Verisk Jr. Cloud Engineer Interview

Technical Assignment

Goal

The goal of this interview task is to create a script that deploys basic cloud infrastructure, demonstrating the candidate's grasp of foundational scripting and automation concepts.

The candidate may use any resources available to them to accomplish this task, and should be prepared to discuss their solution approach and implementation decisions during any follow-up technical interview.

This task should require no more than 1-2 hours to complete. The candidate will have up to 10 calendar days to complete the assignment from the time that the credentials are sent. If you require additional time, please advise your recruiter.

Technical Assignment

Write a script in any language (feel free to use the AWS SDK https://aws.amazon.com/tools/) that:

1. Launches an EC2 instance and installs a web server of your choice using --user-data
2. Waits until instance is up and running
3. Creates a classic load balancer (previous generation)
4. Registers the EC2 instance with the load balancer

If you are not familiar with web servers, you can use nginx: https://www.nginx.com/

	The solution should be implemented in a language or framework of your choice as a single command which the grading process runs unattended from the command line. The solution may be implemented with multiple scripts, data files, configuration files, or template files, however no manual intervention should be required to accomplish the task

To get started, please email cloudinterview@verisk.com to request access credentials.

AWS Access Key Credentials

To use AWS APIs and run AWS CLI commands, you will need:

Access key: <provided access key>

Secret Key: <provided secret key>

Default region: us-east-1 (instances may not be launched in any other region)

	Please do not share your AWS credentials with anyone else, and *please do not upload any credentials to a public or shared repository* such as github, gitlab, or bitbucket.

AWS Management Console Credentials

You will have access to the AWS Management Console graphical interface to test (view) the results of your script and to terminate any resources created during development and testing. The console is not to be used to create your solution.

Login URL: https://veriskinterviews.signin.aws.amazon.com/console

Username: <provided username>

Password: <provided password>

You may delete intermediate load balancers and EC2 instances that you create using the AWS Console.

AWS API and CLI reference

If you choose to install the AWS SDK https://aws.amazon.com/tools/, then configure your local AWS CLI:

https://docs.aws.amazon.com/cli/latest/userguide/installing.html

https://docs.aws.amazon.com/cli/latest/userguide/cli-chap-getting-started.html

Launch an EC2 instance

Using the CLI, for example: https://docs.aws.amazon.com/cli/latest/reference/ec2/run-instances.html

Parameters to use:

- image-id: ami-cfe4b2b0 (Amazon Linux)
- instance-type: t2.micro (other instance types are not allowed)
- key-name: <provided key name>
- subnet-id: subnet-0350260c

You will also need to assign the following tags to both the instance AND to the EBS volume:

Key=Name, Value=<your AWS account name>

Key=Owner, Value=<your AWS account name>

	Some sample tags, although the exact format will vary depending on your selected AWS scripting or "infrastructure as code" tool approach:
	
	`'ResourceType=instance,Tags=[{Key=Name,Value=<YOURACCT>},{Key=Owner,Value=<YOURACCT>}]'`
	
	`'ResourceType=volume,Tags=[{Key=Name,Value=<YOURACCT>},{Key=Owner,Value=<YOURACCT>}]'`

If you don't assign the tags, you won't be able to create the instance.

Get status of an EC2 instance

Once you run the run-instances command you will need to capture and parse the output to get the instance id, you will need to pass the instance id as a parameter:

https://docs.aws.amazon.com/cli/latest/reference/ec2/describe-instances.html

Create a classic Elastic Load Balancer (ELB)

How to create an ELB:

> https://docs.aws.amazon.com/cli/latest/reference/elb/create-load-balancer.html

Parameters to use:

- Protocol=HTTP
- LoadBalancerPort=80
- InstanceProtocol=HTTP
- InstancePort=80
- subnets: subnet-0350260c
- security-groups: sg-8a433ec0
- load-balancer-name: <your AWS account name>

Register an EC2 instance with the ELB

Connect the EC2 instance with the load balancer:

> https://docs.aws.amazon.com/cli/latest/reference/elb/register-instances-with-load-balancer.html

You need to make sure your instance responds to load balancer health check requests on port 80, more details here:

> https://docs.aws.amazon.com/elasticloadbalancing/latest/classic/elb-healthchecks.html

Deliverables

To successfully complete this assignment, please submit your script and the load balancer DNS name to cloudinterview@verisk.com via email, along with your AWS account name.

Email cloudinterview@verisk.com at any point if you have any questions.

After you submit the deliverables, we will review your submission and the recruiter will reach out to schedule an interview.