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DLA PIPER LLP (US)
2000 UNIVERSITY AVENUE
EAST PALO ALTO, CA 94303-2248

EXAMINER

MUSA, ABDELNABIO

ART UNIT	PAPER NUMBER
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2478

NOTIFICATION DATE	DELIVERY MODE
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ELECTRONIC

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

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Office Action Summary	Application No. 11/503,090	Applicant(s) PABARI, VIPUL	
	Examiner ABDELNABI MUSA	Art Unit 2478	AIA (First Inventor to File) Status 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 26 April 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) 1,4-12,14-25,27-30,36,39 and 40 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5a) Of the above claim(s) _____ is/are withdrawn from consideration.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) 1,4-12,14-25,27-30,36,39 and 40 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 or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☒ The drawing(s) filed on 10 August 2006 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) ☒ Notice of References Cited (PTO-892) | 3) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 4) ☐ Other: _____ |

DETAILED ACTION

1. Acknowledgment is made for the applicant's response and amendment filed on 07/11/2013.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 04/29/2013 has been entered.

Remarks

3. The claims are presented as follows:
- Claims 1, 4, 11-12, 14-16, 25, 27 amended.
 - Claims 2-3, 13, 26, 31-35, 37-38 canceled.
 - Claims 1, 4-12, 14-25, 27-30, 36, 39-40 pending.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 27-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As per claim 27-29, the following limitations are recited:

- "a network communications unit that determines...." as recited in claim 27.

Dependent claims 28-29 are also rejected since they are depended upon rejection claims set forth above.

The limitations noted immediately above are means-plus-function limitations that invoke 35 U.S.C. 112, sixth paragraph. However, the written description fails to disclose the corresponding structure, material, or acts for the claimed function.

Applicant is required to:

(a) Amend the claim so that the claim limitation will no longer be a means (or step) plus function limitation under 35 U.S.C. 112, sixth paragraph; or

(b) Amend the written description of the specification such that it expressly recites what structure, material, or acts perform the claimed function without introducing any new matter (35 U.S.C. 132(a)).

If applicant is of the opinion that the written description of the specification already implicitly or inherently discloses the corresponding structure, material, or acts so that one of ordinary skill in the art would recognize what structure, material, or acts perform the claimed function, applicant is required to clarify the record by amending the written description of the specification such that it expressly recites the corresponding structure, material, or acts for performing the claimed function and clearly links or associates the structure, material, or acts to the claimed function, without introducing any new matter (35 U.S.C. 132(a)).

Claim Rejections - 35 USC § 103

5. 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.

Claims 1, 4-12, 14-25, 27-30, 36, 39-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vasilevsky et al. Pub. No (US. 2005/0044301 A1) in view of Yan et al. Pub. No. (US 2003/0236882 A1).

As per **claim 1**, Vasilevsky teaches a method for automatic management of a virtualization environment in a computer network, the method comprising:

providing a virtualization environment (virtualization environment 100 FIG.1 [0058]) that has a virtualization layer (virtualization layer 104 FIG.1 [0058]), network resources (data center provides resources [0058] FIG.1) and virtual assets (operating system layer 103 FIG.1), the virtual assets including at least one software instantiations of equipment objects in the virtualization environment (the virtual assets including an operating system software 103 FIG.1 [0058]), the virtualization layer managing the virtual assets (the virtualization layer managing the execution of the operating system [0017] [0042] [0058] FIG.1);

providing a controller (Manager 212 FIG.2) coupled to the virtualization environment over a network that communicates with the virtualization layer (Manager 212 connected to the virtual computing system 201 over a network that communicates

