coggle
made for free at coggle.it

Cloud Practitioner certification

- Storage
  - S3
    - Basics
      - Scale automaticaly
      - 200 as httpstatus after a successful upload to a bucket
      - Unlimited storage
      - Obect between 0 to 5 TB
      - Global
      - https://s3-<region>.amazonaws.com/<bucketname>
    - Consistency models
      - Eventuel consistency for UPDATE and DELETE
      - Read after write for new PUT
    - Security
      - Encryption
        - At rest (Amazon encryption mecanisms)
        - SSL during transfert
      - Access control
        - ACL (object level)
        - Bucket policies (bucket level)
        - IAM (service level)
    - Performance
      - S3 Select
      - Multipart upload
      - Transfert acceleration
    - Charges
      - Request
      - Storage
      - Transfert accleration
      - free between s3 and others service in the same region
      - free between bucket of the same region
      - Data transfer
      - Storage management (inventory, objet tagging, etc...)
  - Storage Classes
    - Glacier
      - minimun storage peroid > 90 days
      - very cheap = 0.01 $ / Gb / month
      - 3-5 hours to retrieve data
      - for data archiving
    - Reduced redundancy storage
      - Durability = 99,99%
      - Availabilty = 99,99%
    - Standard
      - Durability (11 nine)
      - Availability = 99,99 %
      - Data are redundeted acrros multiple device and facilities
    - Infrequent access (IA)
      - minimun storage peroid > 30 days
      - Availability = 99,99 %
      - Cheap than stantard class
      - for data that are less frequently accesed but requires rapid access
      - Durability (11 nine)
- Database
  - Redshift
    - OLPT
  - No SQL
    - automatic scaling
    - single digit-milisecond latency
    - DynamoDB
  - Read replica
    - max 5 read replica per RDS instance
    - Scaling
  - Aurora
    - max to 6 copies (2 copie per availability zone)
    - 5 time more fast than mysql
  - RDS
    - PostgresSQL
    - MarioDB
    - SQL server
    - MySql
    - Oracle
    - Types
      - For disaster management
      - Multi-AZ
- Pricing
  - Cloudfront pricing
    - Number of request
    - Type of request (http, https)
    - Data transfer out
  - S3 pricing
    - Storage class
    - Number of Gb stored
    - number of requests
    - data transfer
  - EC2 pricing
    - what determine price ?
      - Promotion (e.g. pay reserved instance with all upfront for 1 year)
      - Load balacing
      - number of instance
      - Machine configuration
      - Machine type
      - time of usage
      - license of payed packages
      - Elastic IP
      - Detailled moniroting (cloud watch each minute instead of defaut 5 min)
    - Fondamental charges
      - Storage
      - Compute
      - Data out
    - Types
      - Pay less as AWS grows
      - Pay less as you reserve
      - Pay as you go
      - Pay less per unit when got more
      - Custom pricing for entreprise
  - Free tier
    - Auto scaling
    - IAM
    - OpsWorks
    - Elasticbeanstalk
    - Cloud formation
    - VPC
  - Consolidated billing
    - Advantages
      - cloud trail can not be aggregated on the root account
      - Billing alert can be configured on the root account as for the linked accounts
      - 20 linked accounts max (you must contact aws for more)
      - unused Ec2 reserved instances are applied for the group
      - Very easy to track costs
      - One billing for multiple accounts
      - get discounts
    - Best practices
      - Use multi factor authentication for the root account
      - use strong password
      - the root account should be used for payment only
  - RDS pricing
    - Storage type and size
    - Number of requests
    - Deployment time (mutli-az, read replica...)
    - Database configuration
    - Database type
    - Number of instances
    - Time of usage
  - Calculators
    - TCO calculator
    - Simply month calculator
      - Estimation of the needed budget per month with a given configuration
  - EBS pricing
    - Out data transfer
    - Snapshoot
    - Volume
    - Number of IOPS
- WhitePapers
  - Architecting for the cloud
    - Design principles
      - Disposable ressources instead of server
        - Boostraping
        - Golden image
      - Scalability
        - scale out (nomber of nodes)
        - scale up (memory, cpu, etc..)
        - stateless component, applications
      - Infrastructure as code
        - cloud formation
        - ElasticBeanstalk
      - Automation
        - etc...
