Cloud Providers Comparison

A comprehensive table comparing AWS, Azure, and GCP cloud services across all major categories including compute, storage, security, analytics, AI/ML, DevOps, and more.

# Cloud Services Comparison (AWS vs Azure vs GCP)

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| --- | --- | --- | --- | --- | --- |
| Category | AWS | Azure | GCP | Description | Indicative Pricing |
| Compute – Virtual Machines | Amazon EC2 | Azure Virtual Machines | Google Compute Engine | On-demand, scalable cloud servers (VMs) for running applications with flexible OS and hardware choices ([Amazon EC2 - Cloud Compute Capacity - AWS](https://aws.amazon.com/ec2/#:~:text=Amazon%20EC2%20,networking%2C%20OS%2C%20and%20purchase%20model)) ([Compute Engine overview | Compute Engine Documentation |
| Compute – Serverless Functions | AWS Lambda | Azure Functions | Cloud Functions | Event-driven *Function as a Service* platform to run code without managing servers. Ideal for sporadic or scalable workloads – the cloud handles provisioning and scaling automatically ([Serverless Function, FaaS Serverless - AWS Lambda](https://aws.amazon.com/lambda/#:~:text=AWS%20Lambda%20is%20a%20serverless,the%20compute%20time%20you%20consume)). | **Free tier** includes ~1 million requests. Thereafter, roughly **$0.20 per 1M invocations** on AWS/Azure ([AWS Lambda Pricing: How Much it Costs to Run a Serverless ...](https://www.simform.com/blog/aws-lambda-pricing/#:~:text=,0000002%20per)) (GCP ~$0.40 per 1M after 2M free ([Google Cloud Pricing: The Complete Guide - NetApp BlueXP](https://bluexp.netapp.com/blog/gcp-cvo-blg-google-cloud-pricing-the-complete-guide#:~:text=Google%20Cloud%20Pricing%3A%20The%20Complete,00000350%20if%20idle))) plus ~$0.000016 per GB-s of execution time ([AWS Lambda Cost Calculator - Dashbird](https://dashbird.io/lambda-cost-calculator/#:~:text=The%20cost%20of%20requests%20is,second%20used)). (Example: 1 million 1GB-s executions ≈ $0.20–$0.40). |
| Compute – Containers (Kubernetes) | Amazon EKS | Azure Kubernetes Service (AKS) | Google Kubernetes Engine (GKE) | Fully managed Kubernetes cluster services for containerized workloads. Handle automated cluster control-plane management, scaling, and upgrades for running containers in production ([Managed Kubernetes Service (AKS) - Microsoft Azure](https://azure.microsoft.com/en-us/products/kubernetes-service#:~:text=Azure%20Kubernetes%20Service%20,It%20offers%20autoscaling)) ([Google Kubernetes Engine (GKE)](https://cloud.google.com/kubernetes-engine#:~:text=GKE%20is%20the%20industry%27s%20first,cluster%20support)). | **Control plane**: AWS & GCP charge ~$0.10 per cluster-hour ([EKS Cost Optimization: Tutorial & Best Practices - Densify](https://www.densify.com/eks-best-practices/aws-eks-cost-optimization/#:~:text=The%20minimum%20cost%20of%20any,On%20top%20of)) ([GKE Pricing: Key Components, Pricing Tiers & Examples](https://granulate.io/blog/gke-pricing-key-components-pricing-tiers-examples/#:~:text=GKE%20Pricing%3A%20Key%20Components%2C%20Pricing,master%20node%20and%20its)) (GKE gives credits covering one cluster’s fee ([GKE Pricing Tiers with Examples + 10 Cost Cutting Tips - Finout](https://www.finout.io/blog/gke-pricing-tiers#:~:text=Finout%20www,example%3A%20If%20running%20a))); Azure AKS has no charge for the managed master (free by default ([AKS control plane tiers - what, when and how? |
