Patent Literature 3: JP 2006-178834

Non-Patent Literature

[0004] Non-Patent Literature 1: Bart Jacob et al., "IBM (Registered Trademark) Tivoli Application Dependency Discovery Manager Capabilities and Best Practices" IBM (Registered Trademark) Redbook, February 2002 issue, p. 8-9

Summary of Invention

Technical Problem

[0005] The conventional configuration management apparatus, when gathering and accumulating the dependencies between the devices automatically, can recognize the existences of the respective devices and communication relations between the devices from communication with the devices or from the connection statuses between the devices.

In order to recognize the combination of the redundant configurations between the devices and the type of the redundancy, for example, it is necessary to prepare a function that analyzes the setting information of software and the like having a redundant mechanism, or to input the combination of the redundancies and the type of the redundancy manually, which poses a problem of low feasibility and a high operation load.

[0006] It is a major object of the present invention to solve these problems. The present invention mainly aims to realize a configuration that can display the redundancy details of an information system.

Solution to Problem

[0007] An information system management apparatus according to an aspect of the present invention manages an information system including a plurality of system configuration elements which are each made to have redundancy using two or more components, the

information system where redundancy methods practiced are not uniform among the system configuration elements, the information system management apparatus including: a dependency information input part which receives as input, dependency information generated from communication with a component in operation of each system configuration element and describing the component in operation of each system configuration element and a dependency between the system configuration elements; a redundancy detail information input part which receives as input, redundancy detail information that describes all components included in the information system, and describes a redundancy method for a specific component out of the two or more components of each system configuration element while not describing the redundancy method for another component out of the two or more components of each system configuration element, the redundancy detail information being obtained by an analysis practiced when designing the information system~~a redundancy detail of each system configuration element~~; an information associating part which extracts, for the component for which the redundancy method is described in the redundancy detail information, a component to serve as a redundancy counterpart, out of said another component for which the redundancy method is not described, associates the component for which the redundancy method is described, to the component extracted to serve as the redundancy counterpart, and associates the component in operation of each system configuration element, the component being described in the dependency information, to an inactive component of each system configuration element and the redundancy method of each system configuration element~~associates the redundancy detail described in the redundancy detail information to the component in operation of each system configuration element, the component being described in the dependency information~~; and a display part which displays the component in operation of each system configuration element and a dependency between the system configuration elements,

the component and the dependency being described in the dependency information, and displays, based on associating by the information associating part, the inactive component of each system configuration element and the redundancy method~~redundancy detail~~ of each system configuration element in correspondence with displaying the component in operation of each system configuration element.

[0007a] According to an aspect of the present invention, there is provided an information system management method for managing an information system including a plurality of system configuration elements which are each made to have redundancy using two or more components, the information system where redundancy methods practiced are not uniform among the system configuration elements, the information system management method comprising: receiving as input, dependency information generated from communication with a component in operation of each system configuration element and describing the component in operation of each system configuration element and a dependency between the system configuration elements; receiving as input, redundancy detail information that describes all components included in the information system, and describes a redundancy method for a specific component out of the two or more components of each system configuration element while not describing the redundancy method for another component out of the two or more components of each system configuration element, the redundancy detail information being obtained by an analysis practiced when designing the information system; extracting, for the component for which the redundancy method is described in the redundancy detail information, a component to serve as a redundancy counterpart, out of said another component for which the redundancy method is not described, associating the component for which the redundancy method is described, to the component extracted to serve as the redundancy counterpart, and associating the component in operation of each system configuration element, the component being

described in the dependency information, to an inactive component of each system configuration element and the redundancy method of each system configuration element; and displaying the component in operation of each system configuration element and a dependency between the system configuration elements, the component and the dependency being described in the dependency information, and displaying, based on associating by the information associating, the inactive component of each system configuration element and the redundancy method of each system configuration element in correspondence with displaying the component in operation of each system configuration element.

