Monitor AWS Usage with a Linux Script and Cron Job Integration

Objective: Implement a robust monitoring system to ensure the efficient and cost-effective utilization of resources in the AWS cloud environment.

Architecture:
1. Create AWS EC2, S3 instances.
2. Setup AWS CLI: install awscli, configure aws cli using access keys
3. Shell scripting: Write shell script to monitor resources. Use JSON parsing, use clear echo statements, also write command to display EC2 instances in a more readable way.
4. Store echo statements to a file
5. Build a cron job that runs at a certain interval and updates the above file where one can monitor the AWS services..
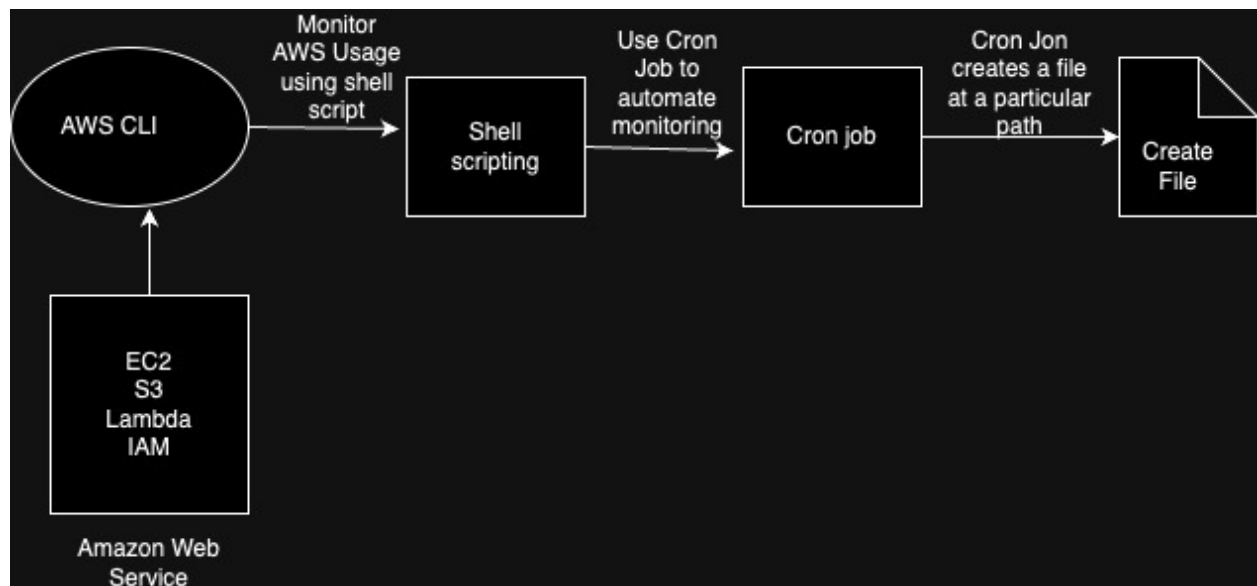

Fig: Project Architecture

1. AWS CLI
Commands:
sudo apt update
sudo apt upgrade
sudo apt install awscli

To check aws is installed run:

which aws
aws --version

Script:
Jq: json format

2. Shell Scripting

```bash
#!/bin/bash

##################
#Author: Suman
#Date: 7th-Nov-2023
#Version: v1
#This script will report AWS resource usage
##################
set -x

#AWS S3
#AWS EC2

#List S3 buckets
echo "Printng list of s3 buckets"
aws s3 ls >> resourceTracker

#list EC2 Instance
echo "Printing ec2 instances"
aws ec2 describe-instances| jq '.Reservations[].Instances[].InstanceId' >> resourceTracker

~
~
```

Output:

```
ubuntu@ip-172-31-25-161:~$ ./aws_resource_tracker.sh
+ echo 'Printng list of s3 buckets'
Printng list of s3 buckets
+ aws s3 ls
2023-11-07 14:38:56 sumanbucketaws
+ echo 'Printing ec2 instances'
Printing ec2 instances
+ aws ec2 describe-instances
+ jq '.Reservations[].Instances[].InstanceId'
"i-04ab73af7f6f09e29"
"i-0558050be701b3469"
"i-04b96e72eb4ce5391"
"i-0a9aafca2af82081d"
```

3. Cron Job
Integrating with a cron job:
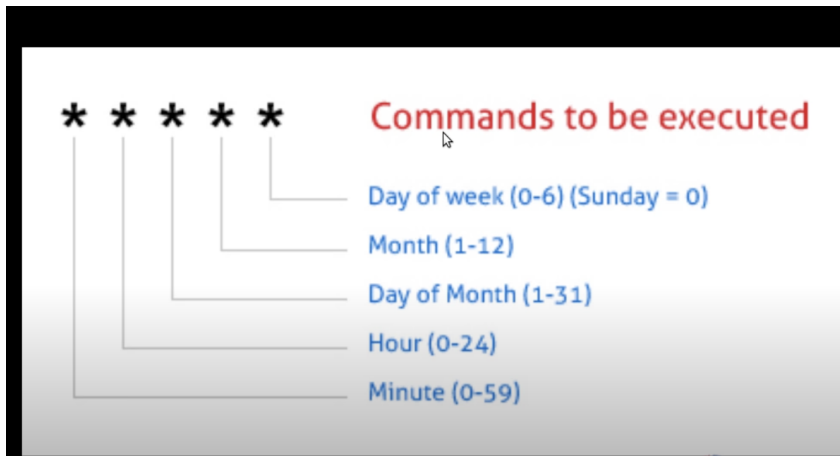
Crontab -e

```
# For more information see the manual pages of crontab(5) and cron(8)
#
# m h  dom mon dow   command
30 15 * * * /bin/sh /home/ubuntu/aws_resource_tracker.sh
```

* means any. Above command means it will trigger at 3:30 everyday
Ctrl + x to exit crontab

4. File:
resourceTracker file is been updated at 3:30 by the cron job.

```
[ubuntu@ip-172-31-25-161:~$ ls -lt
total 37476
-rw-rw-r-- 1 ubuntu ubuntu      246 Nov  7 15:30 resourceTracker
-rwxrwxrwx 1 ubuntu ubuntu      391 Nov  7 15:25 aws_resource_tracker.sh
-rw-rw-r-- 1 ubuntu ubuntu 38363509 Nov  6 17:50 AWSCLIV2.pkg
```

File has the instance details.

```
[ubuntu@ip-172-31-25-161:~$ cat resourceTracker
2023-11-07 14:38:56 sumanbucketaws
"i-04ab73af7f6f09e29"
"i-0558050be701b3469"
"i-04b96e72eb4ce5391"
"i-0a9aafca2af82081d"
2023-11-07 14:38:56 sumanbucketaws
"i-04ab73af7f6f09e29"
"i-0558050be701b3469"
"i-04b96e72eb4ce5391"
"i-0a9aafca2af82081d"
```