| Compute – Containers (Serverless) | AWS Fargate (ECS/EKS) | Azure Container Instances (ACI) | Cloud Run | Serverless container runtime services to run Docker containers without managing VM hosts. Containers are scheduled on-demand and scale automatically ([Serverless Compute Engine – AWS Fargate Features](https://aws.amazon.com/fargate/features/#:~:text=Serverless%20Compute%20Engine%20%E2%80%93%20AWS,building%20applications%20without%20managing%20servers)) ([Serverless containers in Azure - Azure Container Instances](https://learn.microsoft.com/en-us/azure/container-instances/container-instances-overview#:~:text=Instances%20learn,to%20manage%20any%20virtual%20machines)), accessible via standard APIs or triggers. | Billed by resources consumed. For example, **AWS Fargate** costs ~$0.04 per vCPU-hour + $0.004 per GB-hour ([AWS Fargate Pricing: Optimize Billing and Cut Costs - Spot.io](https://spot.io/resources/aws-pricing/aws-fargate-pricing-how-to-optimize-billing-and-save-costs/#:~:text=AWS%20Fargate%20Pricing%3A%20Optimize%20Billing,0001%20per)). **Azure ACI** is about $0.0486 per vCPU-hour, $0.0053 per GB-hour ([Azure Container Instances Pricing 2025: Compare Plans and Costs](https://www.trustradius.com/products/azure-container-instances/pricing#:~:text=Azure%20Container%20Instances%20Pricing%202025%3A,vCPU)). **Google Cloud Run** (fully managed) $0.0864/hr) + $0.0000025 per GB-s ([Google Cloud Run functions pricing: understanding costs ... - Modal](https://modal.com/blog/google-cloud-function-pricing-guide#:~:text=Google%20Cloud%20Run%20functions%20pricing%3A,Free)). |
| Storage – Object Storage | Amazon S3 | Azure Blob Storage | Google Cloud Storage | Highly durable object storage for unstructured data (files, backups, media). Provides massive scalability and 99.999999999% durability, accessed via HTTP APIs ([Amazon S3 - Cloud Object Storage - AWS](https://aws.amazon.com/s3/#:~:text=Amazon%20Simple%20Storage%20Service%20,data%20availability%2C%20security%2C%20and%20performance)) ([Azure Blob Storage](https://azure.microsoft.com/en-us/products/storage/blobs#:~:text=Azure%20Blob%20Storage%20Azure%20Blob,for%20your%20most%20demanding%20workloads)). Ideal for content storage and data lakes. | **$ per GB-month** (standard tier): AWS S3 ~$0.023/GB ([Amazon S3 Pricing - Cloud Object Storage - AWS](https://aws.amazon.com/s3/pricing/#:~:text=Amazon%20S3%20pricing%20%3B%20S3,023%20per%20GB)); Azure Hot Blob ~$0.0184/GB ([Comparing AWS and Azure Storage Pricing and Features](https://bluexp.netapp.com/blog/aws-vs-azure-cloud-storage-comparison#:~:text=Comparing%20AWS%20and%20Azure%20Storage,002%20for%20archive)); GCP Standard ~$0.020/GB ([What is the cost of Google's storage per GB? - Quora](https://www.quora.com/What-is-the-cost-of-Googles-storage-per-GB#:~:text=What%20is%20the%20cost%20of,0012%2F)). Prices drop on large volumes or colder tiers (e.g. AWS Glacier ~$0.004/GB-month). Data egress incurs additional fees. |
| Storage – Block Storage | Amazon EBS | Azure Disk Storage (Managed Disks) | Persistent Disk (GCE) | Block-level storage volumes for VMs. Appears like a virtual hard disk that can be attached to one instance (for databases, OS disks, etc.) ([Amazon EBS - Cloud Block Storage - AWS](https://aws.amazon.com/ebs/#:~:text=Amazon%20EBS%20,Amazon%20Elastic%20Compute%20Cloud)) ([Azure Disk Storage](https://azure.microsoft.com/en-ca/products/storage/disks#:~:text=Azure%20Disk%20Storage%20Designed%20to,performance%2C%20durable%20block%20storage)). Offers SSD or HDD options, snapshots, and high IOPS for critical workloads. | Charged per provisioned capacity. For example, **general SSD** ~ **$0.08/GB-month** on AWS (gp3) ([The Guide to AWS EBS Pricing |
| Storage – File Storage | Amazon EFS / FSx | Azure Files | Cloud Filestore | Managed shared file systems accessible over NFS/SMB. Enable multiple servers to share a common filesystem (for lift-and-shift apps, content management, etc.) ([When to Choose EFS | Amazon Elastic File System (EFS)](<https://aws.amazon.com/efs/when-to-choose-efs/#:~:text=Amazon%20EFS%20provides%20simple%2C%20scalable%2C,EFS%20is%20easy%20to>)) ([Introduction to Azure Files |
