

# AWS Cloud Practitioner Certifications - Summary

## Analytics:

**AWS Global Services**- IAM, CloudFront,Route53,WAF

**AWS Region Scoped Service**- EC2,Elastic Beanstalk, Lambda,Rekognition

**by default encryption enabled** - S3 Glacier, CloudTrail Logs,KMS

**Athena** - running SQL queries on data in S3 | **Kinesis** - real time streaming data

**QuickSight** - machine learning power BI service

## Compute and Serverless:

**Batch** - automate operations, developers & programers, run 1000s of batch jobs

**EC2** - IaaS, resizable compute capacity, per-second billing

**Lambda** - app facing component e.g thumbnail creation, serverless

**Elastic Beanstalk & RDS** - PaaS, just upload code it handles everything

**Lightsail** - platform to build an apps or website, one-click-to-launch os etc.

**WorkSpaces** - Managed Desktop As Service-DaaS, Win/Linux desktops

## Containers:

**Elastic Container Service (ECS)** - highly scalable, fast, container management service, makes it easy to run, stop & manage Docker containers on a cluster. | **ECR** - registry, docker images

**Elastic Kubernetes Service(EKS)**- runs on AWS & on-prems,manage apps,auto deploy,scales

**Fargate** - serverless compute for containers

**Amazon Serverless Services** - Lambda,S3,DynamoDB,SNS,StepFunctions, Kinesis,Glue,EFS

## Database:

**Aurora**- AWS proprietary,paid database with MySQL,PostgreSQL,auto grows 10GB up to 64GB

**DynamoDB**- key-value & docDB,delivers single-digit millisecond, built-in security,backup & restore

**DynamoDB Global Table** - active-active, read-write multi regions

**ElastiCache** - cache data from in-memory database, | **DocumentDB** - mongoDB, noSQL DB

**RDS** - relational DB, requires a well-defined schema | **QLDB** - ledger, financial transactions

**Redshift** - dataWarehouse, analysis data using SQL & BI tool, OLTP, OLAP

**Glue** - ETL service, for data analytics, serverless | **Neptune**- graphDB,social network,highly Available

**Managed Blockchain** - decentralized blockchain, etherim, hyperledger fabric

**EMR** - Elastic MapReduce is Hadoop framework, used for analysis data

## Developer Tools:

**CodeBuild** - code build serverless, high scalable and available,secure

**CodeCommit** - secure Git-based repositories and source control system

**CodeDeploy** - automates code deploy on any instances, EC2, on-prem

**CodePipeline** - continuous delivery with model,visualize,automate steps, CICD

**CodeStar** - unified UI, in one place | **Cloud9** - online code editor, IDE | **OpsWorks** - chef and puppet

**CodeArtifact** - code dependencies, Maven, Gradle, npm, yarn, twine, pip and NuGet

**Personal Health Dashboard**-provides alerts,remediation guidance,events,proactive notification

**Service Health Dashboard** - shows all region, all services health, info each day, e.g. RSS feeds

## Customer Engagement:

**Rekognition** - add image and video analysis to app, SaaS

**Comprehend** - identity text, phrase, speech etc. NLP (Natural Language Processing)

**Transcribe** - ASR automatic speech reg. Speech-to-text (Automatic Speech Recognition)

**Polly** - ASR automatic text-to-speech

**Translate** - language translate, localization, internationals users

**Connect** - chatbots, call centers | **Lex** - Alexa service, speech record

**Kendra** - document search service, extract info from html,pdf,word,FAQs etc.

**Forecast** - ML forecast, financial/resource, discounts planning, forecasting model

**SageMaker** - service for developers or data scientist to build ML model

**Personalized** - ML service for building real-time personalized recommendations

**Textract** - extract text, handwriting data from scanned docs by AI and ML

## Management, Monitoring, and Governance:

**Auto Scaling** - groups monitor, handle app load automatically of EC2 instances

**Budgets** - set custom budgets for forecasted to usage exceed

**CloudFormation** - model & provision by prog lang or a simple txt file

**CloudTrail** - governance, compliance, operational auditing,risk auditing, log, continuously monitor, retain account related to actions of infrastructure | **CloudTrail Logs** - by default encryption enabled

