Tutorial 6. Cloud Standardisation and Component Technology Overview

Instructions

1. For questions containing multiple choice answers numbered as 1,2,3,4 select only one CORRECT answer
2. For questions containing multiple choice answers numbered as A,B,C,D select only one WRONG answer
Note: In case of doubt select the most suitable correct or wrong answer

1  NIST Cloud Computing standards stack. What are the major standardisation topics included?
   A  Cloud Computing Reference Architecture (CCRA)
   B  Cloud Computing definition and the major certification programs
   C  Recommendation to US Government on adopting Cloud Computing technologies
   D  Cloud Computing Security architecture and major use cases

2  Difference between NIST CCRA and ITU-T Cloud Reference Architecture
   1  ITU-T just adopts the NIST CCRA and cloud definition
   2  ITU-T defines an architecture better suitable to telecom providers but refers to NIST documents
   3  ITU-T adopts the NIST CCRA but extends it with the User and Access Layers
   4  ITU-T study reports only on the required network and telecommunication

3  Map acronyms to their definition or scope

   1  Distributed Management Task Force                           OCCI
   2  OASIS standard that defines service template for cloud application portability  OVF
   3  Open Cloud Computing Interface                               CDMI
   4  Open Data Center Alliance                                    TOSCA
   5  Storage Networking Industry Association                      SNIA
   6  SNIA standard for cloud storage interoperability             DMTF
   7  Intercloud Architecture Framework                            REST
   8  Open Virtualisation Format                                   CCRA
   9  Web Services protocol used by cloud management               ICAF
   10 NIST architecture for cloud based services                   ODCA

4  Generic Intercloud Architecture Framework (ICAF) components and definition

   1  ICAF proposes CCRA implementation in multcloud environment
   2  ICAF defines the major aspects needed for cross-domain cloud infrastructures
   3  CCRA is a part of ICAF
   4  ICAF defines few architecture frameworks that address different aspects of the intercloud applications orchestration, deployment and management
IEEE Standard for Intercloud Interoperability and Federation (SIIF)

1. IEEE SIIF defines an architecture framework for intercloud services interoperability and integration
2. The major SIIF architecture components Intercloud root, exchange and gateway leverage existing Internet infrastructure to root cloud services
3. The major focus of SIIF is multi-cloud services deployment in multicloud environment
4. Intercloud gateway is installed at cloud datacenter and relays all cloud traffic through itself

OVF package structure

1. OVF package contains one VM image that contains both host OS and guest VM toether with application
2. OVF package contain one or more VM images and PKI Certificate
3. Environment document describew VM image format
4. OVF uses REST protocol to deploy VM on the target Cloud Management platform

TOSCA Service Template definition and components

1. TOSCA is an ongoing standardisation process recently proposed by OASIS
TOSCA Service Template is the major standard component that acts as a container for cloud based applications communications
3. TOSCA container defines the service topology, relationship, and orchestration
4. TOSCA Service Template icludes also OVF image of the precofigured VMs

What standard cloud protocols can be used to include external cloud resources into the user created cloud infrastructure

1. CDMI, OCCI, EC2
2. HTTPS, SOAP, SNMP
3. CDMI, OCCI, EC2, OVF
4. LVM, NFS, NAS

CDMI properties and functionalities

1. CDMI defines a number of data formats for storing data in cloud
2. Defines a storage model where data stored in a CDMI format
3. CDMI operations include data object creation, delete, read encrypt
4. Allows managing communication container including data transported in it

OCCI Core model and interface components

A. OCCI is a REST based protocol
B. OCCI IaaS profile define the following infrastructure components: computer, storage, network
C. OCCI IaaS profile define the following infrastructure components: computer, storage, network, and links type
D. OCCI IaaS profile define the following infrastructure components: computer, storage, network, and protocols type
11 OCCI Network attributes

1. OCCI defines only Layer 2 network attributes, i.e. MAC address and LAN ID
2. OCCI defines VM network parameters and network interface attributes
3. StorageLink defines storage MAC and IP address
4. OCCI defines only Compute and Storage parameters. All network interconnection is done by the cloud management software dynamically