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with a management agent executed by one or more virtual servers of system 201 for the purpose of performing configuration changes, monitoring performance, and performing other administrative functions associated with system 201 [0070-71] FIG.2)

determining, using the controller that communicates with the virtualization layer (Manager 212 connected to the virtual computing system 201 FIG.2), an inventory of network resources and virtual assets available to the virtualization environment (Manager 212 has the ability for allocating or de-allocating resources both actual and virtual in real time 212 [0072-73])

provisioning, by the controller that communicates with the virtualization layer (Manager 212 connected to the virtual computing system 201 FIG.2), the virtual assets from among the available inventory, thereby establishing a provisioned virtualization environment (An administrator through manger 212 is capable of provisioning resources in real time to support executing virtual servers [0076] [0082] FIG.2);

determining, at the controller, real time performance metrics for the provisioned virtualization environment (a virtual computing system is provided that allows a network administrator to provision computing resources in real-time ("on-the-fly") without a restart of a virtual computing system [0076-77]); charity organization

determining, for the provisioned virtualization environment under control of the controller (Manager 212 connected to the virtual computing system 201 FIG.2), a reallocation of the virtual assets in response to the real time performance metrics (a management agent 815 is responsible for handling dynamic reconfiguration functions as well as reporting status and logging to other entities and may receive commands from

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the administrator (e.g., through Manager 212) for adding, deleting, and reallocation of resources from virtual servers in real time [0076] [0150]);

initiating, by the controller that communicates with the virtualization layer (Manager 212 connected to the virtual computing system 201 FIG.2), the reallocation of the virtual assets in the provisioned virtualization environment (the management agent 815 residing within the virtualization environment is responsible for handling dynamic reconfiguration functions by receiving commands from the administrator (through manager 212) for adding, deleting, and reallocating of resources from virtual servers [0150] [0154]).

Vasilevsky does not specifically teach an automatic determination of a reallocation of the virtual assets.

However, Yan teaches a resource system that provides a resource virtualization mechanism ([0026] FIG.6) a management system includes a set of auto-deployment components that receives requirement update requests from a corresponding virtual operating environment and in response automatically conduct resource allocation and service re-deployment to adjust behavior at runtime ([0030] [0062] FIG.6) in order to achieve an efficient virtualization management of network resources.

It would have been obvious to a person having ordinary skilled in the art at the time the invention was made to have modified Vasilevsky by the teaching of Yan to have an automatic determination of a reallocation of the virtual assets in order to achieve an efficient virtualization management of network resources.

As per **claim 4**, Vasilevsky teaches the method of claim 1 further comprising receiving user input that is a Knowledge Block that determines one or more of the reallocation parameters to be considered (I/O functions that may be performed by the distributed virtual machine monitor that may include I/O device configuration and discovery, initiation (for both data movement and control), and reallocating of resources from virtual servers [0112-114] [0150]) with the real time performance metrics in producing the reallocation of assets and wherein the received user input specifies parameters that detect operational degradation of a member of the available inventory (a management agent 815 residing within the virtualization environment is responsible for handling dynamic reconfiguration functions as well as reporting status 'e.g., operational degradation' and logging to other entities by receiving commands from the administrator for adding, deleting, and reallocating resources from virtual servers [0150] [0154]).

As per **claim 5**, Vasilevsky teaches the method of claim 4, wherein the available inventory member that is detected as degraded is removed from the available inventory (a management agent 815 residing within the virtualization environment is responsible for handling dynamic reconfiguration functions as well as reporting status 'e.g., operational degradation' and logging to other entities by receiving commands from the administrator for adding, deleting, and reallocating of resources from virtual servers [0150] [0154]).

As per **claim 6**, Vasilevsky teaches the method of claim 4, wherein the available inventory that is detected as degraded is moved from the available inventory to a debug

inventory pool (a management agent 815 residing within the virtualization environment for handling dynamic reconfiguration functions from the administrator for adding, deleting, and reallocating of resources from virtual servers [0150] [0154]).

As per **claim 7**, Vasilevsky teaches the method of claim 4, wherein log files are retrieved from the available inventory that is detected as degraded (the management agent may be responsible for a number of tasks, including configuration management of the system, virtual server management, logging, parameter management [0086] [0088]).

As per **claim 8**, Vasilevsky teaches the method of claim 7, wherein the log files are stored in an archive and an alert message is sent to a network administrator with an identification of the log file archive location (the management agent may be responsible for a number of tasks, including alarm propagation and alert messages [0086] [0088]).