[0007b] According to an aspect of the present invention, there is provided a program which causes a computer which manages an information system including a plurality of system configuration elements which are each made to have redundancy using two or more components, the information system where redundancy methods practiced are not uniform among the system configuration elements, to execute: a dependency information input process of receiving as input, dependency information generated from communication with a component in operation of each system configuration element and describing the component in operation of each system configuration element and a dependency between the system configuration elements; a redundancy detail information input process of receiving as input, redundancy detail information that describes all components included in the information system, and describes a redundancy method for a specific component out of the two or more components of each system configuration element while not describing the redundancy method for another component out of the two or more components of each system configuration element, the redundancy detail information being obtained by an analysis practiced when designing the information system; an information associating process of extracting, for the component for which the redundancy method is described in the

redundancy detail information, a component to serve as a redundancy counterpart, out of said another component for which the redundancy method is not described, associating the component for which the redundancy method is described, to the component extracted to serve as the redundancy counterpart, and associating the component in operation of each system configuration element, the component being described in the dependency information, to an inactive component in each system configuration element and the redundancy method of each system configuration element; and a displaying process of displaying the component in operation of each system configuration element and the dependency between the system configuration elements, the component and the dependency being described in the dependency information, and displaying, based on associating by the information associating process, the inactive component of each system configuration element and the redundancy method of each system configuration element in correspondence with displaying the component in operation of each system configuration element.

Advantageous Effects of Invention

[0008] According to the present invention, the redundancy details of a system configuration element can be displayed, in addition to a component in operation in a system configuration element and dependencies between system configuration elements.

Brief Description of Drawings

[0009] Fig. 1 shows a configuration example of a configuration management

apparatus according to Embodiment 1.

Fig. 2 shows an example of a view according to Embodiment 1.

Fig. 3 shows an example of an operation device overview table according to Embodiment 1.

Fig. 4 shows an example of a dependency table according to Embodiment 1.

Fig. 5 shows an example of a CFIA analysis table according to Embodiment 1.

Fig. 6 shows an example of a host name/IP address correspondence table according to Embodiment 1.

Fig. 7 shows an example of a configuration management table according to Embodiment 1.

Fig. 8 is a flowchart showing an operation example of the configuration management apparatus according to Embodiment 1.

Fig. 9 shows an example of the view according to Embodiment 1.

Fig. 10 shows an example of the view according to Embodiment 1.

Fig. 11 is a flowchart showing an operation example of a configuration management apparatus according to Embodiment 2.

Fig. 12 shows an example of a view according to Embodiment 2.

Fig. 13 shows an example of a host naminge ~~instruction~~ rule according to Embodiment 3.

Fig. 14 shows an example of a host naming rule table according to Embodiment 3.

Fig. 15 shows an example of a software overview table according to Embodiment 4.

Fig. 16 shows a configuration example of a configuration management apparatus according to Embodiment 5.

indicated under "device name".

[0026] As shown in Fig. 4, the dependency table 202 is constituted by items "system name", "function", "host name", and "depend on".

The IDs shown under "host name" are the same as the IDs shown under "host name" in the operation device overview table 201 of Fig. 3.

Namely, these IDs are the IDs of the components in operation detected by the configuration information gathering part 21.

The IDs under "depend on" are the IDs of the components on which components corresponding to the IDs under "host name" depend for operation.

Namely, for operation, webabc (Web server #1-1) and webdef (Web server #1-2) utilize the resources of appabc (App server #1-1) in some way.

Also, appabc (App server #1-1) depends on dbsabc (DB server #1-1).

As described above, the dependency table 202 also is generated by the configuration information gathering part 21.

The operation device overview table 201 is employed for generating the dependency table 202. In the processes by the design information integration part 26 and the display part 29, the operation device overview table 201 is not always necessary, and only the dependency table 202 suffices.

Hence, the configuration element management table storage part 22 may store only the dependency table 202.

The dependency table 202 may be conventional CMDB information.

[0027] Fig. 5 shows an example of the CFIA analysis table 203.

