







Public Cloud Services Comparison (March 18th, 2019)







| Category | Service |  |  |  |  |  |  |
|----------|---|---|---|--|--|---|---|
| Compute | Shared Web hosting | | Azure shared App Services | | Web hosting services | | Web Hosting Simple Application Server |
| Compute | Virtual Server | Amazon EC2 | Azure Virtual Machine | Compute Engine | Classic Virtual Server Virtual Server for VPC Power Systems Virtual Servers | Compute | Alibaba ECS |
| Compute | Bare Metal Server | Amazon EC2 Bare Metal Instance (Preview) | Azure Bare Metal Servers (Large Instance Only for SAP Hana) | | Bare Metal Servers | Bare Metal Servers | ECS Bare Metal Instance |
| Compute | Virtual Dedicated Host | Amazon EC2 Dedicated Hosts | | Sole Tenant Node (Beta) | Dedicated Virtual Servers Infrastructure (VSi) | Dedicated Compute Classic | Dedicated Host |
| Compute | Container Registration Service | Amazon EC2 Container Registry | Azure Container Registry | Container Registry | IBM Cloud Container Registry | Oracle Cloud Infrastructure Registry | Container Registry |
| Compute | Container Management Service | Amazon EC2 Container Service Amazon Elastic Container Service for Kubernetes (EKS) | Azure Kubernetes Service (AKS) Azure Container Instances | Kubernetes Engine | IBM Cloud Kubernetes Service IBM Cloud OpenShift Service | Container Engine for Kubernetes (OKE) | Container Service Container Service for Kubernetes |
| Compute | Micro Services App Development Platform | AWS Lambda | Azure Service Fabric Azure Functions Event Grid | Google Cloud Functions | IBM Cloud Functions | Oracle Functions | Function Compute |



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|----------|---|---|---|---|---|--|---|
| Compute | Virtual Private Servers | Amazon Lightsail | Azure App Service Environment | | Classic Virtual Server Virtual Server for VPC | | Simple Application Server |
| Compute | Auto Scaling | Auto Scaling | Azure Autoscale Virtual Machine Scale Sets | Auto Scaler | Auto Scaling | Auto Scaling | Auto Scaling |
| Compute | Batch Jobs | AWS Batch | Azure Batch | Preemptible VMs | IBM Cloud Functions | | Batch Compute |
| Compute | App Development/ Deployment (Java /.Net /PHP /Python) | AWS Elastic Beanstalk | Azure Web Apps Azure Cloud Services | Google App engine | Cloud Foundry Apps | Application Container Cloud Java Cloud Service | Enterprise Distributed Application Service |
| Compute | Event Driven Computing | AWS Lambda | Azure Functions Event Grid | Cloud Functions | IBM Cloud Functions | Oracle Functions | Function Compute |
| Storage | Object Storage | Amazon Simple Storage Service (S3) | Azure Blob Storage | Cloud Storage | Cloud Object Storage | Object Storage | Object Storage Service |
| Storage | Virtual Machine Disk Storage | Amazon Elastic Block Storage (EBS) | Azure Page Blobs / Premium Storage Managed Disks | Persistent Disk | Block Storage Block Storage for VPC | Block Storage | Block Storage |
| Storage | File Storage (SMB Compatible) | Amazon Elastic File System (EFS) | Azure File Storage | File Store | File Storage | Oracle Cloud Infrastructure File Storage | NAS File Storage |
| Storage | Long Term Cold Storage | Amazon Glacier | Azure Archive Storage Azure Cool Storage | Cloud Storage Archival Storage (NEARLINE & COLDLINE) | Object Storage- ColdVault Archive | Archive Storage | Object Storage Archive |
| Storage | Hybrid Storage/Storage Gateway | AWS Storage Gateway | Azure StorSimple | | | Storage Software Appliance | Hybrid Cloud Storage Array |

