Alibaba Cloud

System and Organization Controls 3 Report

Report on Alibaba Cloud's

Public Cloud Services System

Relevant to Security, Availability, and Confidentiality

For the Period October 1, 2023 – September 30, 2024

Independent Service Auditor's Report on a SOC 3 Examination

To: Management of Alibaba Cloud Computing Ltd. and Alibaba Cloud (Singapore) Private Limited

Scope

We have examined Alibaba Cloud Computing Ltd.'s, Alibaba Cloud (Singapore) Private Limited's and their affiliates' (including but not limited to Alibaba (Netherlands) B.V., Alibaba.com (Europe) Limited, Alibaba Cloud US LLC, Alibaba Cloud (India) LLP, Alibaba Cloud (Malaysia) Sdn. Bhd., and Alibaba Cloud (Thailand) Limited, in which the "Service Organization" or "Alibaba Cloud" is defined as Alibaba Cloud Computing Ltd., Alibaba Cloud (Singapore) Private Limited, and their affiliates) accompanying assertion titled "Management of Alibaba Cloud's Assertion Regarding the Cloud Services System" ("assertion") that the controls within Alibaba Cloud's cloud services system (the "system") were effective throughout the period from October 1, 2023, to September 30, 2024, to provide reasonable assurance that Alibaba Cloud's service commitments and system requirements were achieved based on the trust services criteria relevant to security, availability, and confidentiality ("applicable trust services criteria") set forth in TSP section 100, *2017 Trust Services Criteria for Security, Availability, Processing Integrity, Confidentiality, and Privacy,* in American Institute of Certified Public Accountants ("AICPA"), *Trust Services Criteria.*

Service Organization's Responsibilities

Alibaba Cloud is responsible for its service commitments and system requirements and for designing, implementing, and operating effective controls within the system to provide reasonable assurance that Alibaba Cloud's service commitments and system requirements were achieved. Alibaba Cloud has also provided the accompanying assertion about the effectiveness of controls within the system. When preparing its assertion, Alibaba Cloud is responsible for selecting, and identifying in its assertion, the applicable trust services criteria and for having a reasonable basis for its assertion by performing an assessment of the effectiveness of the controls within the system.

Service Auditor's Responsibilities

Our responsibility is to express an opinion, based on our examination, on management's assertion that controls within the system were effective throughout the period to provide reasonable assurance that the Service Organization's service commitments and system requirements were achieved based on the applicable trust services criteria. Our examination was conducted in accordance with attestation standards established by the AICPA. Those standards require that we plan and perform our examination to obtain reasonable assurance about whether management's assertion is fairly stated, in all material respects. We believe that the evidence we obtained is sufficient and appropriate to provide a reasonable basis for our opinion.

We are required to be independent and to meet our other ethical responsibilities in accordance with relevant ethical requirements related to the engagement.

Our examination included:

- Obtaining an understanding of the system and the Service Organization's service commitments and system requirements.
- Assessing the risks that controls were not effective to achieve Alibaba Cloud's service commitments and system requirements based on the applicable trust services criteria.

- Performing procedures to obtain evidence about whether controls within the system were effective to achieve Alibaba Cloud's service commitments and system requirements based on the applicable trust services criteria.

Our examination also included performing such other procedures as we considered necessary in the circumstances.

Inherent Limitations

There are inherent limitations in the effectiveness of any system of internal control, including the possibility of human error and the circumvention of controls.

Because of their nature, controls may not always operate effectively to provide reasonable assurance that the Service Organization's service commitments and system requirements were achieved based on the applicable trust services criteria. Also, the projection to the future of any conclusions about the effectiveness of controls is subject to the risk that controls may become inadequate because of changes in conditions or that the degree of compliance with the policies or procedures may deteriorate.

Opinion

In our opinion, management's assertion that the controls within Alibaba Cloud's cloud services system were effective throughout the period from October 1, 2023, to September 30, 2024, to provide reasonable assurance that Alibaba Cloud's service commitments and system requirements were achieved based on the applicable trust services criteria is fairly stated, in all material respects.

PricewaterhouseCoopers

Certified Public Accountants

Hong Kong

November 15, 2024

Alibaba Cloud

Management of Alibaba Cloud's Assertion Regarding the Cloud Services System Throughout the Period from October 1, 2023, to September 30, 2024

We are responsible for designing, implementing, operating and maintaining effective controls within Alibaba Cloud Computing Ltd.'s, Alibaba Cloud (Singapore) Private Limited's and their affiliates' (including but not limited to Alibaba (Netherlands) B.V., Alibaba.com (Europe) Limited, Alibaba Cloud US LLC, Alibaba Cloud (India) LLP, Alibaba Cloud (Malaysia) Sdn. Bhd., and Alibaba Cloud (Thailand) Limited, in which the "Service Organization" or "Alibaba Cloud" is defined as Alibaba Cloud Computing Ltd., Alibaba Cloud (Singapore) Private Limited and their affiliates) cloud services system (the "system") throughout the period from October 1, 2023, to September 30, 2024, to provide reasonable assurance that Alibaba Cloud's service commitments and system requirements were achieved based on the trust services criteria relevant to security, availability and confidentiality ("applicable trust services criteria") set forth in TSP section 100, *2017 Trust Services Criteria for Security, Availability, Processing Integrity, Confidentiality, and Privacy,* in AICPA, *Trust Services Criteria.* Our description of the boundaries of the system is presented in Attachment A and identifies the aspects of the system covered by our assertion.

We have performed an evaluation of the effectiveness of the controls within the system throughout the period from October 1, 2023, to September 30, 2024, to provide reasonable assurance that Alibaba Cloud's service commitments and system requirements were achieved based on the applicable trust services criteria. Alibaba Cloud's objectives for the system in applying the applicable trust services criteria are embodied in its service commitments and system requirements relevant to the applicable trust services criteria. The principal service commitments and system requirements related to the applicable trust services criteria are presented in Attachment B.

There are inherent limitations in any system of internal control, including the possibility of human error and the circumvention of controls. Because of these inherent limitations, a service organization may achieve reasonable, but not absolute, assurance that its service commitments and system requirements are achieved. We assert that the controls within the system were effective throughout the period from October 1, 2023, to September 30, 2024, to provide reasonable assurance that Alibaba Cloud's service commitments and system requirements were achieved based on the applicable trust services criteria.