Fig. 5 is an example of the analysis table of CFIA (Component Failure Impact Analysis) conducted at the time of information system design.

The table of Fig. 5 shows the CFIA analysis result of one business system. In

use of the dependency table 202.

When using only the dependency table 202, a view shown in Fig. 19 is generated.

More specifically, only components in operation within the information system 1 and the dependencies between the components (system configuration elements) are displayed.

In contrast to this, according to this embodiment, for the components in operation, the redundancy methods and the standby components are displayed, in addition to the display of the components in operation and the dependencies between the components (system configuration elements).

[0033] The operation of the configuration management apparatus 2 according to this embodiment will be explained.

[0034] First, the configuration information gathering part 21 communicates with the information system 1, gathers device information for each system configuration element, such as the network, the server apparatus, the terminal apparatus, and the like, generates the operation device overview table 201, and saves the generated operation device overview table 201 in the configuration element management table storage part 22.

Subsequently, regarding the gathered information of the system configuration elements, the dependency information input part 23 analyzes the dependencies between the system configuration elements from the communication relations between the respective system configuration elements, generates the dependency table 202, and saves the generated dependency table 202 in the configuration element management table storage part 22.

The configurations and the operations of the configuration information gathering part 21 and the configuration element management table storage part 22 may follow any method of Patent Literatures 1 to 3 and Non-Patent Literature 1.

Claims

[Claim 1] An information system management apparatus which manages an information system including a plurality of system configuration elements which are each made to have redundancy using two or more components, the information system management apparatus comprising:

a dependency information input part which receives as input, dependency information generated from communication with a component in operation of each system configuration element and describing the component in operation of each system configuration element and a dependency between the system configuration elements;

a redundancy detail information input part which receives as input, redundancy detail information that describes a redundancy detail of each system configuration element;

an information associating part which associates the redundancy detail described in the redundancy detail information to the component in operation of each system configuration element, the component being described in the dependency information; and

a display part which displays the component in operation of each system configuration element and a dependency between the system configuration elements, the component and the dependency being described in the dependency information, and displays, based on associating by the information associating part, the redundancy detail of each system configuration element in correspondence with displaying the component in operation of each system configuration element.

[Claim 2] The information system management apparatus according to claim 1, which manages the information system where redundancy methods practiced are not uniform among the system configuration elements,

wherein the redundancy detail information input part receives as input, redundancy detail information that describes a redundancy method in each system configuration element, as the redundancy detail in each system configuration element,

wherein the information associating part associates the redundancy method described in the redundancy detail information to the component in operation of each system configuration element, the component being described in the dependency information, and

wherein the display part displays, based on associating by the information associating part, the redundancy method in each system configuration element in correspondence with displaying the component in operation of each system configuration element.

[Claim 3] The information system management apparatus according to claim 2,

wherein the redundancy detail information input part receives as input, for each system configuration element, redundancy detail information that describes either one of load balance, failover cluster, and cold standby, as the redundancy method.

[Claim 4] The information system management apparatus according to any one of claims 1 to 3,

wherein the redundancy detail information input part receives as input, redundancy detail information that describes two or more components used for redundancy in each system configuration element, as the redundancy detail in each system configuration element,

wherein the information associating part associates an inactive component among the two or more components described in the redundancy detail information, to the component in operation of each system configuration element, the component in operation being described in the dependency information, and

wherein the display part displays, based on associating by the information associating part, the inactive component among the two or more components of each system configuration element in correspondence with displaying the component in operation of each system configuration element.

