* **Cloud Computing:**

Instead of using local servers, use the group of remote servers to manage, store the application and process data through internet.

**Types of cloud computing:**

1) Public cloud

2) Private cloud

3) Hybrid cloud

* **cloud service models:**

1) IAAS (infrastructure as a service)

2) PAAS (platform as a service)

3) SAAS (software as a service)

**Advantages and Disadvantages of cloud:**

**Adv.:**

1) Lower software cost

2) Improve performance

3) Fewer maintained

4) Instant software update

5) Increased data safety

**Dis:**

1) Must and should have reliable internet connection

2) Requires a consistent internet connections

3) Does not work in low speed connection

**AWS (Amazon Web Services):**

Aws is a cloud computing service.

**Q) Why should i learn aws?**

* + Fastest growing cloud computing platform on planet.
  + Largest public cloud computing platform on planet.
  + More organizations are outsourcing their it to aws.
  + The aws certifications are most popular it certifications right now.

**Q) What you will need to learn aws?**

->an aws free tier account

https://www.aws.amazon.com/free

->computer/laptop with Ssh terminal

Windows users need to install putty and putty keygen app (or) windows git terminal

**Certifications of AWS:**

**Associate tier:**

1) Certified solution architect associate

2) Certified developer associate

3) Certified sysops administrator associate

**Professional Tier:**

1) Certified solution architect professional

2) Devops professional

**Specialty tier:**

1) Security specialty

2) Big data specialty

3) Advance n/w specialty

**NOTE:**

---- You can see the exam blueprint in the aws.amazon.com

**Q) What do you know to pass the certified solution architect associate exam?**

1) Aws global infrastructure

2) Security & identity

3) Management tools

4) Storage

5) Database

6) Compute

7) Network & content delivery

8) Messaging

9) Application services

10) Desktop & app streaming

11) AI (artificial intelligence)

12) Business productivity

13) IOT

14) Developer tools

15) Mobile services

16) Analytics

17) Migration

18) Game development

**1) Aws global infrastructure:**

->these are physical machines where your aws is running

They divided into

->18 regions & 55 availability zones currently.

->region is a geographical area. Each region consist of 2 (or more) availability zones.

->availability zone is datacenter.

**Q) What is edge location?**

->edge locations are can (content delivery network's) end points for cloud front.

->there are many edge locations then regions. Currently there are more than 66 edge locations.

->edge locations are using for cache servers.

**2) Security & identity:**

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A) IAM (identity access management):

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Every certification required.

**Password authentication, users, group, admin, it's like user management**

**B) Inspector:**

Inspect the vm.

**c) Certificate manager:**

It will give Ssh certificate.

**d) WAF (web application firewall):**

Application level protection it gives. Normal firewall give you network protection, wave gives application protection, its stop sol injections.

**e) Artifacts:**

It will gives documentation in aws console.

**3) Management tools:**

**a) Cloud watch:**

To monitor vm. And monitor application

**b) Cloud formation:**

It is convert your infrastructure into code. It is a document describe the cloud environment.

**c) Cloud trail:**

Monitor your aws console. If you any changes in aws it will maintain user logs.

**D) Opswork:**

Automatic deploying using chef.

**e) Config:**

It will manage configuration, if you break any configuration it will give warning. If you break any company policy it detects that and give warn.

**f) Service catalog:**

Use for large enterprises.

**g) Trusted advisor:**

Automatic scan your infrastructure and give you an advice

**4) Storage:**

**A) S3 (simple storage service):**

->it is a virtual disk in the cloud.

->we place the objects such as files, images.

->it is object based storage not install dB, game

**B) Glacier:**

->data archival storage service

->using for archive of files from s3

->you should wait 4 to 5 hours to get back the archive data

->it is very low cost

**c) EFS (elastic file service):**

It is file based storage and sharing files b/w multiple vim’s.

**D) Storage gateway:**

Storage gateway is the connect b/w s3 and your datacenter.

