Fig. 2 is a flow diagram illustrating a method for maintaining a resource based on a cost of energy according to an aspect of the subject matter described herein;

**[0012]** Fig. 3 is a block diagram illustrating an arrangement of components for maintaining a resource based on a cost of energy according to another aspect of the subject matter described herein;

**[0013]** Fig. 4 is a block diagram illustrating an arrangement of components for maintaining a resource based on a cost of energy according to another aspect of the subject matter described herein;

**[0014]** Fig. 5 is a block diagram illustrating an arrangement of components for maintaining a resource based on a cost of energy according to another aspect of the subject matter described herein; and

**[0015]** Fig. 6 is a network diagram illustrating an exemplary system for maintaining a resource based on a cost of energy according to another aspect of the subject matter described herein.

## DETAILED DESCRIPTION

**[0016]** One or more aspects of the disclosure are described with reference to the drawings, wherein like reference numerals are generally utilized to refer to like elements throughout, and wherein the various structures are not necessarily drawn to scale. In the following description, for purposes of explanation, numerous specific details are set forth in order to provide a thorough understanding of one or more aspects of the disclosure. It may be evident, however, to one skilled in the art, that one or more aspects of the disclosure may be practiced with a lesser degree of these specific

details. In other instances, well-known structures and devices are shown in block diagram form in order to facilitate describing one or more aspects of the disclosure.

**[0017]** An exemplary device included in an execution environment that may be configured according to the subject matter is illustrated in Fig. 1. An execution environment includes an arrangement of hardware and, optionally, software that may be further configured to include an arrangement of components for performing a method of the subject matter described herein. An execution environment includes and/or is otherwise provided by one or more devices. An execution environment may include a virtual execution environment including software components operating in a host execution environment. Exemplary devices included in or otherwise providing suitable execution environments for configuring according to the subject matter include personal computers, notebook computers, tablet computers, servers, handheld and other mobile devices, multiprocessor devices, distributed devices, consumer electronic devices, routers, communication servers, and/or other network-enabled devices. Those skilled in the art will understand that the components illustrated in Fig. 1 are exemplary and may vary by particular execution environment.

**[0018]** Fig. 1 illustrates hardware device **100** included in execution environment **102**. Fig. 1 illustrates that execution environment **102** includes instruction-processing unit (IPU) **104**, such as one or more microprocessors; physical IPU memory **106** including storage locations identified by addresses in a physical memory address space of IPU **104**; persistent secondary storage **108**, such as one or more hard drives and/or flash storage media; input device adapter **110**, such as a key or keypad hardware, a keyboard adapter, and/or a mouse adapter; output device adapter **112**, such as a

display and/or an audio adapter for presenting information to a user; a network interface component, illustrated by network interface adapter **114**, for communicating via a network such as a LAN and/or WAN; and a communication mechanism that couples elements **104-114**, illustrated as bus **116**. Elements **104-114** may be operatively coupled by various means. Bus **116** may comprise any type of bus architecture, including a memory bus, a peripheral bus, a local bus, and/or a switching fabric.

**[0019]** IPU **104** is an instruction execution machine, apparatus, or device. Exemplary IPUs include one or more microprocessors, digital signal processors (DSPs), graphics processing units, application-specific integrated circuits (ASICs), and/or field programmable gate arrays (FPGAs). In the description of the subject matter herein, the terms “IPU” and “processor” are used interchangeably. IPU **104** may access machine code instructions and data via one or more memory address spaces in addition to the physical memory address space. A memory address space includes addresses identifying locations in a processor memory. The addresses in a memory address space are included in defining a processor memory. IPU **104** may have more than one processor memory. Thus, IPU **104** may have more than one memory address space. IPU **104** may access a location in a processor memory by processing an address identifying the location. The processed address may be in an operand of a machine code instruction and/or may be identified in a register or other portion of IPU **104**.

**[0020]** Fig. 1 illustrates virtual IPU memory **118** spanning at least part of physical IPU memory **106** and at least part of persistent secondary storage **108**. Virtual memory addresses in a memory address space may be mapped to physical memory addresses identifying locations in physical IPU memory **106**. An address space for identifying

locations in a virtual processor memory is referred to as a virtual memory address space; its addresses are referred to as virtual memory addresses; and its IPU memory is referred to as a virtual IPU memory or virtual memory. The terms “IPU memory” and “processor memory” are used interchangeably herein. Processor memory may refer to physical processor memory, such as IPU memory **106**, and/or may refer to virtual processor memory, such as virtual IPU memory **118**, depending on the context in which the term is used.

**[0021]** Physical IPU memory **106** may include various types of memory technologies. Exemplary memory technologies include static random access memory (SRAM) and/or dynamic RAM (DRAM) including variants such as dual data rate synchronous DRAM (DDR SDRAM), error correcting code synchronous DRAM (ECC SDRAM), and/or RAMBUS DRAM (RDRAM). Physical IPU memory **106** may include volatile memory as illustrated in the previous sentence and/or may include nonvolatile memory such as nonvolatile flash RAM (NVRAM) and/or ROM.

**[0022]** Persistent secondary storage **108** may include one or more flash memory storage devices, one or more hard disk drives, one or more magnetic disk drives, and/or one or more optical disk drives. Persistent secondary storage **108** may include removable media. The drives and their associated computer readable storage media provide volatile and/or nonvolatile storage for computer readable instructions, data structures, program components, and other data for execution environment **102**.

**[0023]** Execution environment **102** may include software components stored in persistent secondary storage **108**, in remote storage accessible via a network, and/or in a processor memory. Fig. 1 illustrates execution environment **102** including operating

system **120**, one or more applications **122**, and other program code and/or data components illustrated by other libraries and subsystems **124**. In an aspect, some or all software components may be stored in locations accessible to IPU **104** in a shared memory address space shared by the software components. The software components accessed via the shared memory address space are stored in a shared processor memory defined by the shared memory address space. In another aspect, a first software component may be stored in one or more locations accessed by IPU **104** in a first address space and a second software component may be stored in one or more locations accessed by IPU **104** in a second address space. The first software component is stored in a first processor memory defined by the first address space and the second software component is stored in a second processor memory defined by the second address space.

**[0024]** Software components typically include instructions executed by IPU **104** in a computing context referred to as a “process”. A process may include one or more “threads”. A “thread” includes a sequence of instructions executed by IPU **104** in a computing sub-context of a process. The terms “thread” and “process” may be used interchangeably herein when a process includes only one thread.

**[0025]** Execution environment **102** may receive user-provided information via one or more input devices illustrated by input device **128**. Input device **128** provides input information to other components in execution environment **102** via input device adapter **110**. Execution environment **102** may include an input device adapter for a keyboard, a touch screen, a microphone, a joystick, a television receiver, a video camera, a still

camera, a document scanner, a fax, a phone, a modem, a network interface adapter, and/or a pointing device, to name a few exemplary input devices.

**[0026]** Input device **128** included in execution environment **102** may be included in device **100** as Fig. 1 illustrates or may be external (not shown) to device **100**. Execution environment **102** may include one or more internal and/or external input devices. External input devices may be connected to device **100** via corresponding communication interfaces such as a serial port, a parallel port, and/or a universal serial bus (USB) port. Input device adapter **110** receives input and provides a representation to bus **116** to be received by IPU **104**, physical IPU memory **106**, and/or other components included in execution environment **102**.

**[0027]** Output device **130** in Fig. 1 exemplifies one or more output devices that may be included in and/or may be external to and operatively coupled to device **100**. For example, output device **130** is illustrated connected to bus **116** via output device adapter **112**. Output device **130** may be a display device. Exemplary display devices include liquid crystal displays (LCDs), light emitting diode (LED) displays, and projectors. Output device **130** presents output of execution environment **102** to one or more users. In some embodiments, an input device may also include an output device. Examples include a phone, a joystick, and/or a touch screen. In addition to various types of display devices, exemplary output devices include printers, speakers, tactile output devices such as motion producing devices, and other output devices producing sensory information detectable by a user.

**[0028]** A device included in or otherwise providing an execution environment may operate in a networked environment communicating with one or more devices via one

or more network interface components. The terms “communication interface component” and “network interface component” are used interchangeably. Fig. 1 illustrates network interface adapter (NIA) **114** as a network interface component included in execution environment **102** to operatively couple device **100** to a network. A network interface component includes a network interface hardware (NIH) component and optionally a software component.

**[0029]** Exemplary network interface components include network interface controller components, network interface cards, network interface adapters, and line cards. A node may include one or more network interface components to interoperate with a wired network and/or a wireless network. Exemplary wireless networks include a BLUETOOTH network, a wireless 802.11 network, and/or a wireless telephony network (e.g., a cellular, PCS, CDMA, and/or GSM network). Exemplary network interface components for wired networks include Ethernet adapters, Token-ring adapters, FDDI adapters, asynchronous transfer mode (ATM) adapters, and modems of various types. Exemplary wired and/or wireless networks include various types of LANs, WANs, and/or personal area networks (PANs). Exemplary networks also include intranets and internets such as the Internet.