[Claim 5] The information system management apparatus according to claim 4, which manages the information system where a plurality of components used in the plurality of system configuration elements are each set with a communication address, the communication address being common within a predetermined range among two or more components used in the same system configuration element,

wherein the redundancy detail information input part receives, as input,

redundancy detail information in which, among the two or more components used for redundancy, a main-system component employed as a main system is described in association with a corresponding system configuration element while a standby-system component employed as a standby system is described not in association with the corresponding system configuration element, and

communication address information in which a communication address of each component is described,

wherein the information associating part

extracts, for each system configuration element, the main-system component from the redundancy detail information, and extracts, based on the communication address information, a standby-system component having a communication address which is common, within a predetermined range, with the main-system component extracted, from the redundancy detail information, and

associates an inactive component in the main-system component and the standby-system component which are extracted of each system configuration element,

to the component in operation of each system configuration element, the component in operation being described in the dependency information, and

wherein the display part displays, based on associating by the information associating part, the inactive component in the main-system component and the standby-system component of each system configuration element, in correspondence with displaying the component in operation of each system configuration element.

[Claim 6] The information system management apparatus according to claim 4, which manages the information system where a plurality of components used in the plurality of system configuration elements are each set with an ID (Identifier), the ID being common within a predetermined range among two or more components used in the same system configuration element,

wherein the redundancy detail information input part receives, as input,

redundancy detail information in which, among the two or more components used for redundancy, a main-system component employed as a main system is described in association with a corresponding system configuration element while a standby-system component employed as a standby system is described not in association with the corresponding system configuration element, and

ID information in which an ID of each component is described,

wherein the information associating part

extracts, for each system configuration element, the main-system component from the redundancy detail information, and extracts, based on the ID information, a standby-system component having an ID which is common, within a predetermined range, with the main-system component extracted, and

associates an inactive component in the main-system component and the standby-system component which are extracted of each system configuration element,

to the component in operation of each system configuration element, the component in operation being described in the dependency information, and

wherein the display part displays, based on associating by the information associating part, the inactive component in the main-system component and the standby-system component of each system configuration element, in correspondence with displaying the component in operation of each system configuration element.

[Claim 7] The information system management apparatus according to claim 4, which manages the information system where a plurality of pieces of software are implemented in each of a plurality of components used in the plurality of system configuration elements such that combinations of the software implemented coincide among two or more components used in the same system configuration element while combinations of the software implemented in components are different among the system configuration elements,

wherein the redundancy detail information input part receives, as input,

redundancy detail information in which, among the two or more components used for redundancy, a main-system component employed as a main system is described in association with a corresponding system configuration element while a standby-system component employed as a standby system is described not in association with the corresponding system configuration element, and

implemented software information in which a combination of software implemented is described for each component,

wherein the information associating part

extracts, for each system configuration element, the main-system component from the redundancy detail information, and extracts, based on the implemented software information, a standby-system component with a combination of implemented

software that coincides with a combination of implemented software of the main-system component extracted, and

associates an inactive component in the main-system component and the standby-system component which are extracted of each system configuration element, to the component in operation of each system configuration element, the component in operation being described in the dependency information, and

wherein the display part displays, based on associating by the information associating part, the inactive component in the main-system component and the standby-system component of each system configuration element, in correspondence with displaying the component in operation of each system configuration element.

[Claim 8] The information management device according to claim 1, which manages a plurality of information systems which are each made to have redundancy,

wherein the dependency information input part receives as input, dependency information for each information system,

wherein the redundancy design information input part receives as input, redundancy design information for each information system,

wherein the information associating part compares dependency information of the respective information systems, and

wherein the display part, when it is turned out that, as a result of comparison of the dependency information of the respective information systems by the information associating part, the same system configuration element is included in two or more information systems redundantly,

displays a component in operation of each system configuration element of each of the two or more information systems, and dependencies among the system configuration elements, to indicate that the same system configuration element is

included in the two or more information systems redundantly, and

displays, for each information system, the redundancy detail of each system configuration element in correspondence with displaying the component in operation of each system configuration element.

[Claim 9] The information system management apparatus according to claim 1,

wherein the redundancy detail information input part, each time the redundancy detail information is updated, receives as input, updated redundancy detail information, and

wherein the information associating part, each time the updated redundancy detail information is received as input by the redundancy detail information input part,

associates the redundancy detail described in the updated redundancy detail information to the component in operation of each system configuration element, the component being described in the dependency information.

