

WE CLAIM:

1. A method of provisioning a Virtual Private Data Center (VPDC), comprising:
providing a design user interface to a user;
receiving configuration selections from the user;
validating each configuration selection;
if validated, constructing a provisioning data structure based on the validated configuration selections;
populating the provisioning data structure with actual components; and
generating a provisioning manifest to a data center provisioning system for provisioning the VPDC.
2. The method of claim 1, wherein the configuration selections includes at least a quality of service indication.
3. The method of claim 1, wherein the validation includes validating the VPDC system for sufficient capacity, validating the entitlement of the user, and validating compatibility of the received configuration selections.
4. The method of claim 1, wherein the provisioning manifest includes a list of specific instructions that, when executed, facilitate a provisioning of a validated VPDC design.
5. The method of claim 1, wherein the validating is done for each selection, after the receiving of that respective selection and prior to the receiving of additional selections from the user.
6. The method of claim 5, wherein the constructing occurs after all selections have been validated.
7. The method of claim 1, wherein the validated configuration selections are stored in an XML design file.

8. The method of claim 1, wherein providing the design user interface includes providing a design area, providing a component area, and receiving drag and drop input from the user populating the design area with component selections from the component area.
9. The method of claim 1, wherein the provisioning of the VPDC is fully automated, such that the user is a customer designing and purchasing the VPDC, and wherein the VPDC is provisioned from the provisioning manifest without assistance from an administrator of the VPDC.
10. A method of supporting Virtual Private Data Center (VPDC) provisioning, comprising executing a VPDC provisioning system, at a server, that:
- communicates with a user via a portal connection, receiving configuration selections from the user
 - validates configuration selection against a user service level agreement, available capacity resources for a data center that supports the VPDC and technical compatibility,
 - if validated, constructs a provisioning data structure based on the validated configuration selections;
 - assigns actual components to the provisioning data structure; and
 - outputs a provisioning manifest to a data center provisioning system for provisioning a VPDC.
11. The method of claim 10, that further comprises:
- constructing the provisioning manifest based on the provisioning data structure that is populated with actual component assignments.
12. The method of claim 10, wherein the provisioning manifest includes instructions that cause the data center provisioning system to automatically provision a VPDC corresponding to the configuration selections from the user.
13. The method of claim 10, that further comprises:
- executing the method for multiple distinct enterprise customers.
14. A VPDC provisioning computer system, comprising:
- a design server configured to:
 - provide a portal connection to a graphical user interface, and receive selections from a user describing a VPDC configuration;

validate the configuration selections against a user service level agreement, available capacity resources for physical assets that support a plurality of VPDCs, and technical compatibility;

if validated, construct a provisioning data structure based on the validated configuration selections;

populate the provisioning data structure with actual components from the physical assets;

construct a provisioning manifest based on the populated provisioning data structure; and

outputting the provisioning manifest to a data center provisioning system for automatically provisioning a VPDC.

15. The VPDC provisioning computer system of claim 14, further comprising:

a provisioning server, configured to:

receive the provisioning manifest which includes a plurality of instructions, executable by the provisioning server, to cause the automatic provisioning of a VPDC described by the selections from the user;

execute the manifest's plurality of instructions to provision the VPDC.

16. The VPDC provisioning computer system of claim 14, further comprising:

responsive to user input received at the portal connection indicating a command to modify an existing VPDC:

loading a design file describing the existing VPDC; and

providing the user interface with the design file describing the existing VPDC.

17. The VPDC provisioning computer system of claim 16, further comprising:

responsive to user input received at the portal connection indicating a command to modify an existing VPDC:

reconstructing the design file based on an associated provisioning data structure.

18. The VPDC provisioning computer system of claim 14, wherein the user interface includes an interface for selecting saved or existing VPDC designs, an interface populated with components available for user selection, and a design area for receiving drag-and-drop input from the user consisting of the components available for user selection.

19. The VPDC provisioning computer system of claim 18, wherein the components available for user selection are abstract components with adjustable attributes; and

wherein a correlation between an abstract component with a specific attribute state and one or more sufficient physical components of the physical assets is maintained by the design server.

20. The VPDC provisioning computer system of claim 14, wherein the validating is performed after each user input that modifies the VPDC configuration, wherein invalid input produces an error message and valid input is committed to a design file.

21. The VPDC provisioning computer system of claim 20, wherein the provisioning data structure is constructed from the design file.

Claims

1. A method of provisioning a Virtual Private Data Center (VPDC), comprising:
providing a design user interface to a user including controls to select and
configure computing hardware resources to be allocated to the VPDC of the
user in a data center;
receiving the computing hardware resource configuration selections from the user;
comparing the computing hardware resource configuration selections to
component compatibility information of each selected computing hardware
resource in a configuration management database (CMDB), the CMDB storing
a list of specific device instances for each of the computing hardware resources
in the data center and compatibility information for different configurations of
the specific device instances;
validating responsive to the comparing that the configuration selections are
compatible with each other;
if validated, constructing a provisioning data structure based on the validated
configuration selections including the user selected computing hardware
resources and the user selected configuration of the selected computing
hardware resources from the validated configuration settings;
populating the provisioning data structure with specific device instances from the
list of components in the CMDB; and
generating a provisioning manifest to a data center provisioning system for
provisioning the VPDC, the provisioning manifest including instructions for
automatically provisioning the specific device instances specified in the
provisioning data structure with the user selected configuration specified in the
provisioning data structure.
2. The method of claim 1, wherein the configuration selections includes at least a
quality of service indication.
3. The method of claim 1, wherein the validation includes validating the VPDC
system for sufficient capacity, validating the entitlement of the user, and validating
compatibility of the received configuration selections.