**[0030]** The terms “network node” and “node” in this document both refer to a device having a network interface component for operatively coupling the device to a network. Further, the terms “device” and “node” used herein respectively refer to one or more devices and nodes providing and/or otherwise included in an execution environment unless clearly indicated otherwise.

**[0031]** The components of a user interface are generically referred to herein as “user interface elements”. More specifically, visual components of a user interface are referred to herein as “visual interface elements”. A visual interface element may be a visual component of a graphical user interface (GUI). Exemplary visual interface elements include windows, textboxes, sliders, list boxes, drop-down lists, spinners, various types of menus, toolbars, ribbons, combo boxes, tree views, grid views, navigation tabs, scrollbars, labels, tooltips, text in various fonts, balloons, dialog boxes, and various types of button controls including check boxes and radio buttons. An application interface may include one or more of the elements listed. Those skilled in the art will understand that this list is not exhaustive. The terms “visual representation”, “visual component”, and “visual interface element” are used interchangeably in this document. Other types of user interface elements include audio output components referred to as “audio interface elements”, tactile output components referred to as “tactile interface elements”, and the like.

**[0032]** A “user interface (UI) element handler” component, as the term is used in this document, includes a component configured to send information representing a program entity for presenting a user detectable representation of the program entity by an output device, such as a display. A “program entity” is an object included in and/or otherwise processed by an application or executable. The user detectable representation is presented based on the sent information. The sent information is referred to herein as “presentation information”. Presentation information may include data in one or more formats. Exemplary formats include image formats such as JPEG, video formats such as MP4, audio formats, markup language data such as HTML and

other XML-based markup, and/or instructions such as those defined by various script languages, byte code, and/or machine code. For example, a web page received by a browser from a remote application provider may include HTML ECMAScript, and/or byte code for presenting one or more user interface elements included in a user interface of the remote application. Components configured to send information representing one or more program entities for presenting particular types of output by particular types of output devices include visual interface elements, audio interface element handler components, tactile interface element handler components, and the like.

**[0033]** A representation of a program entity may be stored and/or otherwise maintained in a presentation space. As used in this document, the term “presentation space” refers to a storage region allocated and/or otherwise provided for storing presentation information, which may include audio, visual, tactile, and/or other sensory data for presentation by and/or on an output device. For example, a buffer for storing an image and/or text string may be a presentation space. A presentation space may be physically and/or logically contiguous or non-contiguous. A presentation space may have a virtual as well as a physical representation. A presentation space may include a storage location in processor memory, secondary storage, a memory of an output device adapter, and/or a storage medium of an output device. A screen of a display, for example, is a presentation space.

**[0034]** As used herein, the terms “program” and “executable” refer to any data representation that may be translated into a set of machine code instructions and optionally associated program data. Thus, a program component and/or executable may include an application, a shared or non-shared library, and a system command.

Program representations other than machine code include object code, byte code, and source code. Object code includes a set of instructions and/or data elements that either are prepared for linking prior to loading or are loaded into an execution environment. When in an execution environment, object code may include references resolved by a linker and/or may include one or more unresolved references. The context in which this term is used will make clear that state of the object code when it is relevant. This definition can include machine code and virtual machine code, such as Java™ byte code.

**[0035]** As used herein, an “addressable entity” is a portion of a program, specifiable in programming language in source code. An addressable entity is addressable in a program component translated for a compatible execution environment from the source code. Examples of addressable entities include variables, constants, functions, subroutines, procedures, modules, methods, classes, objects, code blocks, and labeled instructions. A code block includes one or more instructions in a given scope specified in a programming language. An addressable entity may include a value. In some places in this document “addressable entity” refers to a value of an addressable entity. In these cases, the context will clearly indicate that the value is being referenced.

**[0036]** Addressable entities may be written in and/or translated to a number of different programming languages and/or representation languages, respectively. An addressable entity may be specified in and/or translated into source code, object code, machine code, byte code, and/or any intermediate languages for processing by an interpreter, compiler, linker, loader, and/or analogous tool.

**[0037]** The block diagram in Fig. 3 illustrates an exemplary system for maintaining a resource based on a cost of energy according to the method illustrated in Fig. 2. Fig. 3 illustrates a system, adapted for operation in an execution environment, such as execution environment **102** in Fig. 1, for performing the method illustrated in Fig. 2. The system illustrated includes a cost monitor component **352**, a maintenance test component **354**, a maintenance link component **356**, and a maintenance operations component **358**. The execution environment includes an instruction-processing unit, such as IPU **104**, for processing an instruction in at least one of the cost monitor component **352**, the maintenance test component **354**, the maintenance link component **356**, and the maintenance operations component **358**. The components illustrated in Fig. 3 may be adapted for performing the method illustrated in Fig. 2 in a number of execution environments. Adaptations of the components illustrated in Fig. 3 for performing the method illustrated in Fig. 2 are described operating in execution environment **402** illustrated in Fig. 4 and also in execution environment **502** illustrated in Fig 5.

**[0038]** Fig. 1 illustrates key components of an exemplary device that may at least partially provide and/or otherwise be included in an execution environment, such as those illustrated in Fig. 4 and Fig. 5. The components illustrated in Fig. 3 and/or Fig. 4 may be included in and/or otherwise adapted to operate with the components of Fig. 1 to create a variety of arrangements of components according to the subject matter described herein. Fig. 5 illustrates an example of such a combination.

**[0039]** Fig. 4 illustrates execution environment **402** hosting cost maintenance subsystem **460** including an adaptation of the arrangement of components in Fig. 3. An

instance of execution environment **402** may include and/or may be provided by an end-user device illustrated by user node **602** in Fig. 6. Alternatively or additionally, another instance of execution environment **402** may include and/or may be provided by a server device illustrated by application provider node **604** in Fig. 6. Fig. 6 illustrates user node **602** and application provider node **604** operatively coupled to network **606**. In another aspect, execution environment **402** may include and/or otherwise be provided by a device not coupled to a network.

**[0040]** Some or all of the components in the arrangement illustrated in Fig. 3 may be installed persistently in an execution environment and/or some or all may be retrieved as needed via a network from another execution environment. For example, an application **408** operating in user node **602** may include a web browser. The web browser may retrieve a web client or network application agent that includes some or all of an adaptation of the arrangement in Fig. 3. The web client may be received via network communication between the browser and a network application. One or more components of cost maintenance subsystem **460** in Fig. 4 may be received from a remote application provider via a network. User node **602** illustrates a node included in and/or otherwise providing an execution environment **402**. Application provider node **604** illustrates a node hosting a network application configured to provide some or all of the components for a cost maintenance subsystem **460** to user node **602** via network **606**. User node **602** may be included in and/or otherwise provide at least part of an execution environment for components and content received from a network application in application provider node **604**.

**[0041]** Fig. 5 illustrates execution environment **502** including adaptations and/or analogs of components in execution environment **102** in Fig. 1 and described above. Execution environment **502** includes an adaptation and/or analog of a cost maintenance subsystem illustrated as cost maintenance subsystem (CMS) **560**. CMS **560** includes at least a portion of another adaptation or analog of the arrangement of components in Fig. 3 with the remainder adapted for operation in execution environment **502** external to CMS **560**. An execution environment **502** may include and/or otherwise operate in an end-user device, such as user node **602** in Fig. 6. An execution environment **502** may include and/or otherwise operate in a server device, such as application provider node **604**.

**[0042]** The various adaptations described herein of the arrangement in Fig. 3 are not exhaustive. For example, those skilled in the art will see based on the description herein that arrangements of components for performing the method illustrated in Fig. 2 may be distributed across more than one node and/or execution environment. For example, such an arrangement may operate at least partially in a user node **602** and at least partially in an execution environment included in and/or including application provider node **604**.

**[0043]** With reference to Fig. 2, block **252** illustrates that the method includes detecting a first energy cost, measured according to a specified metric, for accessing a resource via an energy consuming component in an execution environment. Accordingly, a system for maintaining a resource based on a cost of energy includes means for detecting a first energy cost, measured according to a specified metric, for accessing a resource via an energy consuming component in an execution environment. For

example, as illustrated in Fig. 3, the cost monitor component **352** is configured for detecting a first energy cost, measured according to a specified metric, for accessing a resource via an energy consuming component in an execution environment. Fig. 4 illustrate cost monitor component **452** as an adaptation of and/or analog of cost monitor component **352** in Fig. 3. One or more cost monitor components **452** operate in execution environment **402**. Fig. 5 illustrates cost monitor components **552** as adaptations and/or analogs of cost monitor component **352** in Fig. 3. Fig 5 illustrates several cost monitor components **552** operating in execution environment **502**.

**[0044]** A metric defines a unit of measure. For example, an “inch” is a unit of measure for measuring length. A “kilowatt-hour” (kWh) is a unit of measurement in a metric for measuring an amount of energy. Instead of or in addition to measuring an amount a metric may measure a rate. “Kilowatts per hour” (kWh/h) is energy or power metric for measuring a rate of energy used. A “measure” is a result of a particular measuring or measurement process. For example, 3 inches is a measure according to the length metric for inches, and 1000 kWh is a measure of an energy metric identifying an amount of energy. As used herein, a “measure of a processing cost” refers to a result of a measuring process for determining a processing cost according to a specified metric. Measuring may include estimating a measurement. As used herein, a “measure of energy”, also referred as an “energy cost”, is a result of a measuring and/or estimating process, based on a metric, for determining a measure of energy associated with accessing a resource. The phrases “energy cost”, “energy access cost”, and “access cost” are used interchangeably herein.

