

CLAIMS

1. A system for creating a composite public cloud in a cloud-computing environment comprising:

a bus;

a processor coupled to the bus; and

a memory medium coupled to the bus, the memory medium comprising instructions for:

creating a first plurality of tenants in at least one availability zone of ~~a first~~ at least one private cloud, wherein an availability zone comprises a physical instance of a said private cloud and wherein a tenant comprises a virtual representation of certain compute resources situated within an availability zone;

~~creating a second plurality of tenants in at least one availability zone of a second private cloud, wherein the second plurality of tenants does not reside within the first private cloud;~~

allocating a portion of said ~~first plurality of tenants and said second plurality of tenants as~~ a 'resale' tenants tenant;

associating a description to each resale tenant; and

aggregating all of said resale tenants into a ~~Composite Public Cloud~~ composite public cloud; and

~~responsive to a request for compute resources in said Composite Public Cloud, allocating a first portion of the requested compute resources from the first private cloud and a second portion of the requested compute resources from the second private cloud.~~

wherein aggregating all of said resale tenants into a composite public cloud comprises:

registering at least one resale tenant on a facility for transferring commoditized excess compute resources,

mapping each resale tenant to a public tenant within a public availability zone in a virtualized public cloud; and

publishing said description of said registered resale tenant.

2. The system of Claim 1, wherein said physical instance comprises a plurality of servers and associated storage, each of said servers having resident thereon an instance of a hypervisor application, said hypervisor application operative to virtualize said server so that each server is represented as at least one virtual machine; and
wherein a tenant comprises at least one virtual machine.

~~3. The system of Claim 1, wherein aggregating all of said resale tenants into a Composite Public Cloud comprises:
— registering at least one resale tenant on a facility for transferring commoditized excess compute resources;
— mapping each resale tenant to a public tenant within a public availability zone in a virtualized public cloud; and
— publishing said description of said registered resale client.~~

4.3. The system of Claim 1, wherein associating a description to each resale tenant comprises:
describing said resale tenant according to one or more predetermined attributes, said predetermined attributes including at least:
start of availability;
grace period;
cost; and
minimal duration.

~~5.4. The system of Claim 1, said memory further comprising instructions for~~
A system for creating a composite public cloud in a cloud-computing environment comprising:
— a bus;
— a processor coupled to the bus; and
— a memory medium coupled to the bus, the memory medium comprising instructions for:
— creating a plurality of tenants in at least one availability zone of
at least one private cloud, wherein an availability zone comprises a physical

instance of said private cloud and wherein a tenant comprises a virtual representation of certain compute resources situated within an availability zone;

allocating a portion of said tenants as a 'resale' tenant;

associating a description to each resale tenant;

aggregating all of said resale tenants into a composite public cloud;

logically segregating computing resources from each other within the same cloud, to filter traffic between different members of the same cloud; and

specifying rules for how that traffic should flow.

5. The system of Claim 4, wherein said physical instance comprises a plurality of servers and associated storage, each of said servers having resident thereon an instance of a hypervisor application, said hypervisor application operative to virtualize said server so that each server is represented as at least one virtual machine; and

wherein a tenant comprises at least one virtual machine.

6. The system of Claim 4, wherein associating a description to each resale tenant comprises:

describing said resale tenant according to one or more predetermined attributes, said predetermined attributes including at least:

start of availability;

grace period;

cost; and

minimal duration.

~~6.7. The system of Claim 1, said memory further comprising instructions for~~
A system for creating a composite public cloud in a cloud-computing environment comprising:

a bus;

a processor coupled to the bus; and

a memory medium coupled to the bus, the memory medium comprising instructions for:

creating a plurality of tenants in at least one availability zone of at least one private cloud, wherein an availability zone comprises a physical instance of said private cloud and wherein a tenant comprises a virtual representation of certain compute resources situated within an availability zone;

allocating a portion of said tenants as a 'resale' tenant;

associating a description to each resale tenant;

aggregating all of said resale tenants into a composite public cloud;

establishing a portal for buying and selling commoditized excess compute resources;

automatically matching buyers and sellers by means of said portal; and

conducting speculative trading of commoditized excess compute resources.

8. The system of Claim 7, wherein said physical instance comprises a plurality of servers and associated storage, each of said servers having resident thereon an instance of a hypervisor application, said hypervisor application operative to virtualize said server so that each server is represented as at least one virtual machine; and

wherein a tenant comprises at least one virtual machine.

9. The system of Claim 7, wherein associating a description to each resale tenant comprises:

describing said resale tenant according to one or more predetermined attributes, said predetermined attributes including at least:

start of availability;

grace period;

cost; and

minimal duration.