Alibaba Cloud Computing Ltd. and Alibaba Cloud (Singapore) Private Limited

November 15, 2024

Attachment A –Description of Alibaba Cloud's Cloud Services System
System Overview

Background

Alibaba Cloud is a cloud computing company, a subsidiary of Alibaba Group Holding Limited (NYSE: BABA) ("Alibaba" or the "Group" or "Alibaba Group"), which provides a comprehensive suite of global cloud computing services to our global customers and partners as well as Alibaba Cloud's own e-commerce ecosystem. The cloud services provided by Alibaba Cloud are powered by self-developed cloud services platform and technologies. Alibaba Cloud aims to turn cloud computing into a state-of-the-art computing infrastructure by investing heavily in technical innovation to continually improve the computing capabilities and economies of scale of its services. The cloud services are widely used by a variety of industries, including finance, government, games, e-business, mobile services, medical services, multimedia, etc.

The Cloud services as described in this Description are rendered by Alibaba Cloud Computing Limited, Alibaba Cloud (Singapore) Private Limited and their affiliates including Alibaba (Netherlands) B.V., Alibaba.com (Europe) Limited, Alibaba Cloud US LLC, Alibaba Cloud (India) LLP, Alibaba Cloud (Malaysia) Sdn. Bhd., and Alibaba Cloud (Thailand) Limited (collectively "Alibaba Cloud").

Sales and marketing activities for cloud services are primarily carried out by Alibaba Cloud Computing Ltd., Alibaba Cloud (Singapore) Private Limited and their local affiliates. For instance,
- Customers located in mainland China typically enter into contracts with Alibaba Cloud Computing Limited.
- Customers located in the United States of America typically enter into contracts with Alibaba Cloud US LLC.
- Customers located within European Economic Area ("EEA") typically enter into contracts with Alibaba (Netherlands) B.V.
- Customers located in any other jurisdiction in Europe but outside the EEA typically enter into contracts with Alibaba.com (Europe) Limited.
- Customers located in India typically enter into contracts with Alibaba Cloud (India) LLP.
- Customers located in Malaysia typically enter into contracts with Alibaba Cloud (Malaysia) Sdn. Bhd.
- Customers located in Thailand typically enter into contracts with Alibaba Cloud (Thailand) Limited.
- Customers located in any jurisdiction outside of mainland China, the United States of America, Europe, India, Malaysia, or Thailand typically enter into contracts with Alibaba Cloud (Singapore) Private Limited.

Boundaries of the System

Services Provided

Alibaba Cloud is committed to building a public, open, and secure cloud computing service platform. The following public cloud services are in scope for this report:
1. ActionTrail
2. Alibaba Cloud Container Service for Kubernetes (ACK)
3. Alibaba Cloud DNS
4. Alibaba Cloud DNS PrivateZone
5. Alibaba Cloud Elasticsearch
6. Alibaba Cloud Service Mesh
7. AnalyticDB for MySQL
8. AnalyticDB for PostgreSQL
9. Anti-DDoS / Anti-DDoS Pro/ Anti-DDoS Premium
10. API Gateway

11. Application Real-Time Monitoring Service
12. Apsara Devops
13. Apsara File Storage NAS
14. ApsaraDB for Hbase
15. ApsaraDB for MongoDB
16. ApsaraDB for OceanBase
17. ApsaraDB for Redis
18. ApsaraDB RDS for MariaDB
19. ApsaraDB RDS for MySQL
20. ApsaraDB RDS for PostgreSQL
21. ApsaraDB RDS for SQL Server
22. ApsaraMQ for Kafka
23. ApsaraMQ for RabbitMQ
24. ApsaraMQ for RocketMQ
25. ApsaraVideo Live
26. ApsaraVideo Media Processing (MPS)
27. ApsaraVideo VOD
28. Auto Scaling
29. Bastionhost
30. CDN
31. Cloud Config
32. Cloud Data Transfer
33. Cloud Enterprise Network
34. Cloud Firewall
35. Cloud Hardware Security Module (HSM)
36. Cloud Web Hosting
37. CloudBox*
38. CloudMonitor
39. Container Registry
40. Content Moderation
41. Data Management (DMS)
42. Data Security Center (also known as "Sensitive Data Discovery and Protection")
43. Data Transmission Service (DTS)
44. Database Audit
45. Database Backup
46. DataHub
47. Dataphin
48. DataV
49. DataWorks
50. Dedicated Host
51. Dynamic Content Delivery Network (DCDN)
52. E-MapReduce
53. ECS Bare Metal Instance
54. Elastic Block Storage (EBS)
55. Elastic Compute Service
56. Elastic Container Instance
57. Elastic Desktop Service
58. Elastic GPU Service
59. Elastic High Performance Computing
60. Elastic IP Address
61. Energy Expert
62. Enterprise Distributed Application Service
63. Express Connect
64. Fraud Detection
65. Function Compute
66. Global Accelerator
67. Global Traffic Manager

68. Hologres
69. Hybrid Backup Recovery (also known as "Cloud Backup")
70. ID Verification
71. IDaaS
72. Image search
73. Intelligent Speech Interaction
74. IoT Device ID
75. IoT Platform
76. Key Management Service (KMS)
77. Link Living
78. Link Visual
79. Machine Learning Platform for AI
80. MaxCompute
81. Microservices Engine (MSE)
82. Mobile Testing
83. NAT Gateway
84. Object Storage Service
85. OCR
86. PolarDB
87. PolarDB for PostgreSQL
88. PolarDB-X
89. PrivateLink
90. Quick BI
91. Quota Center
92. Realtime Compute for Apache Flink
93. Resource Access Management (RAM)
94. Resource Management
95. Resource Orchestration Service
96. Security Center
97. Server Load Balancer
98. Serverless Kubernetes Service
99. Short message Service (SMS)
100. Simple Application Server
101. Simple Log Service (SLS)
102. Super Computing Cluster
103. Tablestore
104. Time Series and Spatial-Temporal Database (Lindorm)
105. Transit Router
106. Virtual Private Cloud
107. VPN Gateway
108. Web Application Firewall (WAF)

*Note: The scope of this report includes only the CloudBox offered on the domestic website and does not include the CloudBox offered on the international website.

Alibaba Cloud public cloud services in scope for this report are grouped into categories and brief descriptions for each of the services are provided below. A complete list of Alibaba Cloud services available to customers is provided on the Alibaba Cloud official website. Customers shall consult extensive online documentation for additional information.

Artificial Intelligence (AI) & Machine Learning

Image Search: Image Search is a platform that uses deep learning and computer vision as its core technologies to retrieve similar images. Image Search allows users to extract image characteristics and build an image search engine for image searches. Image Search uses the user's image file as an input and returns a collection of similar images that are stored in an image gallery. Image Search is applicable to a wide range

of scenarios, such as snap shopping, product recommendations, recommendations based on similar images, and copyright protection.

Intelligent Speech Interaction: Intelligent Speech Interaction is suitable for various scenarios, including intelligent Q&A, intelligent quality inspection, real-time subtitling for speeches, and transcription of audio recordings. Intelligent Speech Interaction allows users to use self-learning platform to improve speech recognition accuracy and provides a comprehensive management console and easy-to-use Software Development Kits (SDKs).