**[0045]** An access cost may be determined and/or expressed according to any metric, directly and/or indirectly, providing an indication of cost of energy associated with accessing a resource via an energy consuming component, such as an electronic component, in an execution environment. A metric for determining an energy cost in terms of electrical power may be determined by monitoring a rate of electrical energy utilized over time period by a hardware component that is included in accessing a resource. For example, a flow of electricity to a network interface adapter may be monitored, for resources where processing the resources includes sending and/or receiving data via a network. Some of the data may be included in the resources. The metric may represent the cost, for example, in kilowatt-hours, in kilowatts per hour, in transmission time, in bandwidth utilization, in latency, and/or in monetary units. In Fig4. cost monitor component **452** may be invoked to determine and/or otherwise identify a measure of an energy cost for accessing a particular resource in performing an operation.

**[0046]** Fig. 4 illustrates cost monitor component **452** coupled directly and/or indirectly to an electrical circuit for providing electronic energy consuming component **404** with electricity from energy source **406**. Exemplary energy sources include a battery, a transformer, and/or a plug-in outlet to a power grid. Cost monitor component **452** in various aspects may determine an access cost according to one or more specified metrics. For example, cost monitor component **452** may determine a cost based on a metric for measuring energy transferred from energy source **406** to electronic energy consuming component **404** over a period of time. Cost monitor component **452** may measure the energy transferred according to a metric for kilowatts per hour (kWh/h)

and/or may determine a cost based on a metric for measuring a monetary cost based on the measured kWh/h. One or more monetary cost rates may be received from and/or otherwise provided by maintenance operations component **458**.

**[0047]** Rate information may be configured by a user of a node including and/or included in execution environment **402**. Rate information may be accessed from one or more accessible data storage media, and/or may be received via network **606** from another node. For example, real-time rate information may be received from an organization that generates and/or distributes electrical power.

**[0048]** In another aspect, cost monitor component **452** may detect information for determining an access cost for a single access and/or may detect multiple costs over a time period. For example, cost monitor component **452** may determine a count of instances and/or one or more durations of time in which a voltage level and/or amperage level meets a specified threshold condition. The determined information may be a measure of power quality and/or energy efficiency of one or both of energy consuming component **404** and energy source **406**. An energy cost may be measured based on power quality and/or energy efficiency.

**[0049]** Figure 5 illustrates a plurality of cost monitor (CM) components included in execution environment **502**. Execution environment **502** is illustrated as an adaptation of execution environment **102** described above. Execution environment **502** includes IPU cost monitor component (IPU-CM) **552a** for determining and/or otherwise detecting a measure of energy for accessing a resource via IPU **504**. Exemplary resources accessible via IPU **504** include a machine code instruction and a data item for processing by one or more machine code instructions. A resource may be further

identified by a type of addressable entity the resource includes and/or is included in. A resource may be identified by a task performed by one or more machine code instructions such as loading and/or unloading a portion of virtual IPU memory **518** from physical IPU memory **506**. An access with respect to IPU **504** may be defined to include a read of a processor memory location, a write to a processor memory location, and/or a processing of an instruction loaded into IPU **504**. Various types of accesses may be defined more particularly by distinguishing accesses that include processor cache hits and/or misses, page table hits and/or misses, and/or context switches. Detecting a cost may include determining and/or otherwise identifying a statistical measure of energy based on a number of accesses of one or more types of resources.

**[0050]** Fig. 5 also illustrates cache cost monitor (cache-CM) component **552b** for detecting an energy cost for accessing a resource included in a cache. Exemplary caches include an IPU cache, a data base cache, a file system cache, and/or a browser cache. As with IPU **504**, an access is defined in terms of operations performed by the cache and a resource is defined in terms of data and/or services accessible via the cache. One or more measures of energy cost may be determined for accessing a cache and/or for accessing a resource via a cache.

**[0051]** Fig. 5 additionally illustrates hard drive cost monitor (HD-CM) component **552c** for detecting an energy cost for accessing a data entity and/or service via a hard-drive component (not shown) providing at least a portion of persistent secondary storage **508**. Other types of data storage devices supporting persistent data storage media may be monitored in other aspects and adaptations of cost monitor component **352** in Fig. 3. As with an IPU and a cache, an access, of a resource via a data storage device such as a

hard drive, may be defined based on one or more operations performed by the data storage device and/or may be defined based on one or more operations performed by components interoperating with the data storage device. A resource may be defined in terms of data and/or services accessible via the data storage device. One or more measures of energy may be determined for an access to a resource included in and/or otherwise accessible via a data storage device.

**[0052]** Fig. 5 further illustrates registry cost monitor (R-CM) component **552d** for detecting an energy cost for accessing a resource included in a registry such as an operating system registry for storing configuration data and/or a lightweight directory access protocol (LDAP) registry for storing various types of information including address book entries, digital certificates, and/or user identifiers. Other exemplary registries include domain name system (DNS) databases and universal description discovery and integration (UDDI) registries. Again, an access is defined in terms of operations performed by the registry and/or in terms of operations performed by components interoperating with the registry. Resources may be defined in terms of data and/or services accessible via a registry. One or more measures of an energy cost may be determined.

**[0053]** Fig. 5 further illustrates browser cost monitor component (B-CM) **552e** for detecting an energy cost for accessing a resource via a browser. A browser may access resources via a variety of energy consuming components in an execution environment hosting the browser as well as resources accessible via components in nodes in other execution environments. B-CM **552e** may interoperate with other cost monitor component(s) **552** directly and/or indirectly in detecting an access cost for a resource.

**[0054]** A cost monitor component may be provided for an output component such as a display device, an input component such as a keyboard, and/or a network component such as a network interface component. Fig. 5 illustrates output cost monitor (O-CM) component **552f**, input cost monitor (I-CM) component **552g**, and network cost monitor (network-CM) component **552h**.

**[0055]** Exemplary metrics for measuring an energy access cost include metrics for power, monetary metrics, time metrics, kinetic or stored energy metrics, heat metrics, resistance metrics based on mechanical and/or electrical resistance, metrics for measuring various energy and/or power consuming activities and/or operations, light metrics, movement metrics, mass metrics, and weight metrics.

**[0056]** A particular metric for determining an energy access cost for a resource may be selected and/or otherwise identified based on one or more attributes of a resource, an operation that includes accessing the resource, a program component for performing some or all of the operation, a hardware component included in accessing the resource, a user, an organization, and/or a task, to name a few examples. For example, an access cost may be measured by counting occurrences of an energy consuming activity, such as disk read operations.

**[0057]** A metric such as a count of machine code instructions executed by an IPU may be specified and/or determined in accessing a resource. An IPU based metric may be selected for measuring a cost for accessing a resource stored in a physical processor memory. In another aspect, an application or process may access a resource in a display device to present a user interface to a user. A metric for measuring heat and/or light generated by the display device in accessing the resource may be specified. The

display device resource may include a data storage component, a screen, and/or a light emitting component.

**[0058]** Cost monitor component **452**, in an aspect, may determine and/or otherwise may detect an energy access cost based on metadata provided in and/or with one or more of a resource, a program component for performing an operation that includes accessing the resource, and a hardware component included in accessing the resource. An energy access cost may be predetermined and located by cost monitor component **452** in and/or associated with a resource, a program component, and/or a hardware component. Cost monitor component **452** may access a table and/or other structure including predefined values for measures of energy access costs according to one or more metrics such as a temperature based metric for measuring a change in temperature of a hardware component and/or for measures of a time based access costs represented in US dollars.

**[0059]** Cost monitor component **452** may look up and/or may otherwise identify a predefined value for a resource based on a type of the resource, a size of the resource, a power source, a hardware component, and/or a program component for accessing the resource. The predefined value may be an energy access cost and/or may be an input for determining an energy access cost expressed according to an identified metric. For example, a predefined value may be multiplied by a measure of time that a resource is accessed, via an energy consuming component, by a program component to produce a time based metric such as kilowatt-hours or disk reads per minute.

**[0060]** In another aspect, cost monitor component **452** may determine an energy access cost by calculating a measure of cost according to the specified metric and/or

may interoperate with a sensor, such as a thermometer, in measuring a cost of accessing a resource. Cost monitor component **452** may include and/or otherwise access one or more measurement components for determining an access cost according to one or more metrics.

**[0061]** In another aspect, a cost monitor component may operate in an application **408**. The cost monitor component may determine an energy access cost for resources accessed by the application **408**. The application **408** is a program component and may include one or more program components. The resources may include resources provided by the application **408** to other applications, subsystems, and/or components operating in execution environment **402** and/or in another execution environment included in and/or otherwise provided by one or more devices. For example, an application **408** may process an image and/or a video to present as a desktop background.

