Tumelo G Sellwe

AWS RESTART PROGRAM

AWS Well-Architected Framework Pillars & Keywords

Pillar	Features / Key Focus	Simple Explanation	Exam Keywords / Clues	Analogy
Operational Excellence	Monitoring, alerting, procedures, automation, continuous improvement, operations as code	Run and improve workloads efficiently, automate tasks, and reduce errors	Operations as code, monitoring, alerting, procedures, automation, frequent small changes	🤖 Automating your morning routine so you don't forget anything
Security	Identity & access management, encryption, MFA, logging, auditing, incident response	Protect data and systems from unauthorized access and threats	Encrypt, MFA, IAM roles, audit logs, traceability, incident response, protect data	🔒 Using locks, keys, and cameras to secure a house
Reliability	Auto scaling, fault tolerance, multi-AZ/multi-region deployments, backups, recovery strategies	Ensure systems can recover from failure and stay available	Recover from failure, multi-AZ, multi-region, auto scaling, fault-tolerant, backups, resilient	🛡️ Having a backup generator for when the power goes out
Performance Efficiency	Right-sizing, scaling, global expansion, serverless, experimenting with architecture	Use resources efficiently to meet demand and optimize performance	Optimize, performance, go global, experiment, serverless, right-sizing	🚀 Choosing the fastest route and vehicle for a trip instead of always using the same road
Cost Optimization	Pay-as-you-go, stopping unused resources, monitoring usage, efficiency analysis	Reduce waste and save money	Reduce cost, pay-as-you-go, stop spending on unused resources, monitor usage, efficiency	💰 Turning off lights and appliances when not needed to save electricity
Sustainability	Energy-efficient resources, reduced carbon footprint, green IT practices	Minimize environmental impact while running workloads	Energy efficiency, carbon footprint, resource utilization, sustainable operations	🌱 Recycling, using energy-efficient appliances, or planting trees

AWS Design Principles & Keywords

Design Principle	Features / Key Focus	Simple Explanation	Exam Keywords / Clues	Analogy
Operations as Code (Operational Excellence)	Automation of infrastructure and deployment; IaC; repeatable processes	Automate tasks instead of doing them manually	Automation, IaC, repeatable, deployment scripts	🤖 Using a programmable coffee machine instead of brewing manually
Perform Frequent, Small, Reversible Changes	Continuous integration; small deployments; rollback capability	Make small updates often so you can undo mistakes	Agile, iterative updates, can be reverted	🔄 Updating a document a paragraph at a time instead of rewriting the whole thing
Refine Operations Procedures Frequently	Post-incident reviews; workflow optimization; process improvement	Continuously improve operations	Continuous improvement, review procedures, lessons learned	🛠️ Tweaking a recipe each time to make it better
Anticipate Failure	Fault tolerance; redundancy; failover strategies	Design systems to handle failures automatically	Fault-tolerant, redundancy, failover, resilient	🛡️ Having a spare tire in your car
Learn from Operational Events	Monitoring logs; analytics; postmortems	Analyze incidents to prevent repeat issues	Postmortem, monitoring logs, lessons learned	📚 Reviewing a test to learn from mistakes
Implement Strong Identity Foundations (Security)	IAM roles, least privilege, MFA; user authentication	Control who can access your resources securely	IAM, least privilege, MFA, roles and permissions	🔑 Giving keys only to people who need them
Enable Traceability	Audit trails; CloudTrail; logging; monitoring	Track all changes and activities	Audit, logs, CloudTrail, monitoring	📝 Keeping a diary of who did what and when
Apply Security at All Layers	Defense in depth; network/OS/application protection	Protect your system at multiple levels	Defense in depth, multi-layer protection, network/app/OS security	🏰 Castle walls, guards, and locks on doors

Design Principle	Features / Key Focus	Simple Explanation	Exam Keywords / Clues	Analogy
Automate Security Best Practices	Automated patching; encryption; compliance enforcement	Use automatic tools to enforce security standards	Automated patching, encryption, security rules	👾 Setting your smoke alarm to test itself
Protect Data in Transit & at Rest	Encryption (KMS, SSL/TLS); secure storage and transfer	Encrypt data whether moving or stored	Encryption, SSL/TLS, KMS, encrypted storage	🔒 Locking letters in a safe and using sealed envelopes
Prepare for Security Events	Incident response plans; backups; monitoring alerts	Be ready for security incidents before they happen	Incident response plan, backups, monitoring alerts	🚨 Having a fire extinguisher ready before a fire starts
Scale Horizontally to Increase Availability	Load balancing; auto scaling; distributed resources	Add more resources instead of making one bigger	Load balancing, auto scaling, adding instances	🏗️ Building more lanes on a highway instead of making one lane wider
Stop Guessing Capacity	Elastic resources; auto scaling; on-demand provisioning	Use scalable services to meet demand	Auto scaling, on-demand resources, elastic	📈 Hiring temporary staff during busy seasons instead of overstaffing
Experiment Often & Learn	Metrics collection; A/B testing; monitoring results	Test new approaches and measure outcomes	Test, optimize based on metrics, trial-and-error	🧪 Trying new cooking techniques and adjusting the recipe
Optimize for Cost & Performance Trade-offs	Right-sizing; efficiency monitoring; cost-performance balance	Balance spending and performance	Right-sizing, cost-performance balance, efficient resources	💠 Choosing fuel-efficient car vs. fast sports car
Sustainability Principles	Energy efficiency; resource optimization; green computing	Use resources efficiently and reduce environmental impact	Energy efficiency, resource utilization, reduce carbon footprint	🌱 Turning off lights when not in use to save energy