| Networking – Virtual Network | Amazon VPC | Azure Virtual Network (VNet) | Virtual Private Cloud (VPC) | Software-defined networking to isolate and route cloud resources. Users define subnets, IP ranges, routing, etc., to mimic a traditional network in the cloud for security and segmentation of services. | **No direct charge** for creating networks, subnets, or route tables ([VPC is not listed in free tier services |
| Networking – Load Balancing | Elastic Load Balancing (ALB/NLB) | Azure Load Balancer / App Gateway | Cloud Load Balancing | Distributes incoming traffic across multiple instances or services to improve availability and scale. Offers L4 (TCP) and L7 (HTTP) balancing, health checks, and global or regional distribution of traffic for resilient applications. | Charged per usage. **AWS ALB**: ~$0.0225 per hour + $0.008 per LCU (about per GB processed) ([Am I charged for AWS Application Load Balancer if it's not handling ...](https://stackoverflow.com/questions/76473835/am-i-charged-for-aws-application-load-balancer-if-its-not-handling-any-requests#:~:text=Am%20I%20charged%20for%20AWS,Pricing%20might%20vary%20by%20Region)). **Azure Std LB**: ~$0.025/hour + ~$0.005/GB data processed ([Any costs to a Standard Load Balancer if the VMs are shutting down](https://learn.microsoft.com/en-us/answers/questions/2103312/any-costs-to-a-standard-load-balancer-if-the-vms-a#:~:text=Any%20costs%20to%20a%20Standard,005%2FGB%20for%20the%20data%20processed)). **GCP LB**: primarily ~$0.008–$0.012 per GB through load balancer ([Announcement of upcoming pricing changes for Cloud Load ...](https://cloud.google.com/load-balancing/docs/pricing-announce#:~:text=,all%20Cloud%20Load%20Balancing%20products)) (plus tiny per-rule fees). |
| Networking – CDN (Content Delivery) | Amazon CloudFront | Azure CDN (Verizon/Akamai) | Cloud CDN | Globally distributed caching services to deliver web content (images, videos, files) with low latency. They cache content at edge locations worldwide to speed up delivery to users and reduce origin server load. | **Data transfer out** pricing by region and volume. For example, in US/EU regions: **~$0.08–$0.12 per GB** for the first tens of TB ([AWS CloudFront Pricing and Cost Optimization Guide - Cloudforecast](https://www.cloudforecast.io/blog/aws-cloudfront-pricing-and-cost-guide/#:~:text=The%20initial%20rate%20for%20the,GB%2C%20and%20this%20cost)). (AWS CloudFront ~$0.085/GB ([AWS CloudFront Pricing and Cost Optimization Guide - Cloudforecast](https://www.cloudforecast.io/blog/aws-cloudfront-pricing-and-cost-guide/#:~:text=The%20initial%20rate%20for%20the,GB%2C%20and%20this%20cost)); Azure CDN ~$0.081/GB ([Pricing - Content Delivery Network (CDN) - Microsoft Azure](https://azure.microsoft.com/en-us/pricing/details/cdn/#:~:text=Azure%20azure,075%20per%20GB)); GCP CDN ~$0.08-$0.12/GB ([CDN Bandwidth Fees: Costs, Factors, and How to Save |
| Security – Identity & Access | AWS IAM & Cognito | Azure AD (Entra ID) | Cloud IAM / Identity Platform | Managed identity and access management to define users, groups, roles, and policies. Controls authentication and authorization to cloud resources (permissions, SSO, multi-factor auth). Azure AD also provides enterprise identity integration ([Azure for AWS Professionals - Azure Architecture Center | Microsoft Learn](<https://learn.microsoft.com/en-us/azure/architecture/aws-professional/#:~:text=Authentication%20and%20authorization>)). |
| Security – Key Management | AWS KMS | Azure Key Vault | Cloud KMS | Services to create, manage, and store encryption keys and secrets. Provide centralized key management for data encryption, with features like automatic rotation and fine-grained access control for cryptographic operations. | **AWS KMS**: ~$1 per key per month + $0.03 per 10K API calls (20K free) ([KMS Pricing example - GitHub Gist](https://gist.github.com/dasgoll/b88d5be05dcc0deb052ad40446c2fb40#:~:text=KMS%20Pricing%20example%20,03%20per%2010%2C000%20requests)). **Azure Key Vault**: ~$0.03 per 10K operations for secrets/keys ([[Answered] Does Azure Key Vault Cost Money? - Dragonfly](https://www.dragonflydb.io/faq/does-azure-key-vault-cost-money#:~:text=,10%2C000%20transactions%20for%20secrets%20operations)) (no per-key fee for standard tier). **GCP Cloud KMS**: ~$0.06 per active key version/month + $0.03 per 10K operations ([Cloud Key Management |