**[0062]** Cost monitor component **452** may determine an energy access cost for accessing a resource included in a display device to present the image and/or the video via the display. For example, cost monitor component **452** may be configured with and/or otherwise may determine a measure based on a count of display refreshes over a specified period of time to determine an energy access cost for accessing a resource in the display to present the image and/or the video.

**[0063]** One or more resources, accessible to an application **408** operating in execution environment **402** in a node, may include data stored by another node. Cost monitor component **452** may determine an energy access cost for transmitting a request for receiving the data and/or for receiving some or all of the data in a message from the

other node via a network adapter in the execution environment hosting the application. For example, a cost monitor component **452** may be configured with and/or otherwise may determine a measure based on a count of bytes in a resource and/or in an encoded translation of the resource for transmitting.

**[0064]** In another aspect, a cost monitor component **452** may operate in a network application agent such as a web page and/or script in a browser. A network application agent may be received by a browser included in application **408** operating in user node **602** in Fig. 6. The network application agent may be received by user node **602** from a network application operating in application provider node **604**. A cost monitor component **452** and/or an analog may operate in application provider node **604** operating in the network application, such as a web service. Alternatively or additionally another cost monitor component **452** may operate in the network application agent in the browser in user node **602**. One or both of the cost monitor components **452** may separately or cooperatively determine an energy access cost for a resource accessed by the network application and/or the network application agent. One or both of the cost monitor components **452** may be components in a cost monitor system distributed between the network application agent and the network application. Resources may include resources provided by the network application agent to the browser and/or extensions of the browser. The resources may further include resources provided to other nodes in network **606** by the network application agent and/or the network application.

**[0065]** One or both of a cost monitor component operating in user node **602** and a cost monitor component operating in application provider node **604** may determine an

energy access cost for accessing one or more resources accessed via network **606** in Fig. 6. Transmitting resource data may include encoding, decoding, filtering, translating, and/or transforming some or all of the data in a resource. One or more energy consuming components may be included in accessing the resource. For example, a resource may be compressed prior to transmitting via network **606**. The cost monitor component operating in the browser may be configured to determine a metric based on a type of physical layer network included in network **606**; based on an encoding, decoding, and/or other transformation; based on a manufacturer and/or type of network interface component; and/or based on network throughput data and/or on other network attributes and/or metadata. The measure may be an access cost for transmitting a web document via a network via a modem, an access cost for retrieving image data in the document from a hard drive, an access cost for decoding data received via network **606**, and/or an access cost for transmitting data over a secure network connection. One or both cost monitor components may be configured with and/or otherwise configured to identify a predefined energy access cost according to a metric selected by a developer of the browser and/or the network application.

**[0066]** In Fig. 4, cost monitor component **452** is illustrated interoperating with cost maintenance subsystem **460** in execution environment **402**. Cost maintenance subsystem **460** may be a subsystem of execution environment **402** that provides services to a number of program components in execution environment **402** and/or in other execution environment(s) communicatively coupled via network **606** in Fig. 6. Cost monitor component **452** may determine an energy access cost(s) for various resources accessed by various applications **408** operating in execution environment **402**. The

resources may include resources provided to and/or otherwise accessible to applications **408** via various subsystems of execution environment **402**, such as a file system (not shown) and/or network stack (not shown).

**[0067]** One or more resources accessed by application **408** may include documents having various content types. Cost monitor component **452** may determine an energy access cost for the documents expressed by a metric based on formats of the respective documents identified by content type identifiers and/or based on an operation for accessing the documents. The operation may be performed by application **408** and/or may be performed by one or more other components.

**[0068]** In Fig. 4, cost maintenance subsystem **460** may determine energy access costs for resources, freeing applications **408** from performing this operation. Note that in an aspect at least some of cost maintenance subsystem **460** may operate in a remote node.

**[0069]** Returning to Fig. 2, block **254** illustrates the method further includes determining that a configured maintenance condition is met based on the energy cost. Accordingly, a system for maintaining a resource based on a cost of energy includes means for determining that a configured maintenance condition is met based on the energy cost. For example, as illustrated in Fig. 3 the maintenance test component **354** is configured for determining that a configured maintenance condition is met based on the energy cost. Fig. 4 illustrates maintenance test component **454** as an adaptation and/or analog of maintenance test component **354** in Fig. 3. One or more maintenance test components **454** operate in execution environment **402**. Fig. 5 illustrates cost maintenance subsystem (CMS) **560** including a maintenance test component (not

shown) as an adaptation of and/or analog of maintenance test component **354** in Fig. 3.

One or more maintenance test components operate in execution environment **502**.

**[0070]** In Fig. 4 cost monitor component **452** may interoperate with maintenance test component **454** to communicate one or more detected access cost(s) for one or more resources. Interoperation may be direct. For example, maintenance test component **454** may request an access cost periodically and/or as instructed, for example, by maintenance operations component **458**. Alternatively or additionally, interoperation may be indirect, for example via maintenance operations component **458** as illustrated in Fig. 4.

**[0071]** In an aspect, maintenance operations component **458** may include and/or otherwise may access a configured maintenance condition for energy consuming component **404**. The maintenance condition may be accessed from and/or via energy consuming component **404**. In another aspect, maintenance test component **454** may include and/or otherwise access a maintenance condition for energy consuming component **404**.

**[0072]** Maintenance test component **454** may evaluate a maintenance condition based on one or more access cost(s) measured and/or otherwise determined. A maintenance condition may be evaluated according to a predetermined time schedule, when instructed by maintenance operations component **458**, and/or in response to an event such as a detected error and/or a detected user input. The maintenance condition may be specified declaratively and/or in one or more executable instructions. The maintenance condition may include testing a threshold, a range, and/or a matching criterion.

**[0073]** Fig. 5 includes one or more maintenance test components (not shown) in CMS **560**. Alternatively or additionally, one more or maintenance test components may be distributed within execution environment **502** and/or may operate in another node accessible via network **604**. A maintenance test component may provide general purpose testing of any of a number of maintenance conditions configured for any of a number of resources. A maintenance test component may be subsystem, component, resource, and/or access type specific.

**[0074]** Returning to Fig. 2, block **256** illustrates that the method yet further includes identifying a maintenance operation for configuring at least one of the resource and the energy consuming component for accessing the resource at a second energy cost that is less than the first energy cost. Accordingly, a system for maintaining a resource based on a cost of energy includes means for identifying a maintenance operation for configuring at least one of the resource and the energy consuming component for accessing the resource at a second energy cost that is less than the first energy cost. For example, as illustrated in Fig. 3, a maintenance link component **356** is configured for identifying a maintenance operation for configuring at least one of the resource and the energy consuming component for accessing the resource at a second energy cost that is less than the first energy cost. Fig. 4 illustrates maintenance link component **456** as an adaptation of and/or analog of maintenance link component **356** in Fig. 3. One or more maintenance link components **456** operate in execution environment **402**. Fig. 5 illustrates cost maintenance subsystem (CMS) **560** including a maintenance link component (not shown) as an adaptation of and/or analog of maintenance link

component **356** in Fig. 3. One or more maintenance link components operate in execution environment **502**.

**[0075]** When a maintenance condition is met, an indication may be provided to maintenance operations component **458** identifying an energy consuming component, an accessed resource and/or a resource to be accessed, and/or one or more related components and/or resources included in accessing the resource. Maintenance operations component **458** may provide some or all of the information to maintenance link component **456** to identify a maintenance operation. Alternatively, maintenance link component **456** may include and/or determine an identifier for the maintenance operation. The identifier may identify a component for performing some or of all of the maintenance operation and/or may be a reference to a component for performing some or all of the maintenance operation.

**[0076]** Maintenance link component **456** may access an interface provided by an energy consuming component in order to identify the maintaining operation. Maintenance link component **456** may identify the maintenance operation based on information in the accessible resource and/or in metadata for the accessible resource. The metadata may include information received from a user allowing the user to specify a maintenance operation. A maintenance condition may be specified and/or otherwise identified based on information received from a user.

**[0077]** Returning to Fig. 2, block **258** illustrates that the method additionally includes in response to determining that the maintenance condition is met, sending an indication to start the maintenance operation. Accordingly, a system for maintaining a resource based on a cost of energy includes means for in response to determining that the

maintenance condition is met, sending an indication to start the maintenance operation. For example, as illustrated in Fig. 3, a maintenance operations component **358** is configured for in response to determining that the maintenance condition is met, sending an indication to start the maintenance operation. Fig. 4 illustrates maintenance operations component **458** as an adaptation of and/or analog of maintenance operations component **358** in Fig. 3. Fig. 5 illustrates cost maintenance subsystem (CMS) **560** including a maintenance operations component (not shown) as an adaptation of and/or analog of maintenance operations component **358** in Fig. 3. One or more maintenance operations components operate in execution environment **502**.

**[0078]** In various aspects, sending an indication to start a maintenance operation may include invoking an executable addressable entity via a processor memory address; sending a message via a network; sending a message via an inter-process communication mechanism including at least one of a pipe, semaphore, stack, shared data area, and queue; receiving a request such as poll and responding to invoke an operation handler, and/or scheduling starting of the maintenance operation based on at least one of a specified time and a detecting of a specified event.