Cloud Computing Types

Type	Simple Explanation	Key Features	Exam Keywords / Clues	Analogy
IaaS (Infrastructure as a Service)	Rent virtual servers, storage, and networking. You manage OS, apps, and data.	Full OS control, configure networking, scalable compute, persistent storage	Virtual machines, configure OS, storage, networking, pay-as-you-go	🏚️ Renting an empty plot of land—you build and manage everything yourself
PaaS (Platform as a Service)	Managed platform to deploy your code. AWS handles OS, runtime, and infrastructure.	Auto-updates, managed runtime, integrated services, scalable	Managed platform, deploy code only, runtime provided, no OS management	🏢 Renting a furnished office—you bring only your laptop and work
SaaS (Software as a Service)	Access software via browser or app. Provider manages everything else.	Subscription-based, automatic updates, multi-tenant, accessible anywhere	Browser access, no installation, subscription, fully managed	📱 Using Netflix—you just watch content; nothing else to manage
FaaS / Serverless	Run code on demand; AWS manages servers and scaling automatically.	Event-driven, auto-scaling, pay per execution, integrates with AWS events	Event-driven, no server management, pay per execution, automatic scaling	🍔 Ordering Uber Eats—you pay only when you order; nothing else to manage

COMPUTE SERVICES

Service	Simple Explanation	Key Features	Exam Keywords / Clues	Analogy
EC2 (Elastic Compute Cloud)	Virtual server in AWS, full control of OS, storage, networking	Custom instance types, boot volume, network control, auto-scaling	Virtual server, custom instance, lift-and-shift, manual server management	🏠 Renting an apartment—you furnish and maintain everything yourself
Lambda (Serverless Functions)	Run code without servers; triggered by events; auto-scales	Event-driven, auto-scaling, pay per execution, integrates with many AWS services	Event-driven, no server management, pay per execution, milliseconds	🍔 Ordering food via delivery app—pay only when you need it, everything else handled for you

Service	Simple Explanation	Key Features	Exam Keywords / Clues	Analogy
ECS (Elastic Container Service)	Run and manage Docker containers on AWS servers	Container orchestration, integrates with EC2, Fargate compatible, service scheduling	Docker containers, managed container service, container orchestration	📦 Shipping yard managing containers—you organize the container storage and movement
Fargate	Serverless containers; no need to manage servers	Serverless, auto-scaling, runs containers without managing EC2	Serverless containers, auto-scale, no EC2 management	🚚 Containers delivered directly without managing the shipping yard
EKS (Elastic Kubernetes Service)	Managed Kubernetes to orchestrate containers across servers	Kubernetes control plane managed by AWS, scales across multiple instances, integrates with other AWS services	Kubernetes, container orchestration, managed control plane	🗺️ Traffic control system for shipping routes—keeps all container movements organized efficiently
Lightsail	Pre-configured, beginner-friendly servers; small websites / dev projects	Simple setup, flat pricing, preconfigured OS & apps, includes storage & networking	Easy setup, pre-configured, flat pricing, simple	🏙️ Fully furnished studio apartment—plug-and-play, ready to use
Outposts	AWS services running on-premises for low-latency or hybrid workloads	Run AWS compute, storage, database locally, low-latency workloads, hybrid integration with cloud	On-premises AWS, hybrid cloud, low latency	🏗️ Mini AWS data center inside your office—same cloud tools locally

AWS Financial Management Keywords

Topic	Simple Explanation	Keywords / Clues	Exam Focus / Use Case	Analogy
Pricing Models / EC2 Costs	Different ways to pay for EC2 depending on workload	On-Demand, Reserved, Spot, Dedicated Hosts, Dedicated Instances	Know which option saves money for short-term, long-term, or flexible workloads	🎟️ Buying a movie ticket: pay full price (On-Demand), buy season pass (Reserved), grab leftover discounted ticket (Spot), rent entire theater (Dedicated Host)

Topic	Simple Explanation	Keywords / Clues	Exam Focus / Use Case	Analogy
Cost Optimization	Reduce unnecessary cloud spending	Stop paying for unused resources, right-sizing, monitor usage, pay-as-you-go	Best practices for cost savings	🛒 Only buy what you need at the grocery store
Billing & Monitoring	Track usage and charges	AWS Cost Explorer, Budgets, alerts, monitor charges	Detect unexpected spending and track trends	🧾 Checking your monthly bank statement
Total Cost of Ownership (TCO)	Compare costs of running on-prem vs cloud	Hardware cost, maintenance savings, migration cost analysis	Understand cloud financial benefits	⚖️ Comparing owning a car vs using a taxi service
Pricing Tools	Tools to estimate and manage AWS costs	Pricing Calculator, Cost Explorer, Budgets, TCO Calculator	Plan, forecast, and monitor cloud spend	🛠️ Budgeting apps to plan and track your expenses
Support Plans	Levels of AWS support for help when needed	Basic, Developer, Business, Enterprise	Know features, response times, and exam keywords	🏢 Library (Basic), Junior mentor (Developer), IT helpdesk (Business), Personal IT team (Enterprise)
Cost Allocation / Tagging	Assign costs to projects, teams, or departments	Tags, Cost allocation, Resource tracking	Helps track who or what is spending	🏷️ Labeling folders for different departments to track spending

Pricing Models / EC2 Costs

Pricing Model	Simple Explanation	When to Use	Analogy	Exam Keywords / Clues
On-Demand	Pay for compute by the second, no long-term commitment	Short-term, unpredictable workloads	Paying for a taxi only when you ride	"Short-term", "pay per hour/second", "no commitment"
Reserved Instances (RI)	Commit 1–3 years, get a big discount	Steady workloads you know will run long-term	Buying a season pass for unlimited rides	"Long-term commitment", "steady workload", "discounted"

Savings Plans	Flexible alternative to RI; pay less for committed usage	Long-term workloads with flexible instance types	Prepaid gym membership usable on any branch	"Cost saving", "commit usage", "flexible instance types"
Spot Instances	Bid for spare capacity; can be interrupted	Flexible, fault-tolerant, short jobs	Auction for leftover concert tickets	"Interruptible", "cheap", "spare capacity"
Dedicated Hosts	Physical server dedicated to you	Compliance, licensing requirements	Renting a whole apartment building	"Physical server dedicated", "BYOL (bring your own license)", "compliance"
Dedicated Instances	Virtual instances on single-tenant hardware	Need isolation but not full server control	Renting a single apartment in a building	"Single-tenant hardware", "isolation", "no sharing"