As per **claim 9**, Vasilevsky teaches the method of claim 4, wherein the available inventory that is detected as degraded is halted and is removed from the available inventory to a debug inventory pool (a management agent 815 residing within the virtualization environment is responsible for handling dynamic reconfiguration functions as well as reporting status 'e.g., operational degradation' and logging to other entities by receiving commands from the administrator for adding, deleting, and reallocating resources from virtual servers [0150] [0154])

As per **claim 10**, Vasilevsky teaches the method of claim 9, wherein the halted available inventory is removed from the debug inventory pool (a management agent receiving commands from the administrator for adding, deleting, and reallocating resources from virtual servers [0150] [0154])

As per **claim 11**, Vasilevsky teaches the method of claim 4, wherein the Knowledge Block specifies parameters that send an alert message to an administrator of the network in response to an alert condition (the management agent may be responsible for a number of tasks, including alarm propagation and alert messages [0086] [0088])

As per **claim 12**, Vasilevsky teaches the method of claim 4, wherein the Knowledge Block specifies parameters that receive an instruction from an administrator of the network in response to an alert condition (the management agent may be responsible for a number of tasks, including alarm propagation and alert messages [0086] [0088])

As per **claim 14**, Vasilevsky teaches the method of claim 4, wherein the Knowledge Block specifies parameters that deploy an instance of an application selected from among the available inventory (specify an unassigned resources may be grouped into a "pool" of unassigned resources and presented to an administrator or program as being available for assignment [0082-83])

As per **claim 15**, Vasilevsky teaches the method of claim 4, wherein the received user input specifies a priority for one or more of the available inventory (the management agent may be executed as an overhead process at a different priority and at any level of a virtual computing system hierarchy and at any protection or priority level [0087])

As per **claim 16**, Vasilevsky teaches the method of claim 4, wherein the user input specifies a time period during which the reallocation will be applied (Instances of

server functions performed as part of the cluster include watchdog timers, page allocation, reallocation, and sharing, I/O virtualization and other services [0154]).

As per **claim 17**, Vasilevsky teaches the method of claim 1, further comprising: providing a user interface through which user input can be received and wherein the user input adjusts scheduling of producing the reallocation (a capability is provided to allocate and/or de-allocate resources from an administrator through an interface (e.g., a CLI, or GUI or a programmatic interface' [0074-75]).

As per **claim 18**, Vasilevsky teaches the method of claim 1, wherein producing a reallocation comprises adding a new application instance to the available inventory (a management agent receiving commands from the administrator for adding, deleting, and reallocating of resources from virtual servers [0150] [0154])

As per **claim 19**, Vasilevsky teaches the method of claim 1, wherein producing a reallocation comprises updating the available inventory to include any changes made by the reallocation (Manager 212 may communicate with a management agent executed by one or more virtual servers of system 201 for the purpose of performing configuration changes, monitoring performance, and performing other administrative functions associated with system 201 [0070] [0072])

As per **claim 20**, Vasilevsky teaches the method of claim 1, wherein the inventory of available inventory includes one or more application programs (resources include processing, memory, networking, storage, etc.) to a virtual computing system. Such control may be provide, for example, to an administrator through an interface

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(e.g., via a CLI, or GUI) or to other programs (e.g., via a programmatic interface) [0074-75])

As per **claim 21**, Vasilevsky teaches the method of claim 20, wherein one of the application programs comprises a network load balancer (the virtual computing system may be scaled up/scaled down as necessary by the distributed server [0072] [0074])

As per **claim 22**, Vasilevsky teaches the method of claim 20, wherein one of the application programs comprises a network server (resources may be allocated or de-allocated a distributed server [0072])

As per **claim 23**, Vasilevsky teaches the method of claim 1, wherein: determining, by an Asset Manager Component (Manager 212 connected to the virtual computing system 201 FIG.2), an inventory of available network resources and virtual assets (specify an unassigned resources may be grouped into a "pool" of unassigned resources and presented to an administrator or program as being available for assignment [0082-83]); assigning prioritization to the available inventory and provisioning virtual assets from among the available inventory (the management agent may be executed as an overhead process at a different priority and at any level of a virtual computing system hierarchy and at any protection or priority level [0087]), performed by a Provisioning Manager component; determining, by a Performance Manager component (An administrator through manger 212 is capable of provisioning resources in real time to support executing virtual servers [0076] [0082] FIG.2), a real time performance metrics; and automatically producing and initializing, by an Optimizer component, a reallocation of the virtual assets (An administrator through manger 212 is

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capable of provisioning resources in real time to support executing virtual servers [0076] [0082] FIG.2).