Machine Learning Platform for AI: Machine Learning Platform for AI provides end-to-end machine learning services, including data processing, feature engineering, model training, model prediction, and model evaluation.

OCR: Optical Character Recognition (OCR) converts text in pictures into editable text. OCR enables text conversion in over ten application scenarios, including general text, personal license, identity document, invoice, educational tests, vehicle logistics documents, office documents, corporate certificates, documents in minor languages, customized templates, etc.

Analytics Computing

Alibaba Cloud Elasticsearch: Alibaba Cloud Elasticsearch is based on the open-source Elasticsearch engine and is designed for search and analytics scenarios. Alibaba Cloud Elasticsearch is a cloud-based service that offers built-in integrations such as Kibana, commercial features, and Alibaba Cloud Virtual Private Cloud (VPC), Cloud Monitor, and Resource Access Management.

DataHub: DataHub is a real-time data distribution platform designed to process streaming data. Users can publish and subscribe to applications for streaming data in DataHub and distribute the data to other platforms. DataHub allows users to analyze streaming data and build applications based on the streaming data. DataHub collects, stores, and processes streaming data from mobile devices, applications, website services, and sensors. Users can write their own applications or use Realtime Compute to process streaming data in DataHub, such as real-time website access logs, application logs, and events. The processing results such as alerts and statistics presented in graphs and tables are updated in real time.

Dataphin: Dataphin is designed to help users create and manage intelligent and unified data assets and empower innovation. It provides a comprehensive one-stop solution including data integration, warehouse modelling, identity and profile distilling, asset management, and data services.

DataV: DataV is a data visualization tool, featuring geographic information systems allowing for interpretation of data to understand relationships, patterns, and trends.

DataWorks: DataWorks is a Big Data platform product launched by Alibaba Cloud. It provides one-stop Big Data development, data permission management, offline job scheduling, and other features. DataWorks works straight 'out-of-the-box' without the need to worry about complex underlying cluster establishment and Operations & Management.

E-MapReduce: Alibaba Cloud Elastic MapReduce (EMR) is a big data processing solution that runs on the Alibaba Cloud platform. EMR is built on Alibaba Cloud Elastic Compute Service (ECS) instances and is based on open-source Apache Hadoop and Apache Spark. EMR allows users to use the Hadoop and Spark ecosystem components, such as Apache Hive, Apache Kafka, Flink, Druid, and TensorFlow, to analyze and process data. User can use EMR to process data stored on different Alibaba Cloud data storage services, such as Object Storage Service (OSS), Simple Log Service (SLS), and Relational Database Service (RDS).

Hologres: Hologres is an all-in-one real-time data warehouse engine that is compatible with PostgreSQL. It supports online analytical processing (OLAP) and ad hoc analysis of PB-scale data. Hologres supports online data serving at high concurrency and low latency. It is deeply integrated with MaxCompute, Flink and DataWorks, providing a full-stack data warehouse solution that integrates online and offline processing.

MaxCompute: MaxCompute (previously known as ODPS) is a general purpose, fully managed, multi-tenancy data processing platform used for large-scale data warehousing. MaxCompute supports various data importing solutions and distributed computing models, enabling users to effectively query massive datasets, reduce production costs, and ensure data security.

Quick BI: Quick BI allows the user to perform data analytics, exploration, and reporting on mass data with drag-and-drop features and a rich variety of visuals. Quick BI enables users to perform data analytics, exploration, and reporting, and empowers enterprise users to view and explore data and make informed, data-driven decisions.

Realtime Compute for Apache Flink: Realtime Compute for Apache Flink offers a one-stop, high-performance platform that enables real-time big data processing based on Apache Flink. It is widely used in diverse scenarios, such as streaming data processing, offline data processing, and data lake computing.

Computing

Auto Scaling: Auto Scaling is a service to automatically adjust computing resources based on the volume of user requests. When the demand for computing resources increases, Auto Scaling automatically adds ECS instances to serve additional user requests, or alternatively removes instances in the case of decreased user requests.

Cloud Web Hosting: Cloud Web Hosting is a virtual server used for storing and hosting website content, built on ECS.

CloudBox: CloudBox is a service that extends Alibaba Cloud infrastructure, services, and management Application Programming Interfaces (APIs) to any data center or co-location space for fully managed cloud services, with consistent user experience offered by Alibaba Cloud public cloud. The hardware and software of Alibaba Cloud public cloud, such as cloud computing, storage, and network, are locally deployed into the user's data center to meet specific requirements of fully managed cloud services. These requirements include data security, on-premises data processing, and low latency.

Dedicated Host: Dedicated Host (DDH) is a fully managed server hosting service that Alibaba Cloud provides for enterprise users. DDH offers dedicated physical resources, flexible deployment options, rich configurations, and high cost-effectiveness. Each tenant can use dedicated physical resources that are not shared with other tenants.

ECS Bare Metal Instance: ECS Bare Metal Instance features both the elasticity of a virtual server and the high-performance and comprehensive features of a physical server. The next-generation virtualization technology of these instances excels in supporting standard Elastic Compute Service (ECS) and nested virtualization technology.

Elastic Compute Service: Elastic Compute Service (ECS) provides fast memory and the latest Intel Central Processing Units (CPUs) to help users power cloud applications and achieve faster results with low latency.

Elastic Desktop Service: Elastic Desktop Service (EDS) enables quick and convenient creation and deployment as well as centralized management and operations and maintenance (O&M) for desktop environments. The user can quickly create a secure, high-performance, and cost-efficient cloud desktop without making large hardware investments upfront.

Elastic GPU Service: Elastic Graphics Processing Units (GPU) Service (EGS) is a GPU-based computing service ideal for scenarios such as deep learning, video processing, scientific computing, and visualization.

Elastic High Performance Computing: Elastic High Performance Computing (E-HPC) is an end-to-end public cloud service. E-HPC provides individual users, education and research institutions, and public institutions with a fast, elastic, and secure cloud computing platform that interconnects with Alibaba Cloud products.

Function Compute: Function Compute is a fully managed event-driven computing service that allows customers to focus on writing and uploading code without the need to manage infrastructure such as servers. Function Compute provides compute resources to run code flexibly and reliably.

Simple Application Server: Simple Application Server is a new generation computing service for stand-alone application scenarios. It provides one-click application deployment and supports all-in-one services such as domain name resolution, website publishing, security, application O&M, and application management.

Super Computing Cluster: Super Computing Cluster (SCC) servers improve network performance and increase the acceleration ratio of large-scale clusters. SCC servers boast all the advantages of Elastic Bare Metal instances and feature high-quality network performance with high bandwidth and low latency. SCC servers cater to high-performance computing for artificial intelligence, science/engineering computing, and audio/video processing.