AWS Pricing Tools & Keywords

Tool	Simple Explanation	Features / Keywords	Use Case	Analogy
AWS Pricing Calculator	Estimate costs before using services	"Forecast charges", "plan resources", "monthly cost estimate"	Budgeting, planning deployments	📋 Shopping list – estimate total cost before buying
AWS Cost Explorer	Analyze past spending	"Visualize costs", "historical usage", "trends", "graphs"	See where money was spent, track trends	📊 Bank statement – review past expenses
AWS Budgets	Set limits and get alerts	"Set limits", "alerts when cost exceeds threshold", "notifications"	Avoid overspending, monitor usage	🚨 Budget tracker – warns when approaching limit
TCO Calculator	Compare on-premises vs cloud costs	"Estimate savings", "migration cost analysis", "hardware/maintenance costs"	Evaluate cost benefits of moving to AWS	⚖️ Cost comparison scale – cloud vs local servers
AWS Free Tier / Cost Allocation Tags	Track usage and allocate costs	"Identify usage by project/department", "allocate costs", "tag resources"	Assign costs accurately across teams	🏷️ Label folders for accounting – know who spent what

AWS Support Plans & Keywords

Support Plan	Simple Explanation	Features / Keywords	Use Case	Analogy
Basic	Free plan included with all accounts	"Billing & account support only", "24/7 access to documentation, forums, whitepapers"	Beginners, testing, learning	📖 Library access – info only, no hands-on help
Developer	Support for development & testing	"Business hours email support", "general guidance", "non-production workloads"	Dev/test environments, small projects	👨‍💻 Junior developer mentor – advice when needed
Business	24/7 support for production workloads	"24/7 access to Cloud Support Engineers", "phone/chat/email support", "Trusted Advisor checks"	Production workloads needing fast issue resolution	🛠 Helpdesk support for your live systems
Enterprise	Premium support for critical workloads	"Mission-critical workloads", "15-minute response for critical issues", "Technical Account Manager (TAM)", "proactive guidance"	Large, high-stakes systems	🏢 Personal IT team – proactive and instant help

AWS Storage Services & Keywords

Storage Service	Simple Explanation	Features / Keywords	Use Case	Analogy
Amazon S3	Object storage for files	"Scalable", "durable (11 9's)", "pay-per-use", "static website hosting"	Store files, backups, images, media	📁 Cloud filing cabinet
Amazon EBS	Block storage attached to EC2	"Persistent volume", "boot volume", "database storage"	Store OS, apps, DBs for EC2	💽 Virtual hard drive for a server
EBS Snapshots	Backup of EBS volumes	"Point-in-time", "incremental", "stored in S3"	Backup & recovery	📷 Snapshot of a hard drive
EC2 Instance Store	Temporary storage on EC2	"Ephemeral", "lost when instance stops", "super fast / low latency"	Scratch space, cache, temp data	📝 Whiteboard – fast but temporary

Storage Service	Simple Explanation	Features / Keywords	Use Case	Analogy
Amazon EFS	Shared file system for Linux	"Scales automatically", "NFS", "multi-EC2 access"	Web servers, content management	📁 Shared office folder everyone can access
Amazon FSx for Windows File Server	Managed Windows file system	"SMB protocol", "Active Directory integration", "shared storage"	Windows workloads needing file shares	🖥️ Shared Windows network drive
Amazon FSx for Lustre	High-performance file system	"HPC / ML / Big Data", "integrates with S3", "fast-access storage"	Compute-heavy workloads	⚡ Super-fast workspace for heavy computation
Amazon Glacier / S3 Glacier	Long-term archival	"Low-cost", "minutes to hours retrieval", "compliance/backup"	Backup, archival, compliance storage	🏬 Vault for rarely used files

S3 Storage Classes & Keywords

Storage Class	Simple Explanation	Features / Keywords	Use Case	Analogy
S3 Standard	Frequently accessed data	"High durability & availability", "low latency", "general purpose"	Active files, apps, websites	📂 Main office filing cabinet – easy access anytime
S3 Intelligent-Tiering	Automatically moves data to cheaper tiers	"Access patterns unknown", "automatic cost optimization"	Mixed-access files where usage is unpredictable	🔄 Smart shelf that moves files to cheaper storage when not used
S3 Standard-IA (Infrequent Access)	Less frequently accessed data	"Cheaper than standard", "retrieval fee applies"	Backups, infrequent files	🗃️ Archive box – stored away, retrieve occasionally
S3 One Zone-IA	Infrequent access in a single AZ	"Cheaper than Standard-IA", "lower durability"	Non-critical, easily replaceable data	📦 Single office storage – cheap but vulnerable to loss
S3 Glacier Instant Retrieval	Archive with fast access	"Milliseconds retrieval", "low cost"	Rarely accessed archives needing occasional instant access	🔓 Vault with quick unlock option

Storage Class	Simple Explanation	Features / Keywords	Use Case	Analogy
S3 Glacier Flexible Retrieval	Archive with slower access	"Minutes to hours retrieval", "low cost"	Long-term backups, compliance storage	⏳ Vault you need to wait a bit to open
S3 Glacier Deep Archive	Cheapest, very long-term storage	"12 hours retrieval", "rarely accessed"	Regulatory archival, disaster recovery	🗄 Deep storage basement – very cheap, slow to reach
S3 Outposts	On-premises S3 storage	"AWS-managed S3 locally", "hybrid workloads"	Local data compliance, hybrid apps	🏠 Mini AWS storage in your building