| Category | Service |  |  |  |  |  |  |
|--------------------|--|---|---|---|---|--|--|
| Database | Relational Database Management Service | Amazon Aurora Amazon RDS | Azure SQL Database SQL Server Stretch Database Azure Database for MySQL Azure Database for PostgreSQL | Cloud SQL Cloud Spanner | Db2 Db2 Hosted Informix Databases for PostgreSQL Compose for MySQL(Beta) | DBaaS MySQL Service | ApsaraDB for RDS MySQL ApsaraDB for RDS SQL Server ApsaraDB for RDS PostgreSQL Distributed Relational Database Service (DRDS) |
| Database | Non Relational Database Management Service | Amazon DynamoDB Amazon DynamoDB Accelerator (DAX) Amazon Neptune (Preview) | Azure CosmosDB Table Storage Azure Time Series Insights | Cloud Datastore Cloud BigTable | Cloudant NoSQL DB Compose for JanusGraph Databases for MongoDB | NoSQL Database | ApsaraDB for MongoDB Table Store |
| Database | Timeseries Database | Amazon DynamoDB | Azure Time Series Insights | Cloud BigTable | Informix | | HiTSDB (High-Performance Time Series Database) |
| Database | In-Memory Data Store | Amazon ElastiCache | Azure RedisCache | Cloud MemoryStore (Beta) | Databases for Redis | | ApsaraDB for Redis |
| Database | Data Warehousing | Amazon Redshift | Azure SQL Data Warehouse | BigQuery | Db2 Warehouse on Cloud | Exadata Autonomous Data Warehouse Cloud | Alibaba MaxCompute ODPS |
| Migration Services | Database Migration Services | AWS Database Migration Service | Azure Database Migration Service (Preview) | | Lift CLI | Migrate to the Cloud | Data Transmission Service |
| Migration Services | Server Migration Services | AWS Server Migration Service | Site Recovery Azure Websites Migration Assistant | | | | |









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|--------------------------------|---|---|---|--|---|--|---|
| Migration Services | Small Scale Data Transfer Service | AWS Import/Export | Azure Import/Export | | Data Transfer Service Aspera High-speed Transfer | Data Transfer Services - Hard Disk Import | |
| Migration Services | Large Scale Data Transfer Solution (Petabyte Scale) | AWS Snowball | | | Mass Data Migration Service | Data Transfer Services - Storage appliance import | Data Transport |
| Migration Services | Large Scale Data Transfer Solution (Terabyte Scale) | AWS Snowball Edge | Azure Data Box (Preview) | Transfer Appliance (Beta) | Mass Data Migration Service | Data Transfer Services - Storage appliance import | Data Transport |
| Migration Services | Large Scale Data Transfer Solution (Exabyte Scale) | AWS Snowmobile | | | | | |
| Application Discovery Services | Application Discovery Services | Application Discovery Service | Azure Active Directory | | | | |
| Networking & Content Delivery | Virtual Networking | Amazon VPC | Azure VNet | Cloud Virtual Network | IBM Cloud VPC on Classic IBM Cloud VPC Next Gen (Early Access) | Oracle Virtual Cloud Network | Virtual Private Cloud |
| Networking & Content Delivery | Network Gateway | Amazon VPN | Azure VPN Gateway | Cloud VPN | Classic IPSEC-VPN VPN gateway for VPC | Oracle IPSec VPN | VPN Gateway |
| Networking & Content Delivery | Content Delivery Network | Amazon CloudFront | Azure CDN | Cloud CDN | Content Delivery Network | Edge Services | Alibaba Content Delivery Network |
| Networking | Networking & Content Delivery | Amazon Route 53 | Azure DNS | Cloud DNS | Internet Services | Oracle DNS | Alibaba Cloud DNS |
| Networking | Global Traffic Management | Amazon Route 53 Traffic Flow | Azure Traffic Manager | | Internet Services | | |










