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A Design of Broker Platform for a services interoperability on the collaboration cloud

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Abstract

The cloud computing are provided various ways for accessing resources and services through collaboration. In this paper, we present a cloud computing model for collaboration in cloud environment. By introducing a model, it is possible to introduce and develop an application required for the database and business services. SaaS model can be applied overall or partially. In particular, business operations need various software. Since cost reduction and applying immediate service are available, it is possible to realize the business environment and high quality service.

Keywords: *Broker Platform, Collaboration cloud, Cloud computing*.

1. Introduction

Cloud computing is considered as an effective alternative for a strategy to share resource and to construct integrated service system in a distributed Web-based environment [1]. The reason for the introduction of cloud computing is as follows. The first is large size of data to handle and huge scale of the server to process in big data environment. Secondly, the service system for providing a service, which is required to meet the needs of the user, requires high performance. By introducing a SaaS model in a collaboration cloud environment, it is possible to develop applications that are required for the user's work and services, including a database. Because various software are required for information service, the cost is reduced and applying immediate service is available through the SaaS model [2][3]. Thus high quality service and business management environment can be implemented.

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2. Related research

2.1 Cloud Computing and Big Data

Cloud computing technology is new challenging research area and it is selected as national support task. These studies are based on the platform technology provided as a public service. Global internet company such as Google, and Facebook have led market of global big data and get advantage in marketing area after analyzing big data [1][4]. The reason for the introduction of big data technology based on a Cloud environment is as follows [5]. The combination of big data transaction and interaction data is required to improve decision making support for enterprise and performance of operating. The enterprise data integration platform is much simplified separating data and process. Since data can be expressed as a logical data object, it can represent and process data without combining physical data.

2.2 Collaboration Cloud

Most of the currently available Cloud computing service is a single cloud computing service. The Single Cloud computing service takes the form of providing service after a service provider builds a server [6]. In this service, hardware error and network overloading causes a service interrupt or data loss.

As the type of providing is increased in an existed single user-centric cloud environment, one of the solution for researcher is to combine and expand cloud environment of service provider as a collaboration [3][7]. In this paper, we proposed a dynamic cloud collaboration structure using the collaboration cloud service access method. The proposed structure utilizes collaboration to provide users with QoS for each service in heterogeneous cloud service platform. Each service provider can extend their own service through collaboration. This structure only connects service provider and user, and there is no intermediate medium that combine and deliver services. The concept of cloud service broker is emerged as the role of intermediate medium. The problem in the cloud-based collaboration environment can be solved through this.

3. Design of collaboration cloud system for the interoperability of services

3.1 Collaboration System Configuration

As the scale of cloud environment becomes large and complex, the service becomes large too and the user's desire to use the service in real-time is increasing. Therefore, efficient dynamic cloud environment is necessary based on user request. Fig. 1 is a connection of service for the collaboration. This can provide the ease of service use between the user and the cloud service providers. Also it provides the functionality of Service Intermediation, Service Aggregation and Service Arbitrage.

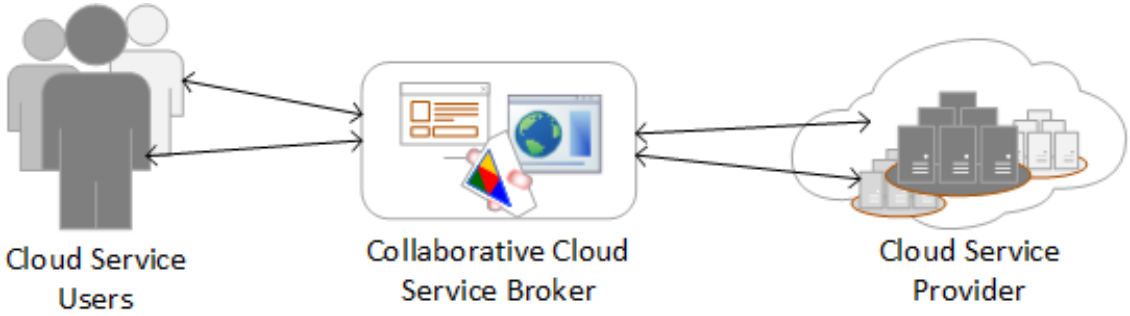

Figure 1. Overview of Collaborative Cloud Service Broker

3.2 Collaboration System Design

This system designed a collaboration cloud service broker platform that performs the role of the intermediary consumer of the service which provides the user to use the services of multiple clouds. It is organized as follows.