AWS Database Types & Keywords

Database Type	Simple Explanation	Features / Keywords	Use Case	Analogy
Amazon RDS	Managed relational database	"SQL", "multi-AZ", "backups managed", "MySQL/PostgreSQL/Oracle/SQL Server"	Standard relational DB for apps	🗃 Pre-configured filing cabinet with automatic backups
Amazon Aurora	High-performance relational DB	"MySQL/PostgreSQL compatible", "auto-scaling storage", "up to 5x faster than RDS"	High-performance apps needing fast queries	🏎 Sports car version of RDS
Amazon DynamoDB	Fully managed NoSQL database	"Key-value/document", "serverless", "millisecond latency", "scales automatically"	Fast, scalable unstructured data	🗂 Super-fast warehouse for items indexed by key
Amazon Redshift	Data warehouse	"OLAP", "analytics", "columnar storage", "petabyte-scale"	BI and reporting	🗄 Giant filing cabinet for analytics
Amazon DocumentDB	MongoDB-compatible document DB	"NoSQL document", "JSON storage", "managed"	Store semi-structured JSON data	📄 Digital filing cabinet for flexible documents
Amazon ElastiCache	In-memory caching	"Redis/Memcached", "low-latency access"	Speed up apps, session storage, caching	⚡ Super-fast RAM for frequently used data

Database Type	Simple Explanation	Features / Keywords	Use Case	Analogy
Amazon Neptune	Graph database	"Relationships between data", "triple store", "highly connected datasets"	Social networks, recommendation engines	🕸 Map of connections (friends, relationships)
Amazon QLDB	Immutable ledger	"Central trusted authority", "cryptographically verifiable"	Finance, auditing, ledger apps	📜 Digital ledger that can't be changed
Amazon Timestream	Time-series database	"IoT/sensor data", "fast ingestion & analytics"	Metrics, logs, IoT data	⏱ Recorder for sensor measurements over time
Amazon Keyspaces	Managed Cassandra-compatible NoSQL DB	"Wide-column", "distributed", "scalable"	Large-scale NoSQL workloads	📊 Distributed warehouse for column-based storage

AWS Analytics Services & Keywords

Service	Simple Explanation	Features / Keywords	Use Case	Analogy
Amazon Redshift	Data warehouse for structured data	"OLAP", "columnar storage", "BI reports", "petabyte-scale"	Analyze large datasets, create dashboards	🗄 Giant filing cabinet for structured reports
Amazon Athena	Query data in S3 without servers	"Serverless SQL", "ad hoc queries", "pay per query"	Quick queries on S3 data	🔍 Searching files in a cabinet instantly
Amazon EMR	Big data processing (Hadoop/Spark)	"Batch processing", "Hadoop", "Spark", "data lakes"	Transform/process massive datasets	🏗 Factory processing raw materials
AWS Glue	ETL service and data catalog	"Extract, Transform, Load", "serverless", "data catalog", "schema management"	Prepare data for analytics or ML	🖌 Cleaning & organizing data before analysis
Amazon Kinesis Data Streams	Real-time streaming data capture	"Streaming analytics", "real-time processing", "IoT", "clickstream"	Process data as it arrives	🚦 Traffic camera capturing cars live
Amazon Kinesis Data Firehose	Real-time streaming delivery	"Stream to S3/Redshift/Elasticsearch", "delivery pipeline"	Move real-time data into AWS storage/analytics	🚚 Conveyor belt sending live data to storage

Service	Simple Explanation	Features / Keywords	Use Case	Analogy
Amazon Kinesis Data Analytics	Real-time analytics on streaming data	"SQL-based streaming queries", "real-time analysis"	Analyze streaming data without managing servers	🔢 Instant calculations on live data
Amazon QuickSight	Business Intelligence dashboards	"Visualizations", "charts", "interactive dashboards"	Visualize insights from AWS data sources	📊 Business dashboard showing metrics
AWS Data Pipeline	Automate moving & transforming data	"Schedule workflows", "ETL automation", "on-prem to cloud"	Move/transform data between AWS/on-prem services	🔄 Automated workflow robot moving files
AWS Lake Formation	Build secure data lakes	"Centralized data lake", "cataloging", "governance", "security"	Central storage for analytics & ML	🏞️ Organized reservoir of all company data
AWS Database Migration Service (DMS)	Migrate databases with minimal downtime	"Continuous replication", "heterogeneous migration", "live migration"	Move DBs to AWS	🚚 Moving a library of books while still in use

AWS Database Migration – Exam Keywords

Service	Simple Explanation	Features / Keywords	Use Case	Analogy
AWS Database Migration Service (DMS)	Service to move databases to AWS with minimal downtime	"Migrate databases", "minimal downtime", "continuous replication", "heterogeneous migration", "live migration"	Move on-prem or cloud databases to AWS; supports same engine or different engines	🚚 Moving a library of books from one building to another while people can still read them
AWS Schema Conversion Tool (SCT)	Converts database schema from one engine to another	"Schema translation", "convert DB engines", "Oracle → PostgreSQL", "SQL Server → Aurora"	Used with DMS for migrations between different database types	🖊️ Translating a book from English to Spanish so it can be read in a new library

Snow Family Services & Exam Keywords

Service	Simple Explanation	Features / Keywords	Use Case	Analogy
AWS Snowcone	Small portable device for edge computing and offline storage	"Small device", "rugged", "IoT", "up to 8 TB", "battery or vehicle powered"	Collect data in remote locations or disconnected environments	🧳 A rugged USB drive you can carry anywhere
AWS Snowball Edge	Medium device for storage or compute at remote sites	**Storage Optimized:** 80+ TB, offline migration **Compute Optimized:** Edge computing, GPU, run EC2/Lambda	Move large datasets or run processing at remote/offline locations	🚚 Mobile data server for remote work
AWS Snowmobile	Huge truck-sized device for extremely large transfers	"Exabyte-scale", "45-foot container", migrate entire data centers	Migrate entire data centers when too big for Snowball or internet	🏭 Moving an entire warehouse of data
AWS DataSync	Automated service to move/sync data between on-prem and AWS	"Sync NFS/SMB", "large files", "object/block storage"	File system migration, keep on-prem and cloud storage in sync	🔄 Conveyor belt moving files automatically
AWS Transfer Family	Managed file transfer service to S3	"SFTP, FTPS, FTP", secure and managed	Move files to AWS without manual scripts or servers	📤 Digital courier service delivering files safely

