1. **AWS: EC2, S3, ELB, Auto-scaling, VPC, network management, and datacenter operations, serverless architecture**

Why we use Auto-scaling?

Auto-scaling is like its kind of scale up and scale down your infrastructure, assuming that you have 3 nodes with in your load balancer. Within 3 nodes, one of jvm is, I want to put min and max, assuming that there are 3 nodes, in those one is not working properly due to some kind of memory issue its not working then, the auto-scaling will be looking into it and we have configured the cloud-watch and monitor the health checks and based on that it will check if something goes wrong then it will initiate a new instance. Sometimes we have low traffic and then it scales down as well as per the requirement

Any complex issue that you are faced recently?

I support multiple releases, here actively involved in all releases and also specifically I have resolved one issue recently there is one project where I have done the deployments into qa, uat and prod, where we are creating the environments from scratch, we have these environments, we have deployed the code into qa, uat its working fine but in production it’s not working. Within prod also we have different servers like web logic, apache and within that some of the jvm’s are not working, then I am try to deploy into production it’s not working properly, then I try to get help from different teams but I did not resolve the issue. I did not get proper response from the other teams, and I am unable to resolve the issue immediately. I get the deadline but I written a shell script which will give the list of dependencies, what I was thought is while looking into the log files something wrong with

the dependencies but the app is loading all the files and dependencies but taking the wrong jar files that’s what I am thinking at that time.

To analyze that dependency, I wrote the script to list all dependencies and classes that are using in the source code, which they are using the jar files, with that script what I was knowing is that something wrong with the classes what they are using, that is duplication of classes and in prod environment it is taking the wrong classes for the jar build, whenever its loading it’s got fails. Then i realize that something wrong with the classes and I asked the developers to remove the unnecessary classes and jar files. And they removed it and from class path also, then I can package it deploy it into all kind of environments successfully.

What is instance profile? How do you create a role?

It’s a container for IAM role and you can pass this role information to a EC2-instance when the instance starts. This role gives access permissions to S3 buckets and other repositories where your applications are stored.

We can create IAM instance profile by using AWS CLI

Command to create instance profile is ---

Aws iam create -instance-profile - -instance-profile-name

Different ways to create IAM ROLES:

We can create in aws console

We can create in aws cli,

We can create in the clouf formation template also. Iam: role, hostkeys: aws::iam user. We can create the root instance profile, and put different policies.s3fullacess, admin,

Cross account access from A to B?

Its kind of replica. Where we can create policies, we can copy the same policy to the IAM. So that they can get the same access. We can use IAM roles itself for the delegate access to the accounts.

What is the difference between NACL and SG?

|  |  |
| --- | --- |
| **Security Group** | **Network ACL** |
| Operates at the instance level (first layer of defense) | Operates at the subnet level (second layer of defense) |
| Supports allow rules only | Supports allow rules and deny rules |
| Is stateful: Return traffic is automatically allowed, regardless of any rules | Is stateless: Return traffic must be explicitly allowed by rules |
| We evaluate all rules before deciding whether to allow traffic | We process rules in number order when deciding whether to allow traffic |
| Applies to an instance only if someone specifies the security group when launching the instance, or associates the security group with the instance later on | Automatically applies to all instances in the subnets it's associated with (backup layer of defense, so you don't have to rely on someone specifying the security group) |

What is cfn-init ?

It is a script that reads the template metadata from AWS::CloudFormation::init key and used to

Fetch data from cloud formation

Install packages

Write files to disk

Enable/disable, start/stop service

If you use cfn-init to update an existing file it creates a backup file with .bak extension.

What will happen when you type aaa.com ? [[DOUBT]]]]]

The browser extracts the domain name from the URL

The browser quiries the DNS for the ip address of the URL.

The request sent to the DNS server is smaller than the maximum packet size, and is sent as a single packet.

This packet also includes ip address too. This packet reaches each piece of the network equipment between the client and server, that equipment uses a routing table to figure out what node it is connected to, to be part of the fastest route to the destination.

If that DNS server has the address of the domain then it will returns it, otherwise it will forward the query along the DNS server. This happens recursively as long as the request is fulfilled.

Assuming the DNS request is successful, the client machine now has an IP address that uniquely identifies a machine on the Internet. The web browser then assembles an HTTP request, which consists of a header and optional content. The header includes HTTP version, any relevant browser cookies e.t.c

1. How can you check if the memory usage is 100% and what you need to do to reduce that?

Df –h to check the disk space free. If it is 100% then I will see which directory occupying more space. For that I use du –ksh \* and I try to sort it with –n and I get the details in sorted order of memory usage. Once I get the list of directories which occupying more space then which files are taking more memory I will check those files depending on the files I will try to delete or make a backup by making tar files by compressing it or copying into external server.

1. Related to a server apache is stopping?

Its like a make, starting as a service. If you want to login and logout, then also the service is also running. Then we can put into .profile file. Whenever we login it will kick-off the service automatically.

1. Keep on checking the apache process, we have another external program where we have to check whether it is running or not. If it is not running then go and check the process id, if the pid is not there then it’s in killed state so I need to restart the process. One thing we can use the chkconfig where we can put it under /etc/init.d. That will take care of the start and stop.

What is SSL certificate ?