**[0079]** In Fig. 4 maintenance link component **456** may identify a maintenance operation for energy consuming component **404** based on configuration information stored in a maintenance database **410**. Maintenance database **410**, in an aspect, may include a record identifying energy consuming component **404** and a maintenance operation function **412** configured to perform a maintenance operation for energy consuming component **404**.

**[0080]** An accessed resource may be stored in a data store such as a cache and/or may be a data store such as a cache. The data store may be a hardware data store and/or the data store may be included in a data storage device such as a processor memory device and/or a secondary storage device. A maintenance condition may be based on a relative and/or absolute amount of data in the data store or a portion thereof, an average access time, a distribution of access times, a trend in access times, and/or a longest access time in a specified time period. An energy cost may be a cost per access, a cost for a group of accesses, a cost in a given time period, and/or an average, median, and/or mean cost, to name a few examples. The energy cost may be measured based on a time metric, a power metric, and/or a monetary metric as described above.

**[0081]** When the maintenance condition is met as determined by an adaptation and/or analog of maintenance test component **354** in Fig. 3, an adaptation and/or analog of maintenance link component **356** may identify one or more maintenance operations. Exemplary maintenance operations for an energy consuming component including a data store such as a cache may include cleaning data, flushing data, moving data, and/or copying data to and/or from at least a portion of the energy consuming component. Maintenance operations may also include restructuring at least a portion of the resource, encoding and/or otherwise translating the resource into a different representation. Additional maintenance operations further include stopping and/or starting at least a portion of the energy consuming component, adjusting power flow and/or power quality, adding and/or changing a source of energy for the energy consuming component, and/or prompting the user to perform an action such as

replacing a part or taking the energy consuming component to a service center for maintenance.

**[0082]** Other exemplary data stores that may be accessible resources and/or that may include accessible resources accessed via an energy consuming component include a data base, a registry, and/or a file system. A data store may include a set of paths identifying locations of one or more stored resources such as code libraries and/or other executable data. Maintenance conditions may include a directory path length, a data base table size, a file name size in a file system, and a count of un-accessed entries in a registry in a specified time period, to name a few examples. Maintenance operations include changing at least a portion of a path identifier, moving a resource, changing an order of path identifiers, re-indexing one or more resources to create and/or refresh a search index, restructuring a data base table, and/or removing un-accessed data.

**[0083]** A resource may be a database table stored in persistent secondary storage **508** in Fig. 5 and accessed via network via network interface adapter **514**. An energy cost may be detected by HD-CM **552c**. HD-CM **552c** may measure and/or otherwise identify an amount of electricity as electrical power utilized in accessing the table and determining an average amount of power utilized. A maintenance condition may be met when the determined average amount of power exceeds a threshold specified by the maintenance condition. Alternatively or additionally, HD-CM **552c** may count and/or otherwise detect a number of spins of a disk in a disk driver and/or a distance traveled by a disk head as a metric for measuring an energy cost. A count of disk spins and/or distance moved by a disk head may be measures of energy metrics and/or used in measuring an energy cost according to a particular metric.

**[0084]** Alternatively or additionally, network-CM **552h** may measure and/or otherwise detect one or more energy costs based on one or more specified metrics. An energy metric associated with accessing the database table and/or a resource in the database table may be based on a measure of network latency, a lease cost for a network connection, a count of bytes and/or bits communicated, a power cost for operating network interface adapter **514**, and/or a cost for encoding and/or decoding data for communicating via the network, to name a few examples.

**[0085]** In response to detecting that a maintenance condition is met based on one or more detected energy costs, a maintenance operation such as an operation for resizing network buffers for communicating data included in an access of the database table may be identified. A communication manager (not shown) may be instructed based on the determined average energy cost to resize one or more communication buffers. The instruction may be sent by invoking an interface of the communication manager for specifying a buffer size.

**[0086]** The method illustrated in Fig. 2 may include additional aspects supported by various adaptations and/or analogs of the arrangement of components in Fig. 3. In various aspects a resource and/or an energy consuming component may include a data storage medium, an output component, a mechanical subcomponent, an optical subcomponent, a registry, a directory, a database, a file, an addressable entity in a program component generated from source code, a cache, a networking component, and an input component.

**[0087]** A metric for detecting an energy cost may be based on electrical energy, money, time, kinetic energy, chemical energy, heat, mechanical resistance, electrical

resistance, magnetism, a count of an energy consuming activity, light, movement, mass metric, and/or weight.

**[0088]** Accessing a resource may include receiving, transmitting, storing, requesting, receiving, copying, moving, creating, modifying, deleting, translating, and/or otherwise transforming, detecting, presenting, and/or performing an operation that includes processing a resource via an energy consuming component. A cost of energy may be detected by a measuring process corresponding to an access. A cost of energy may be determined prior to, during, and/or after an access of a resource. Detecting an energy cost may include estimating at least a portion of the energy cost. For example, O-CM component **552f** may determine a cost of presenting an image based on a previous presentation of the image and/or based on cost data received from a user and/or from a remote node via a network.

**[0089]** A maintenance condition may be evaluated and/or otherwise identified based on electrical energy, money, time, kinetic energy, chemical energy, heat, mechanical resistance, electrical resistance, magnetism, a count of an energy consuming activity, light, movement, mass metric, and/or weight. A maintenance condition may be further based on an energy cost for performing the maintenance operation. In Fig. 4, maintenance database **410** may include maintenance operation information for identifying and/or otherwise determining an energy cost for performing a maintenance operation. Maintenance test component **454** may evaluate a maintenance condition based on a measure of energy for performing a maintenance operation. For example, maintenance test component **454** may determine that a particular maintenance condition may be met when an energy cost benefit exceeds a cost of performing a

particular maintenance operation. One or more maintenance test components may be configured to test maintenance conditions based on respective energy consuming components monitored directly and/or indirectly by one or more cost monitor components.

**[0090]** Maintenance information identifying a maintenance condition may be received from at least one of an accessible resource, an energy consuming component, a user, and a remote node via a network, to name a few sources of maintenance information. Determining that a maintenance condition is met may include a comparison based on an energy cost, a calculation based on an energy cost, and an evaluation of an expression based on an energy cost.

**[0091]** A maintenance operation may include defragmenting data, deleting stored data, moving data, copying data, restructuring data, translating data, flushing at least a portion of a data store, changing a size of a resource, installing a component, removing a component, updating a component, stopping a component, starting a component, setting a clock, and/or presenting a message to a user to perform an action. In an aspect, maintenance operations component **458** may send a message for presenting by a display device to present to a user to instruct the user to clean a surface, add/replace/change a part, lubricate a part, change a source of energy, change a hardware setting, modify an ambient condition such as a room temperature, and/or provide an input for a component configured to perform a maintenance operation.

**[0092]** As described above, a maintenance operation may be identified based on an accessed resource and/or a resource to be accessed, an energy consuming component, a type of access, a type of resource, a type of energy consuming

component, an energy access cost, a user input, a message received via a network, and/or information from at least one of the resource and a component for accessing the resource.

**[0093]** Sending an indication to start a maintenance operation may include invoking an executable addressable entity via a processor memory address; sending a message via a network; sending a message via an inter-process communication mechanism including at least one of a pipe, semaphore, stack, shared data area, and queue; receiving a request such as a poll and responding to invoke an operation handler; and/or scheduling a start time for performing the maintenance operation.

**[0094]** In an aspect, a resource may include a path identifier for a location of a stored resource. The maintenance operation may include modifying the path identifier and/or changing a location of the path identifier in a plurality of path identifiers. In another aspect, an energy consuming component may be and/or may include a data storage medium. The maintenance operation may include defragmenting the resource stored in the data storage medium. In yet another aspect, a resource may be accessible via a network from a remote node. The maintenance operation may include modifying a cache for storing at least a portion of the resource. When energy costs for a storage device are low relative to energy costs for network transmission a cache may be expanded for storing accessed resources for accessing again without requiring network communication. When energy costs for a storage device are high relative to energy costs for network transmission, a cache may be made smaller and/or not used for storing accessed resources that may be accessed a second time.

**[0095]** An energy consuming component may be an instruction-processing unit. A maintenance operation may include modifying a processor speed, modifying a cache included in the instruction-processing, stopping the instruction processing unit, and starting the instruction processing unit.

**[0096]** To the accomplishment of the foregoing and related ends, the descriptions and annexed drawings set forth certain illustrative aspects and implementations of the disclosure. These are indicative of but a few of the various ways in which one or more aspects of the disclosure may be employed. The other aspects, advantages, and novel features of the disclosure will become apparent from the detailed description included herein when considered in conjunction with the annexed drawings.

**[0097]** It should be understood that the various components illustrated in the various block diagrams represent logical components that are configured to perform the functionality described herein and may be implemented in software, hardware, or a combination of the two. Moreover, some or all of these logical components may be combined, some may be omitted altogether, and additional components may be added while still achieving the functionality described herein. Thus, the subject matter described herein may be embodied in many different variations, and all such variations are contemplated to be within the scope of what is claimed.