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|--|--|---|---|--|---|--|---|
| Networking & Content Delivery | Private Connectivity | AWS Direct Connect AWS Private Link | Azure Express Route | Cloud InterConnect | Direct Link | Fast Connect | Express Connect |
| Networking & Content Delivery | Load Balancers | Elastic Load Balancing | Azure Load Balancer | Cloud Load Balancing | IBM Cloud Load Balancing Citrix NetScaler VPX | Oracle Load Balancer | Server Load Balancer |
| Developer Tools | Cloud Software Development Kit | AWS Cloud9 AWS Code Star AWS CodeCommit AWS CodeBuild AWS CodeDeploy AWS CodePipeline AWS X-Ray | Azure Boards Azure Pipelines Azure Repos Azure Test Plans Azure Artifacts | Cloud Source Repositories | Continuous Delivery DevOps Insights Globalization Pipeline | Developer Cloud Service | |
| Developer Tools | Cloud Software Development Kit | AWS SDK | Azure SDK Visual Studio | Cloud SDK Cloud Tools for IntelliJ Cloud Tools for Android Studio Cloud Tools for Powershell Google Plugin for Eclipse | IBM Cloud Developer Tool Continuous Delivery | Visual Builder API Catalog Oracle Enterprise Pack for Eclipse Oracle Enterprise Pack for Netbeans | |
| Management Tools | Server Management Services | Amazon EC2 Systems Manager | Azure Operational Insights | | | Oracle Management Cloud | |
| Management Tools | Cloud Deployment Templates/ Infra as Code | AWS CloudFormation | Azure Resource Manager Azure Building Blocks | Cloud Resource Manager Cloud Deployment Manager | Schematics | Stack Manager | Resource Orchestration Service |









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|-------------------------|--|---|---|--|---|--|---|
| Management Tools | Logging & Monitoring | Amazon CloudWatch AWS CloudTrail | Log Analytics Azure portal Application Insights | Google StackDriver Monitoring Logging Error Reporting Trace Debugger | Monitoring IBM Cloud Log Analysis with LogDNA IBM Cloud Activity Tracker with LogDNA IBM Cloud Monitoring with Sysdig | Application Performance Monitoring Management Cloud | CloudMonitor ActionTrail Application Real-Time Monitoring Service |
| Management Tools | Resource / Configuration Inventory | AWS Config | Azure portal (audit logs) | Cloud Security Scanner Cloud Data Loss Prevention Api Access Transparency (Beta) | | Oracle Cloud Governance Services | Alibaba Log Service |
| Management Tools | Server Automation | AWS OpsWorks | Resource Manager Azure Automation VM Extensions | | | Oracle Orchestration Cloud Service | Resource Orchestration Service |
| Management Tools | Server Automation | AWS Service Catalog | | | | | |
| Management Tools | Cloud Cost / Performance / Security Advisor | AWS Trusted Advisor | Azure Advisor Azure Cost Management | Google Cloud Platform Security | | | |
| Management Tools | Alerts and Remediation guidance Service | AWS Personal Health Dashboard | Azure Monitor Azure Operations Management Suite (OMS) | | | Oracle Management Cloud | Cloud monitoring, Notification and Alerts |
| Management Tools | Cloud Management Tools | AWS Command Line Interface AWS Management Console | Azure Command Line Interface Azure Powershell Azure Management Console Azure Cloud Shell | Cloud Shell Cloud Console Billing API Cloud APIs | | Oracle Public Cloud CLI Oracle Cloud Infrastructure CLI Oracle Management Console API Catalog | Alibaba Cloud CLI |



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|--|---|---|--|--|---|--|---|
| Management Tools | Automated Infra Management Services | AWS Managed Services | | | | Oracle Managed Cloud Services | |
| Disaster Recovery Services | Automated Disaster Recovery Services | AWS Disaster Recovery | Azure Site Recovery Azure Backup | | | Oracle Database Backup | Alibaba Disaster Recovery Hybrid Backup Recovery |
| Security & Identity, Compliance | Identity & Access Management | AWS Identity and Access Management (IAM) | Azure Active Directory | Cloud IAM Cloud Identity-Aware Proxy | Identity & Access Management | Identity | Resource Access Management |
| Security & Identity, Compliance | Cloud Security Assessment Service | Amazon Inspector Gaurd Duty | Azure Security Center | | Infrastructure Vulnerability Scan | Configuration and Compliance Service | |
| Security & Identity, Compliance | Secured Socket Layer (SSL) Certificates | AWS Certificate Manager | App Service Certificate | | Certificate Manager | | SSL Certificates |
| Security & Identity, Compliance | Hardware Based Security Module | AWS CloudHSM AWS Secrets Manager | Azure Key Vault | Cloud Key Management Service | Key Protect Cloud HSM Hyper Protect Crypto Services | | Key Management Service |
| Security & Identity, Compliance | Directory Services | AWS Directory Service | Azure Active Directory Azure Active Directory B2C Azure Active Directory Domain Services Azure Active Directory Multi Factor Authentication | Cloud IAM Cloud Identity-Aware Proxy Security Key Enforcement | App ID | | Resource Access Management |
| Security & Identity, Compliance | Key Management Services | AWS Key Management Service | Azure Key Vault | Cloud Key Management Service | Key Protect Cloud HSM Hyper Protect Crypto Services | Identity Cloud Service | Key Management Service |
| Security & Identity, Compliance | Consolidated Management of Multiple Cloud Accounts | AWS Organizations | Azure Management Groups | | Resource Group | Audit |  |