**X-Ray** - developers to visual analysis, troubleshoot of your app

**CloudWatch** - monitoring & observe, insights to monitor apps, health checks

**CloudWatch - CWAlarm** - trigger alarms, **CWLogs** - for logs,

**CodeGuru** - automatic code review | **AMI - Amazon Machine Image** - info to launch EC2's

**Config** - assess, audit, evaluate, continuously compliance monitors the configs, records,stores configs

**AWS Estimating Cost: Pricing calculator** - estimating cost in cloud,

**Total Cost of Ownership (TCO) Calculator** - calculate cost of running app

**AWS Tracking Cost: Billing Dashboard** - billing dashboard/month usage

**Cost Allocation Tags** - detail level cost report by tags | **Cost and Usage Report** - set of cost, usage data for publish billing reports | **Cost Explorer**- visualize-graphs, charts, understand and manage your cost and usage overtime, forecast usage up to 12 month from your usage

**AWS Monitoring against costs : Budgets** - send alarms when cost/forecasts exceeds the budget, usage, cost | **Billing Alarm** - billing data metrics, monitoring against cost plans, us-east-1

**EventBridge (CloudWatch Events)** - schedule scripts, cron jobs events

**License Manager** - manage your software licenses, aws and on-prem, MS, SAP, Oracle, IBM

**Managed Services** - automates moving infra & compute like S3, DynamoDB, RDS etc.

**Organizations** - allow to manage multiple aws accounts, master and child, consolidated billing, aggregate usage, billing discounts

**Service Control Policy (SCP)** - restricts account privileges, whitelist and blacklist IAM actions

**Control Tower** - setup for govern, secure, compliant multiple account environments

**Secrets Manager** - storing, managing, rotating secrets| **Customer Managed CMK**-mgt by cust,m.key

**AWS Managed CMK**- mgt ur a/c by AWS | **AWS Owned CMK**- mgt for multiple a/cs, its AWS a/c.

**Systems Manager** - operational insights, visibility, controls, patching UI for EC2 and on-prem servers

**Systems Manager Parameter Store**- secure parameter store of hierarchical data, pwd,id,IAM..

**Trusted Advisor**- provides real-time guidelines,reduce cost/workloads,instant performance,improve security, bydef. 7 cores checks, best pract recoms: cost,optimz, performns,secu,fault tol, service limits

## Security, Identity, and Compliance:

**Artifact** - compliance related issue, HIPAA, on-demand,AWS agreements

**AWS Certificate Manager (ACM)** - provision, manage and deploy SSL/TLS Certs

**CloudHSM** - hardware security module, encryption key

**Cognito** - scale million users and support sign-up, sign-in via Google, Facebook, Twitter etc.

**Directory Services** - MS to integrate Active Directory, centralized printers,computers,file share

**Security Hub** - dashboard, quick view to show security and complains status

**Detective** - analyze ,investigate and quickly identify root cause of security issues, DDos

**Abuse** - report suspected AWS service abuse or illegal purpose, spams,DDos,malware attacks

**GuardDuty** - Threat detection, security monitoring for malicious and unauthorized behavior, crypto currency attacks, inputs - logs of CloudTrail Event, VPC flow, DNS, Kubernetes