**[0098]** To facilitate an understanding of the subject matter described above, many aspects are described in terms of sequences of actions that may be performed by elements of a computer system. For example, it will be recognized that the various actions may be performed by specialized circuits or circuitry (e.g., discrete logic gates interconnected to perform a specialized function), by program instructions being

executed by one or more instruction-processing units, or by a combination of both. The description herein of any sequence of actions is not intended to imply that the specific order described for performing that sequence must be followed.

**[0099]** Moreover, the methods described herein may be embodied in executable instructions stored in a computer readable medium for use by or in connection with an instruction execution machine, system, apparatus, or device, such as a computer-based or processor-containing machine, system, apparatus, or device. As used here, a "computer readable medium" may include one or more of any suitable media for storing the executable instructions of a computer program in one or more of an electronic, magnetic, optical, electromagnetic, and infrared form, such that the instruction execution machine, system, apparatus, or device may read (or fetch) the instructions from the computer readable medium and execute the instructions for carrying out the described methods. A non-exhaustive list of conventional exemplary computer readable media includes a portable computer diskette; a random access memory (RAM); a read only memory (ROM); an erasable programmable read only memory (EPROM or Flash memory); optical storage devices, including a portable compact disc (CD), a portable digital video disc (DVD), a high definition DVD (HD-DVD.TM.), and a Blu-ray.TM. disc; and the like.

**[0100]** Thus, the subject matter described herein may be embodied in many different forms, and all such forms are contemplated to be within the scope of what is claimed. It will be understood that various details may be changed without departing from the scope of the claimed subject matter. Furthermore, the foregoing description is for the purpose of illustration only, and not for the purpose of limitation, as the scope of

protection sought is defined by the claims as set forth hereinafter together with any equivalents.

**[0101]** All methods described herein may be performed in any order unless otherwise indicated herein explicitly or by context. The use of the terms "a" and "an" and "the" and similar referents in the context of the foregoing description and in the context of the following claims are to be construed to include the singular and the plural, unless otherwise indicated herein explicitly or clearly contradicted by context. The foregoing description is not to be interpreted as indicating that any non-claimed element is essential to the practice of the subject matter as claimed.

| Electronic Patent Application Fee Transmittal |          |                                                                                                      |        |                      |
|-----------------------------------------------|----------|------------------------------------------------------------------------------------------------------|--------|----------------------|
| Application Number:                           |          |                                                                                                      |        |                      |
| Filing Date:                                  |          |                                                                                                      |        |                      |
| Title of Invention:                           |          | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR MAINTAINING A RESOURCE BASED ON A COST OF ENERGY |        |                      |
| First Named Inventor/Applicant Name:          |          | Robert Paul Morris                                                                                   |        |                      |
| Filer:                                        |          | Robert Paul Morris                                                                                   |        |                      |
| Attorney Docket Number:                       |          | 0123                                                                                                 |        |                      |
| Filed as Small Entity                         |          |                                                                                                      |        |                      |
| Utility under 35 USC 111(a) Filing Fees       |          |                                                                                                      |        |                      |
| Description                                   | Fee Code | Quantity                                                                                             | Amount | Sub-Total in USD(\$) |
| Basic Filing:                                 |          |                                                                                                      |        |                      |
| Utility filing Fee (Electronic filing)        | 4011     | 1                                                                                                    | 82     | 82                   |
| Utility Search Fee                            | 2111     | 1                                                                                                    | 270    | 270                  |
| Utility Examination Fee                       | 2311     | 1                                                                                                    | 110    | 110                  |
| Pages:                                        |          |                                                                                                      |        |                      |
| Claims:                                       |          |                                                                                                      |        |                      |
| Miscellaneous-Filing:                         |          |                                                                                                      |        |                      |
| Petition:                                     |          |                                                                                                      |        |                      |
| Patent-Appeals-and-Interference:              |          |                                                                                                      |        |                      |

| Description                              | Fee Code | Quantity | Amount | Sub-Total in USD(\$) |
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| <b>Post-Allowance-and-Post-Issuance:</b> |          |          |        |                      |
| <b>Extension-of-Time:</b>                |          |          |        |                      |
| <b>Miscellaneous:</b>                    |          |          |        |                      |
| <b>Total in USD (\$)</b>                 |          |          |        | <b>462</b>           |

| Electronic Acknowledgement Receipt          |                                                                                                      |
|---------------------------------------------|------------------------------------------------------------------------------------------------------|
| <b>EFS ID:</b>                              | 8234324                                                                                              |
| <b>Application Number:</b>                  | 12857836                                                                                             |
| <b>International Application Number:</b>    |                                                                                                      |
| <b>Confirmation Number:</b>                 | 4718                                                                                                 |
| <b>Title of Invention:</b>                  | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR MAINTAINING A RESOURCE BASED ON A COST OF ENERGY |
| <b>First Named Inventor/Applicant Name:</b> | Robert Paul Morris                                                                                   |
| <b>Customer Number:</b>                     | 92924                                                                                                |
| <b>Filer:</b>                               | Robert Paul Morris                                                                                   |
| <b>Filer Authorized By:</b>                 |                                                                                                      |
| <b>Attorney Docket Number:</b>              | 0123                                                                                                 |
| <b>Receipt Date:</b>                        | 17-AUG-2010                                                                                          |
| <b>Filing Date:</b>                         |                                                                                                      |
| <b>Time Stamp:</b>                          | 14:18:38                                                                                             |
| <b>Application Type:</b>                    | Utility under 35 USC 111(a)                                                                          |

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| RAM confirmation Number                                                                                                                                                                                                                                                                                                                             | 635                |
| Deposit Account                                                                                                                                                                                                                                                                                                                                     | 505171             |
| Authorized User                                                                                                                                                                                                                                                                                                                                     | MORRIS,ROBERT PAUL |
| <p>The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:</p> <p>Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)</p> <p>Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)</p> |                    |

| Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)             |                                                      |                              |                                          |                  |                  |
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| Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges) |                                                      |                              |                                          |                  |                  |
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| Document Number                                                                                   | Document Description                                 | File Name                    | File Size(Bytes)/ Message Digest         | Multi Part /.zip | Pages (if appl.) |
| 1                                                                                                 | Information Disclosure Statement (IDS) Filed (SB/08) | 0123-US_IDS_Form__SB_08a.pdf | 611649                                   | no               | 4                |
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| 3                                                                                                 | Application Data Sheet                               | 0123-ADS.pdf                 | 1364647                                  | no               | 4                |
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| 7                                                                                                 | Specification                                        | 0123-Specification.pdf       | 133232                                   | no               | 40               |
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| 8                                                                                                 | Fee Worksheet (PTO-875)                              | fee-info.pdf                 | 33023                                    | no               | 2                |
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| <p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><b><u>New Applications Under 35 U.S.C. 111</u></b><br/> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><b><u>National Stage of an International Application under 35 U.S.C. 371</u></b><br/> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><b><u>New International Application Filed with the USPTO as a Receiving Office</u></b><br/> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p> |         |

| Electronic Acknowledgement Receipt          |                                                                                                      |
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| <b>EFS ID:</b>                              | 8234324                                                                                              |
| <b>Application Number:</b>                  | 12857836                                                                                             |
| <b>International Application Number:</b>    |                                                                                                      |
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| <b>Title of Invention:</b>                  | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR MAINTAINING A RESOURCE BASED ON A COST OF ENERGY |
| <b>First Named Inventor/Applicant Name:</b> | Robert Paul Morris                                                                                   |
| <b>Customer Number:</b>                     | 92924                                                                                                |
| <b>Filer:</b>                               | Robert Paul Morris                                                                                   |
| <b>Filer Authorized By:</b>                 |                                                                                                      |
| <b>Attorney Docket Number:</b>              | 0123                                                                                                 |
| <b>Receipt Date:</b>                        | 17-AUG-2010                                                                                          |
| <b>Filing Date:</b>                         |                                                                                                      |
| <b>Time Stamp:</b>                          | 14:18:38                                                                                             |
| <b>Application Type:</b>                    | Utility under 35 USC 111(a)                                                                          |

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| Payment Type                                                                                                                                                                                                                                                                                                                                        | Credit Card        |
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| File Listing:                                                                                     |                                                      |                              |                                          |                  |                  |
| Document Number                                                                                   | Document Description                                 | File Name                    | File Size(Bytes)/ Message Digest         | Multi Part /.zip | Pages (if appl.) |
| 1                                                                                                 | Information Disclosure Statement (IDS) Filed (SB/08) | 0123-US_IDS_Form__SB_08a.pdf | 611649                                   | no               | 4                |
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Date: 08/17/10