**5) Database:**

**A) RDS (relational database service):**

It has db servers such as MySQL, plsql, oracle, Maria dB, etc.

**b) Dynamo dB:** it is non-relational db.

**c) Redshift:**

Use in data warehousing. We can do the as reporting, big data.

**D) Elastic cache:**

It is maintain data cache. For fast performing

**6) Compute:**

**A) Ec2 (elastic compute cloud):**

Basically all ec2 are vim’s in cloud.

**B) Ec2 container service:**

It is a highly scalable container management service that supports docker container.

**c) Elastic beanstalk:**

This service is used to push the code into amazon cloud it will check the application

**D) Lambda:**

AWS Lambda is a server less compute service that runs your code in response to events and automatically manages the underlying compute resources for you.

**e) Light sail:**

For deploying WordPress, joule services and customized website.

**7) Network & content delivery:**

**A) VPC (virtual private cloud):**

It is your private datacenter in aws.

**b) Route53:**

Amazon dns service

**c) Cloud front:**

To deliver your content over the n/w.

**d) Direct connect:**

It is directly connect to aws datacenter, to push data (or) download data.

**8) Messaging:**

**A) SNS (simple notification service):**

Notification, email, text messages

**b) SQS (simple queue service):**

Maintain your application requests in the queue.

**c) SES (simple email service):**

Sending and receiving emails.

**9) Application services:**

**a) Step functions:**

It is visualize what is going in your application.

**B) SWF (simple work flow):**

**c) API gateway:**

It allows to monitor & secure we can access logic from backend.

**D) APP stream:**

Streaming desktop applications to users.

**e) Elastic transcoder:**

It will take care of device compatibility such as TV, desktop, mobile.

**10) Desktop & app streaming:**

**a) Work spaces:**

Amazon Workspaces is Amazon's new fully managed cloud virtual desktop infrastructure (VDI) service.

**b) App stream 2.0:**

Stream desktop application.

**11) AI (artificial intelligence):**

**A) Alexa:**

It is an amazon voice service

**B) Lex:**

**c) Polly:**

It text to voice service. Covert text into .mp3 format

**D) Machine learning:**

It allows you to predict data based on previous performance.

**e) Recognition:**

If you upload an image it will tell what are in the image. Face recognition also available to compare with db.

**12) Business productivity:**

**a) Work docs:**

To store your work documentation in cloud.

**b) Work mail:**

Sending & receiving email.

**13) IOT (Internet of things):**

**14) Developer tools:**

**A) Code commit:**

Same as gather.

**b) Code build:**

To build code such as compile, test,

**c) Code deploy:**

Deploy code into ec2 instance.

**d) Code pipeline:**

Keep track able of code in different environment such as development, testing, production,

**15) Mobile services:**

**A) Mobile hub:**

For mobile development

**B) Cognito:**

Easy to maintain sign in & signup into your mobile application.

**c) Device farm:**

You can test your mobile application in aws datacenter.

**D) Mobile analytics:**

Analysis your mobile app usage

**e) Pinpoint:**

When to deliver your notification & etc...

**16) Analytics:**

**A) antenna:**

It allows run sol quarries in s3.

**B) EMR (elastic map register):**

Process large amount of data, it might be login hours, indexing, financial markets, emr is used for bigdata.

**c) Cloud search:**

It is used to increase search capabilities of website or application

**D) Kinesis:**

It is analysis real-time data. It can capture terabyte of data like financial transactions, social media streams.

**e) Data pipeline:**

For moving data from s3 in objects to RDS, dynamo db. You can setup data pipeline jobs.

**f) Quick sight:**

It is a business analytics tool

**17) Migration:**

**a) Snowball:**

If you want import or export huge amount of disk use this service. For terabytes of data.

**b) DMS (database migration services):**

It will migrate your database to cloud without downtime

**c) SMS (Server migration service):**

It is same as DMS, but here we migrate our server to cloud

**18) Game development:**

It is helpful for gaming application developing