# [Research into Cloud Computing](https://moodle.bcu.ac.uk/mod/resource/view.php?id=5829395)

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.

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| Service | Alibaba | Tencent | AWS | Microsoft Azure | IBM |
| Compute | ECS   1. 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  DRDS  Redis  MongoDB  Cassandra  TSDB  HBase | TencentDB  TDSQL  CTSDB  CynosDB  MariaDB | Aurora  DynamoDB  DocumentDB  QLDB  RDS  Redshift  Timestream | FHIR API  CosmosDB  SQL Database  PostgreSQL  MariaDB | Db2  Compose  MongoDB  PostgreSQL  Graph |
| Analysis | MaxCompute  E-MapReduce  DataWorks  DataHub | TBDS  Sparking  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  GuarDuty  Inspectot  Macie | Active Directory  Key Vault  DDos  Sentinel | Clound Identity  LinuxONE III |
| Developer Tools | Alibaba Could Tooklkit  CLI | Tencent Cloud Assistant | Corretto  Cloud9 | Visual Studio  DevOps | IBM Developer Center |

1. 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.