When it is installed on a web server it activates the padlock and the https protocol and then make a secure connection from the web server to the browser. Mostly SSL is used to secure the credit card transactions. Usually SSL binds the domain name, server name, company’s name together. Every organization must install the SSL on its web server to securely connect to the browser.

How to create a SSL ?

Generate a private key- openssl tool kit is used to generate private key and CSR. This private key is 1024 bit key and is stored in pem format.

**openssl genrsa -des3 -out server.key 1024**

Generate a CSR- Generally this CSR is sent to Certificate Authority, who will verify the identity of the requestor and issues a certificate.

**openssl req -new -key server.key -out server.csr**

Remove passphrase from key- Important reason for the removal of passphrase is APACHE will ask for the passphrase every time you start the webserver.

**cp server.key server.key.org  
openssl rsa -in server.key.org -out server.key**

Generating a self signed certificate- The below command creates a SSL certificate which is temporary and good for 365 days

**openssl x509 -req -days 365 -in server.csr -signkey server.key -out server.crt**

Installing the private key and certificate-

**cp server.crt /usr/local/apache/conf/ssl.crt  
cp server.key /usr/local/apache/conf/ssl.key**

Configuring SSL enabled virtual hosts

Restart apache and Test

1. **Docker:**
2. **container orchestration (e.g. EC2 Container Service, Kubernetes, Mesos)**
3. **git, CI – Jenkins, maven**
4. **chef, Ansible, CloudFormation,**

In chef if you wanted to create a cookbook or recipe to configure apache what you would do?

First I will check with the supermarket, if I find the required cookbook then I will customize it according to my requirements, and try to see if there are any other dependencies in that cookbook and try to download those dependencies also, and also check the resources in the recipe, if there is anything to be customized then I will customize those recipes too.

What resources u use to configure the apache?

First I will create a cookbook with knife command and then by default I will get a default.rb file in the recipes directory of the cookbook as per the requirements I will change the file. Then, I will think of remote file resource, I have to download the apache software if it is not there. Then in that recipes I will include the resources like package (to install apache), and services to start the apache. So these are the resources used to install and configure the apache.

How do you change the values in httpd.conf (modifying the configuration files)?

First thing if I wanted to change the values in some configurations files like for apache its httpd.conf, then I will try to get the attributes and change the values in the attributes, or if I wanted to do something dynamically I will use templates so that I can provide the place holders that are filled by the node attributes when the recipe runs.

What is .

Chef has the precedence for attributes, that when you want to use, at what time we can use.

Before the chef-client run all the attributes collected by ohai, and other attributes mentioned in the cookbooks and environments are rebuilt. After that all the attributes are then merged and applied to a node according to the attribute precedence.

Attribute types:

Default (it resets at the start of chef-client and has lowest precedence),

We have attribute files node or recipe, environment or role. In these high priority goes to role, then environment, then node, then recipe file.

force-default (it ensures that the attributes mentioned in the cookbook takes precedence over a default attribute set by a role or environment),

normal (it has higher attribute precedence than a default one),

override (it has highest precedence than default, force default, normal attributes. A cookbook should ensure that it should use over ride attribute only when required), But in override environment take high priority than role.

force override (it ensures that attribute mentioned in the cookbook takes precedence over override attributes set by role or environment),

automatic (it contains data that is identified by ohai , it cannot be modified and always has highest precedence). When you bootstrap the node the ohai plugin is capture the attributes and put it on the server. Which we cant change the attributes, that has the high priority.

delivery and deployment processes?

Most of the companies follow agile methodologies, as soon as the change made in the version control tool, we should able to check whether the code is compatible with the other already existing code or not and we should able to notify the developers as soon as possible regarding this issues. Whether they have syntax error, or dependency issues or anything we should be able to give the feedback to the developers as soon as possible, for this we have system to implement this like we can use ci, for whether the build is success or not, the code follow the minimum requirements or not.

For continuous delivery, it talks about the deployment part, once the build is done in ci, then the code will deploy to qa, uat, prod environments, then we should able to test the code and get the approvals then we should move to upper environments. For that we should have a system without manual intervention we should be able to do that. There is one more term called continuous deployment which is once we have done with non-prod deployment, then if we want to deploy into prod environment then without manual intervention we can deploy into production. Continuous deployment will do automatic deployment to production.

1. **Monitoring: splunk**

What are monitoring tools you are using?

I am familiar with splunk, also there are some other tools like side scoop, Nagios. Primarily we are splunk and app dynamic we are now implementing for apps as well. I have not too much involved in that but I have an idea about it. Splunk is the on which we are using for log-monitoring.

Splunk administration experience?

I am kind of a user here, where all I am doing here is like creating quries and creating dashboards, all I am going to do is like creating inputs for them, depending upon the company even though we have interested to do those but segregation of work response they don’t give authority to do the things. That’s the problem with some companies, even if we have interest we cant do anything with them, I have installed it in my local machine because of my own interest but I have done indexing and log-forwarding and I have something in my local machine but in enterprise level I don’t get a chance to get administrate the splunk.

Any experience with Nagios?

Nagios, in our current project we are using Nagios, I am supporting different apps, depending upon the app the tools may change. Nagios is open-source lets go with Nagios and try it, for that reason I have used it, for the specific apps I have configured and used Nagios for infrastructure monitoring.