| Security – Threat Detection | Amazon GuardDuty / Security Hub | Microsoft Defender for Cloud | Security Command Center (SCC) | Cloud-native security monitoring that detects anomalies, malicious activities, or misconfigurations. Services analyze logs, network flows, and configurations to alert on potential threats across your cloud environment (IDS/IPS functionality). | **AWS GuardDuty**: ~$4 per million CloudTrail events, $1 per GB of VPC/DNS logs analyzed ([AWS Guardduty Pricing: Breaking Down the Costs of Cloud Security](https://www.cadosecurity.com/wiki/aws-guardduty-pricing-breaking-down-the-costs-of-cloud-security#:~:text=AWS%20Guardduty%20Pricing%3A%20Breaking%20Down,00%20per%20GB)). **Azure Defender for Servers**: ~$15 per server/month (Plan 2) ([cost estimation for on-prem servers - Microsoft Q&A](https://learn.microsoft.com/en-us/answers/questions/1394707/cost-estimation-for-on-prem-servers#:~:text=cost%20estimation%20for%20on,workspace%2C%20there%20will%20be)). **GCP SCC**: Standard tier is free; Premium is subscription-based (approx $0.50 per asset/month at scale). |
| Database – Relational (SQL) | Amazon RDS (MySQL, PostgreSQL, etc.) | Azure SQL Database / Azure Database for PostgreSQL/MySQL | Cloud SQL (MySQL, Postgres, SQL Server) | Fully managed relational databases. Handle routine maintenance like patching and backups for SQL engines. Scales vertically or via read replicas. Supports popular engines (MySQL, PostgreSQL, SQL Server, etc.) with high availability options. | Billed per database instance size and storage. For example, a **db.t3.small** (2 vCPU, 2GB) costs ~**$0.036/hour** on RDS MySQL ([db.t3.small pricing and specs - Vantage](https://instances.vantage.sh/aws/rds/db.t3.small#:~:text=db.t3.small%20pricing%20and%20specs%20,036%20per%20hour)) (≈$26/month). Azure and GCP have similar pricing for comparable sizes. Storage and multi-AZ replication add costs. License-required engines (Oracle/SQL Server) may cost more. |
| Database – Data Warehouse | Amazon Redshift | Azure Synapse Analytics (Dedicated SQL) | BigQuery (serverless DW) | Managed petabyte-scale analytic databases (columnar storage, MPP query processing) for BI and OLAP workloads. Support SQL queries over large datasets with parallel execution. Redshift/Synapse use provisioned clusters; BigQuery is serverless. | **Redshift**: e.g. $0.25/hour for one dc2.large node (2 vCPUs, 15GB) ([Cloud Data Warehouse – Amazon Redshift Pricing - AWS](https://aws.amazon.com/redshift/pricing/#:~:text=Price,Calculating%20your)), scale out by nodes. **Synapse**: ~$1.22/hour per 100 DWU capacity ([Azure Synapse Analytics pricing](https://azure.microsoft.com/en-us/pricing/details/synapse-analytics/#:~:text=Compute%20is%20billed%20at%20%24883,per%20month%20of%20data%20stored)) (DW100 ≈ $1.22/hr). **BigQuery**: no cluster cost; **$5 per TB scanned** for on-demand queries ([BigQuery Pricing: Considerations & Strategies - CloudBolt](https://www.cloudbolt.io/gcp-cost-optimization/bigquery-pricing/" \l ":~:text=Every%20month%2C%20users%20benefit%20from,a%20summation%20of%20the)) (first 1 TB/month free). |