As per **claim 24**, Vasilevsky teaches the method of claim 23, but does not specifically teach wherein automatically producing a reallocation of the virtual assets comprises forecasting future system needs, which is performed by a Capacity Planning Manager component.

However, Yan teaches a resource system that provides a resource virtualization mechanism ([0026] FIG.6) a management system includes a set of auto-deployment components that receives requirement update requests from a corresponding virtual operating environment and in response automatically conduct resource allocation and service re-deployment to adjust behavior at runtime and prediction on distribution and dynamism of resource ([0030] [0053] [0062] FIG.6) in order to achieve an efficient virtualization management of network resources.

It would have been obvious to a person having ordinary skilled in the art at the time the invention was made to have modified Vasilevsky by the teaching of Yan to have an automatic determination of a reallocation of the virtual assets and forecasting future system needs in order to achieve an efficient virtualization management of network resources.

As per **claim 25**, Vasilevsky teaches a method for automatic management of a virtualization environment in a computer network, the method comprising:

providing a virtualization environment (virtualization environment 100 FIG.1 [0058]) that has a virtualization layer (virtualization layer 104 FIG.1 [0058]), network

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resources (data center provides resources [0058] FIG.1) and virtual assets (operating system layer 103 FIG.1), the virtual assets including at least one software instantiations of equipment objects in the virtualization environment (the virtual assets including an operating system software 103 FIG.1 [0058]), the virtualization layer managing the virtual assets (the virtualization layer managing the execution of the operating system [0017] [0042] [0058] FIG.1);

providing a controller (Manager 212 FIG.2) coupled to the virtualization environment over a network (Manager 212 connected to the virtual computing system 201 over a network that communicates with a management agent executed by one or more virtual servers of system 201 for the purpose of performing configuration changes, monitoring performance, and performing other administrative functions associated with system 201 [0070-71] FIG.2);

performing one or more functions by the controller (Manager 212 has the ability for allocating or de-allocating resources both actual and virtual in real time 212 [0072-73]) that communicates with the virtualization layer from the group of functions consisting of:

(1) identification and management of network resources and virtual assets (Manager 212 manages the allocating or de-allocating resources for both actual and virtual in real time 212 [0073-74])

(2) provisioning of virtual assets in response to network workflow demands (An administrator through manger 212 is capable of provisioning resources in real time to support executing virtual servers [0076] [0082] FIG.2),

(3) dynamic deployment of virtual assets across the computer network (a management agent 815 residing within the virtualization environment for handling dynamic reconfiguration functions from the administrator for adding, deleting, and reallocating resources from virtual servers [0150] [0154]),

(4) performance measurement and reporting of resources and virtual assets (Manager 212 for the purpose of performing configuration changes, monitoring performance, and performing other administrative functions associated with system 201 [0070-71] FIG.2), and

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment (Manager 212 connected to the virtual computing system 201 over a network that communicates with a management agent executed by one or more virtual servers of system 201 for the purpose of performing configuration changes, monitoring performance, and performing other administrative functions associated with system 201 [0070-71] FIG.2).

Vasilevsky does not specifically teach planning and forecasting of resource demands and virtual asset utilization of the virtualization environment;

However, Yan teaches a resource system that provides a resource virtualization mechanism ([0026] FIG.6) a management system includes a set of auto-deployment components that receives requirement update requests from a corresponding virtual operating environment and in response automatically conduct resource allocation and service re-deployment to adjust behavior at runtime and prediction on distribution and

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dynamism of resource ([0030] [0053] [0062] FIG.6) in order to achieve an efficient virtualization management of network resources.

It would have been obvious to a person having ordinary skilled in the art at the time the invention was made to have modified Vasilevsky by the teaching of Yan to have an automatic determination of a reallocation of the virtual assets and forecasting future system needs in order to achieve an efficient virtualization management of network resources.

