ISO/IEC 22123-2:2023-09 (E)

Information technology - Cloud computing - Part 2: Concepts

Contents

Page

Foreword ..... **v**

1 Scope **1**

2 Normative references **1**

3 Terms and definitions **1**

4 Symbols and abbreviated terms **2**

5 Cloud computing foundational concepts **3**
5.1 General 3
5.2 Key characteristics of cloud computing 3
5.2.1 General 3
5.2.2 Broad network access 3
5.2.3 Measured service 4
5.2.4 Multi-tenancy 4
5.2.5 On-demand self-service 4
5.2.6 Rapid elasticity and scalability 4
5.2.7 Resource pooling 5
5.3 Cloud capabilities types 5
5.4 Cloud service categories 6
5.4.1 General 6
5.4.2 Software as a service (SaaS) 6
5.4.3 Platform as a service (PaaS) 6
5.4.4 Infrastructure as a service (IaaS) 7
5.4.5 Network as a service (NaaS) 7
5.4.6 Communications as a service (CaaS) 8
5.4.7 Compute as a service (CompaaS) 9
5.4.8 Data storage as a service (DSaaS) 9
5.5 Cloud deployment models 9
5.5.1 General 9
5.5.2 Private cloud deployment model 10
5.5.3 Public cloud deployment model 11
5.5.4 Community cloud deployment model 12
5.5.5 Hybrid cloud deployment model 14

6 Cloud computing parties and roles **15**
6.1 Cloud computing parties 15
6.2 Cloud computing roles 15
6.2.1 General 15
6.2.2 Cloud service customer role 16
6.2.3 Cloud service provider role 16
6.2.4 Cloud service partner role 16

7 Cloud computing cross-cutting aspects **16**
7.1 General 16
7.2 Auditability 17
7.3 Availability 17
7.4 Governance 17
7.5 Interoperability 18
7.6 Maintenance and versioning 18
7.7 Performance 19
7.8 Portability 19
7.9 Protection of PII 19

7.10 Regulatory ... 20
7.11 Resiliency ... 21
7.12 Reversibility ... 21
7.13 Security ... 22
7.14 Service levels and service level agreement ... 22

8 Data and cloud services ... 22
8.1 General ... 22
8.2 Data processing within cloud services ... 23
8.3 Data flow ... 23
8.4 Processing of data from multiple sources ... 23
8.5 Data sharing ... 24

9 Virtualization concepts ... 24
9.1 General ... 24
9.2 System hardware virtualization ... 24
9.2.1 General ... 24
9.2.2 Virtual machines ... 24
9.2.3 Hypervisors ... 25
9.3 Containers ... 25
9.4 Serverless computing ... 25
9.5 Virtualized networking ... 25
9.6 Virtualized DSaaS ... 25

10 Concepts of cloud computing involving multiple CSPs ... 26
10.1 General ... 26
10.2 Types of cloud computing involving multiple CSPs ... 26
10.2.1 General ... 26
10.2.2 Multi-cloud computing ... 26
10.2.3 Inter-cloud computing ... 26
10.2.4 Other types of cloud computing involving multiple CSPs ... 26
10.3 Considerations when using multiple CSPs ... 27
10.3.1 Identity and access management ... 27
10.3.2 Policy considerations ... 27
10.3.3 Management ... 27
10.3.4 Operations ... 27

11 Organization of cloud computing ... 27
11.1 Logical organization of cloud computing ... 27
11.1.1 Cloud service instance ... 27
11.1.2 Multiple cloud services ... 28
11.2 Physical organization of cloud computing ... 29
11.2.1 General ... 29
11.2.2 Cloud service provider ... 30
11.2.3 Cloud service resources ... 30
11.2.4 Cloud region ... 30
11.2.5 Availability domain or zone ... 30
11.2.6 Edge computing ... 31
11.2.7 Affinity ... 31
11.2.8 Geo-dispersion of cloud service instances ... 31

Annex A (informative) **Cloud service categories ... 32**

Bibliography ... 34