**What is lambda?**

“AWS Lambda is a compute service that lets you run code without provisioning or managing servers. AWS Lambda executes your code only when needed and scales automatically, from a few requests per day to thousands per second.

It is used for running server-less applications. It can be used to deploy functions triggered by events. It is not designed for creating applications which are publicly accessed.

**How can you send request to S3?**

Amazon S3 is a REST service, you can send request by using the REST API or the AWS SDK wrapper libraries that wrap the underlying Amazon S3 REST API.

**What is the relation between Instance and AMI?**

AMIs (Amazon Machine Images) are like templates of virtual machines and an instance is derived from an AMI. AWS offers pre-baked AMIs which you can choose while you are launching an instance, some AMIs are not free, therefore can be bought from the AWS Marketplace.

We can launch different types of instances from a single AMI. An instance type essentially determines the hardware of the host computer used for your instance. Each instance type offers different compute and memory capabilities.

After we launch an instance, it looks like a traditional host, and we can interact with it as we would any computer. We have complete control of our instances; we can use sudo to run commands that require root privileges.

**How to use Amazon SQS?**

It is a highly managed and scalable message service which act as a bridge between components which keep tracks of what is happening between each component.

**How does cloud computing provides on-demand functionality?**

Cloud computing is a metaphor used for internet. It provides on-demand access to virtualized IT resources that can be shared by others or subscribed by you. It provides an easy way to provide configurable resources by taking it from a shared pool. The pool consists of networks, servers, storage, applications and services.

**What is the difference between scalability and elasticity?**

Scalability is the ability of a system to increase its hardware resources to handle the increase in demand. It can be done by increasing the hardware specifications or increasing the processing nodes.

Elasticity is the ability of a system to handle increase in the workload by adding additional hardware resources when the demand increases (same as scaling) but also rolling back the scaled resources, when the resources are no longer needed.

**How to secure your data for transport in cloud?**

Check that there is no data leak with the encryption key implemented with the data you sending.

**What is Redshift?**

Redshift is a fast, fully managed, petabyte-scale data warehouse service that makes it simple and cost-effective to efficiently analyze all your data using your existing business intelligence tools.

**What are the different layers of cloud computing?**

Infrastructure as a Service (IaaS) provides cloud infrastructure in terms of hardware like memory, processor speed etc.

Platform as a Service (PaaS) provides cloud application platform for the developers.

Software as a Service (SaaS) provides cloud applications which are used by the user directly without installing anything on the system. The application remains on the cloud and it can be saved and edited in there only.

**Can S3 be used with EC2 instances?**

Yes, it can be used for instances with root devices backed by local instance storage. By using Amazon S3, developers have access to the same highly scalable, reliable, fast, inexpensive data storage infrastructure that Amazon uses to run its own global network of web sites. In order to execute systems in the Amazon EC2 environment, developers use the tools provided to load their Amazon Machine Images (AMIs) into Amazon S3 and to move them between Amazon S3 and Amazon EC2.Another use case could be for websites hosted on EC2 to load their static content from S3.

**Why do you make subnets?**

If there is a network which has a large no. of hosts, managing all these hosts can be a tedious job. Therefore we divide this network into subnets (sub-networks) so that managing these hosts becomes simpler.

**What is Route table?**

Route Tables are used to route network packets, therefore in a subnet having multiple route tables will lead to confusion as to where the packet has to go. Therefore, there is only one route table in a subnet, and since a route table can have any no. of records or information, hence attaching multiple subnets to a route table is possible.

**What is cloud front?**

It is a content delivery system, which caches data to the nearest edge location from the user, to reduce latency. If data is not present at an edge location, the first time the data may get transferred from the original server, but from the next time, it will be served from the cached edge.

### ****If my AWS Direct Connect fails, will I lose my connectivity?****

### If a backup AWS Direct connect has been configured, in the event of a failure it will switch over to the second one. It is recommended to enable Bidirectional Forwarding Detection (BFD) when configuring your connections to ensure faster detection and failover. On the other hand, if you have configured a backup IPsec VPN connection instead, all VPC traffic will failover to the backup VPN connection automatically. Traffic to/from public resources such as Amazon S3 will be routed over the Internet. If you do not have a backup AWS Direct Connect link or an IPsec VPN link, then Amazon VPC traffic will be dropped in the event of a failure.

### ****How is Amazon RDS, Dynamo DB and Redshift different?****

* Amazon RDS is a database management service for relational databases, it manages patching, upgrading, backing up of data etc. of databases for you without your intervention. RDS is a Db management service for structured data only.
* Dynamo DB, on the other hand, is a NoSQL database service, NoSQL deals with unstructured data.
* Redshift, is an entirely different service, it is a data warehouse product and is used in data analysis.

