CUSTOMIZED DATA FORMAT CONVERTED DATA PROVIDING SYSTEM AND CUSTOMIZED DATA FORMAT CONVERTED DATA PROVIDING METHOD

FIELD OF THE INVENTION

[0001]

The present invention relates to a customized data format converted data providing system and a customized data format converted data providing method.

[0002]

Further, more specifically, the present invention relates to the customized data format converted data providing system and the customized data format converted data providing method, capable of gathering various data that are provided from a plurality of data providers, for example, a plurality of service providing agents and the like, and, for example, converting a result of performing addition, analysis, data mining and the like of the data into a data format corresponding to the data receiver, and providing the same to the data receiver side.

BACKGROUND ART

[0003]

Accompanying a development of the Internet, various service agents providing unique effective service taking dimensions such as a type of business a content of the business, for example, a service agent providing merchandise information such as a popular menu, a service agent or a retail service

agent which provides cooking ingredient to the service agent, a production agent of the cooking ingredient, and the like, with respect to a restaurant business, are increasing.

[0004]

For example, recently, a service providing system is spreading widely for supporting the business of service receiving agent side such as restaurants by providing a service infrastructure as an infrastructure of specific business services for a service providing agent side providing the specific business services to the service receiving agent side using the Internet or Web, and providing business services based on the service infrastructure, exists.

[0005]

Such a service providing system includes a service infrastructure provider device, a service providing agent device, a service receiving agent device and a user terminal device.

[0006]

A service infrastructure provider device is a system or device for providing to the service provider agent device a function (service) based on the provided service infrastructure, such as a business system using a SaaS (Software as a Service) system.

[0007]

A service providing agent device is a system or device for receiving a business system (business SaaS) based on the service

infrastructure provided by the service infrastructure provider device. The service providing agent system can further be a system or device for customizing the business system based on the requests from a service receiving agent (or directly from a user) and providing the same to the service receiving agent.

[0008]

A service receiving agent device is a system or device receiving services from the service providing agent. It also is a device for providing the user information provided for example from the user to the service providing agent device-side.

[0009]

A user terminal device is, for example, a terminal that the user uses to enter his/her information and to provide the same to the service receiving agent device-side. The user terminal device can also be a device or the like capable of automatically gathering information from a portable terminal when the user holds his/her portable terminal over the device. Further, original user information owned by the service receiving agents and the service providing agents include beneficial information. If the service infrastructure provider is capable of receiving the beneficial original user information and analyze the information, it is expected to perform better business support.

[0010]

As a background art of the technical field, Japanese Patent Application Laid-Open Publication No. 2009-93569 (Patent

Document 1), and Japanese Patent Application Laid-Open Publication No. H09-153094 (Patent Document 2), may be given.

[0011]

Patent Document 1 is aimed at reducing buried costs or loss of opportunities in changing an SaaS (software as a service) environment to an SI (system integration) environment in a business service started in an SaaS form, wherein when the service is shifted from the SaaS agent environment (company A) to the SI form environment (city B), a service address list recording addresses of the business service is provided in the city B, and the addresses of the service address list are updated according to the shift of the business service. When business data accumulated in the company A is also shifted, data address lists recording addresses of the business data are provided in the company A and the city B, and the addresses of both the address lists are updated according to the shift of the business data. In the update of the addresses, the access method is changed so that the addresses are logically the same.

[0012]

Patent Document 2 discloses a sales promotion effect analyzing method and an implementing system thereof, which analyzes a sales promotion effect of a merchandise, from an information concerning a customer, an information of the merchandise the customer referred to when considering purchase

of the merchandise, and an information of the merchandise purchased by the customer.

CITATION LIST

Patent Document

[0013]

[Patent Document 1]

Japanese Patent Application Laid-Open Publication No. 2009-93569

[Patent Document 2]

Japanese Patent Application Laid-Open Publication No. H09-153094

SUMMARY OF THE INVENTION

PROBLEMS TO BE SOLVED BY THE INVENTION

[0014]

According to the service providing system as taught in Patent Document 1, the service infrastructure provider can support the business of the service providing agents. Further, the service providing agent can support the business of service receiving agents. Using these business support systems, the business of the whole system can have improved efficiency, which leads to the improvement of business efficiency.

[0015]

Further, it is normal for each service providing agent and service infrastructure provider side providing such service to hold (cumulate) and manage data related to each user, such as a preference and an action history.

[0016]

Therefore, it is expected to further improve business efficiency, if a system which analyzes the data related to the user and provides beneficial information based on the analysis result or the original data from the service providing agent to the service receiving agent which is on a side receiving the service from the service providing agent (stores, general enterprises, and the like) exists.

[0017]

In the present invention, the term "user" refers to an individual, a group or a company using the present system, including a specified user (based on which a single individual, a single group or a single company can be specified) and an unspecified user (based on which an individual, a group or a company cannot be specified or can rarely be specified). The terminal or the like that the user uses in the present system is called a "user-side terminal". In the present invention, the term "individual" used with respect to a user can include a group and a company as the user.

[0018]

The term "service receiving agent" refers to an entity receiving a primary business support service (first service) provided by the present system, and the system configuration device disposed on the service receiving agent side is called a "service receiving agent device". The meaning of the term "disposed on the side" does not only refer to disposing the

device within the service receiving agent. The same applies to the term "disposed on the side" in the following descriptions.

[0019]

The term "service providing agent" refers to an entity providing the primary business support service (the first service) according to the present system, and the system configuration device disposed on the service providing agent side is called a "service providing agent device".

[0020]

The term "service infrastructure provider" refers to an entity that bundles a plurality of service providing agents, and provides a service infrastructure, such as a business or a reservation function (business services and reservation functions), to the service providing agent and/or the service receiving agent. If further gathers information as needed from the service receiving agent device and/or the service providing agent device based on an agreement, analyzes the information, for example, and provides the same to the service receiving agent side and/or the service providing agent side as analyzed information (second service). Here, the provided information is not restricted to analyzed information, and provided information can include non-analyzed information of non-processed original data according to a request from a data provider, for example. The system configuration device disposed on the service

infrastructure provider side is called a "service infrastructure provider device".

[0021]

Further, the term “data providing agent” or “data receiving agent” means the service providing agent or the service receiving agent. Further, for example, original user information Ia, Ib are transmitted as data to be provided as a raw data directly, or as anonymous data XIa, XIb satisfying a k-anonymousness to the service infrastructure provider side, and receives the data as an analyzed data by the service infrastructure provider side or as the raw data. The system configuration device disposed on the data providing agent side is referred to as “data providing agent device”, and a system configuration device disposed on the data receiving agent side is referred to as “data receiver device”. The data provider side is referred to as “the data providing agent” and the data receiver side is referred to as “the data receiving agent”, however, they are not limited to “agent” and may be an individual “user”. Therefore, in the embodiment to be explained later, they may be simply referred to as “data provider” and “data receiver”.