Approved for use through 7/31/2006. OMB 0651-0032

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| PATENT APPLICATION FEE DETERMINATION RECORD<br>Substitute for Form PTO-875                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                      |                                    |               |                         | Application or Docket Number<br><b>12/857,836</b> |  |              |  |    |  |                         |  |           |                     |  |  |           |                     |     |    |  |  |     |   |     |     |  |  |     |   |     |     |  |  |     |  |       |           |  |  |       |           |        |  |  |  |        |  |     |  |  |  |     |  |       |     |  |  |       |  |
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| <b>APPLICATION AS FILED – PART I</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                      |                                    |               |                         |                                                   |  |              |  |    |  |                         |  |           |                     |  |  |           |                     |     |    |  |  |     |   |     |     |  |  |     |   |     |     |  |  |     |  |       |           |  |  |       |           |        |  |  |  |        |  |     |  |  |  |     |  |       |     |  |  |       |  |
| (Column 1)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                      | (Column 2)                         |               |                         | (Column 3)                                        |  |              |  |    |  |                         |  |           |                     |  |  |           |                     |     |    |  |  |     |   |     |     |  |  |     |   |     |     |  |  |     |  |       |           |  |  |       |           |        |  |  |  |        |  |     |  |  |  |     |  |       |     |  |  |       |  |
| FOR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | NUMBER FILED                                                                                                                                                                                                         | NUMBER EXTRA                       |               |                         |                                                   |  |              |  |    |  |                         |  |           |                     |  |  |           |                     |     |    |  |  |     |   |     |     |  |  |     |   |     |     |  |  |     |  |       |           |  |  |       |           |        |  |  |  |        |  |     |  |  |  |     |  |       |     |  |  |       |  |
| BASIC FEE<br>(37 CFR 1.16(a), (b), or (c))                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | N/A                                                                                                                                                                                                                  | N/A                                |               |                         |                                                   |  |              |  |    |  |                         |  |           |                     |  |  |           |                     |     |    |  |  |     |   |     |     |  |  |     |   |     |     |  |  |     |  |       |           |  |  |       |           |        |  |  |  |        |  |     |  |  |  |     |  |       |     |  |  |       |  |
| SEARCH FEE<br>(37 CFR 1.16(k), (l), or (m))                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | N/A                                                                                                                                                                                                                  | N/A                                |               |                         |                                                   |  |              |  |    |  |                         |  |           |                     |  |  |           |                     |     |    |  |  |     |   |     |     |  |  |     |   |     |     |  |  |     |  |       |           |  |  |       |           |        |  |  |  |        |  |     |  |  |  |     |  |       |     |  |  |       |  |
| EXAMINATION FEE<br>(37 CFR 1.16(o), (p), or (q))                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | N/A                                                                                                                                                                                                                  | N/A                                |               |                         |                                                   |  |              |  |    |  |                         |  |           |                     |  |  |           |                     |     |    |  |  |     |   |     |     |  |  |     |   |     |     |  |  |     |  |       |           |  |  |       |           |        |  |  |  |        |  |     |  |  |  |     |  |       |     |  |  |       |  |
| TOTAL CLAIMS<br>(37 CFR 1.16(i))                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 20                                                                                                                                                                                                                   | minus 20 =                         |               |                         |                                                   |  |              |  |    |  |                         |  |           |                     |  |  |           |                     |     |    |  |  |     |   |     |     |  |  |     |   |     |     |  |  |     |  |       |           |  |  |       |           |        |  |  |  |        |  |     |  |  |  |     |  |       |     |  |  |       |  |
| INDEPENDENT CLAIMS<br>(37 CFR 1.16(h))                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 3                                                                                                                                                                                                                    | minus 3 =                          |               |                         |                                                   |  |              |  |    |  |                         |  |           |                     |  |  |           |                     |     |    |  |  |     |   |     |     |  |  |     |   |     |     |  |  |     |  |       |           |  |  |       |           |        |  |  |  |        |  |     |  |  |  |     |  |       |     |  |  |       |  |
| APPLICATION SIZE FEE<br>(37 CFR 1.16(s))                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$270 (\$135 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR |                                    |               |                         |                                                   |  |              |  |    |  |                         |  |           |                     |  |  |           |                     |     |    |  |  |     |   |     |     |  |  |     |   |     |     |  |  |     |  |       |           |  |  |       |           |        |  |  |  |        |  |     |  |  |  |     |  |       |     |  |  |       |  |
| MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                      |                                    |               |                         |                                                   |  |              |  |    |  |                         |  |           |                     |  |  |           |                     |     |    |  |  |     |   |     |     |  |  |     |   |     |     |  |  |     |  |       |           |  |  |       |           |        |  |  |  |        |  |     |  |  |  |     |  |       |     |  |  |       |  |
| * If the difference in column 1 is less than zero, enter "0" in column 2.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                      |                                    |               |                         |                                                   |  |              |  |    |  |                         |  |           |                     |  |  |           |                     |     |    |  |  |     |   |     |     |  |  |     |   |     |     |  |  |     |  |       |           |  |  |       |           |        |  |  |  |        |  |     |  |  |  |     |  |       |     |  |  |       |  |
| <b>APPLICATION AS AMENDED – PART II</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                      |                                    |               |                         |                                                   |  |              |  |    |  |                         |  |           |                     |  |  |           |                     |     |    |  |  |     |   |     |     |  |  |     |   |     |     |  |  |     |  |       |           |  |  |       |           |        |  |  |  |        |  |     |  |  |  |     |  |       |     |  |  |       |  |
| (Column 1)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                      | (Column 2)                         |               |                         | (Column 3)                                        |  |              |  |    |  |                         |  |           |                     |  |  |           |                     |     |    |  |  |     |   |     |     |  |  |     |   |     |     |  |  |     |  |       |           |  |  |       |           |        |  |  |  |        |  |     |  |  |  |     |  |       |     |  |  |       |  |
| <b>AMENDMENT A</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | CLAIMS REMAINING AFTER AMENDMENT                                                                                                                                                                                     | HIGHEST NUMBER PREVIOUSLY PAID FOR | PRESENT EXTRA |                         |                                                   |  |              |  |    |  |                         |  |           |                     |  |  |           |                     |     |    |  |  |     |   |     |     |  |  |     |   |     |     |  |  |     |  |       |           |  |  |       |           |        |  |  |  |        |  |     |  |  |  |     |  |       |     |  |  |       |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Total<br>(37 CFR 1.16(i))                                                                                                                                                                                            | *                                  | Minus         | **                      | =                                                 |  |              |  |    |  |                         |  |           |                     |  |  |           |                     |     |    |  |  |     |   |     |     |  |  |     |   |     |     |  |  |     |  |       |           |  |  |       |           |        |  |  |  |        |  |     |  |  |  |     |  |       |     |  |  |       |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Independent<br>(37 CFR 1.16(h))                                                                                                                                                                                      | *                                  | Minus         | ***                     | =                                                 |  |              |  |    |  |                         |  |           |                     |  |  |           |                     |     |    |  |  |     |   |     |     |  |  |     |   |     |     |  |  |     |  |       |           |  |  |       |           |        |  |  |  |        |  |     |  |  |  |     |  |       |     |  |  |       |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Application Size Fee (37 CFR 1.16(s))                                                                                                                                                                                |                                    |               |                         |                                                   |  |              |  |    |  |                         |  |           |                     |  |  |           |                     |     |    |  |  |     |   |     |     |  |  |     |   |     |     |  |  |     |  |       |           |  |  |       |           |        |  |  |  |        |  |     |  |  |  |     |  |       |     |  |  |       |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))                                                                                                                                                      |                                    |               |                         |                                                   |  |              |  |    |  |                         |  |           |                     |  |  |           |                     |     |    |  |  |     |   |     |     |  |  |     |   |     |     |  |  |     |  |       |           |  |  |       |           |        |  |  |  |        |  |     |  |  |  |     |  |       |     |  |  |       |  |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: center;">SMALL ENTITY</th> <th colspan="2" style="text-align: center;">OR</th> <th colspan="2" style="text-align: center;">OTHER THAN SMALL ENTITY</th> </tr> <tr> <th style="text-align: center;">RATE (\$)</th> <th style="text-align: center;">FEE (\$)</th> <th></th> <th></th> <th style="text-align: center;">RATE (\$)</th> <th style="text-align: center;">FEE (\$)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">N/A</td> <td style="text-align: center;">82</td> <td></td> <td></td> <td style="text-align: center;">N/A</td> <td></td> </tr> <tr> <td style="text-align: center;">N/A</td> <td style="text-align: center;">270</td> <td></td> <td></td> <td style="text-align: center;">N/A</td> <td></td> </tr> <tr> <td style="text-align: center;">N/A</td> <td style="text-align: center;">110</td> <td></td> <td></td> <td style="text-align: center;">N/A</td> <td></td> </tr> <tr> <td style="text-align: center;">x\$26</td> <td></td> <td></td> <td></td> <td style="text-align: center;">x\$52</td> <td></td> </tr> <tr> <td style="text-align: center;">x\$110</td> <td></td> <td></td> <td></td> <td style="text-align: center;">x\$220</td> <td></td> </tr> <tr> <td style="text-align: center;">195</td> <td></td> <td></td> <td></td> <td style="text-align: center;">390</td> <td></td> </tr> <tr> <td style="text-align: center;">TOTAL</td> <td style="text-align: center;">462</td> <td></td> <td></td> <td style="text-align: center;">TOTAL</td> <td></td> </tr> </tbody> </table> |                                                                                                                                                                                                                      |                                    |               |                         |                                                   |  | SMALL ENTITY |  | OR |  | OTHER THAN SMALL ENTITY |  | RATE (\$) | FEE (\$)            |  |  | RATE (\$) | FEE (\$)            | N/A | 82 |  |  | N/A |   | N/A | 270 |  |  | N/A |   | N/A | 110 |  |  | N/A |  | x\$26 |           |  |  | x\$52 |           | x\$110 |  |  |  | x\$220 |  | 195 |  |  |  | 390 |  | TOTAL | 462 |  |  | TOTAL |  |