AWS Networking & Global Infrastructure Cheat Sheet

Topic	Simple Explanation	Use Cases	Exam Keywords / Tips	Analogy
VPC	Your private network in AWS	Isolate AWS resources, define IP ranges	"Isolated network", "CIDR block", "custom VPC"	🏡 Your own fenced neighborhood
Subnets	Divide VPC into smaller networks	Public for internet, private for internal apps	"Public/private subnet", "IP range", "segment network"	🏘 Houses on different streets

| Topic	Simple Explanation	Use Cases	Exam Keywords / Tips	Analogy
Route Tables	Decide where traffic goes in VPC	Direct traffic between subnets, IGW, NAT	"Routing", "destination & target", "subnet association"	🗺️ Street map guiding cars
Internet Gateway (IGW)	Connect VPC to the internet	Public subnets, web servers	"Internet access", "public subnet", "gateway"	🌐 Main gate to the internet
NAT (Gateway & Instance)	Allow private subnet to access internet	Private servers updating software	"Outbound internet", "private subnet", "NAT gateway/instance"	🚪 Door for private houses to get packages
Security Groups (SGs)	Instance-level firewall	Control EC2 inbound/outbound traffic	"Stateful", "allow rules", "instance-level security"	🛡️ Door with controlled access
Network ACLs (NACLs)	Subnet-level firewall	Extra layer of security at subnet	"Stateless", "allow/deny rules", "subnet firewall"	🚧 Security checkpoint at neighborhood entrance
VPC Peering	Connect 2 VPCs privately	Cross-account apps, multi-tier apps	"Private connection", "VPC-to-VPC", "non-transitive"	🌉 Private bridge between two neighborhoods
VPC Endpoints / PrivateLink	Private connection to AWS services	Access S3/DynamoDB without internet	"Private connectivity", "gateway/interface endpoints"	🔌 Direct pipe to AWS services
AWS VPN	Secure connection from on-premises to VPC	Hybrid cloud, remote workforce	"Site-to-site VPN", "IPSec", "secure connection"	🔐 Private tunnel to AWS
Direct Connect	Dedicated network link from on-premises	High bandwidth, low latency hybrid cloud	"Dedicated link", "private connection", "low latency"	🏔️ Private train track to AWS
Transit Gateway	Hub to connect multiple VPCs & on-prem networks	Large-scale network architectures	"Hub-and-spoke", "route aggregation", "multi-VPC"	🏢 Central train station connecting neighborhoods
Global Accelerator	Improves global app performance	Static IP, low-latency routing to nearest region	"Edge network", "global routing", "static IP", "fast traffic"	🛫 Airline routing passengers via fastest airport
Content Delivery	Caches content closer to users	Websites, video streaming, low latency	"Edge locations", "cached content", "fast delivery"	📦 Local warehouse delivering items faster

Topic	Simple Explanation	Use Cases	Exam Keywords / Tips	Analogy
Network (CDN)				
Elastic Load Balancers (ELB)	Distribute traffic across resources	High availability, fault tolerance	"Load balancing", "ALB/NLB/GWLB/CLB", "HA"	⚖️ Traffic officer balancing cars
Route 53	AWS DNS & domain service	Map domains to AWS resources, failover	"DNS", "domain management", "routing policies", "health checks"	🗺️ Address book mapping names to houses

Elastic Load Balancing (ELB) Cheat Sheet

Load Balancer Type	Layer	Simple Explanation	Use Cases	Exam Keywords / Tips	Analogy
Application Load Balancer (ALB)	Layer 7 (Application)	Routes HTTP/HTTPS traffic based on content (path/host)	Web apps, microservices, container-based apps	"HTTP/HTTPS", "path-based routing", "host-based routing", "WebSockets"	🚧 Traffic cop directing cars based on destination address
Network Load Balancer (NLB)	Layer 4 (Transport)	Handles TCP/UDP traffic with ultra-low latency	Gaming, IoT, real-time apps	"TCP/UDP", "low latency", "millions of requests/sec", "static IP"	🚦 Fast highway toll booth for high-speed traffic
Gateway Load Balancer (GWLB)	Layer 3 (Network)	Routes traffic through 3rd-party virtual appliances	Firewalls, IDS/IPS, security appliances	"Network appliances", "inspection", "firewalls", "3rd-party integration"	🛡️ Security checkpoint through scanners
Classic Load Balancer (CLB)	Layer 4 & 7 (Legacy)	Basic load balancing for HTTP/HTTPS and TCP	Older apps, legacy workloads	"Legacy", "basic L4 & L7", "older applications"	⚖️ Old-fashioned traffic officer, simple and general

Route 53 Routing Policies Cheat Sheet

Routing Policy	Simple Explanation	Use Cases	Exam Keywords / Tips	Analogy
Simple	Sends traffic to a single resource	Basic website, no failover	"Single resource", "default routing", "basic DNS record"	📍 A single road to your house
Weighted	Splits traffic across multiple resources by percentage	A/B testing, gradual deployment	"Weighted traffic", "split %", "gradual migration"	⚖️ Dividing water between two pipes
Latency-based	Sends users to the region with lowest latency	Global apps, fast response for users	"Lowest latency", "best performance region", "fastest route"	🚉 Nearest train station to user
Failover	Sends traffic to backup if primary fails	Disaster recovery, high availability	"Active-passive setup", "DR routing", "health checks"	🛟 Life raft if main boat sinks

AWS Security Services- Keyword Cheat Sheet

Service / Topic	Simple Explanation	Features	Use Cases	Exam Keywords / Tips	Analogy
Amazon KMS	Manages encryption keys for your data	Create/manage keys, envelope encryption, integrate with AWS services	Encrypt S3, EBS, RDS data	"Encryption", "CMK", "key management", "data protection"	🗝️ Key vault
AWS CloudHSM	Dedicated hardware for storing encryption keys	Single-tenant HSM, FIPS 140-2 compliance	Compliance-heavy workloads, secure key storage	"Hardware security module", "FIPS Level 3", "dedicated key storage"	🔐 Personal safe for keys
AWS Abuse	Report security or policy violations	Phishing, spam, compromised instances	Report abuse/malicious activity	"Abuse report", "malware", "phishing"	🚨 Security hotline
Amazon Cognito	Handles user authentication & authorization	User sign-up/sign-in, MFA, social logins	Mobile/web apps login	"Identity provider", "user authentication", "MFA", "federation"	🛂 Security checkpoint