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|--|---|---|---|--|---|--|---|
| Security & Identity, Compliance | DDos Protection Service | AWS Shield | Azure DDoS Protection | Cloud Armor (Beta) | Internet Services | | DDOS Pro and Basic |
| Security & Identity, Compliance | Web Application Firewall | AWS WAF | Azure WAF | | Internet Services | | Web Application Firewall |
| Security & Identity, Compliance | Security & Compliance Service | AWS Artifact | Azure Security & Compliance | Cloud Security Command Center (Alpha) | | Compliance | Alibaba Truster Center |
| Big Data & Advanced Analytics | Big Data Query as a Service | Amazon Athena | Azure Data Lake Analytics | BigQuery | SQL Query | | E-MapReduce Service |
| Big Data & Advanced Analytics | Big Data Managed Cluster as a Service | Amazon EMR | Azure HDInsight | Cloud DataProc | Analytics Engine | Big Data | E-MapReduce Service |
| Big Data & Advanced Analytics | Cloud Search | Amazon CloudSearch Amazon Elastic Search Service | Azure Search | | Databases for Elasticsearch | | |
| Big Data & Advanced Analytics | Streaming Service | Amazon Kinesis Amazon Kinesis Video Streams | Azure Stream Analytics Azure Event Hub | Cloud Dataflow | Streaming Analytics | Event Hub (Apache Kafka as a Service) | |
| Big Data & Advanced Analytics | Data Warehouse | Amazon Redshift | Azure SQL Data Warehouse | BigQuery | Db2 Warehouse | | Alibaba MaxCompute ODPS |
| Big Data & Advanced Analytics | Business Intelligence & Data Visualization | Amazon QuickSight | PowerBI | Google Data Studio (Beta) | Watson studio | Data Visualization Business Intelligence | Data IDE |
| Big Data & Advanced Analytics | Cloud ETL | AWS Data Pipeline AWS Glue Amazon Simple Workflow Service (SWF) | Azure Data Factory Azure Data Catalog Logic Apps | Cloud DataPrep (Private Beta) Cloud Composer (Beta) | DataStage Watson Knowledge Catalog | Data Integrator | DataWorks Data Integration |














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|--------------------------------|---|---|--|---|---|--|---|
| Artificial Intelligence | Language Processing AI | Amazon Lex Amazon Comprehend | LUIS (Language Understanding Intelligent Service) Azure Bot Service Azure Speech Recognition API | Natural Language API Cloud Text-to-Speech (Beta) DialogFlow Enterprise Edition (Beta) | Natural Language Classifier Language Translator Watson Assistant Watson Discovery Watson Knowledge Studio Text to Speech Personality Insights | | |
| Artificial Intelligence | Speech Recognition AI | Amazon Polly Amazon Transcribe Amazon Translate | Bing Speech API | Translation API Speech API | Speech to Text | | |
| Artificial Intelligence | Image Recognition AI | Amazon Rekognition | Emotion API Face API Computer Vision API | Vision API Cloud Video Intelligence | Visual Recognition | | Image Search |
| Artificial Intelligence | Machine Learning | Amazon Machine Learning Amazon Sage Maker | Azure Machine Learning Azure Machine Learning Workbench Azure Machine Learning Model Management | Cloud DataLab Cloud AutoML (Alpha) Cloud Machine Learning Services | Machine Learning | | Machine Learning Platform For AI |
| Mobile Services | Mobile App Development Services | AWS Mobile Hub | Azure Mobile Apps | Cloud Mobile App | Mobile Foundation | Mobile & Chatbots | |
| Mobile Services | Web API Management Service | Amazon API Gateway | Azure API Management | Cloud Endpoints | API Connect | API Platform | API Gateway |
| Mobile Services | Web/Mobile Authentication Services | Amazon Cognito | Azure Mobile SDK, Offline/Sync | Firebase Authentication | App ID | Mobile Cloud Service | |
| Mobile Services | Consolidated Mgmt of Multiple Cloud Accounts | Amazon Pinpoint | Azure Mobile Engagement | | Mobile Foundation | | |