[Claim 10] The information system management apparatus according to claim 1, further comprising

a monitoring result information receiving part which receives monitoring result information that notifies a monitoring result, from a monitoring apparatus which monitors the information system,

wherein the display part displays the redundancy detail of each system configuration element and the monitoring result notified by the monitoring result information, in correspondence with displaying the component in operation of each system configuration element.

[Claim 11] The information system management apparatus according to claim 10,

wherein the monitoring result information receiving part receives information

notifying at least either one of a fact that an abnormality occurs in a component in any one system configuration element and a fact that a component where an abnormality occurs is replaced by another component in any one system configuration element, as the monitoring result information.

[Claim 12] The information system management apparatus according to claim 1, wherein the dependency information input part receives as input, CMDB (Configuration Management Database) information, as the dependency information, and wherein the redundancy detail information input part receives as input, CFIA (Component Failure Impact Analysis) information, as the redundancy detail information.

[Claim 13] An information system management method for managing an information system including a plurality of system configuration elements which are each made to have redundancy using two or more components, the information system management method comprising:

receiving as input, dependency information generated from communication with a component in operation of each system configuration element and describing the component in operation of each system configuration element and a dependency between the system configuration elements;

receiving as input, redundancy detail information that describes a redundancy detail of each system configuration element;

associating the redundancy detail described in the redundancy detail information to the component in operation of each system configuration element, the component being described in the dependency information; and

displaying the component in operation of each system configuration element and a dependency between the system configuration elements, the component and the

dependency being described in the dependency information, and displaying, based on the associating, the redundancy detail of each system configuration element in correspondence with displaying the component in operation of each system configuration element.

[Claim 14] A program which causes a computer which manages an information system including a plurality of system configuration elements which are each made to have redundancy using two or more components, to execute:

a dependency information input process of receiving as input, dependency information generated from communication with a component in operation of each system configuration element and describing the component in operation of each system configuration element and a dependency between the system configuration elements;

a redundancy detail information input process of receiving as input, redundancy detail information that describes a redundancy detail of each system configuration element;

an information associating process of associating the redundancy detail described in the redundancy detail information to the component in operation of each system configuration element, the component being described in the dependency information; and

a displaying process of displaying the component in operation of each system configuration element and the dependency between the system configuration elements, the component and the dependency being described in the dependency information, and displaying, based on associating by the information associating process, the redundancy detail of each system configuration element in correspondence with displaying the component in operation of each system configuration element.

Claims

[Claim 1] An information system management apparatus which manages an information system including a plurality of system configuration elements which are each made to have redundancy using two or more components, the information system where redundancy methods practiced are not uniform among the system configuration elements, the information system management apparatus comprising:

a dependency information input part which receives as input, dependency information generated from communication with a component in operation of each system configuration element and describing the component in operation of each system configuration element and a dependency between the system configuration elements;

a redundancy detail information input part which receives as input, redundancy detail information that describes all components included in the information system, and describes a redundancy method for a specific component out of the two or more components of each system configuration element while not describing the redundancy method for another component out of the two or more components of each system configuration element, the redundancy detail information being obtained by an analysis practiced when designing the information system;

an information associating part which extracts, for the component for which the redundancy method is described in the redundancy detail information, a component to serve as a redundancy counterpart, out of said another component for which the redundancy method is not described, associates the component for which the redundancy method is described, to the component extracted to serve as the redundancy counterpart, and associates the component in operation of each system configuration element, the component being described in the dependency information, to an inactive component of each system configuration element and the redundancy method of each system configuration element; and

a display part which displays the component in operation of each system configuration element and a dependency between the system configuration elements, the component and the dependency being described in the dependency information, and displays, based on associating by the information associating part, the inactive component of each system configuration element and the redundancy method of each system configuration element in correspondence with displaying the component in operation of each system configuration element.