7.10. A computer-implemented method for creating a composite public cloud in a cloud-computing environment comprising:

a computing device creating a first plurality of tenants in at least one availability zone of a ~~first~~ at least one private cloud, wherein an availability zone comprises a physical instance of a said private cloud and wherein a tenant comprises a virtual representation of certain compute resources situated within an availability zone;

~~a computing device creating a second plurality of tenants in at least one availability zone of a second private cloud, wherein the second plurality of tenants does not reside within the first private cloud;~~

a computing device allocating a portion of said ~~first plurality of tenants~~ and ~~said second plurality of tenants~~ as 'resale' tenants;

a computing device associating a description to each resale tenant;

a computing device aggregating ~~at least some~~ all of said resale tenants into a ~~Composite Public Cloud~~ composite public cloud; and
~~responsive to a request for compute resources in said Composite Public Cloud, a computing device allocating a first portion of the requested compute resources from the first private cloud and a second portion of the requested compute resources from the second private cloud, wherein aggregating all of said resale tenants into a composite public cloud comprises:~~

a computing device registering at least one resale tenant on a portal for trading computing resources;

a computing device mapping each resale tenant to a public tenant within a public availability zone in said composite public cloud; and

a computing device publishing said description of said registered resale tenant.

8.11. The method of Claim 7.10, wherein said physical instance comprises a plurality of servers and associated storage, each of said servers having resident thereon an instance of a hypervisor application, said hypervisor application operative to virtualize said server so that each server is represented as at least one virtual machine; and

wherein a tenant comprises at least one virtual machine.

~~9. The method of Claim 7, wherein aggregating all of said resale tenants into a Composite Public Cloud comprises:~~

~~—— a computing device registering at least one resale tenant on a portal for trading computing resources;~~

~~—— a computing device mapping each resale tenant to a public tenant within a public availability zone in said Composite Public Cloud; and~~

~~—— a computing device publishing said description of said registered resale client.~~

~~10.12. The method of Claim 7 10, wherein associating a description to each resale tenant comprises:~~

~~a computing device describing said resale tenant according to one or more predetermined attributes, said predetermined attributes including at least:~~

~~start of availability;~~

~~grace period;~~

~~cost; and~~

~~minimal duration.~~

~~11.13. The method of Claim 7, further comprising A computer-implemented method for creating a composite public cloud in a cloud-computing environment comprising:~~

~~—— a computing device creating a plurality of tenants in at least one availability zone of at least one private cloud, wherein an availability zone comprises a physical instance of said private cloud and wherein a tenant comprises a virtual representation of certain compute resources situated within an availability zone;~~

~~—— a computing device allocating a portion of said tenants as 'resale' tenants;~~

~~—— a computing device associating a description to each resale tenant;~~

a computing device aggregating all of said resale tenants into a composite public cloud;

a computing device logically segregating computing resources from each other within the same cloud, to filter traffic between different members of the same cloud; and

a computing device specifying rules for how that traffic should flow.

14. The method of Claim 13, wherein said physical instance comprises a plurality of servers and associated storage, each of said servers having resident thereon an instance of a hypervisor application, said hypervisor application operative to virtualize said server so that each server is represented as at least one virtual machine; and

wherein a tenant comprises at least one virtual machine.

15. The method of Claim 13, wherein associating a description to each resale tenant comprises:

a computing device describing said resale tenant according to one or more predetermined attributes, said predetermined attributes including at least:

start of availability;

grace period;

cost; and

minimal duration.

~~12.16. The method of Claim 7, said memory further comprising instructions for~~
A computer-implemented method for creating a composite public cloud in a cloud-computing environment comprising:

a computing device creating a plurality of tenants in at least one availability zone of at least one private cloud, wherein an availability zone comprises a physical instance of said private cloud and wherein a tenant comprises a virtual representation of certain compute resources situated within an availability zone;

_____ a computing device allocating a portion of said tenants as 'resale' tenants;

_____ a computing device associating a description to each resale tenant;

_____ a computing device aggregating all of said resale tenants into a composite public cloud;

_____ a computing device establishing a portal for buying and selling commoditized excess compute resources;

_____ a computing device matching buyers and sellers by means of said portal; and

_____ a computing device conducting speculative trading of commoditized excess compute resources.

17. The method of Claim 16, wherein said physical instance comprises a plurality of servers and associated storage, each of said servers having resident thereon an instance of a hypervisor application, said hypervisor application operative to virtualize said server so that each server is represented as at least one virtual machine; and

_____ wherein a tenant comprises at least one virtual machine.

18. The method of Claim 16, wherein associating a description to each resale tenant comprises:

_____ a computer device describing said resale tenant according to one or more predetermined attributes, said predetermined attributes including at least:

start of availability;

grace period;

cost; and

minimal duration.