Service / Topic	Simple Explanation	Features	Use Cases	Exam Keywords / Tips	Analogy
Amazon Macie	Finds sensitive data in your S3 buckets	PII detection, automated alerts, ML-based	Compliance, data protection	"PII detection", "data classification", "S3 monitoring"	🔍 Data privacy inspector
AWS Security Hub	Centralized view of security alerts	Aggregates findings from GuardDuty, Macie, Inspector	Continuous monitoring, compliance dashboard	"Centralized security", "CIS compliance", "security findings"	🗓️ Security control center
AWS Certificate Manager (ACM)	Manages SSL/TLS certificates	Free certificates, automatic renewal, HTTPS integration	Secure websites, CloudFront, ALB	"SSL/TLS certs", "HTTPS", "certificate management"	🛡️ Digital padlock
AWS Systems Manager (SSM)	Manage and automate AWS resources	Patch Manager, Run Command, Parameter Store, Session Manager	Remote management, automation	"Remote management", "automation", "parameter store", "patching"	🛠️ IT control panel
AWS Audit Manager	Automates audit evidence collection	Continuous audit, compliance mapping	Internal/external audits, compliance reporting	"Audit automation", "compliance evidence", "continuous audit"	📋 Automatic checklist
AWS IAM	Manage users, roles, and permissions	Users, groups, roles, policies, least privilege	Control access to AWS resources	"Identity management", "access control", "least privilege"	👤💼 Keycard system
IAM Infrastructure	Global identity framework for AWS	Root user, accounts, service roles	Central IAM setup	"Root account", "roles for services", "global service"	🌐 Company ID system
Multi-Factor Authentication (MFA)	Adds extra login security	Virtual/hardware tokens, root account protection	Secure AWS accounts	"2FA", "MFA enabled", "extra login layer"	🔑 + 📱 Two-factor key
IAM Policy	Rules defining permissions	JSON format, allow/deny, inline/managed	Grant or restrict access	"Access policies", "permissions JSON", "least privilege"	📑 Rulebook for keys
IAM Best Practices	Guidelines for secure IAM usage	Least privilege, rotate keys, MFA, no root daily	Reduce risk, secure AWS accounts	"Rotate keys", "no root user", "least privilege enforcement"	✅ Security hygiene

Service / Topic	Simple Explanation	Features	Use Cases	Exam Keywords / Tips	Analogy
Shared Responsibility Model	Explains security division	AWS secures cloud infra, customer secures data/app/config	Clarify roles in security	"AWS vs customer responsibilities", "data vs infrastructure"	🏚 Owner vs builder responsibilities
AWS CloudTrail	Logs API calls and activity	Governance, auditing, compliance	Track changes, detect suspicious activity	"Audit logs", "API activity", "CloudTrail events"	📓 Activity logbook
Amazon CloudWatch	Monitoring and observability	Metrics, logs, alarms, dashboards	Track performance, trigger alerts	"Monitoring", "metrics", "logs", "alarms"	👁 Observatory for apps
AWS Shield	Protects against DDoS attacks	Standard (free), Advanced (paid), integrates with CloudFront	Defend web apps from attacks	"DDoS protection", "Layer 3/4 attacks", "CloudFront integration"	🛡 DDoS guard
Amazon GuardDuty	Detects threats in your AWS environment	ML/anomaly detection, monitors logs	Threat detection, continuous monitoring	"Threat detection", "anomaly detection", "malicious activity"	🕵 Security detective
Amazon Inspector	Scans workloads for vulnerabilities	EC2/ECR scanning, CVE detection, best practices	Identify vulnerabilities in instances	"Vulnerability scanning", "security assessment", "CVE check"	🏛 Security health check
Amazon Trusted Advisor	Checks AWS accounts for best practices	Cost, performance, security, fault tolerance	Recommendations to optimize resources	"Best practice check", "security gaps", "cost optimization"	✅ Advisor for cloud setup
AWS Network Firewall	Managed firewall for VPC	Stateful/stateless rules, intrusion prevention	Control traffic in VPCs	"Network firewall", "VPC protection", "traffic filtering"	🛡 Digital fence
AWS Firewall Manager	Centralized firewall policy management	Multi-account, org-wide WAF/Shields	Simplify security policy management	"Centralized firewall", "organization-wide security", "policy management"	🏢 Security HQ
Amazon WAF	Web Application Firewall	Protects web apps from attacks, OWASP top 10	Stop SQL injection, XSS, bots	"Web application firewall", "layer 7 protection", "OWASP Top 10"	🖥 Gatekeeper for web apps

AWS Application & Migration Services – Cheat Sheet

Service	Simple Explanation	Features	Use Cases	Exam Keywords / Tips	Analogy
Amazon AppFlow	Moves data between apps (SaaS or AWS) automatically	Integrates apps, no-code workflows, secure data transfer	Sync Salesforce → S3, Slack → Redshift	"Data transfer", "integration", "app to AWS", "no-code flow"	🚚 Delivery service moving data between apps
Amazon EventBridge	Sends events between apps and AWS services	Event bus, rules, SaaS integration, serverless	Trigger Lambda on app events, workflow automation	"Event-driven architecture", "event routing", "serverless triggers", "decoupled apps"	📮 Post office for app events
AWS Step Functions	Orchestrates workflows and tasks	Visual workflow, retries, parallel steps, integrates with AWS	Multi-step processes, order processing, data pipelines	"Workflow orchestration", "state machine", "multi-step process", "task coordination"	🏭 Assembly line manager
Amazon SWF	Coordinates distributed applications	Task scheduling, state tracking, reliability	Long-running jobs, background workflows	"Workflow service", "task coordination", "state tracking", "long-running process"	🕐 Project manager keeping tasks in order
AWS Health Dashboard	Shows AWS service status & events	Service availability, notifications, personalized health alerts	Check service outages, plan maintenance	"AWS service status", "incident alerts", "health notifications"	📊 Cloud status board
Amazon SQS (Simple Queue Service)	Stores messages so apps can process them asynchronously	Standard/FIFO queues, decoupling, auto-scaling	Queue orders for processing, decouple microservices	"Message queue", "asynchronous processing", "FIFO/standard queue", "decoupling apps"	📨 Post office mailbox where apps leave messages
Amazon SNS (Simple Notification Service)	Sends messages/alerts to multiple recipients instantly	Pub/Sub messaging, email, SMS, Lambda integration	Send alerts, fan-out notifications	"Pub/Sub messaging", "push notifications", "fan-out messages", "topic subscription"	📢 Loudspeaker broadcasting messages