4. The method of claim 1, wherein the provisioning manifest includes a list of specific instructions that, when executed, facilitate a provisioning of a validated VPDC design.
5. The method of claim 1, wherein the validating is done for each selection, after the receiving of that respective selection and prior to the receiving of additional selections from the user.
6. The method of claim 5, wherein the constructing occurs after all selections have been validated.
7. The method of claim 1, wherein the validated configuration selections are stored in an XML design file.
8. The method of claim 1, wherein providing the design user interface includes providing a design area, providing a component area, and receiving drag and drop input from the user populating the design area with component selections from the component area.
9. The method of claim 1, wherein the provisioning of the VPDC is fully automated, such that the user is a customer designing and purchasing the VPDC, and wherein the VPDC is provisioned from the provisioning manifest without assistance from an administrator of the VPDC.
10. A method of supporting Virtual Private Data Center (VPDC) provisioning, comprising executing a VPDC provisioning system, at a server, that:
 - communicates with a user via a portal connection, receiving configuration selections from the user that include a selection and a configuration of computing hardware resources in a data center to be allocated to the VPDC of the user;
 - compares the computing hardware resource configuration selections to component compatibility information of each selected computing hardware resource in a configuration management database (CMDB), the CMDB storing a list of specific device instances for each of the computing hardware resources in the data center and compatibility information for different configurations of the specific device instances;

validates responsive to the comparing that the configuration selections are compatible with each other;

validates the configuration selection against a user service level agreement to ensure the user has sufficient privileges to provision a selected resource in the VPDC;

validates that sufficient specific device instances are available for allocation to the VPDC;

constructs a provisioning data structure based on the validated configuration selections including the user selected computing hardware resources and the user selected configuration of the selected computing hardware resources from the validated configuration settings;

assigns specific device instances from the list of components in the CMDB to the provisioning data structure; and

outputs a provisioning manifest to a data center provisioning system for provisioning a VPDC, the provisioning manifest including instructions for automatically provisioning the specific device instances specified in the provisioning data structure with the user selected configuration specified in the provisioning data structure.

11. The method of claim 10, wherein the provisioning manifest is constructed based on the provisioning data structure that is populated with actual device assignments.

12. The method of claim 10, wherein the provisioning manifest includes instructions that cause the data center provisioning system to automatically provision a VPDC corresponding to the configuration selections from the user.

13. The method of claim 10, that further comprises:
executing the method for multiple distinct enterprise customers.

14. A VPDC provisioning computer system, comprising:
a design server configured to:
provide a portal connection to a graphical user interface, and receive selections from a user describing a VPDC configuration that include a selection and a configuration of computing hardware resources in a data center to be allocated to the VPDC of the user;

compare the computing hardware resource configuration selections to component compatibility information of each selected computing hardware resource in a configuration management database (CMDB), the CMDB storing a list of specific device instances for each of the computing hardware resources in the data center and compatibility information for different configurations of the specific device instances; validate responsive to the comparing that the configuration selections are compatible with each other; validate the configuration selections against a user service level agreement to ensure the user has sufficient privileges to provision a selected resource in the VPDC; validate that sufficient specific device instances are available for allocation to the VPDCs; construct a provisioning data structure based on the validated configuration selections including the user selected computing hardware resources and the user selected configuration of the selected computing hardware resources from the validated configuration settings; populate the provisioning data structure with specific device instances from the list of components in the CMDB; construct a provisioning manifest based on the populated provisioning data structure, the provisioning manifest including instructions for automatically provisioning the specific device instances specified in the provisioning data structure with the user selected configuration specified in the provisioning data structure; and output the provisioning manifest to a data center provisioning system for automatically provisioning the VPDC.

15. The VPDC provisioning computer system of claim 14, further comprising:
a provisioning server, configured to:
receive the provisioning manifest; and
execute the manifest's instructions to provision the VPDC.

16. The VPDC provisioning computer system of claim 14, wherein the design server is further configured to load a design file describing an existing VPDC into the graphical user interface.

17. The VPDC provisioning computer system of claim 16, wherein the design server is further configured to, responsive to user input received at the portal connection indicating a command to modify an existing VPDC, reconstruct the design file based on an associated provisioning data structure.

18. The VPDC provisioning computer system of claim 14, wherein the graphical user interface includes an interface for selecting saved or existing VPDC designs, an interface populated with components available for user selection, and a design area for receiving drag-and-drop input from the user consisting of the components available for user selection.

19. The VPDC provisioning computer system of claim 18, wherein the components available for user selection are computing hardware resources with configurable attributes and wherein a correlation between a computing hardware resource with a specific attribute state and one or more physical components of the specific device instances of the computing hardware resource is maintained by the design server.

20. The VPDC provisioning computer system of claim 14, wherein a validation is performed after each user input that modifies the VPDC configuration, wherein invalid input produces an error message and valid input is committed to a design file.

21. The VPDC provisioning computer system of claim 20, wherein the provisioning data structure is constructed from the design file.