        - cloud watch alerts
        - Autoscaling
        - cloud watch alarm
      - Loose coupling
        - Service discovery (e.g. dns instead of static ip for database server)
        - Rest Api
        - Asynchronous integration (e.g. SQS)
        - Graseful error
      - Service not Server
      - Remove single point of failure
        - Failure detect (e.g. healthcheck)
        - Redundancy
        - Multi data-center resilience
      - Optimize cost
        - Elasticity
        - right sizing
        - Take advantage of variety of purchasing options (e.g. spot instance, reserved instance,etc...)
      - Caching
        - Content (e.g cloudfront)
        - Applicatif (e.g. ElasticCache)
      - Security
        - don't give access to everyone
        - Security as code
  - AWS overview
    - Advantage of cloud computing
      - Increase speed and agility
      - Stop worring about capacity
      - Benifit of the economis of scale
      - Pay only what you use
      - Go global in minutes
      - stop spending money on running and maintaning data centers
    - Cloud deployments models
      - Public cloud
      - Hybrid
      - Private cloud = on premise
    - Cloud computing models
      - PAAS
      - IAAS
      - SAAS
    - Types of cloud
      - AZ : availability zone = 1..n datacenter
      - Region = geographic region (contains at least 2 AZ)
      - Edge location = cloudfront endpoint
    - Global infrastructure
- Computing
  - ElasticBeanstalk
    - Free service
  - EC2
    - Security
      - Security group
        - Virtual firewall
      - Dont use accesskey/secretkey in ec2 instance but IAM role instead ⚠️
    - EBS
      - Types
        - Standard = magnetic
          - Bootable
          - HDD
          - very cheap
        - ST1
          - log processing, bigdata, datawahehousing
          - HDD
          - can not be a boot volume ⛔
        - IO1
          - Bootable
          - use case: Important OLTP data base No-sql databases
          - More than 10000 IOPS
          - SSD
        - GP2
          - Bootable
          - 3-10000 IOPS per Gb
          - SSD
        - cold HDD (SC1)
          - not bootable ⛔
          - infrequent access
          - HDD
      - Replicated automaticly by aws (invisible for users)
    - Elastic load balacing
      - Reserved
        - Convertible
        - Standard
        - Scheduled
      - On demand
      - Spot
        - if the instance is terminated by aws => no fee for a partial hour
        - if the instance is terminated by the cuser => partial hour are considered as a whole hour ⚠️
      - Models pricing
        - Didicated host
        - ALB
- Support
  - Support types
    - Entreprise
      - Severity response
        - Business-critical system down < 15 minutes
        - Production system down < 1 hours
        - Production system impaired < 4 hours
        - System impaired < 12 hours
        - General guidance < 24 hours
      - TAM : technical account manager
      - unlimited contact / unlimited cases
      - tech support by email, chat, phone 24/7
      - $15000 per month
    - Business
      - Severity response
        - Production system down < 1 hours
        - Production system impaired < 4 hours
        - System impaired < 12 hours
        - General guidance < 24 hours
      - unlimited contact / unlimited cases
      - tech support by email, chat, phone 24/7
      - $100 per month
    - developper
      - Severity response
        - System impaired < 12 business hours
        - General guidance < 24 business hours
      - 1 contact / unlimited cases
      - tech support by email in business hour
      - $29 per month
    - Basic
      - No tech support ⛔
      - Free
      - No cases ⛔
- Network & content delivery
  - CloudFront Basics
    - Distribution
      - Definition
        - A set of edge location
      - Types
        - RTPM (streaming)
        - Web
      - Supported operation
        - Read
        - Write
    - Origin
      - Route 53 or another domain hosted somewhere
      - S3
      - ELB
      - EC2
      - Global service
- Identity, security & compliance
  - Security
    - Trusted advisor
      - Service limits
      - Fault tolerance
      - Security
      - Performance
      - Cost
      - Covered axes
    - AWS inspector
      - agent installed on EC2 by the AWS console for security inspection
    - AWS shield (protect from DDos)
      - advanced is not free
      - standard is free
    - WAF
    - Shared responsability model
      - The customer are responsible in the cloud (customer data, iam roles,etc...)
      - AWS are responsible of the cloud security (datacenter, hardisk, etc...)
  - Identity IAM
    - MFA
      - Virtual MFA device (e.g. google authenticator)
      - hard MFA device
    - Access types
      - Programatic acces (access key / secret key)
      - Console access (login / password)
      - SDK
- Management tools
  - CloudFormation
    - free service