[0022]

Further, the service infrastructure provider is an enterprise that bundles the plurality of the service providing agents, so that it becomes possible to provide higher-value

added analysis at the service infrastructure provider side, if various data accumulated at the plurality of the service providing agents side are merged, or integrated, and then analyzed, and as a result thereof, it becomes possible to provide higher-value added analysis result, to the service providing agents and/or the users including the service receiving agents.

[0023]

In the current situation where an information technology environment capable of analyzing large-volume data is being developed, it is technically possible to perform the above-mentioned high-value added analysis from the large-volume data.

[0024]

The term “high-value added analysis” means an analysis for providing basic data which makes it possible to realize personalization (transmitting information according to preference or according to attribution of each good customer and each potential user by an e-mail or the like), or recommendation (a service which analyzes the preference of the user, and selects and displays information that each user may be interested in).

[0025]

When gathering various data from the service provider side, and for example adding and analyzing the gathered data at the above-mentioned service provider side and the service

infrastructure provider side, it is necessary to perform a data cleansing process to the data for the data to be capable of being added and analyzed (assayed). The reason therefor is that data format differs in each service provider. That is, there are cases where units differ in data of each data provider, such that the data may be numerical values, whereas the other may be a category.

[0026]

Conventionally, in order to dissolve such data cleansing process, a method for example in which a system, that is the service providing agent and the service infrastructure provider side, presents a preliminarily integrated common data format to the data provider side, and to have the data provided from the data provider side in the common data format, is conceivable.

[0027]

However, in such method, no problem occurs in a one-on-one correspondence, but there remains a problem that it is not possible to gather various data from the plurality of the service receiving agents, and perform, for example, a higher-value added analysis by merging or integrating the data.

That is, in a case where such method is used, the service infrastructure provider side can only handle specific data as the data to be gathered.

For example, in a case where data of a company A contains effective data not existing in data of a company B, the high-

value added analysis for the company B utilizing also the effective data of company A cannot be expected. In addition thereto, the data provider side is forced with an operation of converting into input data in line with the integrated common data format, and the like, so that there is a new problem of incurring degradation in service. Stated otherwise, no consideration is given to making it possible to use the provided data at the data receiver side receiving the provided data, such as independently analyzing the analyzed data or original data, and the like.

[0028]

Therefore, the present invention aims at providing the customized data format converted data providing system and the customized data format converted data providing method, which makes it possible to, for example, gather various data created by the plurality of the data providing agents (or the data providers), convert the data format of the gathered data conforming to an infrastructure data format policy of the service infrastructure provider side, and then perform for example addition, analysis, and data mining to the data, convert the infrastructure data format of the data performed with the addition, analysis, and data mining into the data format conforming to a data format policy of the data receiver side, and then providing the added, analyzed, and data mined data to each data receiving agent (or the data receiver) side.

MEANS FOR SOLVING THE PROBLEMS

[0029]

In order to accomplish the above-mentioned problems, a customized data format converted data providing system of the present invention is a customized data format converted data providing system including at least one service infrastructure provider device, a plurality of data provider devices, and a plurality of data receiver devices, wherein the service infrastructure provider device is configured to have a data reception unit which receives data from each data provider device in a unique data format of each data provider device, and a data distribution unit which distributes data received from each data provider device to the data receiver device according to a request from the data receiver device, the service infrastructure provider device is further configured to have a data format record unit which preliminarily records a list form of various data, and in addition the service infrastructure provider device is configured to have a data distribution process unit which distributes the data to the data receiver device, in following data format, according to the request from data receiver device, when the service infrastructure provider device distributes the data to the data receiver device:

(1) in a case where a distribution request from the data receiver device is the request for the data distribution in a form of a data format of the service infrastructure provider

device, then the data is distributed with the data format received from each data provider device being converted into the data format of the service infrastructure provider device, while taking into consideration a data format information recorded in the data format record unit;

(2) in a case where the distribution request from the data receiver device is the request for the data distribution in the form of the data format of the data receiver device, then the data is distributed with the data format received from each data provider device being converted into the data format of the data receiver device, while taking into consideration the data format information recorded in the data format record unit; and

(3) in a case where the distribution request from the data receiver device is the request for the data in the form of the data format of each data provider device, then the data is distributed in the data format of each data provider device directly.

[0030]

Further, the customized data format converted data providing system of the present invention is characterized in having a service infrastructure provider device, a data provider device, and data receiver device, wherein the service infrastructure provider device includes a reception unit which receives data and data format information of the data from the data provider device, and a request data format information from

the service receiver device, a storage unit which records the data format information of the service infrastructure provider device-side, the data format information of the data providing agent device, and the data format information of the data receiving agent device, a data format conversion unit which converts a data format of the data provider device, in a case where a data distribution request is received from the data receiver device, and the data distribution request is the data distribution request in at least one or more of a form of a data format of the infrastructure provider device, and a form of a data format of the data receiving agent device, into the data format of a data format form of the data distribution request, while taking into consideration the data format information of the storage unit, and a data distribution unit which transmits the data of the data provider device to the receiver device, in the data format converted by the data format conversion unit.

[0031]

The service infrastructure provider device is characterized by further having a data analysis unit which receives data that are recorded and managed conforming to the infrastructure data format policy of the service infrastructure provider side, and analyzing the data, and the data after analysis by the analysis unit is converted from the infrastructure data format to the data format of the data receiver device by the data format conversion unit for data

distribution, and the analyzed data after data format conversion is transmitted to the data receiver device-side via the data distribution unit.

[0032]

The data format information of the data provider device and the data receiver device is characterized by including information indicating a type in each item in a data format master of the service infrastructure provider device, and the type is designated by the data provider device-side and the data receiver device-side.

[0033]

Further, a customized data format converted data providing method of the present invention is a customized data format converted data providing system, including at least one service infrastructure provider device, a plurality of data provider devices, and a plurality of data receiver devices, wherein the service infrastructure provider device includes a servicer including a control unit, the control unit is configured to have a step of receiving data from each data provider device in a unique data format of each data provider device, and a step of distributing data received from each data provider device to the data receiver device according to a request from the data receiver device, the service infrastructure provider device further being configured to have a data format record unit which preliminarily records a list form of various data, and the

control unit is configured to have a step of distributing the data to the data receiver device, in following data format, according to the request from data receiver device, when the service infrastructure provider device distributes the data to the data receiver device:

(1) in a case where a distribution request from the data receiver device is a request for the data distribution in a form of a data format of the service infrastructure provider device, then the data is distributed with the data format received from each data provider device being converted into the data format of the service infrastructure provider device, while taking into consideration a data format information recorded in the data format record unit;

(2) in a case where the distribution request from the data receiver device is the request for the data distribution in the form of the data format of the data receiver device, then the data is distributed with the data format received from each data provider device being converted into the data format of the data receiver device, while taking into consideration the data format information recorded in the data format record unit; and

(3) in a case where the distribution request from the data receiver device is the request for data in the form of the data format of each data provider device, then the data is distributed in the data format of each data provider device directly.