~~13. A system for brokering transfer of commoditized compute resources comprising:~~

~~_____ a bus;~~

~~_____ a processor coupled to the bus; and~~

~~_____ a memory medium coupled to the bus, the memory medium comprising instructions for:~~

~~_____ obtaining and maintaining an inventory of commoditized compute resources;~~

~~_____ wherein the inventory of commoditized compute resources comprises a first compute resource and a second compute resource that each resides in a distinct private cloud;~~

~~_____ aggregating said inventory into a Composite Public Cloud; and~~

~~_____ facilitating transfer of said commoditized compute resources between buyers and sellers.~~

~~14. The system of Claim 13, wherein obtaining and maintaining an inventory of commoditized compute resources comprises:~~

~~_____ a system broker managing a private cloud owned by a prospective seller of compute resources;~~

~~_____ said system broker imposing measurement and quality constraints on compute resources within said private cloud to guarantee quality of resale compute resources;~~

~~_____ continually monitoring performance data; and~~

~~_____ metering compute consumption in the interest of performance control.~~

~~15. The system of Claim 13, wherein obtaining and maintaining an inventory of commoditized compute resources comprises;~~

~~_____ obtaining inventory of known quality from a plurality of private clouds having excess compute resources;~~

~~_____ mapping available inventory into sellable lots of compute over time, each sellable lot being described by at least one attribute selected from a group~~

~~comprising:~~

~~start of availability;~~

~~grace period;~~

~~cost; and~~

~~minimal duration.~~

~~16. The system of Claim 15, wherein aggregating said inventory into a Composite Public Cloud comprises:~~

~~mapping at least a portion of said commoditized computer resources to at least one public tenant of a public availability zone within said Composite Public Cloud; and~~

~~publishing a description of said commoditized computer resources.~~

~~17. The system of Claim 15, said memory further comprising instructions for:~~

~~segregating and encapsulating newly sold inventory so as not to present security risk to private cloud tenants or prior sold inventory, wherein compute containment occurs by means of packet inspection and filtering at all layers of the network stack.~~

~~18. The system of Claim 15, said memory further comprising instructions for:~~

~~tracking all contracts from lot sold time to delivery and the percentage of time a contract is delivered without interruption up to the grace period, and~~

~~making said percentage of time available to the compute lot purchaser as a measure of quality.~~

~~19. The system of Claim 15, said memory further comprising instructions for:~~

~~presenting available inventory as a Composite Public Cloud via a consumer facing portal;~~

~~consumers using the portal to both purchase contracts and associate purchased contracts with virtual machines;~~

~~caching virtual machines and placing them in the associated Private Cloud at a contract's "Start of Availability"; and~~

~~responsive to inadvertent termination of a virtual machine, attempting to buy a contract for equal or lesser cost and duration and placing the last cached copy of the terminated virtual machine in the next viable private cloud.~~

~~20. A method for generating revenue from a private cloud comprising:~~
~~—— identifying excess compute resources within said private cloud;~~
~~—— designating said excess compute resources as resale compute resources;~~
~~—— commoditizing said resale compute resources;~~
~~—— offering said commoditized resale compute resources for sale via a Composite Public Cloud;~~
~~wherein said Composite Public Cloud comprises commoditized resale compute resources from a plurality of distinct private clouds; and~~
~~—— receiving revenue from at least one purchaser of at least a portion of said commoditized resale compute resources offered for sale.~~

~~21. A computer implemented method for brokering transfer of commoditized compute resources comprising:~~
~~—— a computing device obtaining and maintaining an inventory of commoditized compute resources;~~
~~wherein the inventory of commoditized compute resource comprises a first compute resource and a second compute resource that each resides in a distinct private cloud;~~
~~—— a computing device aggregating said inventory into a Composite Public Cloud; and~~
~~—— a computing device facilitating transfer of said commoditized compute resources between buyers and sellers.~~

~~22. A process for managing a private cloud by a provider for a subscriber comprising:~~
~~—— responsive to subscriber request, said provider designing and installing at least one data center for said subscriber;~~
~~—— said provider virtualizing said data center to least one private cloud owned by said subscriber;~~
~~—— said provider implementing within said private cloud at least one availability zone;~~

~~—— said provider allocating compute resources to said at least one availability zone;~~

~~—— said provider further allocating said resources allocated to said at least one availability zone to a plurality of tenants within said at least one availability zone, wherein said plurality of tenants includes at least one private tenant and at least one resale tenant;~~

~~—— segregating said at least one private tenant and said at least one resale tenant so as not to present security risk to private cloud tenants or purchasers of said at least one resale tenant;~~

~~—— said provider imposing measurement and quality constraints on compute resources within said private cloud to guarantee quality of resale compute resources;~~

~~—— said provider continually monitoring performance data; and~~

~~—— said provider metering compute consumption in the interest of performance control.~~