### ****Can I run more than one DB instance for Amazon RDS for free?****

Yes. You can run more than one Single-AZ Micro database instance, that too for free! However, any use exceeding 750 instance hours, across all Amazon RDS Single-AZ Micro DB instances, across all eligible database engines and regions, will be billed at standard Amazon RDS prices. For example: if you run two Single-AZ Micro DB instances for 400 hours each in a single month, you will accumulate 800 instance hours of usage, of which 750 hours will be free. You will be billed for the remaining 50 hours at the standard Amazon RDS price.

### How can you speed up data transfer in Snowball?

The data transfer can be increased in the following way:

* By performing multiple copy operations at one time i.e. if the workstation is powerful enough, you can initiate multiple cp commands each from different terminals, on the same Snowball device.
* Copying from multiple workstations to the same snowball.
* Transferring large files or by creating a batch of small file, this will reduce the encryption overhead.
* Eliminating unnecessary hops i.e. make a setup where the source machine(s) and the snowball are the only machines active on the switch being used, this can hugely improve performance.

**Can I vertically scale an Amazon instance?  How?**

Yes.  This is an incredible feature of AWS and cloud virtualization.  Spin up a new larger instance than the one you are currently running.  Pause that instance and detach the root ebs volume from this server and discard.  Then stop your live instance, detach its root volume.  Note down the unique device ID and attach that root volume to your new server.   And then start it again.  Voila, you have scaled vertically in-place!!

**What is auto-scaling?  How does it work?**

[Auto scaling](https://mindmajix.com/aws/how-to-launch-amazon-ec2-instances-using-auto-scaling) is a feature of AWS which allows you to configure and automatically provision and spin up new instances without the need for your intervention.  You do this by setting thresholds and metrics to monitor.  When those thresholds are crossed, a new instance of your choosing will be spun up, configured, and rolled into the [load balancer](https://mindmajix.com/aws/creating-an-elastic-load-balancer-in-aws) pool.  Voila, you’ve scaled horizontally without any operator intervention!

**What automation tools can I use to spin up servers?**

The most obvious way is to roll-your-own scripts, and use the AWS API tools.  Such scripts could be written in bash, Perl or another language or your choice. The next option is to use a configurationmanagement and provisioning tools like puppet or better its successor Opscode Chef.  You might also look towards a tool like Scalr.  Lastly, you can go with a managed solution such as Right scale.

**Explain how buffer is used in AWS?**

The buffer is used to make the system more robust to manage traffic or load by synchronizing different component. Usually, components receive and process the requests in an unbalanced way, with the help of buffer, the components will be ([sap training](https://svrtechnologies.com/sap-training)) balanced and will work at the same speed to provide faster services.

**Explain EBS, What type of performance can you expect? How do you back it up? How to improve performance?**

EBS is a virtualized SAN or storage area network. That means it is RAID storage to start with so it’s redundant and fault tolerant. If disks die in that RAID you don’t lose data. Great! It is also virtualized, so you can provision and allocate storage, and attach it to your server with various API calls.

Performance on EBS can exhibit variability. That is it can go above the SLA performance level, then drop below it. The SLA provides you with an average disk I/O rate you can expect. Backup EBS volumes by using the snapshot facility via API call or via a GUI interface like elastic fox.

Improve performance by using Linux software raid and striping across four volumes.

**Difference between S3 and EC2**

**S3:** Amazon S3 is just a storage service, typically used to store large binary files.

**EC2:** An EC2 instance is like a remote computer running Windows or Linux and on which you can install whatever software you want, including a Web server running PHP code and a database server.

**What is ElastiCache?**

ElastiCache is a web service that makes it easy to set up, manage, and scale distributed in-memory cache environments in the cloud.

**What is Dynamo DB?**

Amazon Dynamo DB is a fully managed NoSQL database service that provides fast and predictable performance with seamless scalability. You can use Amazon Dynamo DB to create a database table that can store and retrieve any amount of data, and serve any level of request traffic. Amazon Dynamo DB automatically spreads the data and traffic for the table over a sufficient number of servers to handle the request capacity specified by the customer and the amount of data stored, while maintaining consistent and fast performance.

**What is WAF and benefits of using it?**

AWS WAF is a web application firewall that lets you monitor the HTTP and HTTPS requests that are forwarded to Amazon Cloud Front and lets you control access to your content. Based on conditions that you specify, such as the IP addresses that requests originate from or the values of query strings, Cloud Front responds to requests either with the requested content or with an HTTP 403 status code (Forbidden). You can also configure Cloud Front to return a custom error page when a request is blocked.