[0034]

Further the customized data format converted data providing method of the present invention is characterized in a system including a service infrastructure provider device, a data provider device, and data receiver device, wherein the service infrastructure provider device includes a server, and the server includes a step of receiving data and data format information of the data from the data provider device, and a data format information from the service receiver device, a step of recording the data format information of the service infrastructure provider device-side, the data format information of the data providing agent device, and the data format information of the data receiving agent device, a step of converting a data format of the data provider device, in a case where a data distribution request is received from the data receiver device, and the data distribution request is the data distribution request in at least one or more of a form of a data format of the infrastructure provider device, and a form of the data format of the data receiving agent device, into the data format of a data format form of the data distribution request, while taking into consideration the data format information of the storage unit, and a step of transmitting the data of the data provider device to the receiver device, in the data format converted by the data format conversion unit.

[0035]

The control unit is characterized in having a step of receiving the data recorded and managed conforming to the infrastructure data format policy of the service infrastructure provider device-side, and analyzing the data.

[0036]

The data format information of the data provider device and the data receiver device includes information indicating a type corresponding to each item in a data format master of the service infrastructure provider device, and the type is designated by the data provider device-side and the data receiver device-side.

EFFECT OF THE INVENTION

[0037]

According to the present invention, it becomes possible to gather one or more data provided from each data provider side with the data format differing in the data format policy of the data provider side, convert the data format of the gathered data into the integrated infrastructure data format, convert the infrastructure data format into the data format of the data receiver side on the basis of the data format policy according to designation or request of the data receiver side, and provide the data from the data provider side to the data receiver side in the converted data format.

By doing so, there is an effect that a process load for the data provider side in providing data may be alleviated.

[0038]

Further, by converting each data format of each data provider side into the integrated data format (the infrastructure data format) at the service infrastructure provider side, it is possible for the infrastructure provide side to analyze the plurality of data from the plurality of the data providers by adding, merging, or integrating the same, and it is not necessary for the data provider side to perform special process such as data format conversion, and it is possible for the data receiver side to independently analyze the data of the data provider side.

The problems, configurations and effects other than those explained above will be clarified by explanations of embodiments below.

BRIEF DESCRIPTION OF THE DRAWINGS

[0039]

Fig. 1 is a view showing an overall outline of a service providing system adopting a customized data format converted data providing system of the present invention;

Fig. 2 is a block diagram showing each configuration of a service infrastructure provider device and a data providing agent device in Fig. 1;

Fig. 3 is a block diagram showing an example of a configuration of an arithmetic device (a control means) of the service infrastructure provider device in Fig. 2;

Fig. 4 is a view showing an example of an infrastructure data format and an example of data thereof, of a data format definition document management master DB of a infrastructure provider server;

Fig. 5 is a table showing a data format master of a pattern “text” of the infrastructure data format example in Fig. 4;

Fig. 6 is a table showing a data format master of a pattern “postal code” of the infrastructure data format example in Fig. 4;

Fig. 7 is a table showing a data format master of a pattern “numerical value” of the infrastructure data format example in Fig. 4;

Fig. 8 is a table showing a data format master of a pattern “date” of the infrastructure data format example in Fig. 4;

Fig. 9 is a table showing a data format master of a pattern “currency” of the infrastructure data format example in Fig. 4;

Fig. 10 is a table showing a data format master of a pattern “telephone number” of the infrastructure data format example in Fig. 4;

Fig. 11 is a table showing a data format master of a pattern “percentage” of the infrastructure data format example in Fig. 4;

Fig. 12 is a view showing an example of the data format of a provided history data of a data provider (a company A) and the data thereof (provided value);

Fig. 13 is a view showing an example of the data format of the purchase history data of a data receiver (a company P) and the data thereof (purchase value);

Fig. 14 is a flow chart explaining a process flow of a data format converting method of the present invention;

Fig. 15 is a view schematically showing a state in which a plurality of each company data (Ia, Ib, Ic) is transmitted from a plurality of data providers (the company A, a company B, a company C) side to the infrastructure provider side;

Fig. 16 is a view showing a state in which each company data (Ia, Ib, Ic) of the plurality of the data providers (the company A, the company B, the company C) is analyzed in a data analysis unit 31313 of the infrastructure provider side;

Fig. 17 is a view schematically showing a state in which the analysis result analyzed at the infrastructure provider side is provided to a plurality of data receivers (the company P, a company Q, a company R) side;

Fig. 18 is a view schematically showing an example of recording a data format of the data provider (the company A) side to the infrastructure provider side; and

Fig. 19 is a view schematically showing a state in which data (original data) of a specific data provider (the company A,

the company C) is received, from the data receiver (the company P) to the infrastructure provider.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0040]

Now, the preferred embodiments of the present invention will be described with reference to the drawings. At first, we will describe an outline of a service providing system for supporting the business of service receiving agents.

[0041]

The service providing system is composed of a service infrastructure provider system or device (hereinafter referred to as service infrastructure provider device) for providing application services and SI, in other words, services such as a reservation function or a business SaaS (first service S1) to the service providing agent side, and a service providing agent system or device (hereinafter referred to as service providing agent device) for customizing the first service in response to the requests from a service receiving agent (such as a restaurant) and providing the same to the service receiving agent.

[0042]

The service receiving agent (such as a restaurant) provides foods, drinks or foodstuff to the users (customers) and receives user information (original information) from the users.

[0043]

The service infrastructure provider device can be a device providing services other than the SaaS, such as a PaaS (Platform as a Service) that rents platforms including OS, or an ASP (Application Service Provider) service, for example.

[0044]

Now, we will mainly describe the restaurant business (restaurants), the service providing agent and the service infrastructure provider related thereto.

At first, we will describe the outline of the service providing system. The service infrastructure provider device of the service providing system has an application server (hereinafter referred to as service infrastructure provider server) for providing a reservation management service (application service) or the like to the service providing agent device.

[0045]

The service providing agent device has an application server (hereinafter referred to as service providing agent server) capable of customizing the reservation management service based on the requests from the service receiving agent, and receiving and managing reservation information of the users (customers) from the service receiving agent. In other words, the service infrastructure provider device and the service

providing agent device cooperate to support the business of the service receiving agent.

[0046]

This type of system generally responds to individual cases for each service receiving agent.

Accordingly, the service infrastructure provider device provides a first service S1 to the service providing agent device, the service providing agent device provides a customized first service (service start) to the service receiving agent, and merely manages the user information (original information) Ia, Ib and the like, based on the provided first service.

[0047]

One example of such service providing method is, for example, a SaaS. A SaaS is an ICT application environment that enables the service providing agent or the service receiving agent to use the function (first service) provided by the information system (software) via the network without having to construct or introduce a new system.

[0048]

Generally, the SaaS has a merit of enabling necessary services to be used promptly when necessary without having to construct special systems. Further, SaaS does not require a special environment to be prepared within the company, so that the operation of the function (service) can be started at an early stage, and the related costs can be reduced. It requires

the use of the Internet or a WAN, but a similar operation as using an internal system is enabled by the technical revolution of networks and browsers.

[0049]

The service providing agent or the service receiving agent can use the SaaS, the SI and the operation and maintenance provided by the service infrastructure provider to expect reduced costs and increased sales.