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|---|--|---|---|---|---|--|---|
| Automated Cloud Management Service | Managed Cloud Services | AWS Managed Services | | | | | |
| Mobile Services | Mobile App Testing Service | AWS Device Farm | Xamarin Test Cloud (Front End) Azure DevTest Labs (Back End) | Cloud Test Lab | | | |
| Mobile Services | Mobile App Software Development Toolkit | AWS Mobile SDK | Azure Mobile SDK | Cloud Tools for Android Studio | | | |
| Mobile Services | Application Services | AWS Step Functions | Microsoft Flow Logic Apps Azure Functions Event Grid Azure App Service WebJobs | App Engine | IBM Cloud Functions | Functions | |
| Mobile Services | Mobile App Analytics | Amazon Mobile Analytics | Hockey App | Firebase Analytics | Mobile Foundation | Mobile Cloud Service | |
| Application Services | API Management Service | Amazon API Gateway | Azure API Management | Apigee API Platform API Monitization API Analytics Apigee Sense Cloud Endpoints | API connect | | |
| Application Services | Media Transcoders | Amazon Elastic Transcoder AWS Elemental MediaConvert AWS Elemental MediaLive AWS Elemental MediaPackage AWS Elemental MediaStore AWS Elemental MediaTailor Amazon Kinesis Video Streams | Azure Media Services Live On Demand Streaming Azure Media Player Content Protection Media Analytics | | Digital Transcoding | | ApsaraVideo Live |



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|------------------------------|--------------------------------------|---|---|---|---|--|---|
| Application Services | Queuing Services | Amazon SQS Amazon MQ | Service Bus queues Queue Storage Service Bus topics Service Bus relay | Cloud Pub/Sub | Event Streams | Integration Messaging | Message Queue |
| Application Services | Mobile Analytics | Amazon Pinpoint | Mobile Engagement | | Mobile Foundation | | |
| Application Services | Email Services | Amazon SES | | | Sendgrid | Edge Services | Direct Mail |
| Application Services | Notification Services | Amazon SNS | Azure Notification Services | Firebase Cloud Messaging | Push Notifications | | Short Message Service (SMS) |
| Application Services | Blockchain Services | Amazon Managed Blockchain (Preview) | Blockchain Blockchain Workbench | | Blockchain Platform | Blockchain (Coming Soon) | Blockchain as a Service |
| Application Services | Chatbot | Lex Chatbots | Azure Bot Service | Dialogflow | Watson Assistant | Oracle Chatbots | Intelligent Service Robot |
| Business Productivity | Office Document Solutions | Amazon WorkDocs Amazon WorkMail Amazon WorkSpaces | Microsoft Office 365 | G Suite | | | |
| Business Productivity | Desktop Application Streaming | Amazon AppStream 2.0 | | | | | |
| Software MarketPlace | Cloud Marketplace | AWS Marketplace | Azure Marketplace | Cloud Launcher | IBM Marketplace | Oracle Cloud Market Place | Alibaba Cloud Marketplace |
| Internet of Things | IoT Platform | AWS IoT Platform | Azure IoT Platform Azure IoT Hub | Cloud IoT Core (Beta) Google Cloud IoT | Internet of Things Platform | Internet of Things Cloud Service | IoT Platform |
| Internet of Things | IoT Development Solutions | AWS Greengrass | Azure IoT SDK Azure IoT Edge | | Internet of Things Platform | | |
| Internet of Things | IoT Hardware | AWS IoT Button | Azure Sphere | | | | |
| Game Development | Game Development | Amazon Lumberyard | Visual Studio | | Watson Unity SDK | |  |

| Category | Service |  |  |  Google Cloud Platform |  IBM Cloud |  |  Alibaba Cloud |
|-----------------------|-----------------------|---|---|--|--|--|--|
| Development & Testing | Development & Testing | AWS Dev/Test | Azure Dev/Test | | | | |