[Claim 2] The information system management apparatus according to claim 1,

wherein the redundancy detail information input part receives as input, redundancy detail information that describes at least any one of load balance, failover cluster, and cold standby, as the redundancy method,

the load balance being described, as the redundancy method, for each of two or more components of a system configuration element that employs the load balance as the redundancy method,

the failover cluster being described, as the redundancy method, for a specific component out of two or more components of a system configuration element that employs the failover cluster as the redundancy method, a redundancy method not being described for another component out of the two or more components,

the cold standby being described, as the redundancy method, for a specific component out of two or more components of a system configuration element that employs the cold standby as the redundancy method, a redundancy method not being described for another component out of the two or more components, and

wherein the information associating part extracts, for the component for which the load balance is described as the redundancy method in the redundancy detail information, another component for which the load balance is described as the redundancy method, and associates the components for each of which the load balance

is described as the redundancy method, to each other,

extracts, for the component for which the failover cluster is described as the redundancy method in the redundancy detail information, a component to serve as a redundancy counterpart out of components for each of which the redundancy method is not described, and associates the component for which the failover cluster is described as the redundancy method, to the component extracted to serve as the redundancy counterpart, and

extracts, for the component for which the cold standby is described as the redundancy method in the redundancy detail information, a component to serve as a redundancy counterpart out of components for each of which the redundancy method is not described, and associates the component for which the cold standby is described as the redundancy method, to the component extracted to serve as the redundancy counterpart.

[Claim 3] The information system management apparatus according to claim 1, which manages the information system where a plurality of components used in the plurality of system configuration elements are each set with a communication address, the communication address being common within a predetermined range among two or more components used in the same system configuration element,

wherein the redundancy detail information input part receives, as input,

the redundancy detail information, and

communication address information in which a communication address of each component is described, and

wherein the information associating part

extracts, for the component for which the redundancy method is described in the redundancy detail information, a component having a communication address which is common, within a predetermined range, with the component for which the

redundancy method is described, out of components for each of which the redundancy method is not described, as a component to serve as a redundancy counterpart.

[Claim 4] The information system management apparatus according to claim 1, which manages the information system where a plurality of components used in the plurality of system configuration elements are each set with an ID (Identifier), the ID being common within a predetermined range among two or more components used in the same system configuration element,

wherein the redundancy detail information input part receives, as input,

the redundancy detail information, and

ID information in which an ID of each component is described, and

wherein the information associating part

extracts, for the component for which the redundancy method is described in the redundancy detail information, a component having an ID which is common, within a predetermined range, with the component for which the redundancy method is described, out of components for each of which the redundancy method is not described, as a component to serve as a redundancy counterpart.

[Claim 5] The information system management apparatus according to claim 1, which manages the information system where a plurality of pieces of software are implemented in each of a plurality of components used in the plurality of system configuration elements such that combinations of the software implemented coincide among two or more components used in the same system configuration element while combinations of the software implemented in components are different among the system configuration elements,

wherein the redundancy detail information input part receives, as input,

the redundancy detail information, and

implemented software information in which a combination of software

implemented is described for each component, and

wherein the information associating part

extracts, for the component for which the redundancy method is described in the redundancy detail information, a component with a combination of implemented software that coincides with a combination of implemented software of the component for which the redundancy method is described, out of components for which the redundancy method is not described, as a component to serve as a redundancy counterpart.

[Claim 6] The information management device according to claim 1, which manages a plurality of information systems which are each made to have redundancy,

wherein the dependency information input part receives as input, dependency information for each information system,

wherein the redundancy detail information input part receives as input, redundancy detail information for each information system,

wherein the information associating part compares dependency information of the respective information systems, and

wherein the display part, when it is turned out that, as a result of comparison of the dependency information of the respective information systems by the information associating part, the same system configuration element is included in two or more information systems redundantly,

displays a component in operation of each system configuration element of each of the two or more information systems, and dependencies among the system configuration elements, to indicate that the same system configuration element is included in the two or more information systems redundantly, and

displays, for each information system, the inactive component of each system configuration element and the redundancy method of each system configuration element

in correspondence with displaying the component in operation of each system configuration element.