[0050]

The present invention makes it possible to provide data from the devices of such data providing agents (service providing agent devices A, B, service receiving agent devices a1, a2, b1, b2 and the like), for example which is a result of performing addition, analysis, data mining and the like of the data, to the device of the data receiver side, in a data format corresponding to each data receiver.

[0051]

Hereinafter, embodiments of the present invention will be explained on the basis of the drawings. The present embodiment makes it possible to receive even data with mismatched cleansing, and efficiently analyze the plurality of the received data by merging or integrating, and which transmits the analyzed data or the original data in the data format according to a distribution request of the data receiver device. For example, (1) in a case where a distribution request from the data receiver device is

the data distribution request in a form of a data format of the service infrastructure provider device, then the data is transmitted in the data format of the service infrastructure provide device, (2) in a case where the distribution request from the data receiver device is the data distribution request in the form of the data format of the data receiver device, then the data is transmitted in the data format of the data receiver device, and (3) in a case where the distribution request from the data receiver device is the data distribution request in the form of the data format of the data provider device, then the data is transmitted in the data format of the data provider device. This is a so-called transmitting in the data format in each request of the data receiver.

Embodiment 1

[0052]

Fig. 1 is a view showing an overall configuration of a service providing system in which a customized data format converted data providing system of the present invention is applied to the service infrastructure provider device.

[0053]

A service providing system has a data providing agent device 12 of a data providing agent, and a service infrastructure provider device 3 of a service infrastructure provider.

[0054]

The data providing agent device 12 has a plurality of service providing agent devices 2 including a plurality of service proving agent devices A, B, …, and the service receiving agent device 1 including a plurality of service receiving agent devices a, b, ….

[0055]

The data providing agent device 12 is composed of a data providing agent server 121.

Each service receiving agent device 1 is a device on a side of, for example, a plurality of shops a1, a2 or a plurality of enterprises b1, b2, and is composed of a service receiving agent server 11. Further, each service receiving agent server 11 outputs original user information Ia and Ib to the service provider device 2.

[0056]

The original information Ia and Ib is sent from a user side, corresponding to the first service S1 (business/reservation function and the like) provided from the service infrastructure provider device 3 via a network 4.

[0057]

Each service providing agent device 2 is composed of a service providing agent server 21. The service providing agent server 21 receives each original user information Ia, Ib, and transmits the original user information directly, or as anonymous data using a well-known anonymizing technique to an

extent that a source thereof, that is, the user cannot be specified, to the service infrastructure provider device 3 side via the network 4.

[0058]

The service infrastructure provider device 3 is composed of a service infrastructure provider server 31. The service infrastructure provider server 31 has a function of receiving the data provided from the data providing agent server 121, and analyzing the data.

[0059]

Fig. 2 is a block diagram showing a configuration of the service infrastructure provider server 31, the data providing agent server 121, and a data receiver server 1216.

[0060]

In the present embodiment, explanation will be given on a premise that the service providing agent server 21 in Fig. 1 is a data provider server 121, the service receiving agent server 11 is the data receiver server 1216, and data provided from the data provider server 121 to the service infrastructure provider server 31 is the original data Ia, Ib, …. Further, explanation will be given on a premise that the data from the data provider server 121 is analyzed, and the analyzed data is transmitted to the data receiver server 1216. The analysis of data may be performed according to need, and is not indispensable.

[0061]

The data providing agent server 121 has a data transmission unit 1215, an analyzed data reception unit 1213 and the like. Further, the data providing agent server 121 provides the data I (Ia, Ib, …) and a data format information F (Fa, Fb, …) indicating what form of data format the data format of the data is, to the service infrastructure provider server 31. However, the data providing agent server 121 may be used as thedata receiver server receiving an analyzed data S from the service infrastructure provider server 31. Further, the data receiver server 1216 may be used as the data providing agent server providing the data Ip and the data format F information (Fp) of the data.

[0062]

In order for the data receiver server 1216 to receive the analyzed data S from the service infrastructure provider server 31, the data receiver server 1216 makes such request (a data reception request signal) to the service infrastructure provider server 31, and also notifies the data format information F (Fp) indicating the data format information showing the data format determined conforming to a cleansing policy of a service receiving agent server 1216 side, that is, in which data format form the data should be received (data distribution should be received), to the service infrastructure provider server 31 side. The data format information may be preliminarily registered to the service infrastructure provider server 31 side.

[0063]

The service infrastructure provider server 31 has an input-output device (an input-output interface) 311, a storage device (a storage means) 312, and an arithmetic device (an arithmetic means) 313. These devices are connected by LAN.

[0064]

The storage device 312 has a data provider and data receiver management master DB/data and data format information management DB 3121, an analyzed data DB 3122, and a data format definition document management master DB 3123.

[0065]

The data provider and data receiver management master DB/data and data format information management DB 3121 is for managing data of the data provider and the data receiver, and the data format information, and further stores and manages the data I (the original data Ia, Ib, Ic, …) provided from the data provider server 121 and the data format information F (the data format information Fa, Fb, Fc, …) of the data, while respectively associating the two.

[0066]

The analyzed data DB 3122 stores and manages the analyzed data (a data mining) obtained from analysis by a data analysis unit 31314.

[0067]

The data format definition document management master DB 3123 stores data format master information of a data format definition document defining a policy of an infrastructure data format (Fy) of the service infrastructure provider server 31. Stated otherwise, the data format definition document management master DB 3123 manages the data format definition document including an infrastructure data format information for converting each data format F (Fa, Fb, Fc, …) of the provided data I (Ia, Ib, Ic, …) from the data provider server 121 to the data format F (Fy) conforming to the cleansing policy of the service infrastructure provider server 31. The infrastructure data format information may be stored and managed by the data provider and data receiver management master DB/data and data format information management DB 3121.

[0068]

The arithmetic device 313 includes a data providing agent and data receiver recognition unit (an agent recognition unit) 31311, a data and data format information reception unit 31312, a data format conversion unit (a data format converting means) 31313, the data analysis unit 31314, a data format conversion unit for data distribution (a data format converting means) 31316, a data read/write unit 31317, and an analyzed data distribution unit 31318.

[0069]

The agent recognition unit 31311 recognizes the data provider and the data receiver. Further, the agent recognition unit 31311 has a function of receiving the data and the data format information from the data provider server 121, and determining whether or not to perform providing of analyzed data (service) with respect to the data receiver server 1216, on the basis of the recognition result.

[0070]

The data and data format information reception unit 31312 receives the data I (Ia, Ib, Ic, …) and the data format information F (Fa, Fb, Fc, …) of the data from the data provider server 121, and further receives the data format information (Fp) that is designated or requested from the data receiver server 1216.

[0071]

The data format conversion unit 31313 converts the data format of the data provided from the data provider server 121 into the designated or requested data format from the data receiver server 1216, conforming to the policy of the infrastructure data format of the definition document of the data format definition document management master DB 3123. For example, the data format conversion unit 31313 converts the data format into the integrated infrastructure data format (Fy) with each data format (Fa, Fb, Fc, …) of the provided data (Ia, Ib, Ic, …). The data format conversion is performed while taking

into consideration the infrastructure data format information of the infrastructure provider side, and the data format information from the data provider or the data receiver.