| SMALL ENTITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                      | OR                                 |               | OTHER THAN SMALL ENTITY |                                                   |  |              |  |    |  |                         |  |           |                     |  |  |           |                     |     |    |  |  |     |   |     |     |  |  |     |   |     |     |  |  |     |  |       |           |  |  |       |           |        |  |  |  |        |  |     |  |  |  |     |  |       |     |  |  |       |  |
| RATE (\$)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | FEE (\$)                                                                                                                                                                                                             |                                    |               | RATE (\$)               | FEE (\$)                                          |  |              |  |    |  |                         |  |           |                     |  |  |           |                     |     |    |  |  |     |   |     |     |  |  |     |   |     |     |  |  |     |  |       |           |  |  |       |           |        |  |  |  |        |  |     |  |  |  |     |  |       |     |  |  |       |  |
| N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 82                                                                                                                                                                                                                   |                                    |               | N/A                     |                                                   |  |              |  |    |  |                         |  |           |                     |  |  |           |                     |     |    |  |  |     |   |     |     |  |  |     |   |     |     |  |  |     |  |       |           |  |  |       |           |        |  |  |  |        |  |     |  |  |  |     |  |       |     |  |  |       |  |
| N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 270                                                                                                                                                                                                                  |                                    |               | N/A                     |                                                   |  |              |  |    |  |                         |  |           |                     |  |  |           |                     |     |    |  |  |     |   |     |     |  |  |     |   |     |     |  |  |     |  |       |           |  |  |       |           |        |  |  |  |        |  |     |  |  |  |     |  |       |     |  |  |       |  |
| N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 110                                                                                                                                                                                                                  |                                    |               | N/A                     |                                                   |  |              |  |    |  |                         |  |           |                     |  |  |           |                     |     |    |  |  |     |   |     |     |  |  |     |   |     |     |  |  |     |  |       |           |  |  |       |           |        |  |  |  |        |  |     |  |  |  |     |  |       |     |  |  |       |  |
| x\$26                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                      |                                    |               | x\$52                   |                                                   |  |              |  |    |  |                         |  |           |                     |  |  |           |                     |     |    |  |  |     |   |     |     |  |  |     |   |     |     |  |  |     |  |       |           |  |  |       |           |        |  |  |  |        |  |     |  |  |  |     |  |       |     |  |  |       |  |
| x\$110                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                      |                                    |               | x\$220                  |                                                   |  |              |  |    |  |                         |  |           |                     |  |  |           |                     |     |    |  |  |     |   |     |     |  |  |     |   |     |     |  |  |     |  |       |           |  |  |       |           |        |  |  |  |        |  |     |  |  |  |     |  |       |     |  |  |       |  |
| 195                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                      |                                    |               | 390                     |                                                   |  |              |  |    |  |                         |  |           |                     |  |  |           |                     |     |    |  |  |     |   |     |     |  |  |     |   |     |     |  |  |     |  |       |           |  |  |       |           |        |  |  |  |        |  |     |  |  |  |     |  |       |     |  |  |       |  |
| TOTAL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 462                                                                                                                                                                                                                  |                                    |               | TOTAL                   |                                                   |  |              |  |    |  |                         |  |           |                     |  |  |           |                     |     |    |  |  |     |   |     |     |  |  |     |   |     |     |  |  |     |  |       |           |  |  |       |           |        |  |  |  |        |  |     |  |  |  |     |  |       |     |  |  |       |  |
| <b>AMENDMENT B</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | CLAIMS REMAINING AFTER AMENDMENT                                                                                                                                                                                     | HIGHEST NUMBER PREVIOUSLY PAID FOR | PRESENT EXTRA |                         |                                                   |  |              |  |    |  |                         |  |           |                     |  |  |           |                     |     |    |  |  |     |   |     |     |  |  |     |   |     |     |  |  |     |  |       |           |  |  |       |           |        |  |  |  |        |  |     |  |  |  |     |  |       |     |  |  |       |  |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Application Size Fee (37 CFR 1.16(s))                                                                                                                                                                                |                                    |               |                         |                                                   |  |              |  |    |  |                         |  |           |                     |  |  |           |                     |     |    |  |  |     |   |     |     |  |  |     |   |     |     |  |  |     |  |       |           |  |  |       |           |        |  |  |  |        |  |     |  |  |  |     |  |       |     |  |  |       |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))                                                                                                                                                      |                                    |               |                         |                                                   |  |              |  |    |  |                         |  |           |                     |  |  |           |                     |     |    |  |  |     |   |     |     |  |  |     |   |     |     |  |  |     |  |       |           |  |  |       |           |        |  |  |  |        |  |     |  |  |  |     |  |       |     |  |  |       |  |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: center;">SMALL ENTITY</th> <th colspan="2" style="text-align: center;">OR</th> <th colspan="2" style="text-align: center;">OTHER THAN SMALL ENTITY</th> </tr> <tr> <th style="text-align: center;">RATE (\$)</th> <th style="text-align: center;">ADDITIONAL FEE (\$)</th> <th></th> <th></th> <th style="text-align: center;">RATE (\$)</th> <th style="text-align: center;">ADDITIONAL FEE (\$)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">X</td> <td style="text-align: center;">=</td> <td></td> <td></td> <td style="text-align: center;">X</td> <td style="text-align: center;">=</td> </tr> <tr> <td style="text-align: center;">X</td> <td style="text-align: center;">=</td> <td></td> <td></td> <td style="text-align: center;">X</td> <td style="text-align: center;">=</td> </tr> <tr> <td style="text-align: center;">N/A</td> <td></td> <td></td> <td></td> <td style="text-align: center;">N/A</td> <td></td> </tr> <tr> <td style="text-align: center;">TOTAL</td> <td style="text-align: center;">ADD'T FEE</td> <td></td> <td></td> <td style="text-align: center;">TOTAL</td> <td style="text-align: center;">ADD'T FEE</td> </tr> </tbody> </table>                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                      |                                    |               |                         |                                                   |  | SMALL ENTITY |  | OR |  | OTHER THAN SMALL ENTITY |  | RATE (\$) | ADDITIONAL FEE (\$) |  |  | RATE (\$) | ADDITIONAL FEE (\$) | X   | =  |  |  | X   | = | X   | =   |  |  | X   | = | N/A |     |  |  | N/A |  | TOTAL | ADD'T FEE |  |  | TOTAL | ADD'T FEE |        |  |  |  |        |  |     |  |  |  |     |  |       |     |  |  |       |  |
| SMALL ENTITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                      | OR                                 |               | OTHER THAN SMALL ENTITY |                                                   |  |              |  |    |  |                         |  |           |                     |  |  |           |                     |     |    |  |  |     |   |     |     |  |  |     |   |     |     |  |  |     |  |       |           |  |  |       |           |        |  |  |  |        |  |     |  |  |  |     |  |       |     |  |  |       |  |
| RATE (\$)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | ADDITIONAL FEE (\$)                                                                                                                                                                                                  |                                    |               | RATE (\$)               | ADDITIONAL FEE (\$)                               |  |              |  |    |  |                         |  |           |                     |  |  |           |                     |     |    |  |  |     |   |     |     |  |  |     |   |     |     |  |  |     |  |       |           |  |  |       |           |        |  |  |  |        |  |     |  |  |  |     |  |       |     |  |  |       |  |
| X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | =                                                                                                                                                                                                                    |                                    |               | X                       | =                                                 |  |              |  |    |  |                         |  |           |                     |  |  |           |                     |     |    |  |  |     |   |     |     |  |  |     |   |     |     |  |  |     |  |       |           |  |  |       |           |        |  |  |  |        |  |     |  |  |  |     |  |       |     |  |  |       |  |
| X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | =                                                                                                                                                                                                                    |                                    |               | X                       | =                                                 |  |              |  |    |  |                         |  |           |                     |  |  |           |                     |     |    |  |  |     |   |     |     |  |  |     |   |     |     |  |  |     |  |       |           |  |  |       |           |        |  |  |  |        |  |     |  |  |  |     |  |       |     |  |  |       |  |
| N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                      |                                    |               | N/A                     |                                                   |  |              |  |    |  |                         |  |           |                     |  |  |           |                     |     |    |  |  |     |   |     |     |  |  |     |   |     |     |  |  |     |  |       |           |  |  |       |           |        |  |  |  |        |  |     |  |  |  |     |  |       |     |  |  |       |  |
| TOTAL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | ADD'T FEE                                                                                                                                                                                                            |                                    |               | TOTAL                   | ADD'T FEE                                         |  |              |  |    |  |                         |  |           |                     |  |  |           |                     |     |    |  |  |     |   |     |     |  |  |     |   |     |     |  |  |     |  |       |           |  |  |       |           |        |  |  |  |        |  |     |  |  |  |     |  |       |     |  |  |       |  |

\* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.  
 \*\* If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".  
 \*\*\* If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".  
 The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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