| Database – NoSQL (Key-Value) | Amazon DynamoDB | Azure Cosmos DB | Cloud Firestore / Bigtable | Fully managed NoSQL databases for fast key-value or JSON document storage with global scale. Provide millisecond latency and automatic scaling. (Cosmos DB offers multiple APIs/models; Firestore is a document DB; Bigtable for wide-column big data.) | **DynamoDB On-Demand**: ~$1.25 per million writes and $0.25 per million reads (1KB units) ([AWS Guardduty Pricing: Breaking Down the Costs of Cloud Security](https://www.cadosecurity.com/wiki/aws-guardduty-pricing-breaking-down-the-costs-of-cloud-security#:~:text=AWS%20Guardduty%20Pricing%3A%20Breaking%20Down,00%20per%20GB)). **Azure Cosmos DB** (serverless): ~$0.28 per 1M Request Units (RU) processed ([Azure Cosmos DB Serverless Pricing - Reddit](https://www.reddit.com/r/AZURE/comments/16zr94d/azure_cosmos_db_serverless_pricing/#:~:text=Azure%20Cosmos%20DB%20Serverless%20Pricing,54%20in%20total)). **Cloud Firestore**: ~$0.18 per 100k writes, $0.06 per 100k reads ([Firebase: Cloud Firestore Data Types, Costs, & Query Examples](https://medium.com/@jeffrey.allen.lewis/firebase-cloud-firestore-data-types-costs-query-examples-65e5b402c55e#:~:text=Firebase%3A%20Cloud%20Firestore%20Data%20Types%2C,18)) (with daily free quotas). |
| Database – In-Memory Cache | Amazon ElastiCache (Redis/Memcached) | Azure Cache for Redis | Cloud Memorystore (Redis) | Managed in-memory data stores for caching and real-time data. Use Redis or Memcached engines to provide sub-millisecond data access for frequently used data, reducing load on primary databases and speeding up read-heavy applications. | Priced per cache node instance size. For example, a small Redis node (**cache.t3.small**) is about **$0.03/hour** on AWS ([cache.t3.small pricing: $24.82 monthly - AWS ElastiCache](https://www.economize.cloud/resources/aws/pricing/elasticache/cache.t3.small/#:~:text=cache.t3.small%20pricing%3A%20%2424.82%20monthly%20,82%20monthly)) (~$22/month). Azure Cache and Memorystore of similar size are in the ~$0.03–$0.06/hour range. Larger caches (more memory/CPU) cost more proportionally. |
| Monitoring & Logging | Amazon CloudWatch | Azure Monitor (Log Analytics, App Insights) | Cloud Monitoring + Logging | Centralized monitoring of metrics, logs, and application traces. Enables setting alerts on resource metrics, aggregating logs for analysis, and application performance monitoring. Helps operators observe system health and troubleshoot issues. | **CloudWatch**: ~$0.30 per custom metric/month and $0.50 per GB of logs ingested ([The Truth About CloudWatch Pricing - Cast AI](https://cast.ai/blog/the-truth-about-cloudwatch-pricing/#:~:text=The%20Truth%20About%20CloudWatch%20Pricing,4)) (5GB logs free). **Azure Monitor**: ~$2.30 per GB ingested for Application Insights logs ([Azure Monitor pricing](https://azure.microsoft.com/en-us/pricing/details/monitor/#:~:text=All%20customer%20subscriptions%20with%20Application,data%20ingested%20by%20Application%20Insights)) (5 GB free), ~$0.10 per million metric measurements. **GCP Operations**: Logging $0.50/GB beyond 50 GB free ([GCP Cloud Logging Pricing - Finout](https://www.finout.io/blog/gcp-cloud-logging-pricing#:~:text=GCP%20Cloud%20Logging%20Pricing%20,50%20GB%20of%20all)); Monitoring metrics free up to 150 MB/month, then ~$0.06 per MB. |
| DevOps – CI/CD & Code Repo | AWS CodePipeline, CodeBuild, CodeCommit | Azure DevOps (Pipelines & Repos), GitHub Actions | Cloud Build, Source Repositories | Services to support Continuous Integration/Delivery. Source code repositories (Git), build and test automation, and deployment pipelines. These services enable automated building, testing, and releasing of applications in the cloud. | **CodePipeline**: $1 per active pipeline per month after first 30 days, and CodeBuild ~$0.005 per build minute for Linux small instance. **Azure Pipelines**: first 1 parallel job with 1,800 min/month free, then ~$0.$\* (paid via Azure DevOps or GitHub plans). **Cloud Build**: 120 build-minutes per day free, then ~$0.003/minute ([GCP Cloud Logging Pricing - Finout](https://www.finout.io/blog/gcp-cloud-logging-pricing#:~:text=GCP%20Cloud%20Logging%20Pricing%20,50%20GB%20of%20all)). (Often free tiers cover small projects.) |
