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SERIES M: TELECOMMUNICATION MANAGEMENT,
INCLUDING TMN AND NETWORK MAINTENANCE

Telecommunications management network

Requirements for resource management in cloud-aware telecommunication management systems

Recommendation ITU-T M.3372

ITU-T

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Recommendation ITU-T M.3372

Requirements for resource management in cloud-aware telecommunication management systems

Summary

Recommendation ITU-T M.3372 introduces a functional framework and functional requirements for resource management in cloud-aware telecommunication management systems. It provides the composition of the functional framework and the functions of each component in the framework. In this Recommendation, the general background and status of cloud computing management are also analysed. The benefit of introducing a functional framework and functional requirements for resource management in cloud-aware telecommunication management systems is also explained.

History

Edition	Recommendation	Approval	Study Group	Unique ID*
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Cloud-aware, cloud computing, management system.

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FOREWORD

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The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

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Recommendation ITU-T M.3372

Requirements for resource management in cloud-aware telecommunication management systems

1 Scope

This Recommendation provides the functional framework and functional requirements for resource management in cloud-aware telecommunication management system, describes the composition of the functional framework, and explains the functions of each component in the framework.

2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published. The reference to a document within this Recommendation does not give it, as a stand-alone document, the status of a Recommendation.

[ITU-T M.3371] Recommendation ITU-T M.3371 (2016), *Requirements for service management in cloud-aware telecommunication management system*.

[ITU-T Y.3521] Recommendation ITU-T Y.3521/M.3070 (2016), *Overview of end-to-end cloud computing management*.

3 Definitions

3.1 Terms defined elsewhere

This Recommendation uses the following terms defined elsewhere:

3.1.1 cloud service customer [b-ITU-T Y.3500]: Party that is in a business relationship for the purpose of using cloud services.

3.1.2 cloud service provider [b-ITU-T Y.3500]: Party that makes cloud services available.

3.1.3 management system [b-ITU-T M.60]: A system with the capability and authority to exercise control over and/or collect management information from another system.

3.2 Terms defined in this Recommendation

This Recommendation does not define any new terms.

4 Abbreviations and acronyms

This Recommendation uses the following abbreviations and acronyms:

B/S	Byte per second
BSS	Business Support System
CPU	Central Processing Unit
CSC	Cloud Service Customer
CSP	Cloud Service Provider
E2E	End-to-End

GB	Giga Bytes
KPI	Key Performance Indicator
MB	Mega Bytes
N/A	Not Applicable
OSS	Operation Support System
vCPU	virtual Central Processing Unit
VM	Virtual Machine

5 Conventions

None.

6 Introduction

Currently, cloud computing is one of the mainstream technologies in telecommunication networks as well as for Internet services. Many cloud computing applications are used in various domains. To better provide cloud applications to the cloud service customer (CSC) there should be an effective management to the cloud service and cloud resource.

With the development of cloud computing technology, some achievements have been done in cloud computing management. Among them, the conceptual view of management layering as defined in [ITU-T Y.3521]. Cloud computing management layering includes customer, product, service and resource management. Customer management and product management are mapped to the business support system (BSS) functional component, while service management and resource management are mapped to the operation support system (OSS) functional component. A common management model for end-to-end (E2E) management of cloud computing is introduced, which illustrates the concept of E2E cloud integrated telecommunications management. From the viewpoint of a telecommunication operator, service management in the cloud-aware telecommunication management system, mapped to the service management layer in the management layering in [ITU-T Y.3521], has been defined in [ITU-T M.3371]. Resource management in the cloud-aware telecommunication management system, mapped to the resource management layer in the management layering in [ITU-T Y.3521], is defined in this Recommendation.

This Recommendation describes both the functional framework and functional requirements of cloud computing resource management in a cloud-aware telecommunication management system to provide assurance and support to the cloud services.

7 General requirements for resource management in cloud-aware telecommunication management system

With the development of cloud computing technology, effective management of cloud computing is becoming increasingly important. From a resource management perspective, a telecommunication management system should not only provide management to traditional telecommunication resources, but also to cloud computing resources.

The general requirements of a cloud-aware telecommunication management system include:

- It is required that resource management support the fulfilment of management of resources in support of cloud services, including the management of E2E lifecycle of a resource order request;
- It is required that management support assurance management of resources in support of cloud services, including monitoring, analysing, reporting, testing functionalities, etc.;