Cloud Scheduler (CS)

This provides a higher level on the cloud portal for consumers and service mediation. This verifies the needs of consumers, applies consumer's request to service and develops a plan for placement of service.

- Broker Portal: Allows you to select a desired service, such as portal sites and services are distributed to consumers.
- User Request Verification: Verifies the validity of the user request.
- Cloud Service Mediator: Mediates for service to apply the needs of users.
- Deployment Planner: Plans a schedule for the service placement and management.

Cloud Schedule Provider (CSP)

CSP maintains the Service Catalog and Service Registry for CS and it plays a role for monitoring and providing services to CS.

- Service Monitor: Monitors service operation and calls actual service of cloud
- Service Deployment: Places the services of Catalog and Service Registry at the request of the user.
- Service Registry and Catalog: Register and manage services provided by each cloud. By providing the consumer with hierarchical classification, it improves the efficiency of search and selection of this service.

Cloud Mapping Manager

Performs the mapping between the participating cloud and Broker Platform and resource monitoring role.
Resource Monitoring: Establishes monitoring cloud resources involved with the planning and use of resources.

- MDM (Master Data Management): Manages information for the data interoperability between Broker Platform and the master data of participation cloud, and provides them to the Adapter.
- Adapter: Converts the requested service in participation cloud to be used using MDM.

Cloud Service Provider

Data Hub is provided to participation cloud to use the service in the cloud. To perform the service converted by Adaptor, Data Hub offers position information, execution information, and usage data.

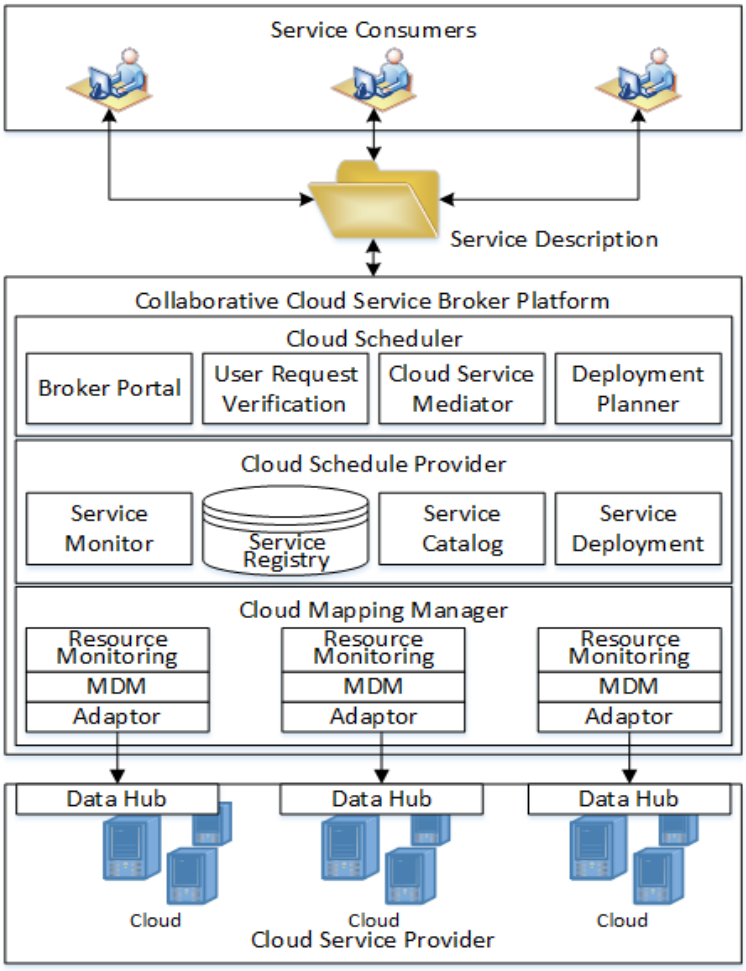

Figure 2. Collaborative Cloud Service Broker Platform

5. Conclusion

In this paper we abstract interface of various cloud through a common interface that can be used for an interface to the collaboration services. These Cloud service platform can improve the low utilization of existing cloud infrastructure, and it can offer new business model of a cloud service. Also, in a number of cloud environment, the cloud service broker can mitigates complexity of service provider and user, can manage and mediate optimal service for business needs. In further research, we will propose different service model depending on the various brokerage service, transmission method and service integration.

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