[0072]

The data format conversion is for performing a cleansing process such that each data of the plurality of the data provider server 121 may be merged or integrated to be analyzed at the service infrastructure provider server 31. By doing so, each data provider server 121 may provide the data to the service infrastructure provider server 31, in a state of the data format of a unique cleansing process.

[0073]

Further, even if the data format of the data provided from a service provider server 121 respectively differ, the data format is converted to a integrated data format, so that the service infrastructure provider server 31 is capable of performing higher-value added analysis, by merging or integrating a plurality of provided data and analyzing the same.

[0074]

The data format (Fa, Fb, …) from the data provider server 121 is substituted to the converted integrated infrastructure data format (Fy) by the data format conversion unit 31313.

[0075]

The data analysis unit 31314 analyzes (performs data mining) of the data of the converted data format by the data format conversion unit 31313.

[0076]

The data read/write unit 31317 writes each data (Fa, Fb, …) and each data format information (Fa, Fb, …) of the above-explained data provider server to DB 3121, and reads the same from the DB.

[0077]

The analyzed data distribution unit 31318 transmits the data analyzed by the data analysis unit 31314 to the data receiver server 1216.

[0078]

Fig. 3 is a functional block diagram showing one example of the service infrastructure provider server 31. In the figure, the server 31 receives the provided data Ia, Ib, Ic, … Ip and the data format information Fa, Fb, Fc, … Fp of the data with the data and data format information reception unit 31312 (refer to Fig. 2), and stores the same to the data and data format information management DB 3121 while associating to each data.

[0079]

The provided data Ia, Ib, Ic, … Ip may be stored in the data format directly provided from the data provider server 121 in the data and data format information management DB 3121, and

the data format thereof may be changed thereafter by the data format conversion unit 31313.

Further, the provided data Ia, Ib, Ic, … Ip may be stored in the data and data format information management DB 3121 after performing data format conversion by the data format conversion unit 31313.

[0080]

The data format information Fa, Fb, Fc, …, Fp of the data is stored to the data and data format information management DB 3121 while associating the same with the provided data Ia, Ib, Ic, … Ip.

[0081]

The data analysis unit 31314 is for analyzing the data after the data format conversion is performed, so that it is not only possible to merge or integrate and analyze the plurality of the data, but also to analyze only the data from a specific data provider server upon designation or request from the data receiver server 1216 receiving the analysis result.

[0082]

The designation or request from the data receiver server 1216 is performed by selecting a specific data from the specific data provider server from the analysis result, and notifying a detailed request of the specific data to the service infrastructure provider server 31. That is, this selection is for requesting which data format form the data receiver server

1216 wants to receive data (have data distributed) to the service infrastructure provider server 31.

Further, the data provided from the specific data provider server 1216 is converted into the data format on the basis of designation or request from the data receiver server 1216 by the data format conversion unit 31316 for data distribution, and then transmitted to the data receiver server 1216 in the converted data format.

[0083]

Fig. 4 is a view showing an example of the infrastructure data format and an example of the data thereof of the data format definition document management master DB 3123 in Fig. 2.

[0084]

In the figure, an infrastructure data format 410 (the infrastructure data format Fy) of the service infrastructure provider device includes each column of an item 411, a meaning of item 412, a pattern 413, and a type 414.

[0085]

The item 411 indicates data item names, and has each column of “g_name” 4111, “g_name_kana” 4112, “g_address” 4113, “g_zip” 4114, “g_point” 4115, “g_date” 4116, and “g_account” 4117.

[0086]

The meaning of item 412 indicates “name”, “name (Japanese phonetic syllabary characters)”, “address”, “postal code”, “point utilization”, “date of purchase”, and “money spent”.

[0087]

The pattern 413 indicates “text”, “text”, “text”, “postal code”, “numerical value”, “date”, and “currency”.

[0088]

The type 414 indicates “type 0”, “type 1”, “type 0”, “type 1”, “type 0”, “type 2”, and “type 2”.

[0089]

Further, “name”, “text”, “type 0” are associated to the column of the item “g_name” 4111, “name (Japanese phonetic syllabary characters)”, “text”, “type 1” are associated to the column of “g_name_kana” 4112, “address”, “text”, “type 0” are associated to the column of “g_address” 4113, “postal code”, “postal code”, “type 1” are associated to the column of “g_zip” 4114, “point utilization”, “numerical value”, “type 0” are associated to the column of “g_point” 4115, “date of purchase”, “date”, “type 2” are associated to the column of “g_date” 4116, and “money spent”, “currency”, “type 2” are associated to the column of “g_account” 4117.

[0090]

As examples of data for “g_name” 4111, “g_name_kana” 4112, “g_address” 4113, “g_zip” 4114, “g_point” 4115, “g_date” 4116, and “g_account” 4117 of the item 411, for example, “Jouji

Hitachi (in Kanji characters)", "Taro Hitachi (in Hiragana characters)", "Minato-ku, Tokyo", "1400000", "0.234", "2012/09/23", "JPY 2,309,987", "Hideki Hitachi (in Kanji characters)", "Hideki Hitachi (in Hiragana characters)", "Omiya-ku, Saitama-shi", "3300800", "0.456", "2012/04/03", "JPY 1,098,887", "Eiji Hitachi (in Kanji characters)", "Eiji Hitachi (in Hiragana characters)", "Chuo-ku, Tokyo", "1030000", "0.576", "2012/08/27", "JPY 987,654", "Takuya Hitachi (in Kanji characters)", "Takuya Hitachi (in Katakana characters)", "Chuo-ku, Chiba-shi", "2600000", "0.348", "2012/03/20", "JPY 98,000", "Shinji Hitachi (in Kanji characters)", "Shinji Hitachi (in Hiragana characters)", "Naka-ku, Yokohama-shi", "2310000", "0.562", "2012/06/07", "JPY 67,922", "Hideo Hitachi (in Kanji characters)", "Hideo Hitachi (in Hiragana characters)", "Nishi-ku, Yokohama-shi", "2200000", "0.873", "2012/08/30", and "JPY 45,000", are shown.

[0091]

Fig. 5 is a view showing an example of a table of the data format definition document management master DB 3123 in Fig. 2, and is a view showing an example of a data format master of "text" of the pattern 413 in Fig. 4.

[0092]

In the figure, a data format master 510 of "text" indicates a type and a display style, wherein the type has a plurality of types 0 through 6, and the display style

corresponds to each type and defines each type. For example, type 0 indicates no-designation, type 1 indicates “Jouji Hitachi” in two-byte Hiragana characters, and type 2 indicates “Jouji Hitachi” in two-byte Katakana characters. Further, type 3 indicates “Jouji Hitachi” in one-byte Katakana characters, and type 4 indicates “Jiyouji Hitachi” in two-byte Hiragana characters all in large letters, type 5 indicates “Jiyouji Hitachi” in two-byte Katakana characters all in large letters, and type 6 indicates “Jiyouji Hitachi” in one-byte Katakana characters all in large letters.

