CROSS | OVER

Congratulations on making it to this stage of the evaluation. You are obviously very talented as very few people make it to this stage. As we've stated earlier, the companies we represent receive 1000s of resumes for any given role and it is through these difficult assignments where you can differentiate yourself and be noticed. After completion of this final 'real scenario' assignment - there will be a quick technical interview on your delivery then you are ready to be hired.

The project is scoped to be simple and reasonable in size to enable you to demonstrate your enterprise - class skills. Though this is a fictitious example, this scenario is very similar to what you may encounter in your job.

Instructions

- Try to complete as much as possible within the given time frame. If you need more time, please ask for an extension. You must complete full-functionality of the application with industry-level coding style/commenting. Unfinished assignments will not be considered.
- Please note that you are expected to work on the assignment independently. Discussing assignment details with colleagues or any indication of outside help will be considered cheating.
- Please do not expect too much hand-holding as this is an evaluation assignment.
- Read the complete assignment before you start. Understand clearly what is required so that your work will be appropriate and easier.

Overall Objective

You are required to setup a monitoring solution using Icinga. Icinga should monitor the Apache Web Server and the Mysql Database server and send logs to Amazon S3 dynamically using Bash Scripting.

Functional Requirements

An organization runs Linux servers and requests you to setup/configure the following infrastructure:

1. Download, install and configure Icinga solution on the server.
2. Troubleshoot any system issues to ensure availability of services

3. Install Apache web server and a Mysql Database on different Docker containers
4. Ensure that all logs that are generated by the Apache Web Server and Mysql Database are collected dynamically through a Bash Script
5. Those logs should be automatically sent to Amazon s3 at 7 pm daily
6. Ensure proper backups are optimally taken and sent to Amazon S3 bucket as well
7. Write a Chef Recipe (Puppet Manifest or Ansible Playbook) to automate this process.

Other Technical and Non-functional Requirements

The following list of technical specifications should be adhered to

1. Assume missing/unclear requirements to fill the gaps in the specifications.
2. Demonstrate your Administration and scripting skills by choosing a good design.
3. Plan to setup servers, install services, configure them so as to create the system from scratch.
4. Choose a mix of services to use for hands-on, shell scripting, NodeJS, Python that you need to create as part of the system for an efficient design.
5. The web-pages should be protected with login.
6. So there are two major parts to deliver
    1. A deployment manual with detailed step by step process of creating the whole system. It can include other references.
    2. Scripts and code for automating the infrastructure and centralized logging

Disclaimer for an AWS free account:

AWS offers a one-year free usage of their resources, under the Free Tier Agreement. You can find more information about AWS Free Tier by clicking on this link AWS Free Tier.
However, Crossover is in no way responsible for any payment, refund or reimbursement towards any candidate's assignment.

What we will evaluate

1. Efficacy of your submission: fundamentally how well your solution is able to achieve the assignment objective and solve the stated problem.
2. Troubleshooting skills

3. Code quality
4. Design
    1. Clarity and completeness of the deployment manual
    2. Fitness of solution to problem
    3. Efficiency of communication flows between frontend and backend, if applicable
5. Functional completeness

What to deliver

Demonstration Video

Record the video demonstration of your work using a screencast tool like screencast-o-matic (or any other tool you prefer) commenting on the execution of all components. Save the video to your local machine and include it with the delivery package.

Deployment Manual

Create a Doc/Pdf file with the following information

1. Instructions to install and configure servers and services
2. Documentation of all the issues found in the system and that have been fixed
3. Assumptions you have made - it is good to explain your thought process and the assumptions you have made.
4. Requirements that you have not covered in your submission, if any
5. Instructions to configure and prepare the source code to install and run properly
6. Issues you have faced while completing the assignment, if any
7. Constructive feedback for improving the assignment

Source Code

You should deliver the implemented source code including any dependencies. For the dependencies that could not be included due to size, the deployment manual file should have proper instructions on how to download and install them. Include all the scripts written by you. Leave the third party dependencies.

What to submit

Please read this section carefully.

Failing to follow these directions will disqualify you from consideration.

Create and submit an archive named *<your_name>_LinuxSeniorSystemsAdministrator.zip* containing the following

- *<your_name>_LinuxSeniorSystemsAdministrator.zip*
- *<your_name>_LinuxSeniorSystemsAdministrator.zip \Deployment.doc (or pdf etc)*
- *<your_name>_LinuxSeniorSystemsAdministrator.zip \Demo\ < this folder contains the screencast video recording*
- *<your_name>_LinuxSeniorSystemsAdministrator.zip \Src\ < this folder contains the complete source code*
- *<your_name>_LinuxSeniorSystemsAdministrator.zip \Include\ < this folder contains any deployment related packages and other files*

Check that the size of the archive is less than 250 MB. If not, reduce the size of the demo video by removing similar frames and remove the 3rd party dependencies.