Container

Alibaba Cloud Container Service for Kubernetes (ACK): Alibaba Cloud Container Service for Kubernetes (ACK) integrates virtualization, storage, networking, and security capabilities. ACK allows users to deploy applications in high-performance and scalable containers and provides full lifecycle management of enterprise-class containerized applications.

Container Registry: Container Registry allows the user to manage images throughout the image lifecycle. It provides secure image management, stable image build creation across global regions, and easy image permission management. The service simplifies the creation and maintenance of the image registry and supports image management in multiple regions.

Elastic Container Instance: Elastic Container Instance (ECI) is an agile and secure serverless container instance service. Users can run containers without the need to manage clusters and maintain the servers that run the containers.

Serverless Kubernetes Service: Container Service for Kubernetes Serverless (ACK Serverless) is a secure and reliable container service that runs on top of the elastic computing infrastructure of Alibaba Cloud. ACK Serverless is fully compatible with the Kubernetes ecosystem and allows users to deploy containerized applications in Kubernetes clusters without managing and maintaining the clusters.

Database

AnalyticDB for MySQL: AnalyticDB for MySQL is a high-performance data warehousing service that is secure, stable, and easy to use. It allows the user to easily create online statistical reports, multidimensional analysis solutions, and real-time data warehouses. AnalyticDB for MySQL uses a distributed computing architecture that enables it to use the elastic scaling capability of the cloud to compute tens of billions of data records in real time. AnalyticDB for MySQL stores data based on relational models and use SQL to flexibly compute and analyze data. AnalyticDB for MySQL allows users to easily manage databases, scale in or out nodes, and scale up or down instances. It provides various visualization and ETL (Extract, Transform, and Load) tools to make enterprise data processing easier.

AnalyticDB for PostgreSQL: AnalyticDB for PostgreSQL is an online Massively Parallel Processing data warehousing service based on the open-source Greenplum Database. AnalyticDB for PostgreSQL provides online expansion and performance monitoring services to free the user from complicated Massively Parallel Processing (MPP) cluster O&M.

ApsaraDB for Hbase: ApsaraDB for HBase is a cost-effective cloud-based intelligent NoSQL database service that is of high scalability and compatible with the open-source HBase. This service provides core benefits such as low storage costs, high throughput and scalability, and intelligent data processing. This service provides enterprise-level capabilities such as processing of petabytes (PB) of data and a large

number of concurrent requests, quick scaling within seconds, low response latency within milliseconds, full hosting, and global distribution.

ApsaraDB for MongoDB: ApsaraDB for MongoDB is a secure, reliable, and elastically scalable cloud database service supporting ReplicaSet and Sharding architectures. ApsaraDB for MongoDB's highly available service includes automatic monitoring, backup, and disaster tolerance capabilities.

ApsaraDB for OceanBase: ApsaraDB for OceanBase is a relational database service developed by Alibaba Group for high-throughput, high-concurrency, and high-availability scenarios. ApsaraDB for OceanBase uses the Paxos protocol and maintains multiple data replicas. Users can build a financial-grade database by deploying personal computer (PC) servers in a distributed architecture.

ApsaraDB for Redis: ApsaraDB for Redis is an automated and scalable tool for developers to manage data storage shared across multiple processes, applications or servers. ApsaraDB for Redis supports primary-secondary, clustering and read-write separation architectures, low latency, high throughput and elastic scalability, and provides real-time diagnostic capabilities for large hot keys.

ApsaraDB RDS for MariaDB: ApsaraDB RDS for MariaDB is fully compatible with the open-source MariaDB, supports Oracle syntax, and is designed with multiple enterprise database features. It uses multiple storage engines, including MySQL InnoDB, to meet different business requirements.

ApsaraDB RDS for MySQL: ApsaraDB for MySQL is one of the most popular open-source databases in the world. As a key component of the open-source software bundle LAMP (Linux, Apache, MySQL, and Perl/PHP/Python), MySQL has been widely applied to different scenarios.

ApsaraDB RDS for PostgreSQL: ApsaraDB RDS for PostgreSQL is an on-demand database hosting service for PostgreSQL with automated monitoring, backup and disaster recovery capabilities.

ApsaraDB RDS for SQL Server: ApsaraDB RDS for SQL Server offers excellent performance when handling complex SQL queries, and fully supports applications built on .NET framework.

Data Management (DMS): Data management (DMS) supports unified management of multiple databases. It is a comprehensive data management service covering data management, structure management, user authorization, security auditing, trend analysis, and data tracing. DMS provides an easy-to-use portal for the centralized management of databases and servers to ensure more secure data, more efficient management and clearer data value.

Data Transmission Service (DTS): Data Transmission Service (DTS) helps the user migrate data between data storage types, such as relational database, NoSQL, and OLAP. The service supports homogenous migrations as well as heterogeneous migration between different data storage types. DTS can also be used for continuous data replication with high availability.

Database Backup: Database Backup (DBS) provides unlimited backup storage, second-level emergency recovery, and recovery drills. DBS activates cold data by using second-level sandbox instances and backup data queries.

PolarDB: PolarDB is a cloud-native database using compute-storage separation architecture and integrates software with hardware. PolarDB provide users with extremely flexible, high-performance, secure, and reliable database services that allow users to store large amounts of data.

PolarDB for PostgreSQL: PolarDB for PostgreSQL is an in-house relational database service 100% compatible with PostgreSQL and highly compatible with the Oracle syntax. PolarDB for PostgreSQL can provide secure and reliable database services with high performance, auto scaling capability within seconds, and large storage capacity. In addition, PolarDB for PostgreSQL supports Ganos (the multi-model spatio-temporal engine developed by Alibaba Cloud) and PostGIS (the open-source engine).

PolarDB-X: PolarDB-X is a cloud-native distributed database developed by Alibaba Cloud. It is compatible with the MySQL syntax and provides scale-out capabilities, financial-grade high availability, and hybrid transaction/analytical processing (HTAP) functionality. It distributes business workloads to multiple compute and storage nodes and is designed to address database challenges such as ultra-high concurrency, massive data storage, and large table performance bottlenecks.

Time Series and Spatial-Temporal Database (Lindorm): Lindorm is a cloud native multi-model hyper-converged database service that is developed and optimized for Internet of Things (IoT), Internet, and Internet of Vehicles (IoV). Lindorm provides unified capabilities for database access and integrated processing capabilities for multiple types of data, such as wide tables, time series, files, objects, streams, and spaces. Lindorm is compatible with the standard APIs of multiple open-source software and services. It can also be seamlessly integrated with third-party ecosystem tools. Lindorm is suitable for scenarios such as log data processing, monitoring, bill data processing, advertising, social networking, traveling, and risk management.