[0093]

Fig. 6 is a view showing an example of the table of the data format definition document management master DB 3123 in Fig. 2, and is a view showing an example of the data format master of “postal code” of the pattern 413 in Fig. 4.

[0094]

In the figure, a data format master 610 of “postal code” indicates the type and the display style, wherein the type has the plurality of the types 0 through 3, and the display style corresponds to each type and defines each type. For example, type 0 indicates no-designation, type 1 indicates without hyphen, and type 2 indicates with hyphen.

[0095]

Fig. 7 is a view showing an example of the table of the data format definition document management master DB 3123 in Fig.

2, and is a view showing an example of the data format master of "numerical value" of the pattern 413 in Fig. 4.

[0096]

In the figure, a data format master 710 of "numerical value" indicates the type and the display style, wherein the type has the plurality of the types 0 through 6, and the display style corresponds to each type and defines each type. For example, type 0 indicates no-designation, type 1 indicates "-#,###.#", and type 2 indicates "Δ#,###.#". Type 3 indicates "-####.#", type 4 indicates "Δ####.#", type 5 indicates "-#####", and type 6 indicates "Δ#####".

[0097]

Fig. 8 is a view showing an example of the table of the data format definition document management master DB 3123 in Fig. 2, and is a view showing an example of the data format master of "date" of the pattern 413 in Fig. 4.

[0098]

In the figure, a data format master 810 of "date" indicates the type and the display style, wherein the type has the plurality of the types 0 through 3, and the display style corresponds to each type and defines each type. For example, type 0 indicates no-designation, type 1 indicates "YYYYMMDD", type 2 indicates "YYYY/MM/DD", and type 3 indicates "DDMM,YYYY".

[0099]

Fig. 9 is a view showing an example of the table of the data format definition document management master DB 3123 in Fig. 2, and is a view showing an example of the data format table of “currency” of the pattern 413 in Fig. 4.

[0100]

In the figure, a data format master 910 of “currency” indicates the type and the display style, wherein the type has the plurality of the types 0 through 3, and the display style corresponds to each type and defines each type. For example, type 0 indicates “no-designation”, type 1 indicates “without currency sign”, and type 2 indicates “with currency sign”.

[0101]

Fig. 10 is a view showing an example of the table of the data format definition document management master DB 3123 in Fig. 2, and although not shown in the pattern 413 in Fig. 4, is a view showing an example of the data format master of “telephone number”.

[0102]

In the figure, a data format master 1010 of “postal code” indicates the type and the display style, wherein the type has the plurality of the types 0 through 3, and the display style corresponds to each type and defines each type. For example, type 0 indicates “no-designation”, type 1 indicates “without hyphen”, and type 2 indicates “with hyphen”.

[0103]

Fig. 11 is a view showing an example of the table of the data format definition document management master DB 3123 in Fig. 2, and although not shown in the pattern 413 in Fig. 4, is a view showing the data format master of “percentage”.

[0104]

In the figure, a data format master 1020 of “percentage” indicates the type and the display style, wherein the type has the plurality of the types 0 through 3, and the display style corresponds to each type and defines each type. For example, type 0 indicates “no-designation”, type 1 indicates “without %”, and type 2 indicates “with %”.

[0105]

Fig. 12 is a view showing an example of the data format of a provided history data and an example of the data (the provided value) of a company A showing an example of the data provider server 121.

[0106]

In the figure, the data format of the provided history data of the company A (the data format Fa) has each column of an item 1110, a meaning of the item 1120, a pattern 1130, and a type 11410.

[0107]

The item 1110 indicates the data item name, and has each column of “a_name” 11101、“a_name_kana” 11102, “a_address” 11103,

“a_zip” 11104, “a_point” 11105, “a_date” 11106, and “a_account” 11107.

[0108]

The difference between the infrastructure data format in Fig. 4 is that “a_name_kana” 4112 of the infrastructure data format 410 (Fy) in Fig. 4 is a name in Hiragana characters “type 1”, “a_zip” is a numerical value without hyphen “type 1”, “a_point” is a numerical value “type 0”, and “a_date” is a date with slants “type 2”, whereas the data format (Fa) of the provided history data of the company A in Fig. 12 is that “a_name_kana” is a name in Katakana characters “type 2”, “a_zip” is a postal code with a hyphen “type 2”, “a_point” is a percentage “type 2”, and “a_date” is a date without slashes “type 1”.

[0109]

Fig. 13 is a view showing an example of the data format of a purchase history data and an example of the data (purchase value) of a company P showing an example of the data receiver server 1216.

[0110]

In the figure, a data format (data format Fp) of the purchase history data of the company P has each column of an item 1210, a meaning of item 1220, a pattern 1230, and a type 1240.

[0111]

The item 1210 indicates the data item name, and has each column of “p_name” 12101, “p_name_kana” 11202, “p_address” 12103, “p_zip” 12104, “p_point” 12105, “p_date” 12106, and “p_account” 12107.

[0112]

The difference from the infrastructure data format in Fig. 4 is that the item “a_date” 4116 of the infrastructure data format Fy in Fig. 4 is a date with slashes “type 2” whereas the data format Fp of the company P in Fig. 13 is that the “p_date” 12106 of the item 1210 is a date without slashes “type 1”.

[0113]

Fig. 14 is a view explaining a process flow of the customized data format converted data providing method of the present invention. In the present embodiment, a case where there are two data provider servers 121, and one data receiver server 1216, is shown.

[0114]

In step S1211, the data provider server 121 transmits the data Ia and the data format information Fa of the data to the service infrastructure provider server 31. Further, similarly in step S1212, another data provider server 121 transmits the data Ib and the data format information Fb of the data to the service infrastructure provider server 31.

[0115]

On the other hand, in step S12161, the data receiver server 1216 transmits the data format information Fp which designates or requests the data format in which the analyzed data is to be received, to the service infrastructure provider server 31.

[0116]

In step S311, the service infrastructure provider server 31 performs reception process of these data and data format information, and writes and stores the same in the data and data format information management DB 3121.

[0117]

Subsequently, in step S312, the data format of the data from the data provider server 121 perform conversion process into the data format Fy conforming to the cleansing policy of the service infrastructure provider server 31.

[0118]

The data format conversion process converts the data format of each data from the service provider server 121 into the integrated infrastructure data format Fy, conforming to the infrastructure data format policy of the data format definition document of the data format definition document management master DB 3123, so as to make it possible to manage each data by the infrastructure data format. This is a so-called process for merging or integrating the provided data and for cleansing the same to the analyzable data. For example, the data formats Fa,

Fb, … of the data provider server 121 are converted to the preliminarily set integrated data format Fy.

[0119]

In step S313, the data of the integrated infrastructure data format Fy is performed with data analysis process by a desired analyzing method (data mining), and the analyzed data is written and stored in the analyzed data DB 3122.