AWS Developer Tools

Service	Simple Explanation	Features	Use Cases	Exam Keywords / Tips	Analogy
AWS CloudFormation	Lets you create and manage AWS resources automatically using templates.	- Create resources automatically - YAML/JSON templates - Rollback on errors - Manage multiple environments	Set up EC2, S3, RDS automatically; replicate environments; disaster recovery	"Infrastructure as Code", "IaC", "templates", "automate resources", "stack"	🏛 Blueprint for your cloud
AWS CodeBuild	Automatically builds and tests your code when changes are made.	- Supports multiple languages - Runs tests - Creates artifacts - Scales automatically	Test and build code automatically after every change	"Continuous integration", "build projects", "compile code", "automated testing"	🔨 Workshop: builds your software
AWS CodeCommit	Cloud Git repository to store and manage your code.	- Private Git repo - Version control - Pull requests & branches - IAM integration	Store code securely, track changes, collaborate with teams	"Source control", "Git repo", "code versioning", "branches/pull requests"	📁 Cloud GitHub
Amazon CodeStar	Shows all your development work in one dashboard.	- Integrates CodeCommit, CodeBuild, CodeDeploy, CodePipeline - Team collaboration - Project templates	Track progress of projects and CI/CD pipelines in one place	"DevOps dashboard", "project management", "CI/CD overview", "team collaboration"	📊 DevOps dashboard
AWS CodeDeploy	Automatically deploys your app updates to servers or Lambda.	- Blue/green, rolling, canary deployments - Monitors health - Automatic rollback	Update apps without downtime; release new features gradually	"Continuous deployment", "deploy applications", "automated rollout", "blue/green deployment", "rollback"	🚀 Auto-deploy app updates
AWS CodePipeline	Connects all stages of development: code → build → test → deploy.	- Automates build-test-deploy - Event-driven - Customizable stages	Automate software release workflow	"CI/CD pipeline", "automated workflow", "stages", "event-driven"	🏭 Assembly line for software
AWS X-Ray	Lets you see how requests move through your app and find slow parts.	- Traces requests - Visual service map - Detects bottlenecks	Debug apps; find performance issues	"Application tracing", "request flow", "performance monitoring", "bottleneck detection"	🔍 Magnifying glass for apps

Service	Simple Explanation	Features	Use Cases	Exam Keywords / Tips	Analogy
Amazon CDK	Write code to create AWS resources instead of templates.	- Use Python, TypeScript, Java, C# - Reusable modules - Generates CloudFormation	Programmatically create resources; reuse code	"IaC in code", "programmatic infrastructure", "CDK constructs", "CloudFormation generation"	✏️ Draw infrastructure in code
Amazon Cloud9	Online coding environment in your browser.	- Code editor + terminal - AWS CLI included - Collaboration - Supports multiple languages	Write and run code without installing anything locally	"Cloud IDE", "browser-based editor", "collaborative coding", "AWS CLI integration"	💻 Cloud-based IDE
Amazon CodeArtifact	Stores and manages libraries and packages your apps need.	- Supports npm, Maven, Python, NuGet - Versioning - Secure & scalable	Share libraries across projects; manage dependencies	"Package repository", "dependency management", "secure libraries", "version control"	📦 Cloud library of packages
AWS OpsWorks	Automatically sets up and configures servers using Chef or Puppet.	- Automates server setup - Stack management - Lifecycle events	Keep server setup consistent; automate deployments	"Configuration management", "Chef/Puppet", "server automation", "lifecycle events"	🔧 Chef manages servers

AWS Machine Learning services

Service	Simple Explanation	Features	Use Cases	Exam Keywords / Tips	Analogy
Amazon Comprehend	Understands text and finds meaning, sentiment, and entities.	- NLP (Natural Language Processing) - Detects sentiment, entities, key phrases, language	Analyze reviews, social media posts, customer feedback	"Text analysis", "NLP", "sentiment analysis", "entity recognition"	📖 Reading and understanding text
Amazon Kendra	Smart search engine for your documents and website.	- AI-powered search - Connects to multiple data sources - Natural language queries	Company document search, FAQ search, knowledge base	"Enterprise search", "intelligent search", "natural language query"	🔍 Google for your company docs

Service	Simple Explanation	Features	Use Cases	Exam Keywords / Tips	Analogy
Amazon Lex	Build chatbots that understand and respond like humans.	- Conversational AI - Speech & text input - Integrates with Lambda	Customer service bots, voice assistants	"Chatbot", "conversational AI", "voice/text bot", "chat interface"	👿 Talking robot assistant
Amazon Personalize	Gives personalized recommendations like Netflix or Amazon.	- Real-time personalization - Machine learning models - Works with user behavior data	Product recommendations, content suggestions	"Personalized recommendations", "user behavior", "real-time ML"	🎯 Personal shopping assistant
Amazon Polly	Turns text into natural-sounding speech.	- Text-to-speech - Multiple languages and voices - Neural voices	Voice assistants, read-aloud apps, accessibility	"Text-to-speech", "speech synthesis", "narration"	👤 Digital voice actor
Amazon Q	(Likely refers to **Amazon QuickSight ML Insights**) Helps analyze data with ML in visualizations.	- AutoML insights - Detect anomalies and trends - Works with BI dashboards	Business intelligence, detect unusual patterns	"ML insights", "anomaly detection", "QuickSight integration"	📊 Smart graph that explains data
Amazon Rekognition	Detects objects, faces, and text in images and videos.	- Facial recognition - Object & scene detection - Text in images	Security cameras, media tagging, photo apps	"Image recognition", "face detection", "object detection", "video analysis"	👀 Computer that sees and identifies objects
Amazon SageMaker	Build, train, and deploy machine learning models easily.	- Build & train ML models - Deploy models to production - AutoML and notebook support	Predictive analytics, custom ML models	"ML model training", "deploy ML models", "machine learning workflow"	🧪 ML lab in the cloud
Amazon Textract	Automatically extracts text, forms, and tables from documents.	- OCR (Optical Character Recognition) - Detects tables and forms - Structured data extraction	Digitize invoices, forms, contracts	"Document text extraction", "OCR", "forms/tables parsing"	📄 Scanner that reads and understands docs
Amazon Transcribe	Converts speech to text.	- Speech-to-text - Supports multiple languages - Real-time & batch transcription	Transcribe meetings, call centers, videos	"Speech-to-text", "audio transcription", "voice to text"	📝 Voice recorder that writes everything