**IAM** - users you trust and belongs to your organization

**Identity and Access Management Center (IAMC)** - one login, single sign-on

**Inspector** - uses agen: automated security assessment, o/s against knows vulnerabilities

**Macie** - sensitive data, machine learning, pattern matching to S3 (PII)

**Shield** - protect DDos attacks | **Key Management Service (KMS)** - encryption

**Web Application Firewall (WAF)** - web app firewall, 7 layer

**NACL** - firewall at subnet level, allow & deny rule| **Site-to-Site**- secure conn b/w data, can't for VPC's

**AWS Transit Gateway**- connects multiple VPC's, central hub

**Penetration Test** - security assessment without prior approval of AWS on services

**Compute Optimizer**- optimal resource, reduce cost,improve performance by recommend ur workload

**Security Token Service (STS)** - to access temp/limited privileges credentials

## Application Integration:

**Simple Notification Service (SNS)** - notification service, pub/sub

**Simple Queue Service (SQS)** - oldest-10 years service, decuple, deletes after customer reads

**Simple Email Service (SES)** - email service | **Simple Workflow Service (SWF/SWS)** - workflow

**Amazon MQ** - RabbitMQ, ActiveMQ, managed message broker service

## Networking and Content Delivery:

**API Gateway** - app facing component

**CloudFront** - Improves read performance, content cached at edge, DDos

**Direct Connect (DX)** - DC to AWS, bypass internet, lower-latency, privately

**Site-to-Site VPN** - connect publicly but encrypted communications

**Route 53** - DNS, cost-effective, cannot provide secure shell access to EC2

**VPC** - privately connect your VPC, only S3 and DynamoDB support VPC Endpoint Gateway

**VPC Flow Logs** - capture info of IP traffic going to instances

**Private Subnet** - not accessible from internet, using NAT Gateways/Instances allows internet

**Public Subnet** - accessible from internet | **Subnets** - part/partition of your network

**VPC Peering** - connects two VPC's privately, is not transitive

**Transit Gateway** - connect multiple VPC and on-prem to single gateway

**Gateway virtual tape library** - popular backup software

**APN Consulting Partner** - AWS professional services, helps customers | **AWS rePost** - forums

**APN Technology Partner**-providing h/w,connectivity & s/w | **APN Training Partner**-help u learn AWS

**APN Navigate Program**- helps partner become better partner| **AWS IQ**-quickly find prof.help for ur prj

## Storage:

**Backup** - on demand, point-in-time recovery, cross origin and account backups

**Elastic Block Store (EBS)** - high-performance storage service for both throughput & transaction-intensive workloads at any scale, network drive, 1 instance at a time, specific to one AZ

**Elastic File System(EFS)**-simple,serverless,set&forget,elastic file sys,any provision throughput

**S3**- obj storage service offers industry-leading scalability,data availability,security & performance

**S3 Glacier** - secure, durable, and extremely low-cost, data archiving & long-term backup, retrieval time (first byte latency) of minutes or a few hours

**S3 Transfer Acceleration** - transferring files to edge locations for speed

**Snowball Edge** - storage - 80TB, compute - 42TB,

**Snowball Cone** - portable, small device 2.1kg - 8TB

**Snowball Mobile** - 1EB- better than 10PB,truck,GPS, 24/7 video surveillance,security,temp ctrl

**Storage Gateway** - hybrid storage between on-prem and AWS, automatic data encryption

## Architecture:

**Well Architecture 6 pillars** - Operations excellence, Security, Reliability, Performance efficiency, Cost optimization, Sustainability

**Well Architected Framework Principles** - stop guessing capacity needs, prod test system, automate for architectural experimental, allow for evolutionary architecture, drive architecture using data, improve vai game days

**Cloud Best Practices - Design Principles** - scalability, disposable resources, automations, loose coupling, leverable services

**1 pillar: Operations Excellence** - IaaS, refine and reversible changes, anticipate failure, learn

**2 pillar: Security** - protect info, systems, integrate logs, apply/automate security data, events

**3 pillar: Reliability** - auto scaling, automatically failure recovery, manage automation

**4 pillar: Performance Efficiency**- technology, go global in minute,serverless infra,experimental

**5 pillar: Cost Optimization** - adopt consumption mode, measure efficiency, tags, lower costs

**6 pillar: Sustainability**- impacts, sustainability goals, maximize utilizations, adopt infra changes

## Other Services and miscellaneous:

**AppStream 2.0** - app streaming service,

**Sumerian** - VR, AR, 3D applications

**IoT** - support billions of odd devices and messages, connected car, fridge etc.

**Elastic Transcoder** - convert media files from S3 to user require formats

**AppSync** - store realtime mobile, web data, GraphQL

**Ground Station** - satellite

**Amplify** - set of tools develop and deploy scalable mobile and web apps

**Device Farm** - test your mobile/apps like browser developer tools

**Step Functions** - orchestration, to build business critical apps

**Backups** - manage, automate backups

**Disaster Recovery Strategy**- backup and restore,

**FIS** - chaos engineering

**Data Sync** - on prem to AWS data movement, incremental

**Elastic Disaster Recovery** - quickly and easily recover

**Pinpoint** - multiple messaging channel, push notifications, bulk sms