As per **claim 27**, Vasilevsky teaches an apparatus that performs automatic management of a virtualization environment in a computer network comprising:

a virtualization environment (virtualization environment 100 FIG.1 [0058]) that has a virtualization layer (virtualization layer 104 FIG.1 [0058]), network resources (data center provides resources [0058] FIG.1) and virtual assets (operating system layer 103 FIG.1), the virtual assets including at least one software instantiations of equipment objects in the virtualization environment (the virtual assets including an operating system software 103 FIG.1 [0058]), the virtualization layer managing the virtual assets (the virtualization layer managing the execution of the operating system [0017] [0042] [0058] FIG.1);

a network communications unit ((Manager 212 FIG.2) that enables communications between the apparatus and the a virtualization environment over a computer network (Manager 212 connected to the virtual computing system 201 over a network that communicates with a management agent executed by one or more virtual servers of system 201 for the purpose of performing configuration changes, monitoring

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performance, and performing other administrative functions associated with system 201 [0070-71] FIG.2);

an operating system of the apparatus that supports the a virtualization environment in communication with the apparatus over the computer network (the virtualization layer managing the execution of the operating system [0017] [0042] [0058] FIG.1); and

a Virtual Mapping layer (an abstraction layer 102 FIG.2) that determines an inventory of network resources and virtual assets available to the virtualization environment (an abstraction layer for mapping resources presented by each virtual server to other upper layer 202 programs [0065] [0077]), wherein the Virtual Mapping layer determines the inventory without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment (The interface may display a representation of an allocation of physical resources and mapping to virtual resources used by a virtual server. For example, the interface may provide an ability to map virtual servers to sets of physical resources, such as a virtual processor that is mapped to a physical processor [0077] [0079]); and

a controller (Manager 212 FIG.2) that communicates with the virtualization layer and provisions the virtual assets from among the available inventory (Manager 212 connected to the virtual computing system 201 over a network that communicates with a management agent executed by one or more virtual servers of system 201 for the purpose of performing configuration changes, monitoring performance, and performing other administrative functions associated with system 201 [0070-71] FIG.2), thereby

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establishing a provisioned virtualization environment, determines real time performance metrics for the provisioned virtualization environment (An administrator through manger 212 is capable of provisioning resources in real time to support executing virtual servers [0076] [0082] FIG.2), determines for the provisioned virtualization environment (a management agent 815 residing within the virtualization environment for handling dynamic reconfiguration functions from the administrator for adding, deleting, and reallocating of resources from virtual servers [0150] [0154]), a reallocation of the virtual assets in response to the real time performance metrics (An administrator through manger 212 is capable of provisioning resources in real time to support executing virtual servers [0076] [0082] FIG.2) and initiates the reallocation of the virtual assets in the provisioned virtualization environment (the management agent 815 residing within the virtualization environment is responsible for handling dynamic reconfiguration functions by receiving commands from the administrator (through manager 212) for adding, deleting, and reallocating of resources from virtual servers [0150] [0154]).

Vasilevsky does not specifically teach an automatic determination of a reallocation of the virtual assets.

However, Yan teaches a resource system that provides a resource virtualization mechanism ([0026] FIG.6) a management system includes a set of auto-deployment components that receives requirement update requests from a corresponding virtual operating environment and in response automatically conduct resource allocation and service re-deployment to adjust behavior at runtime ([0030] [0062] FIG.6) in order to achieve an efficient virtualization management of network resources.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Vasilevsky by the teaching of Yan to have an automatic determination of a reallocation of the virtual assets in order to achieve an efficient virtualization management of network resources.

As per **claim 28**, Vasilevsky teaches the apparatus of claim 27, further comprising one or more components that receive the inventory of available resources and assets from the Virtual Mapping layer and perform one or more functions from the group of functions consisting of:

identification and management of network resources and virtual assets, dynamic deployment of virtual assets across the computer network (a management agent 815 residing within the virtualization environment for handling dynamic reconfiguration functions from the administrator for adding, deleting, and reallocating resources from virtual servers [0150] [0154]), performance measurement and reporting of resources and virtual assets (Manager 212 for the purpose of performing configuration changes, monitoring performance, and performing other administrative functions associated with system 201 [0070-71] FIG.2), and

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment (Manager 212 connected to the virtual computing system 201 over a network that communicates with a management agent executed by one or more virtual servers of system 201 for the purpose of performing configuration changes, monitoring

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performance, and performing other administrative functions associated with system 201 [0070-71] FIG.2).