[0120]

Subsequently, in step S314, the analyzed data is again performed with the conversion process into the data format for distribution to the data receiver server 1216, on the basis of the data format information Fp (a data distribution request data format form) from the data receiver server 1216. For example, the infrastructure data format Fy is converted into the data format Fp. Alternatively, the data may remain to be the infrastructure data format or the data format of the data provider server 121. These are made according to a data format form request from the data receiver server 1216.

[0121]

In a case where the data provider server 121 is the data provider and simultaneously the data receiver, the infrastructure data format Fy is converted into the data format Fa, or Fb, ….

[0122]

In step S315, the analysis result (the analyzed data) is transmitted in the data format Fp to the data receiver server 1216.

[0123]

In step S12162, the data receiver server 1216 receives the analyzed data. At this time, in a case where the data from a specific data provider server 121, such as any one detail of the specific data Ia, Ib, … must be known, then the data receipt of the data provider server that must be received (an analysis request of the specific data and the data format form request of the data) is requested to the service infrastructure provider server 313 in step S12163.

[0124]

In step S311, the service infrastructure provider server 31 selects only the specified data from the data provider server 121, receives the analysis request of the selected specific data, and repeatedly performs the above-explained steps.

[0125]

By doing so, it becomes possible to grasp detailed data, which cannot be judged from the data format of the data receiver server 1216. For example, in a case where it is only defined as a purchase number in “Tokyo” in the data format Fp of the data receiver server 1216, whereas the number of purchases in each ward such as “Minato-ku”, “Shinagawa” and the like is defined in the data format of the data provider server 121, then it is

possible to receive data of the purchase numbers in each ward such as “Minato-ku”, “Shinagawa” and the like, and furthermore according to the data format Fp of the data receiver server.

[0126]

Fig. 15 a view schematically showing a state where the data format information F, that is used when converting the plurality of the company’s data Ia, Ib, Ic and the data formats Fa, Fb, Fc of the company A, the company B, and the company C side as the plurality of the data providers, i.e., the data format information Fa of company A, the data format information Fb of company B, and the data format information Fc of company C, at the infrastructure provider side, are transmitted from the plurality of the data providers side to the infrastructure provider side, and the same are stored and managed at the infrastructure provider side.

The data format information of company A indicates a data format information in which the data format of the data of company A is expressed selecting the type of each item in the data format master information of the infrastructure provider side, upon receiving the data format master information of the infrastructure provider side. Stated otherwise, the information Fa is a data format policy selected by the company A. The same applies to the company B and the company C. The data format master information indicates the data format master information of each item of the infrastructure data format in Fig. 4, for

example as is shown in Fig. 5 through Fig. 11, “data format master of text”, “data format master of postal code”, “data format master of numerical value”, “data format master of date”, “data format master of currency”, “data format master of postal code”, “data format master of telephone number”, and “data format master of percentage” and the like. Thereafter, as a preliminary procedure for providing service, each data format information is created on the basis of the master information.

[0127]

In the figure, the company A side as the data provider transmits the data Ia of company A to the infrastructure provider side on the basis of the data format Fa of company A. Further, the company A side as the data provider creates the data format information Fa of company A based on a preliminarily imported infrastructure data format master information of the infrastructure provider side and the data format information Fa of company A, and transmits the same to the infrastructure provider side.

[0128]

The data format information Fa is used when converting the data format Fa of company A into the infrastructure data format Fy at the data format conversion unit 31313 of the data format converting means at the infrastructure provider side. This data format information may be preliminarily registered to the infrastructure provider side, and when receiving the data Ia of

company A, the data format Fa of company A may be converted into the infrastructure data format Fy and the data Ia of company A may be recorded in the infrastructure data format Fy in the data provider and data receiver management master DB/data format information management DB 3121.

[0129]

The data Ia of company A and the data format information Fa may be transmitted at a simultaneous timing or at a different timing.

[0130]

The infrastructure provider receiving the data Ia of company A and the data format information Fa converts the data format Fa of company A into the infrastructure data format Fy based on the data format information Fa, and records the data Ia of company A of the data format Fa of company A in the infrastructure data format Fy into the data provider and data receiver management master DB/data format information management DB 3121.

[0131]

Similar process is performed to the company B as the data provider and the company C as the data provider.

By providing the data of each company remaining in the data format of each company to the infrastructure provider side, and managing the provided data in the integrated infrastructure data format Fy at the infrastructure provider side, it becomes

possible to integrate each data and analyze the same at the infrastructure provider side.

[0132]

Fig. 16 is a view showing a state in which data Ia, Ib, Ic of each company from the company A, the company B, and the company C side as the plurality of the data providers are analyzed at the data analysis unit 31313 at the infrastructure provider side.

[0133]

That is, data of each company of the plurality of the data providers (the data of company A, the data of company B, the data of company C) are data integrated at the infrastructure provider side (the data integration unit), the data is analyzed at the data analysis unit 31313, and the analysis result (the analyzed data) is output in the integrated data format Fy.

[0134]

Fig. 17 is a view schematically showing a state in which the analysis result of analysis at the infrastructure provider side is provided to a company P, a company Q, and a company R as the plurality of the data receivers.

[0135]

The infrastructure provider side receives, for example data format information F (Fp, Fq, Fr) from the data receiver side.

[0136]

Upon receiving a request for the analyzed data from the company P as the data receiver, the analysis result (data) in the above-mentioned infrastructure data format Fy is converted into the data format Fp of company P at the data format conversion unit for data distribution 31316 of the data format conversion means on the basis of the data format information Fp of company P of the data receiver (company P) side, and the analyzed data is transmitted to the data receiver side in the data format. The data format information of company P indicates data format information of the data format of the data of company P expressed selecting the type of each column in the data format master information of the infrastructure provider side, upon receiving the data format master information of the infrastructure provider side.

Similar process is performed to the company Q as the data receiver and the company R as the data receiver.

[0137]

Fig. 18 is a view schematically showing a state where the data of company A and the data format information of company A are provided from the company A as the data provider to the infrastructure provider.

[0138]

In the figure, for example, it is necessary for the company A as the data provider to receive the data format master information of the infrastructure data format master from the

infrastructure provider side, refer the data format master information, select the type of the item and the like, and transmit the data format information Fa of company A to the infrastructure provider side, so as to have the data format information of company A Fa registered to the infrastructure provider side.

[0139]

Fig. 19 is a view schematically showing a state where the specific data (detailed data of the company A and the company B) is received from the infrastructure provider to the company P as the data receiver, upon request for the specific data.

[0140]

In the figure, for example in a case where the company P as the data receiver looks at the received data of the above-mentioned analysis result, and wants to perform analysis independently based on the original data of the company A and the company C as the data provider, the company P as the data receiver may perform provision request for the data of the company A and the company C to the infrastructure provider in the data format of the company P as the data receiver side.

[0141]

That is, upon receiving the provision request from the company P of the data Ia, Ic of the data of the company A and the company C in the data format Fp of company P, the infrastructure provider converts the infrastructure data format

Fy into the data format Fp of company P based on the data format information Fp of company P at the data format conversion unit for data distribution 31316 of the data format converting means, and transmits the data Ia of company A and the data Ic of Company C to the company P in the data format Fp of company P. In this context, the data of company A (the data format of company P) means the data of company A that is converted conforming to the data format policy (=Fp) selected by the company P as the data receiver side.

