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**Information technology - Cloud computing -
General operational requirements of cloud service**

信息技术 云计算

云服务运营通用要求

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Information technology - Cloud computing - General operational requirements of cloud service

1 Scope

This Standard gives a general description of cloud service and specifies the conditions and capabilities that cloud service provider shall have in terms of personnel, processes, technology, and resources.

This Standard applies to:

- a) the basis for cloud service provider to raise needs to cloud service developer;
- b) cloud service provider to evaluate its own conditions and capabilities;
- c) cloud service customer to select and evaluate cloud service provider;
- d) the third party to evaluate the capabilities of cloud service provider.

2 Normative references

The following documents are indispensable for the application of this document. For the dated references, only the editions with the dates indicated are applicable to this document. For the undated references, the latest edition (including all the amendments) are applicable to this document.

GB/T 2887 General specification for computer field

GB/T 9361 Safety requirements for computer field

GB/T 28827.1-2012 Information technology service - Operations and maintenance - Part 1: General requirements

GB/T 31168-2014 Information Security Technology - Security Capability Requirements of Cloud Computing Services

GB/T 32400-2015 Information technology - Cloud computing - Overview and vocabulary

operational elements, i.e., internal characteristics of cloud service; and GIVE specific operational requirements for internal characteristics.

4.2 Service categories

The service categories of cloud computing mainly include IaaS, PaaS, and SaaS. The three modes, from the bottom up, provide different levels of cloud services, with hierarchical relationships, but the upper services do not have to be built on the underlying services.

4.3 External characteristics

The external characteristics of cloud service are the characteristics that users can perceive through experience services:

- a) On-demand service: The cloud service can quickly and automatically meet the user's needs for application, change, cancellation, and other operations of service delivery content such as service functions and service instances, so that the user's needs can be met immediately;
- b) Elasticity: The cloud service has the capability of rapid elasticity; according to user's needs, can apply, release, and adjust the use of cloud service resources at any time;
- c) Network dependency: Users of cloud services, over the network, access computing, storage resources and various services;
- d) Measurable: The cloud service itself has the ability to, in accordance with reasonably consistent standards, fine-grain measure the services of computing, storage, and other specific functions used by users.

4.4 Internal characteristics

The internal characteristics of cloud service reflect the service delivery capabilities of cloud service provider, including the four elements of personnel, process, resource, and technology, as well as the security involved in the four elements:

- a) Personnel element includes personnel management, post structure, and personnel skills;
- b) Process element is divided into two layers: operational management layer and operations and maintenance operational layer;
- c) Technology element includes resource pooling technology, measuring technology, monitoring technology, dispatching technology, and multi-tenant technology;

6 Process

6.1 Process of operational management layer

6.1.1 Service catalog management

Cloud service provider shall:

- a) define roles and responsibilities in the process;
- b) standardize and publish definitions of cloud computing related services;
- c) update and maintain the service catalog;
- d) regularly assess the consistency of service capabilities and service catalog;
- e) regularly assess the satisfaction of service needs and service catalog;
- f) establish the relationship between service catalog management and service level management.

6.1.2 Service level management

Cloud service provider shall:

- a) identify customer needs in the service and form a service description and a service quality plan;
- b) identify the form of signing service level agreement and related documents;
- c) sign service level agreement and related documents;
- d) establish a mechanism for monitoring and reporting the service level;
- e) regularly or irregularly review the implementation of service level agreement; and for items which do not meet the cloud service level agreement, develop plans for improvement or further optimization.

6.1.3 Service request management

Cloud service provider shall:

- a) make clear the definition of service request;
- b) establish a mechanism for grading and dispatching;
- c) establish technological and financial approval mechanisms for service

- b) establish user information management mechanisms, such as adding, deleting, changing, and checking user information;
- c) establish user information protection mechanism.

6.1.7 Accounting management

Cloud service provider shall:

- a) according to the resource use type, define different accounting methods;
- b) establish accounting management mechanisms such as data collection, pre-processing, cost calculation, data distribution, etc.;
- c) establish a bill management mechanism;
- d) establish a payment management mechanism.

6.2 Process of operations and maintenance operational layer

Cloud service provider shall:

- a) establish monitoring mechanisms for different resources, including monitoring information collection, analysis and processing, information presentation, and other processes;
- b) establish a monitoring-based alarm mechanism;
- c) define a clear operations and maintenance service operational layer process and mechanism. The process of operations and maintenance operational layer shall meet the requirements of 9.4~9.9 in GB/T 28827.1-2012.

7 Technology

7.1 Resource pooling

Cloud service provider shall have resource pooling technology, including:

- a) resource pooling of computing resources. The cloud service provider, according to the unit of computing power (such as processor main frequency, memory capacity, processor core numbers, etc.), constructs a computing power pool and provides available combinations of various computing powers in the usage protocol;
- b) resource pooling of storage resources. The cloud service provider, according to the unit of storage capacity (such as the number of bytes of

- c) according to the storage load of the current system, timely add or expand the storage device, to ensure the service level.

7.5 Multi-tenant

The cloud service can, according to user's needs, support different users to use the same resource component, system component, or program component, etc. in a multi-tenant environment. Multi-tenant shall:

- a) support the data of different tenants to be isolated from each other;
- b) support resources (including computing, storage, network, platform, application, and other resources) for different tenants to be isolated from each other.

8 Resource

8.1 Infrastructure

Cloud service provider can effectively manage infrastructure resources in its cloud service environment and shall:

- a) have a deterministic, simple calculation method for measuring computing resources, such as: measuring computing resources according to number of CPUs and memory size;
- b) have a deterministic method for measuring storage resources, such as: measuring storage resources according to storage capacity, storage read-write bandwidth, read-write IOPS, etc.;
- c) have a deterministic method for measuring network resources, such as: measuring network resources according to network inbound-outbound bandwidth, inbound-outbound traffic, etc.;
- d) have the ability to plan capacity for resources (including: CPU, memory, storage space, network bandwidth, etc.), including a clear, simple, and operable computing resources capacity planning approach to infrastructure resource pool, and the tools, personnel, and processes that can be executed practically for the implementation of this approach;
- e) have the ability to properly monitor the use and operation of resources, including: appropriate tools, personnel, processes, including early warning rules for the use of CPU, memory, etc. in the processes;
- f) have the ability to handle run-time faults of resources (including: CPU, memory, storage space, network bandwidth), including: fault handling

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