Benefits of using WAF:

* Additional protection against web attacks using conditions that you specify. You can define conditions by using characteristics of web requests such as the IP address that the requests originate from, the values in headers, strings that appear in the requests, and the presence of malicious SQL code in the request, which is known as SQL injection.
* Rules that you can reuse for multiple web applications
* Real-time metrics and sampled web requests
* Automated administration using the AWS WAF API

**Different encoding in Redshift**

1. **Raw encoding**

This is the default one, data is stored in uncompressed form. It can be used for all data types. For all sort keys this is used by default.

1. **Byte encoding**

Used for all data types except Boolean. A dictionary will be created for all unique values with an index value. This compresses the data. This is effective when a column contains a limited number of unique values.

1. **Delta encoding**

Used for all data types except Char and VARCHAR. Records the difference between values. This is useful for date time columns. It has 2 variations.

**a) DELTA**: records differences as 1 byte values (8 bit integers)

**b) DELTA32K**: records differences as 2 byte values (16 bit integers)

1. **Text255 and Text32k encoding**

For VARCHAR only. Useful for compressing varchar columns in which the same words recur often. It will replace that word with 1 byte integer value.

1. **Run length encoding**

Used for all data types. This will create a dictionary with token as the value and how many times that value is repeated will be stored.

1. **LZO encoding**

All data types except Boolean, real and double. It works well for CHAR and VARCHAR that store long character strings, JSON etc.

1. **Zstandard encoding**

For all data types. Works good with CHAR and VARCHAR

1. **Mostly Encoding**

Useful when the data type for a column is larger than most of the stored vales required.

Mostly8, Mostly16 and Moatly32 are the different types.

### How can I load my data to Amazon Redshift from different data sources like Amazon RDS, Amazon Dynamo DB and Amazon EC2?

You can load the data in the following two ways:

* You can use the COPY command to load data in parallel directly to Amazon Redshift from Amazon EMR, Amazon Dynamo DB, or any SSH-enabled host.
* AWS Data Pipeline provides a high performance, reliable, fault tolerant solution to load data from a variety of AWS data sources. You can use AWS Data Pipeline to specify the data source, desired data transformations, and then execute a pre-written import script to load your data into Amazon Redshift.

### When should I use a Classic Load Balancer and when should I use an Application load balancer?

A Classic Load Balancer is ideal for simple load balancing of traffic across multiple EC2 instances, while an Application Load Balancer is ideal for micro services or container-based architectures where there is a need to route traffic to multiple services or load balance across multiple ports on the same EC2 instance.

### What does Connection draining do?

Connection draining is a service under ELB which constantly monitors the health of the instances. If any instance fails a health check or if any instance has to be patched with a software update, it pulls all the traffic from that instance and reroutes them to other instances.

**What is fault tolerance?**

When ELB detects that an instance is unhealthy, it starts routing incoming traffic to other healthy instances in the region. If all the instances in a region becomes unhealthy, and if you have instances in some other availability zone/region, your traffic is directed to them. Once your instances become healthy again, they are rerouted back to the original instances.

**AWS Cloud Trail**

AWS Cloud Trail provides inexpensive logging information for load balancer and other AWS resources this logging information can be used for analyses and other administrative work. It has been designed for logging and tracking API calls.

### What are lifecycle hooks used for in Auto Scaling?

Lifecycle hooks are used for putting wait time before any lifecycle action i.e. launching or terminating an instance happens. The purpose of this wait time, can be anything from extracting log files before terminating an instance or installing the necessary software’s in an instance before launching it.

### ****How do I transfer my existing domain name registration to Amazon Route 53 without disrupting my existing web traffic?****

Get a list of the DNS record data for your domain name first, it is generally available in the form of a “zone file” that you can get from your existing DNS provider

Use Route 53’s Management Console or simple web-services interface to create a hosted zone that will store your DNS records for your domain name and follow its transfer process

It also includes steps such as updating the name servers for your domain name to the ones associated with your hosted zone.

For completing the process you have to contact the registrar with whom you registered your domain name and follow the transfer process.

As soon as your registrar propagates the new name server delegations, your DNS queries will start to get answered.

### How does Elastic Beanstalk apply updates?

It prepares a duplicate copy of the instance, before updating the original instance, and routes your traffic to the duplicate instance, so that, in case your updated application fails, it will switch back to the original instance, and there will be no downtime experienced by the users who are using your application.

### ****How is AWS Elastic Beanstalk different than AWS Opsworks?****

AWS Elastic Beanstalk is an application management platform while Opsworks is a configuration management platform. Beanstalk is an easy to use service which is used for deploying and scaling web applications developed with Java, .Net, PHP, Node.js, Python, Ruby, Go and Docker. Customers upload their code and Elastic Beanstalk automatically handles the deployment. The application will be ready to use without any infrastructure or resource configuration.

In contrast, AWS Opsworks is an integrated configuration management platform for IT administrators or DevOps engineers who want a high degree of customization and control over operations.