

Research into Cloud Computing

1. Cloud computing refers to the use of distributed computing tools to make multiple servers into a huge resource pool. When users use it, they can use it on demand. When the demand grows, they can also expand horizontally. The core concept of cloud computing is to take the Internet as the center, provide fast and secure cloud computing services and data storage on the website, so that everyone who uses the Internet can use the huge computing resources and data center on the network. Therefore, users can get unlimited resources through the network, and the resources obtained are not limited by time and space.

2. Public cloud refers to enterprises providing services directly to external users through their own infrastructure. External users access services through the Internet, which can be understood as shared resource services. The private cloud is built for a single user. Generally speaking, private cloud can only be built by institutions with high confidentiality requirements or large business scale. The difference between them is that the public cloud is cheap, easy to use, cost-effective but not safe enough, and prone to the risk of file disclosure. The private cloud provides a more secure environment, users can choose to customize their resources according to their needs, but the high installation cost and high security may make some functions operate with limitations.

3.

Service	Alibaba	Tencent	AWS	Microsoft Azure	IBM
Compute	ECS E-HPC Docker	CVM TKE ECM	EC2 EMR AS ELB	VM	Virtual Servers Bare Metal Servers
Storage	OSS CPFS HDFS	COS CBS CAS CLS CDM	S3 EBS EFS	Storage account Blob storage Disk storage Queue storage File store HPC archival storage	COS Block storage
Database	PolarDB RDS	TencentDB TDSQL	Aurora DynamoDB	FHIR API CosmosDB	Db2 Compose

	DRDS Redis MongoDB Cassandra TSDB HBase	CTSDB CynosDB MariaDB	DocumentDB QLDB RDS Redshift Timestream	SQL Database PostgreSQL MariaDB	MongoDB PostgreSQL Graph
Analysis	MaxCompute E-MapReduce DataWorks DataHub	TBDS Sparkling Snova	Athena CloudSearch EMR Kinesis Redshift	Databricks Synapse Analytics HDInsight	Db2 Big SQL TS2280 Tape Drive
Serverless	SAE	SCF Serverless Framework	Lambda	Functions	OpenWhisk
Artificial intelligence	PAI Face Recognition Image Recognition Intelligent Speech Interaction NMT	Face Recognition OCR FRP TI-ML TI Matrix TBP	SageMaker CodeGuru Comprehend Kendra Lex Personalize Polly Rekognition	Bot Databricks Bing QnA Maker Kinect DK Machine Learning Studio	Watson
Internet of Things	IoT Hub	IoT Explorer LPWA TencentOS tiny	IoT Core Greengrass IoT-Click	IoT Central Sphere Functions IoT Core Services	Db2 Event Store Informix on Cloud
Security	DDoS Web Application Firewall Cloud Security Center	DDoS T-Sec	Cognito Detective GuardDuty Inspectot Macie	Active Directory Key Vault DDos Sentinel	Cloud Identity LinuxONE III
Developer Tools	Alibaba Cloud Toolkit CLI	Tencent Cloud Assistant	Corretto Cloud9	Visual Studio DevOps	IBM Developer Center

4. Amazon EC2 is a web service that provides secure and scalable computing capacity in the cloud. This service enables customers to perform cloud computing on a web scale more easily. Amazon S3 is an object storage service that provides

industry-leading scalability, data availability, security, and performance. This means that customers of all sizes and industries can use it to store and protect any amount of data for various use cases. Amazon aurora is a relational database compatible with MySQL and PostgreSQL. Actual use cases such as SmugMug (online photo storage website) use AWS services. The company processes the photos through EC2, and then stores the processed photos in Aurora database using S3. Finally, users can query the database to return results.