1. Networking Extras

Service / Feature	Explanation (Simple English)	Features	Exam Keywords	Analogy
Elastic IP	Static IP for EC2 instances	Fixed IP, remap to different EC2	"static IP", "persistent address"	📍 Like your permanent home address
VPC Flow Logs	Monitor network traffic in/out of VPC	Log traffic metadata to CloudWatch/S3	"network monitoring", "flow logs"	👀 Security cameras on a road
AWS Direct Connect	Dedicated private network to AWS	Low-latency, high bandwidth	"dedicated line", "hybrid connectivity"	🛣️ Private highway instead of public road
VPN	Encrypted connection to AWS	IPSec, site-to-site or client	"secure tunnel", "hybrid cloud"	🔒 Secure private tunnel for data
CloudFront Edge Locations	Cached content near users	Global PoPs, caching, HTTPS	"CDN", "low latency", "edge locations"	🌍 Local library branch vs main library

2. Serverless / Event-Driven Extras

Service / Feature	Explanation	Features	Exam Keywords	Analogy
EventBridge Schema Registry	Organize event formats	Centralized schema storage, versioning	"event-driven", "schema registry"	🗂️ Filing cabinet for events
Step Functions	Orchestrate multi-step workflows	Visual workflow, retries, parallel tasks	"orchestration", "state machine"	🎬 Movie director coordinating scenes
SNS + SQS Integration	Fan-out & decoupling	Pub/sub, message queue, async processing	"decouple", "FIFO", "fan-out"	📬 Mailroom: one sender, many recipients

3. Storage / Database Extras

Service / Feature	Explanation	Features	Exam Keywords	Analogy
FSx (Windows / Lustre)	Managed file systems	SMB/NFS, HPC, performance tuning	"high performance", "managed file system"	🗄️ Shared office filing cabinet

Service / Feature	Explanation	Features	Exam Keywords	Analogy
EBS Volume Types	Different performance & cost	gp3, io2, st1, sc1	"block storage", "IOPS", "throughput"	🛠️ Toolbox: pick the right tool for the job
RDS Backups & Multi-AZ	Automated snapshots, HA	Automatic backup, failover	"multi-AZ", "automatic snapshots", "high availability"	🏦 Bank vault backup & mirror branch
DynamoDB Streams	Track table changes in real-time	Event-driven triggers	"NoSQL streaming", "real-time updates"	📰 Breaking news feed
DynamoDB On-Demand / Provisioned	Billing & scaling options	On-demand scaling vs fixed throughput	"serverless", "provisioned throughput"	🚗 Taxi vs bus: flexible vs fixed capacity

4. Analytics / ML Extras

Service / Feature	Explanation	Features	Exam Keywords	Analogy
Kinesis vs Firehose vs Analytics	Streaming & processing data	Kinesis Streams = raw events, Firehose = delivery, Analytics = real-time SQL	"real-time data", "streaming analytics"	🌊 River → water delivery → water treatment
QuickSight	BI & visualization	SPICE engine, dashboards, ML insights	"dashboards", "SPICE", "visualization"	📊 News report: summarize data for decisions
SageMaker Studio vs Notebooks	ML dev & deployment	Studio = IDE, Notebooks = coding environment	"ML model training", "deployment workflow"	👩🏻‍🔬 Lab vs lab notebook

5. Security / Compliance Extras

Service / Feature	Explanation	Features	Exam Keywords	Analogy
AWS Organizations / SCPs	Central account management	Policies across accounts	"centralized governance", "SCPs"	🏢 Parent company controlling branches

Service / Feature	Explanation	Features	Exam Keywords	Analogy
AWS Config / Config Rules	Track configuration & compliance	Resource snapshots, drift detection	"compliance", "drift detection"	📜 Checklist for all office equipment
Secrets Manager / Parameter Store	Securely store credentials	Encryption, rotation	"secure secrets", "credentials management"	🔑 Locked safe for passwords

6. Pricing / Cost Optimization Extras

Service / Feature	Explanation	Features	Exam Keywords	Analogy
Savings Plans vs Reserved Instances	Flexible cost saving	Compute vs EC2-specific, long-term commitment	"commitment", "discounted pricing"	💳 Membership plan vs prepaid card
EBS Snapshots & S3 Lifecycle	Reduce storage cost	Archive, delete old data automatically	"cost optimization", "lifecycle policy"	🗑 Seasonal cleaning & storage
Trusted Advisor	Recommendations for cost, security	Checks limits, unused resources, optimizations	"best practices", "recommendations"	📋 Personal financial advisor

7. Monitoring & Logging

Service / Feature	Explanation	Features	Exam Keywords	Analogy
CloudWatch Alarms / Logs / Metrics / Dashboards	Monitor & respond	Metrics, dashboards, automated actions	"monitoring", "alarms", "metrics"	📺 Security guard screens & alerts
CloudTrail	API activity logging	Governance, auditing, compliance	"audit logs", "tracking API calls"	📝 Police report for every action
CloudWatch Logs	Operational monitoring	Logs collection, visualization	"application monitoring", "logs"	📔 Office logbook of activities