Developer Tools

API Gateway: API Gateway provides API lifecycle management services including API publishing, management, maintenance, and monetization. It enables simple and fast microservice integration, frontend and backend separation, and system integration at low costs and low risks. API Gateway can be used to share functions and data with partners and third-party developers.

Apsara Devops: Apsara Devops is a developer platform with Projects, Thoughts, Flow, Codeup, Packages, and Testhub together to support developers' work.

Mobile Testing: Mobile Testing is a cloud platform that provides device testing services for enterprises and mobile developers. Mobile Testing provides a large number of popular models and offers a 24/7 service to help the user find all kinds of hidden risks in apps, including but not limited to app crashes, compatibility issues, functionality issues, and performance issues. It helps enhance market competitiveness and reduce user churn by improving app quality and user experience.

Resource Orchestration Service: Resource Orchestration Service (ROS) is an Alibaba Cloud service that can simplify the management of cloud computing resources. Users can create stack templates to describe cloud computing resources such as ECS and ApsaraDB RDS instances, as well as the dependencies between resources in the templates. The ROS engine automatically creates and configures all resources in a stack based on a template, which makes automatic deployment and O&M possible.

Enterprise Services & Cloud Communication

Alibaba Cloud DNS: Alibaba Cloud DNS is a secure, fast, stable, and reliable authoritative DNS service. It helps enterprises and developers convert human-readable domain names into machine-readable Internet Protocol (IP) addresses and then routes user requests to required websites or application servers.

Energy Expert: Energy Expert uses analytics computing and AI technologies to help enterprises scientifically calculate carbon emissions, measure their product carbon footprints, formulate carbon neutrality plan, implement energy-saving and carbon-reducing schemes to achieve sustainable development.

Short Message Service (SMS): Short Message Service (SMS) has a batch sending feature and various API operations to send one-time password (OTP) messages, notification messages, and promotional messages to customers in more than 200 countries and regions worldwide.

Internet of Things

IoT Device ID: IoT Device ID is an IoT device identity authentication system that provides device security authentication, secure connection, business data encryption, key management and other end-to-end trusted access ability for IoT systems through trusted computing and cryptography.

IoT Platform: Alibaba Cloud IoT Platform allows IoT companies stable communication between devices and the IoT Platform. Featuring nodes deployed globally, devices around the world can communicate with the IoT platform rapidly and with low latency. Alibaba Cloud IoT Platform also provides various security measures that guarantee individual device security as well as secure communication between devices and the IoT platform. Alibaba Cloud IoT Platform is highly customizable, featuring a rule engine for rapid data analysis storage, and application development.

Link Living: The Living Internet of Things platform is Alibaba Cloud IoT's Internet of Things platform for consumer smart devices to solve the problems of device connection, App control, device message push, voice control, and voice control that are often encountered in intelligent devices. A complete set of configuration solutions are provided to greatly reduce the development cost of "equipment-cloud-app".

Link Visual: Alibaba Cloud Link Visual is a video cloud platform that provides video streaming, storage, forwarding, playing, and AI computing cloud services, which allows video device manufacturers, solution providers, and service providers to quickly deploy data from video devices onto the cloud and build video scene applications. Link Visual also provides secure data transmission and storage services for videos requiring data privacy protection.

Media Services

ApsaraVideo Live: ApsaraVideo Live is a live streaming platform for both audio and video based on leading content hosting, delivery networks and large-scale distributed real-time transcoding technology. ApsaraVideo Live provides high-definition and uninterrupted live audio and video services that are convenient and accessible, with low latency and high concurrency.

ApsaraVideo Media Processing (MPS): ApsaraVideo Media Processing (MPS) is a cost-efficient, elastic, and highly scalable media processing service. MPS allows users to transcode media files into formats that are suitable for playback on all platforms.

ApsaraVideo VOD: ApsaraVideo Video on Demand (VOD) is an all-in-one solution for on-demand audio and video streaming. Users can collect, edit, and upload audio and video files to ApsaraVideo VOD and enable automatic transcoding. ApsaraVideo VOD allows users to manage media resources, edit media files online, and accelerate media delivery to customers for playback based on Alibaba Cloud Content Delivery Network (CDN) points of presence (POPs). Backed by the powerful infrastructure services of Alibaba Cloud, ApsaraVideo VOD provides end-to-end video services to help enterprises and developers build secure, elastic, efficient, and customizable video-on-demand platforms and applications. ApsaraVideo VOD is intended for fields such as video websites, short videos, online education, entertainment, social networking, and news media.

Middleware

Alibaba Cloud Service Mesh: Alibaba Cloud Service Mesh (ASM) is a fully managed platform that manages the traffic of microservice applications in a unified manner. ASM is compatible with Istio, supports unified traffic management across multiple Kubernetes clusters, and provides consistent communication control for containerized applications and applications that run on virtual machines. ASM integrates with the Alibaba Cloud Container Service for Kubernetes (ACK) and Alibaba Cloud's network connection and security capabilities. ASM allows the user to create an optimal service mesh on the cloud and provides consistent traffic shaping and observability for each microservice.

Application Real-Time Monitoring Service: Application Real-Time Monitoring Service (ARMS) is an end-to-end Alibaba Cloud monitoring service for Application Performance Management (APM) used to quickly develop real-time business monitoring capabilities using the frontend monitoring, application monitoring, and custom monitoring features provided by ARMS.

ApsaraMQ for Kafka: ApsaraMQ for Kafka is a fully-managed Apache Kafka service which manages complex infrastructure-related operations for the user, such as the configuration, maintenance, upgrading, and monitoring of the user's workloads.

ApsaraMQ for RabbitMQ: ApsaraMQ for RabbitMQ is a messaging service that is developed based on highly available distributed storage. This service supports the AMQP 0-9-1 protocol. ApsaraMQ for RabbitMQ is compatible with open-source RabbitMQ clients. This service prevents issues such as message accumulation and split-brain. This service also provides common benefits of cloud messaging services, such as high concurrency, a distributed architecture, and auto scaling.

ApsaraMQ for RocketMQ: ApsaraMQ for RocketMQ is a professional message middleware as a core product in the enterprise-level Internet architecture. It supports reliable message-based asynchronous communication among microservices, distributed systems, and serverless applications. This service can be used to easily create a scalable distributed system with loose coupling and high availability.

Enterprise Distributed Application Service: Enterprise Distributed Application Service (EDAS) is the core product of Alibaba Cloud's enterprise Internet architecture solutions. It provides a multifunctional solution for the enterprise-level cloud computing market. EDAS provides a variety of features including full life-cycle management and application O&M.