| AI/ML – Machine Learning Platform | Amazon SageMaker | Azure Machine Learning | Vertex AI (Google Cloud) | Managed platforms for developing, training, and deploying machine learning models at scale. Provide notebook environments, automated model training, hyperparameter tuning, and hosting of models via endpoints, integrating with big data services. | **SageMaker** studio notebook & training instances billed per instance-hour (e.g. ml.m5d.large ~**$0.136/hour** ([Amazon SageMaker Pricing |
| AI/ML – Cognitive Services | Amazon Rekognition, Comprehend, etc. | Azure Cognitive Services (Vision, NLP) | Cloud Vision, Speech, NL APIs | Pre-trained AI APIs for computer vision, natural language processing, speech recognition, etc. Allow developers to analyze images, videos, text or audio with pre-built ML models (e.g., image recognition, sentiment analysis, OCR, translation). | Typically charged per use. For example, **Vision API**: Amazon Rekognition Image ~$1 per 1,000 images analyzed ([Compare AWS and Azure services to Google Cloud |
| Analytics – Big Data Processing | Amazon EMR (Hadoop/Spark) | Azure HDInsight / Databricks | Cloud Dataproc / Dataflow | Managed big data processing frameworks. Enable running Hadoop, Spark, et al. on clusters without manual setup. EMR and Dataproc handle cluster provisioning for batch or streaming jobs; Dataflow is serverless Apache Beam for stream/batch pipelines. | **EMR/HDInsight**: Billed per underlying EC2/VM nodes (e.g., an r5.xlarge $0.015 per node-hour on EMR ([Azure for AWS Professionals - Azure Architecture Center |
| Analytics – Streaming & IoT | Amazon Kinesis (Streams, Firehose) | Azure Event Hubs / IoT Hub | Cloud Pub/Sub | Fully managed ingest pipelines for real-time data and device telemetry. These services capture streaming data (messages, events) at scale and feed into processing systems. Often used for event-driven architectures and IoT device message ingestion. | **Kinesis Data Streams**: ~$0.015 per shard-hour + $0.014 per 1M PUTs. **Event Hubs**: ~$0.028 per TU (throughput unit) hour, including 1MB/s ingress & 2MB/s egress. **Pub/Sub**: $0.60 per million messages, ~$0.12/GB egress (first 10 GB free). IoT Hubs add device charge (e.g. Azure IoT Hub S1 ~$25/month per 400k msgs/day). GCP IoT Core was free to connect devices but is deprecated (device messaging now via Pub/Sub). |
| Hybrid & Multicloud | AWS Outposts / EKS Anywhere | Azure Stack Hub / Arc | Anthos / Google Distributed Cloud | Solutions to extend cloud services on-premises or across multiple clouds. **Outposts/Stack** bring cloud hardware on-prem. **Arc/Anthos** provide unified management for hybrid deployments (e.g., Kubernetes clusters across clouds), enabling consistent operations. | **Outposts**: Custom-priced (roughly equivalent to EC2 on 3-year reservation + support). **Azure Stack Hub**: Capital purchase or managed via partners (servers starting in the ~$100k+ range). **Anthos**: Subscription starting at ~$10,000 per month per 100 vCPUs (list price) ([Security Command Center pricing - Google Cloud](https://cloud.google.com/security-command-center/pricing#:~:text=Base%20annual%20price%20per%20asset%3A,you%20purchase%20and%20the)). (These solutions are typically enterprise-priced.) |
| Migration Tools | AWS Migration Hub; Database Migration Service (DMS) | Azure Migrate; Database Migration Service | Database Migration Service; Migrate for Compute Engine | Services and tools to migrate on-premises servers and databases to the cloud. They assist in discovery, workload replication or data transfer, and minimize downtime during cutover. Database migration offerings handle schema/data migration to managed cloud databases with minimal changes. | **AWS DMS**: Free for 6 months per instance (then instance ~$0.076/hr for dc2.large). **Azure Migrate**: No charge for the service (uses backend services like Azure Site Recovery or Data Box which have their own costs). **GCP Migrate** (Velostrata for VMs): included at no additional cost for VM migration; Database Migration Service is free for homogeneous migrations (you pay for the underlying VM/connection resources). |
