In light of the background described above, the present invention has been made in an attempt to automate an operation in a distributed system and reduce a cost to operate the distributed system to which virtualization technology is applied.

MEANS FOR SOLVING THE PROBLEMS

[0007]

In order to solve the problems described above, according to a first aspect of the present invention, an ICT resource management device which manages a physical node and a virtual node, each as an ICT resource, includes: a configuration information management part configured to manage physical layer configuration information which is information on a configuration of the physical node on a physical layer and virtual layer configuration information which is information on a configuration of the virtual node on a virtual layer; a layer mapping part configured to perform mapping of the physical layer and the virtual layer; a blueprint creation part configured to, when an externally-provided device requests a change in the configuration, create a blueprint which is design information on an infrastructure required for the configuration change, based on the physical layer configuration information, the virtual layer configuration information, and mapping information which is information obtained as a result of the mapping; and an orchestrator part configured to access and run a program which is operative via a southbound API, based on the blueprint, to thereby perform orchestration of the virtual layer, wherein the blueprint includes: a group of catalogs, each of which shows a process used for providing a service; and a parameter as information on an input into the catalog, and wherein the process includes one or more components, each of which has a prescribed function such that an input of the parameter therein is allowed.

[0008]

According to a fourth aspect of the present invention, an ICT resource management method in an ICT resource management device which manages a physical node and a virtual node, each as an ICT resource, includes the steps of:

managing physical layer configuration information which is information on a configuration of the physical node on a physical layer and virtual layer configuration information which is information on a configuration of the virtual node on a virtual layer; performing mapping of the physical layer and the virtual layer; creating, when

an externally-provided device requests a change in the configuration, a blueprint which is design information on an infrastructure required for the configuration change, based on the physical layer configuration information, the virtual layer configuration information, and mapping information which is information obtained as a result of the mapping; and accessing and running a program which is operative via a southbound API, based on the blueprint, to thereby perform orchestration of the virtual layer, wherein the blueprint includes: a group of catalogs, each of which shows a process used for providing a service; and a parameter as information on an input into the catalog, and wherein the process includes one or more components, each of which has a prescribed function such that an input of the parameter therein is allowed.

[0009]

In each of the first and the fourth aspects of the present invention, mapping of the physical layer and the virtual layer makes a clear association between the physical node and the virtual node. This makes it possible to specify an appropriate virtual node even after a change in configuration, without manual intervention, thus allowing an automated operation to be achieved.

Thus, an operation in a distributed system can be automated and a cost to operating the distributed system to which virtualization technology is applied can be reduced.

[0010]

According to a second aspect of the present invention, in the ICT resource management device according to the first aspect, the blueprint includes: a group of catalogs, each of which shows a process used for providing a service; and a parameter as information on an input into the catalog.

[0011]

In the second aspect of the present invention, a workflow for performing orchestration can be easily created and deployed.

[0012]

According to a third aspect of the present invention: the ICT resource management device according to the first aspect of the second aspect further includes a monitor part configured to monitor the physical node and the virtual node; the configuration information management part is configured to create the physical

CLAIMS

1. An ICT resource management device which manages a physical node and a virtual node, each as an ICT resource, the ICT resource management device, comprising:

a configuration information management part configured to manage physical layer configuration information which is information on a configuration of the physical node on a physical layer and virtual layer configuration information which is information on a configuration of the virtual node on a virtual layer;

a layer mapping part configured to perform mapping of the physical layer and the virtual layer;

a blueprint creation part configured to, when an externally-provided device requests a change in the configuration, create a blueprint which is design information on an infrastructure required for the configuration change, based on the physical layer configuration information, the virtual layer configuration information, and mapping information which is information obtained as a result of the mapping; and

an orchestrator part configured to access and run a program which is operative via a southbound API, based on the blueprint, to thereby perform orchestration of the virtual layer,

wherein the blueprint includes: a group of catalogs, each of which shows a process used for providing a service; and a parameter as information on an input into the catalog, and

wherein the process includes one or more components, each of which has a prescribed function such that an input of the parameter therein is allowed.

2. The ICT resource management device according to claim 1,

further comprising a monitor part configured to monitor the physical node and the virtual node,

wherein the configuration information management part is configured to create the physical layer configuration information and the virtual layer configuration information from information collected by monitoring by the monitor part, and

wherein the layer mapping part is configured to create the mapping information from the information collected by monitoring by the monitor part.

3. An ICT resource management method in an ICT resource management device which manages a physical node and a virtual node, each as an ICT resource, the ICT resource management method comprising the steps of:

managing physical layer configuration information which is information on a configuration of the physical node on a physical layer and virtual layer configuration information which is information on a configuration of the virtual node on a virtual layer;

performing mapping of the physical layer and the virtual layer;

creating, when an externally-provided device requests a change in the configuration, a blueprint which is design information on an infrastructure required for the configuration change, based on the physical layer configuration information, the virtual layer configuration information, and mapping information which is information obtained as a result of the mapping; and

accessing and running a program which is operative via a southbound API, based on the blueprint, to thereby perform orchestration of the virtual layer,

wherein the blueprint includes: a group of catalogs, each of which shows a process used for providing a service; and a parameter as information on an input into the catalog, and

wherein the process includes one or more components, each of which has a prescribed function such that an input of the parameter therein is allowed.

4. An ICT resource management program for causing a computer to serve as the ICT resource management device according to claim 1 or claim 2.