Microservices Engine (MSE): Microservices Engine (MSE) is a one-stop microservices platform compatible with mainstream open-source microservices ecosystems in the industry and provides a fully managed registration and configuration center, and gateway and microservices governance capabilities. MSE provides three modules: Microservices Registry, Cloud-native Gateway, and Microservices Governance and allows users to build their own microservices system with ease using open-source technologies.

Migration and O&M Management

ActionTrail: ActionTrail tracks the user's Alibaba Cloud account actions and records them as events to facilitate auditing. ActionTrail allows the user to deliver these events to the specified Log Service Logstores and Object Storage Service (OSS) buckets. The user can also query and download the recorded events. Then, the user can perform behavior analysis, security analysis, and compliance auditing and track resource changes based on the events.

Cloud Config: Cloud Config monitors and tracks the changes to users' resource configurations, allowing users to monitor resource changes over time. Cloud Config allows users to set compliance rules for the configurations of users' Alibaba Cloud resources. Cloud Config applies the rules to check the configurations and sends alerts when non-compliant configurations are detected. Cloud Config allows users to configure manual or automatic remediation for non-compliant resources to implement compliance audits.

CloudMonitor: CloudMonitor is used to collect monitor metrics of Alibaba Cloud resources and custom metrics. The service can be used to detect the availability of the subscribed services and allows the users to set alarms on specific metrics. CloudMonitor enables the user to view and understand the usage of the cloud resources, and the status and health of the user's business so that the user can act promptly to ensure the availability of applications when an alarm is triggered.

Quota Center: Quota Center allows customers to view and manage the quotas of Alibaba Cloud services in a centralized manner. Customers can query the default values and usage of quotas, the history of quota application, the supported Alibaba Cloud services, and whether quotas can be modified, and apply for quota increases in the Quota Center console.

Resource Management: Resource Management provides a collection of resource management services that support enterprise IT administration. The services include Resource Directory, Resource Group, and Tag. Resource Directory allows the user to build an organizational structure for resources based on business requirements. Resource Group and Tag allow the user to hierarchically manage the resources.

Networking and CDN

Alibaba Cloud DNS PrivateZone: Alibaba Cloud DNS PrivateZone is a VPC-based domain name system (DNS) service for Alibaba Cloud users.

CDN: Alibaba Cloud Content Delivery Network (CDN) is used to deliver content to users from the nodes that are nearest to them, accelerating the response to user requests and increasing the response rate. CDN can also resolves the delivery latency problem that is usually caused by distribution, bandwidth, and server performance issues.

Cloud Data Transfer: Cloud Data Transfer (CDT) supports unified billing for the data transfers that are incurred by different Alibaba Cloud products such as Elastic IP Address (EIP), EIP Bandwidth Plan, IPv6 gateway, Classic Load Balancer (CLB), Anycast EIP, Global Accelerator (GA), Cloud Enterprise Network (CEN), and VPC peering connection.

Cloud Enterprise Network: Cloud Enterprise Network provides a hybrid and distributed global network ideal for enterprise users with high demand on network coverage. With its stable transmission and next-generation network environment, the network provides high transmission speed and low latency for end-users. Cloud Enterprise Network can be used to facilitate communication between VPC to VPC and VPC to Internet Data Center (IDC). The routing information in CEN can be learned and distributed automatically, which allows CEN to achieve fast routing convergence and improved network quality and security.

Dynamic Content Delivery Network (DCDN): Dynamic Content Delivery Network (DCDN) is a content delivery acceleration service, based on Alibaba Cloud's CDN to accelerate content delivery for hybrid sites, dynamic sites, and applications. Dynamic Route for Content Delivery Network (DCDN) uses technologies, such as static and dynamic content separation, edge caching, intelligent routing, and data compression, to resolve issues, such as high latency, packet loss, and service instability.

Elastic IP Address: EIP Addresses are independent public Internet Protocol (IP) address resources, which allow users to decouple public IP addresses from ECS instances and facilitate management. An EIP is a Network Address Translation (NAT) IP address that is located in the Internet gateway of Alibaba Cloud and mapped to the associated cloud resource through NAT. After a cloud resource is associated with an EIP, the cloud resource can communicate with the Internet through the EIP.

Express Connect: Express Connect allows users to establish high bandwidth, reliable, secure, and private connections between different networks. Dedicated physical connections link the user's on-premises data centers with Alibaba Cloud, which improves the flexibility of the user's network topology and the performance of cross-network connectivity. The service also supports peering connections between VPC networks across regions and Alibaba Cloud accounts.

Global Accelerator: Global Accelerator is a network acceleration service, benefiting from the high-quality bandwidth and global transmission networks that are provided by Alibaba Cloud. Global Accelerator enables nearby access to the Internet and cross-region deployment of applications, improving the user experience of Internet services. Global Accelerator features high network quality, high security, high availability, and low latency. In addition, Global Accelerator can be activated within several minutes, making service deployment more agile.

Global Traffic Manager: Global Traffic Manager allows the user to access the nearest node wherever application or website is located and balance concurrent workloads between multiple nodes based on the DNS architecture. With built-in health checks, the user can easily monitor the health of applications and run DNS failover to meet any disaster recovery requirements.

NAT Gateway: NAT gateway enables multiple instances within a VPC to communicate with the Internet. Custom Source Network Address Translation (SNAT) and Destination Network Address Translation (DNAT) rules can be created to help the user use network resources flexibly and build a hybrid cloud network. The service provides value-added features, such as multiple IP addresses, shared Internet bandwidth, and extensive monitoring metrics.

PrivateLink: PrivateLink simplifies network architecture and reduces security risks because network traffic does not traverse the Internet.

Server Load Balancer: Server Load Balancer (SLB) distributes network traffic across groups of backend servers to improve the service capability and application availability. It provides functions as a reverse proxy at Layer 7 (ALB) and load balancing services at Layer 4.

Transit Router: Transit routers is a core cloud router that enables network communication between VPCs, VPCs and on-premises networks, and regions. Transit routers help users quickly build enterprise-class networks that support high scalability.

Virtual Private Cloud: VPC helps customers build an isolated network environment based on Alibaba Cloud including customizing the IP address range, network segment, route table, and gateway. In addition, the user can connect VPC and a traditional IDC through a leased line, Virtual Private Network (VPN), or Generic Routing Encapsulation (GRE) to provide hybrid cloud services.

VPN Gateway: VPN Gateway is used to transmit encrypted traffic between Alibaba Cloud VPCs and enterprise data centers, enterprise office networks, or Internet platforms over the Internet. This service can be used to establish reliable and secure connections for data transmission.