| IoT (Internet of Things) | AWS IoT Core, Greengrass | Azure IoT Hub, IoT Edge | Cloud IoT (Core **(retired)**) | Managed platforms to connect and manage IoT devices at scale. They handle device messaging (MQTT/HTTP), bi-directional communication, and device provisioning. Edge runtimes (Greengrass, IoT Edge) allow running code and ML inference on devices with cloud sync. | **IoT Core Services** often charge by message volume: e.g., **AWS IoT Core** ~$**$5 per million messages** (counted in 5KB blocks) after a free tier. **Azure IoT Hub** ~$0.08 per million msgs for Hub tier1 plus device twin ops charges. **Google IoT Core** was free trial then ~$0.0045 per 100K messages, but it was *discontinued in 2023* ([The Ultimate Guide to Google Cloud Functions Pricing Model](https://www.economize.cloud/blog/google-cloud-functions-pricing/#:~:text=Model%20www,Invocations%20per)) (GCP now directs IoT workloads to Pub/Sub and partner solutions). |
| Quantum Computing | Amazon Braket | Azure Quantum | (Google Quantum AI Lab) | Cloud quantum computing services (experimental). Provide access to quantum hardware (e.g., ion-trap or superconducting qubits) and simulators for research and algorithm development. Azure and AWS partner with hardware vendors; Google’s service is research-oriented. | **Braket**: ~$0.30 per task on simulators, and quantum hardware access ranging from ~$0.00035 per shot on IonQ to $0.01 per shot on Rigetti (plus session fees) ([Azure for AWS Professionals - Azure Architecture Center |
| Blockchain | Amazon Managed Blockchain (Hyperledger, Ethereum) | Azure Confidential Ledger (Blockchain)\* | Blockchain Node Engine (Ethereum) | Services to simplify deploying and managing blockchain networks. Provide managed Ethereum nodes or Hyperledger Fabric networks without needing to provision servers manually. Ensure high availability, ledger immutability, and integrate with cloud security and storage. | **Managed Blockchain** (AWS): ~$0.30/hour per Fabric member node, plus data storage ($0.17/GB-month) ([Azure for AWS Professionals - Azure Architecture Center |
| Media Services | AWS Elemental MediaSuite (MediaConvert, MediaLive, etc.) | Azure Media Services | Cloud Media Solutions (Transcoder API, Media CDN) | Managed services for video and audio processing streaming. Support live video encoding, VOD transcoding, content packaging (HLS/DASH), media storage and content delivery integration. Used for building OTT streaming platforms or video-on-demand workflows. | **Transcoding**: AWS MediaConvert ~$0.0\*\* per minute of HD video processed (or per output GB), Azure Media Services ~$\*\* per output hour (with free 20 encoding hours/month), GCP Transcoder API $0.0045/min SD or $0.015/min HD ([Google Cloud Storage |
| Game Development | AWS GameLift; AWS Lumberyard (Ambit) | Azure PlayFab | Game Servers (Agones via GKE), Open Match | Specialized services for game developers. Manage session-based multiplayer servers, matchmaking, player analytics, and live ops. GameLift hosts dedicated game servers on AWS. PlayFab (Microsoft) provides backend services for player accounts, leaderboards, matchmaking. GCP offers Agones (open-source) for Kubernetes game server orchestration. | **GameLift**: ~$0.50 per EC2 instance-hour for a c5.large game server (plus data transfer) – essentially EC2 prices plus a small fee. **PlayFab**: Free tier available, then pricing by MAUs (e.g., ~$0.0008 per daily active player above free quota). **Agones/GKE**: Standard GKE pricing (e.g., $0.10/cluster hour + node VM costs); no additional charge for Open Match. |

*Note:* Pricing is illustrative and may vary by region and usage volume. Always consult the official pricing pages for the most up-to-date rates and free tier details.