[0142]

When performing the provision request from the company P to the infrastructure provider side for the data Ia, Ib of the company A and the company C in the data format Fp of company P, then it is necessary to notify the data format Fp of company P, that is, each information of the item (name, address, date of purchase, …), pattern (text, text, date, …) and the type thereof (1, 0, 1,…) of the data format Fp, to the infrastructure provider side.

By doing so, it becomes possible to integrate and analyze each data of the company A and the company C independently, at the company P side.

[0143]

The present invention is not limited to the above-explained embodiment, and includes various modifications. For example, detailed explanation has been given in the above-

explained embodiment so as to explain the present invention to be easily understood, and the present invention is not limited to the one including all of the explained configuration. Further, a part of the configuration of one embodiment may be substituted by the configuration of another embodiment, and also the configuration of another embodiment may be added to the configuration of one embodiment. Still further, it is possible to add, delete, or substitute other configuration to a part of the configuration of each embodiment.

[0144]

Still further, a part or all of each configuration, function, processing units, and processing means explained above may be realized by hardwares such as designing the same with integrated circuits, for example. Further, the above-explained configuration, function and the like may be realized by softwares, from a processor reading the program realizing each function and executing the same. Information such as programs, tables, and files for realizing each function may be stored in a storage device such as memories and hard disks.

[0145]

Still further, only control lines and information lines that are conceived as being necessary for explanation are shown, and does not necessarily mean that all control lines and information lines necessary for a finished goods are shown. In

reality, it may be understood that almost all configurations are mutually connected.

REFERENCE SIGNS LIST

[0146]

1 service receiving agent device

2 service providing agent device

21 service providing agent server

3 service infrastructure provider device

31 service infrastructure provider server

121 data provider server

1216 data receiver server

3121 data providing agent and data receiver master DB/data and data format information management DB

3123 data format definition document management master DB

31312 data format conversion unit

31316 data format conversion unit for data distribution

CLAIMS

1. A customized data format converted data providing system including at least one service infrastructure provider device, a plurality of data provider devices, and a plurality of data receiver devices, wherein

the service infrastructure provider device is configured to have a data reception unit which receives a data from each data provider device in a unique data format of each data provider device, and a data distribution unit which distributes the data received from each data provider device to the data receiver device according to a request from the data receiver device, the service infrastructure provider device is further configured to have a data format record unit which preliminarily records a list form of various data, and

the service infrastructure provider device is configured to have a data distribution process unit which distributes the data from the service infrastructure provider device to the data receiver device, in a following data format, according to the request from the data receiver device:

(1) in a case where a distribution request from the data receiver device is the request for the data distribution in a form of the data format of the service infrastructure provider device, then the data is distributed with the data format received from each data provider device being converted into the

data format of the service infrastructure provider device, while taking into consideration a data format information recorded in the data format record unit;

(2) in a case where the distribution request from the data receiver device is the request for the data distribution in the form of the data format of the data receiver device, then the data is distributed with the data format received from each data provider device being converted into the data format of the data receiver device, while taking into consideration the data format information recorded in the data format record unit; and

(3) in a case where the distribution request from the data receiver device is the request for the data in the form of the data format of each data provider device, then the data is distributed in the data format of each data provider device directly.

2. A customized data format converted data providing system, comprising:

a service infrastructure provider device, a data provider device, and a data receiver device, wherein

the service infrastructure provider device comprises a reception unit which receives a data and a data format information of the data from the data provider device, and a request data format information from the service receiver device,

a storage unit which records the data format information of the service infrastructure provider device-side, the data format information of the data providing agent device, and the data format information of the data receiving agent device,

a data format conversion unit which converts a data format of the data provider device, in a case where a data distribution request is received from the data receiver device, and the data distribution request is the data distribution request in at least one or more of a form of the data format of the infrastructure provider device, and the form of the data format of the data receiving agent device, into the data format of a data format form of the data distribution request, while taking into consideration the data format information of the storage unit, and

a data distribution unit which transmits the data of the data provider device to the receiver device, in the data format converted by the data format conversion unit.

3. The customized data format converted data providing system according to claim 2,

wherein the service infrastructure provider device comprises a data analysis unit which receives each data from the data provider device and analyzes the data.

4. The customized data format converted data providing system according to claim 2,

wherein the data format information of the data provider device and the data receiver device includes an information indicating a type in each item in a data format master of the service infrastructure provider device, and the type is designated by the data provider device-side and the data receiver device-side.

5. A customized data format conversion data providing method of a customized data format converted data providing system which includes at least one service infrastructure provider device, a plurality of data provider devices, and a plurality of data receiver devices, wherein

the service infrastructure provider device comprises a server including a control unit,

the control unit is configured to have a step of receiving a data from each data provider device in a unique data format of each data provider device, and

a step of distributing the data received from each data provider device to the data receiver device according to a request from the data receiver device,

the service infrastructure provider device further being configured to have a data format record unit which preliminarily records a list form of various data, and

the control unit is configured to have a step of distributing the data from the service infrastructure provider device to the data receiver device, in a following data format, according to the request from the data receiver device:

(1) in a case where a distribution request from the data receiver device is a request for the data distribution in a form of the data format of the service infrastructure provider device, then the data is distributed with the data format received from each data provider device being converted into the data format of the service infrastructure provider device, while taking into consideration a data format information recorded in the data format record unit;

(2) in a case where the distribution request from the data receiver device is the request for the data distribution in the form of the data format of the data receiver device, then the data is distributed with the data format received from each data provider device being converted into the data format of the data receiver device, while taking into consideration the data format information recorded in the data format record unit; and

(3) in a case where the distribution request from the data receiver device is the request for the data in the form of the data format of each data provider device, then the data is distributed in the data format of each data provider device directly.

6. A customized data format converted data providing method of a system which includes a service infrastructure provider device, a data provider device, and a data receiver device, wherein

the service infrastructure provider device comprises a server including a control unit,

the control unit includes

a step of receiving a data and a data format information of the data from the data provider device, and the data format information from the service receiver device,

a step of recording the data format information of the service infrastructure provider device-side, the data format information of the data providing agent device, and the data format information of the data receiver device,

a step of converting a data format of the data provider device, in a case where a data distribution request is received from the data receiver device, and the data distribution request is the data distribution request in at least one or more of a form of the data format of the infrastructure provider device, and the data format of the data receiving agent device, into the data format of a data format form of the data distribution request, while taking into consideration the data format information of the storage unit, and

a step of transmitting the data of the data provider device to the receiver device, in the data format converted by the data format conversion unit.

7. The customized data format converted data providing method according to claim 6,

wherein the control unit further includes

a step of receiving each data from the data provider device and analyzing the data.

8. The customized data format converted data providing method according to claim 6,

wherein the data format information of the data provider device and the data receiver device includes information indicating a type in each item in a data format master of the service infrastructure provider device, and the type is designated by the data provider device-side and the data receiver device-side.