Security

Anti-DDoS / Anti-DDoS Pro / Anti-DDoS Premium: Anti-Distributed Denial of Service (Anti-DDoS) is based on Alibaba Cloud's global scrubbing centers, combined with intelligent DDoS detection and protection systems developed at Alibaba Cloud. Anti-DDoS automatically mitigates attacks, reinforces the security of users' applications, and reduces the threat of malicious attacks.

Bastionhost: Bastionhost enables the user to manage asset O&M permissions in a centralized manner, monitor all O&M operations, and reproduce O&M scenarios in real time to facilitate identity authentication, access control, and operation audit. Bastionhost can be used to troubleshoot issues, such as difficulties in the management of various assets, unclear responsibilities and authorities, and difficulties in the backtracking of O&M events.

Cloud Firewall: Alibaba Cloud Firewall centrally manages the policies that control the traffic from the Internet to users' businesses, the traffic between VPC networks, the traffic on Express Connect instances, and the traffic generated by VPN-based remote access. Cloud Firewall is embedded with an Intrusion Prevention System and can detect outbound connections from users' assets. Alibaba Cloud Firewall can also visualize network traffic, access between businesses, and store network traffic logs generated within the last six months.

Cloud Hardware Security Module (HSM): Cloud Hardware Security Module (HSM) allows the user to generate and use encryption keys on hardware that is Federal Information Processing Standard (FIPS) 140-2 Level 3 validated. It also allows the user to access tamper-resistant HSM instances in Alibaba Cloud VPC in an exclusive and single-tenant manner to protect encryption keys.

Content Moderation: Content Moderation is an image and video moderation service that accurately detects inappropriate content. Content Moderation leverages Deep Learning technology and benefits from Big Data analysis to provide accurate monitoring of pictures, video, text and other multimedia content. Not only does Content Moderation help users to reduce adult, violence, terrorism, drugs and other illegal or inappropriate content, but can also minimize spam advertising and other user experience pain points.

Data Security Center (also known as "Sensitive Data Discovery and Protection"): Data Security Center is an all-in-one data security solution that provides various features, such as sensitive data detection, classification, grading, and de-identification, to help users meet compliance requirements specified in General Data Protection Regulation (GDPR) and personal information protection.

Database Audit: Database Audit has Intelligent analysis of database communication flow, and fine-grained audit of database access behavior. Through the audit traceability of the full amount of database behaviors, real-time measurement of dangerous attacks, and intelligent warning of risk statements, database audit will provide the most secure monitoring guarantee for users' most sensitive database assets.

Fraud Detection: Fraud Detection is a risk control platform, based on machine learning algorithms and stream computing technologies. Fraud Detection can be used to identify frauds in core services, such as user registrations, operations, transactions, and credit audits. Fraud Detection provides an end-to-end, anti-fraud system tool that is suitable for industry scenarios such as e-commerce, social networking, and finance.

ID Verification: Identity (ID) Verification is an AI-powered Electronic Know Your Customer (eKYC) solution to accurately verify the authenticity of user identities. With document recognition, liveness detection and face comparison involved, Alibaba Could ID Verification provide a risk-based approach to the customers in terms of digital identity systems.

IDaaS: Application Identity Service (IDaaS) is a centralized identity management service that provides a unified application portal, user directory, single sign-on, centralized authorization, and audit reporting.

Key Management Service (KMS): KMS provides secure and compliant key management and cryptography services to help users encrypt and protect sensitive data assets. KMS is integrated with a wide range of Alibaba Cloud services to allow users to encrypt data across the cloud and control its distributed environment. KMS provides key usage logs via ActionTrail, supports custom key rotation, and provides HSMs that have passed FIPS 140-2 Level 3 or other relevant validation, to help users meet regulatory and compliance needs.

Resource Access Management (RAM): Resource Access Management (RAM) is an identity and access control service which enables the users to centrally manage users (including employees, systems or applications) and securely control their access to resources through permission levels.

Security Center: Security Center is unified security management system that recognizes, analyzes, and alerts of security threats in real-time. Security Center provides protection from ransomware, various viruses, and web tampering. Security Center also provides compliance assessment to protect cloud and on-premises servers and meet regulatory compliance requirements.

Web Application Firewall (WAF): Web Application Firewall (WAF) is a Cloud firewall service that protects the user's websites and web servers based on the intelligent computing capabilities of Alibaba Cloud Security.

Storage

Apsara File Storage NAS: Apsara File Storage NAS is a file storage service for Alibaba Cloud ECS instances, Alibaba Cloud E-HPC and Container Service. It provides a distributed file system with unlimited capacity and performance scaling, with a single namespace, multi-party sharing, high reliability, and high availability.

Elastic Block Storage (EBS): Elastic Block Storage (EBS) is a block-level data storage service attached to Elastic Compute Service (ECS) instances and features low latency, persistence, and high reliability. Elastic Block Storage enables automatic replication within the same zone to avoid data loss caused by hardware failures and guarantee the stability and continuity of users' workloads.

Hybrid Backup Recovery (also known as "Cloud Backup"): HBR is an easy-to-use and cost-effective online data management service. It provides secure and efficient backup, disaster recovery and archive services for Alibaba Cloud ECS instance, files, ECS databases, NAS and OSS, as well as on-premises data including VMware virtual machines, large scale NAS systems, files systems and databases.

Object Storage Service: Alibaba Cloud Object Storage Service (OSS) is an encrypted, secure, cost-effective, and easy-to-use object storage service that enables to store, back up, and archive large amounts of data in the cloud, with a guaranteed durability of 99.9999999999% (12 nines). RESTful APIs allow storage and access to OSS anywhere on the Internet.

Simple Log Service (SLS): Simple Log Service (SLS) is a complete real-time data logging service that has been developed by Alibaba Group. Simple Log service (SLS) supports collection, consumption, shipping, search, and analysis of logs. It improves the capacity of processing and analysing large amounts of logs.

Tablestore: Tablestore is a distributed NoSQL data storage service built on Alibaba Cloud's Apsara distributed computing system that enables seamless expansion of data size and access concurrency through data sharing and server load balancer technologies, providing storage of and real-time access to massive structured data.

Infrastructure

Alibaba Cloud offers available, secure, and reliable cloud computing infrastructure by taking the following measures: setting up cloud data centers across multiple regions and zones globally, delivering good network access experience, providing cloud products with high availability infrastructure and multi-replica data redundancy based on the Apsara distributed cloud OS, upgrading products, fixing vulnerabilities through hotfix dynamical patching technology, and ensuring operation and maintenance security. Alibaba Cloud data centers are deployed across multiple regions worldwide, with each region supporting multiple zones. Customer workloads can be deployed across regions and zones to implement a high availability architecture.