[Claim 7] The information system management apparatus according to claim 1,

wherein the redundancy detail information input part, each time the redundancy detail information is updated, receives as input, updated redundancy detail information, and

wherein the information associating part, each time the updated redundancy detail information is received as input by the redundancy detail information input part,

associates the inactive component of each system configuration element and the redundancy method of each system configuration to the component in operation, being described in the dependency information, of each system configuration element, based on description of the updated redundancy detail information.

[Claim 8] The information system management apparatus according to claim 1, further comprising

a monitoring result information receiving part which receives monitoring result information that notifies a monitoring result, from a monitoring apparatus which monitors the information system,

wherein the display part displays the inactive component of each system component, the redundancy method of each system configuration element, and the monitoring result notified by the monitoring result information, in correspondence with displaying the component in operation of each system configuration element.

[Claim 9] The information system management apparatus according to claim 8,

wherein the monitoring result information receiving part receives information notifying at least either one of a fact that an abnormality occurs in a component in any one system configuration element and a fact that a component where an abnormality occurs is replaced by another component in any one system configuration element, as

the monitoring result information.

[Claim 10] The information system management apparatus according to claim 1, wherein the dependency information input part receives as input, CMDB (Configuration Management Database) information, as the dependency information, and wherein the redundancy detail information input part receives as input, CFIA (Component Failure Impact Analysis) information, as the redundancy detail information.

[Claim 11] An information system management method for managing an information system including a plurality of system configuration elements which are each made to have redundancy using two or more components, the information system where redundancy methods practiced are not uniform among the system configuration elements, the information system management method comprising:

receiving as input, dependency information generated from communication with a component in operation of each system configuration element and describing the component in operation of each system configuration element and a dependency between the system configuration elements;

receiving as input, redundancy detail information that describes all components included in the information system, and describes a redundancy method for a specific component out of the two or more components of each system configuration element while not describing the redundancy method for another component out of the two or more components of each system configuration element, the redundancy detail information being obtained by an analysis practiced when designing the information system;

extracting, for the component for which the redundancy method is described in the redundancy detail information, a component to serve as a redundancy counterpart, out of said another component for which the redundancy method is not described,

associating the component for which the redundancy method is described, to the component extracted to serve as the redundancy counterpart, and associating the component in operation of each system configuration element, the component being described in the dependency information, to an inactive component of each system configuration element and the redundancy method of each system configuration element; and

displaying the component in operation of each system configuration element and a dependency between the system configuration elements, the component and the dependency being described in the dependency information, and displaying, based on associating by the information associating, the inactive component of each system configuration element and the redundancy method of each system configuration element in correspondence with displaying the component in operation of each system configuration element.

[Claim 12] A program which causes a computer which manages an information system including a plurality of system configuration elements which are each made to have redundancy using two or more components, the information system where redundancy methods practiced are not uniform among the system configuration elements, to execute:

a dependency information input process of receiving as input, dependency information generated from communication with a component in operation of each system configuration element and describing the component in operation of each system configuration element and a dependency between the system configuration elements;

a redundancy detail information input process of receiving as input, redundancy detail information that describes all components included in the information system, and describes a redundancy method for a specific component out of the two or more components of each system configuration element while not describing the

redundancy method for another component out of the two or more components of each system configuration element, the redundancy detail information being obtained by an analysis practiced when designing the information system;

an information associating process of extracting, for the component for which the redundancy method is described in the redundancy detail information, a component to serve as a redundancy counterpart, out of said another component for which the redundancy method is not described, associating the component for which the redundancy method is described, to the component extracted to serve as the redundancy counterpart, and associating the component in operation of each system configuration element, the component being described in the dependency information, to an inactive component in each system configuration element and the redundancy method of each system configuration element; and

a displaying process of displaying the component in operation of each system configuration element and the dependency between the system configuration elements, the component and the dependency being described in the dependency information, and displaying, based on associating by the information associating process, the inactive component of each system configuration element and the redundancy method of each system configuration element in correspondence with displaying the component in operation of each system configuration element.