Vasilevsky does not specifically teach planning and forecasting of resource demands and asset utilization of the virtualization environment;

However, Yan teaches a resource system that provides a resource virtualization mechanism ([0026] FIG.6) a management system includes a set of auto-deployment components that receives requirement update requests from a corresponding virtual operating environment and in response automatically conduct resource allocation and service re-deployment to adjust behavior at runtime and prediction on distribution and dynamism of resource ([0030] [0053] [0062] FIG.6) in order to achieve an efficient virtualization management of network resources.

It would have been obvious to a person having ordinary skilled in the art at the time the invention was made to have modified Vasilevsky by the teaching of Yan to have an automatic determination of a reallocation of the virtual assets and forecasting future system needs in order to achieve an efficient virtualization management of network resources.

As per **claim 29**, Vasilevsky teaches the apparatus of claim 27, further comprising a component selected from a group consisting of: an Asset Manager component that determines an inventory of available network resources and virtual assets;

a Provisioning Manager component that assigns a prioritization to the available inventory and provisions virtual assets from among the available inventory (the

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management agent may be executed as an overhead process at a different priority and at any level of a virtual computing system hierarchy and at any protection or priority level [0087]);

a Performance Manager component that determines real time performance metrics (An administrator through manger 212 is capable of provisioning resources in real time to support executing virtual servers [0076] [0082] FIG.2); and

an Optimizer component that automatically produces a reallocation of the virtual assets and initiates the reallocation (a management agent 815 residing within the virtualization environment for handling dynamic reconfiguration functions from the administrator for adding, deleting, and reallocating of resources from virtual servers [0150] [0154]).

As per **claim 30**, Vasilevsky teaches the method of claim 1 wherein the virtual assets further comprise a second virtual machine which comprises virtual assets, and the at least one virtual machine and the second virtual machine each run their own respective operating systems which are a different type of operating system from each other (the virtual assets comprises first virtual machine and second virtual machine wherein the VMA I/O component routes the request to the proper distributed virtual machine monitor (DVMM) drivers for processing [0065] [0128]).

As per **claim 36**, Vasilevsky teaches the method of claim 1 wherein provisioning virtual assets from among the available inventory further comprises routing an application running on a first virtual machine to run on a second virtual machine (the virtual assets comprises first virtual machine and second virtual machine wherein the

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VMA I/O component routes the request to the proper distributed virtual machine monitor (DVMM) drivers for processing [0065] [0128]).

As per **claim 39**, Vasilevsky teaches the method of claim 25 wherein provisioning virtual assets from among the available inventory further comprises creating a new virtual machine on the single physical host (creating new virtual machine on the single physical host [0082-83] FIG.3).

As per **claim 40**, Vasilevsky teaches the method of claim 1 wherein provisioning virtual assets from among the available inventory further comprises communicating provisioning instructions from a control agent comprising at least one virtualization platform adapter to a virtualization layer in the single physical host (a control agent comprising a virtualization platform in a single physical host server [0082-83] [0090] FIG.3)

Response to Argument

6. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. When responding to this office action, Applicant is advised to clearly point out the patentable novelty which he or she thinks the claims present, in view of the state of the art disclosed by the references cited or the objections made. He or she must also show how the amendments avoid such references or objections See 37 CFR 1.111(c).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Abdelnabi O. Musa whose telephone number is 571-

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2701901. and email address is abdelnabi.musa@uspto.gov 'preferred'. The examiner can normally be reached on Monday thru Friday: 7:30am to 5:00pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ferris Derrick can be reached on 571-2723123. 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). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Abdelnabi O Musa/

Examiner, Art Unit 2478

/Derrick W Ferris/

Supervisory Patent Examiner, Art Unit 2478