Alibaba Cloud is dedicated to providing stable and reliable computing and data processing capabilities and enabling an interconnected world. Alibaba Cloud has 87 availability zones in 29 regions across the globe from west to east. Alibaba Cloud uses multiple telecom service providers for backbone connectivity and co-location service providers for data center facility management.

The scope of availability zones covered in this report includes the availability zones located in the following regions. The numbers in parenthesis indicate the number of availability zones under review for the respective region.

- Beijing, China (12)
- Chengdu, China (2)
- Fuzhou, China – Local Region (1)
- Guangzhou, China (2)
- Hangzhou, China (8)
- Heyuan, China (2)
- Hohhot, China (2)
- Nanjing, China – Local Region (1)
- Qingdao, China (2)
- Shanghai, China (11)
- Shenzhen, China (6)
- Ulanqab, China (3)
- Wuhan, China – Local Region (1)
- Zhangjiakou, China (3)
- Hong Kong, China (3)
- Singapore (3)
- Sydney, Australia (2)
- Kuala Lumpur, Malaysia (2)
- Jakarta, Indonesia (3)
- Manila, Philippine (1)
- Bangkok, Thailand (1)
- Mumbai, India (2)
- Tokyo, Japan (3)
- Seoul, Korea (1)

- Virginia, United States (2)
- Silicon Valley, United States (2)
- Frankfurt, Germany (3)
- London, United Kingdom (2)
- Dubai, United Arab Emirates (1)

Control Environment

Alibaba Cloud, a subsidiary of Alibaba, is organizationally integrated, aligning closely with the overarching control environment of the Group. Alibaba Cloud shapes its control environment by leveraging the established control paradigm of the Group. Alibaba Cloud defines and implements its internal control system by setting the core values and code of conduct aligning with those of the Group. Policies, procedures and standards are established, documented and actively disseminated within the organization. Alibaba Cloud has established a risk management framework to identify, analyze and manage risks within the company and related to the services provided, with risk assessments conducted periodically. Monitoring activities are designed and implemented out to assess the effectiveness of information security management system.

People

Alibaba Cloud's organizational structure is clearly outlined, with specific roles and responsibilities allocated to each respective division. Since December 2022, the Group Chief Executive Officer has assumed the position of the Chief Executive Officer at Alibaba Cloud. Alibaba Cloud Risk Management Department is headed by Chief Risk Officer of Alibaba Cloud, who is responsible for overall risk management including cloud security, legal and compliance. The security team of the Department is responsible for maintaining and operating the cloud security system and cyber defense and defining the security standards and benchmarks for cloud security design and product DevSecOps. The legal and compliance team of the Department is responsible for reviewing laws and regulations, identifying compliance risks, meeting compliance objectives, resolving legal disputes and relevant risk management. The industrial standard team of the Department is responsible for managing compliance with cloud computing-related external standards, communicating with external standardization associations and regulators. The emergency response team of the Department is responsible for leading the threat and incident response and management.

Information Security Governance

Alibaba Cloud has developed an information security strategy for information security management covering strategic, operational and information technology (IT) risks. Policies and procedures for information security have been defined and documented to guide the operations. Roles and responsibilities for information security have been clearly defined and communicated within the organization.

Data

Data is classified into different data types such as customer data, business data, personal data, critical data, etc. Alibaba Cloud's data security management ensures that data security is managed and controlled throughout the data lifecycle that covers data gathering, transmission, processing, exchange, storage, and destruction. For each stage of the data security lifecycle, security management requirements are specified, and corresponding technologies are employed.

Alibaba Cloud customers retain control and ownership of its customer data. Customers are responsible for the development, operation, maintenance, and use of the content of customer data. Alibaba Cloud helps customers ensure the confidentiality, integrity, and availability of their data through the services and capacities it provides. Alibaba Cloud's infrastructure security measures and security mechanisms of virtualization technology help prevent customers' cloud resources from unauthorized access and ensure the segregation among multiple tenants in a cloud computing environment. Alibaba Cloud also provides services for customers to encrypt and back up their data. On terminating services to cloud service

customers, Alibaba Cloud deletes data assets of customers in a timely manner using data erasure techniques that meet industry standards.

Processes and Procedures

Alibaba Cloud has established policies, processes and procedures to formulate control activities. The control activities are implemented and operated to support the achievement of system requirements and service commitment as related to security, availability and confidentiality, as well as the compliance with relevant laws and regulations. These processes and procedures cover the following areas:

- Information Security Governance and Risk Management
- Human Resources Management
- Data Security Management
- Infrastructure and Virtualization Security
- Identity and Access Management
- Asset Management
- Customer Authentication and Access Management
- Cryptography and Key Management
- Physical and Environmental Security
- Endpoint Security
- Threat and Vulnerability Management
- Security Incident Management
- Problem Management
- Change Management
- Business Continuity Management
- Vendor Management
- Audit and Compliance
- Interoperability and Portability

Attachment B - Principal Service Commitments and System Requirements

Alibaba Cloud strives to provide customers with consistent, reliable, secure, and compliant cloud products and services, helping customers ensure the security, confidentiality and availability of their systems and data. Alibaba Cloud is responsible for designing, implementing, and operating effective controls over the systems and services to provide reasonable assurance that Alibaba Cloud's service commitments and system requirements are achieved. Alibaba Cloud's services commitments to its customers (user entity) are communicated in the form of Product Terms of Service, Product Service Level Agreement (SLA), Membership Agreement, Privacy Policy, description of the service offerings and contracts. Details of Product Terms of Service, Product SLA, Membership Agreement and other legal documents can be found at Alibaba Cloud Legal Document Center.

Alibaba Cloud has also established various communication channels for customer support including but not limited to live chat, ticket, email, DingTalk instant message, etc. Any potential issues that could impact the customers are also communicated with customers by global customer support team through established mechanisms.

Moreover, Alibaba Cloud adheres to international standards and best practices and strives to meet the requirements of both international and domestic markets. Details related to security and compliance are communicated with customers at Alibaba Cloud Trust Center.

Alibaba Cloud employs a shared responsibility model where Alibaba Cloud and its customers are jointly responsible for security and compliance of the customers' cloud environments. Alibaba Cloud is responsible for the security of the underlying cloud service platform and providing security services and capabilities to customers, while customers are responsible for the design, implementation, and operation of their cloud environments, and for the security of applications and data hosted on Alibaba Cloud. Alibaba Cloud's customers should assess their objectives in choosing the services and designing the on-cloud architecture with consideration of both Alibaba Cloud's controls in place and the configurations and operational controls required as part of their security responsibilities. When designing and providing the services, to achieve the service commitments to its customers and comply with the relevant laws and regulatory requirements, Alibaba Cloud has established system and operational requirements in the form of policies, standards, manuals and procedures which are documented and communicated in organizational approaches.