Purpose

The purpose of this document is to provide Satellites Ads Inc. with a solution to the advertising demand that is part of the next generation of space advertisement satellites.

Goals and Objectives

Satellites Ads Inc. has two goals/objections that they need to meet. The first is an automated scaling solution to deploy clusters of satellites as demand requires. These satellite clusters are comprised of four servers that can manage advertisements for up to three hundred satellites. During peak demands, Satellite Ads may use up to sixty clusters to meet the advertisement capacity. Second is the ability to monitor the systems and use elastic services to scale the number of clusters needed depending on demand. To meet these goals/objectives, we will need user AWS ECS with AWS EC2 Auto Scaling Group. AWS ECS will provide the container solution needed for the cluster deployment for satellite management. In addition, Cloudwatch will be used as a monitoring solution so that when the satellite demands reach three hundred satellites per cluster, new clusters can be deployed. With the use of Chef, clusters can be created as needed for peak performance hours or when projections show a need for additional clusters.

Scope

The AWS ECS will monitor the cluster metrics for the following. First, the core systems' actual demand plus 10% and there should always be 10% core systems available. Second, a new scaled cluster is created to meet the demand when the threshold of three hundred satellites per cluster is reached. Also, there should always be a minimum of one scaled cluster available. Third, as the demand for satellites decreases, the clusters will be removed. Finally, as the creation/deletion of clusters occur, and if any errors occur, an email should be sent to helpdesk@satelliteads.com.

Functionality

The tools used for this solution are AWS ECS container solution, AWS EC2 auto-scaling group, CloudWatch. ECS is used as the primary container for all the clusters that are created. EC2 is used for load balance and will use Chef cookbooks for the creation/deletion of clusters as needed. When these tools are put in place, they will add or remove resources from the platform as needed and will email the helpdesk as this occurs.

Web Sources

- Validate Infrastructure Code with Test Kitchen
  - https://learn.chef.io/courses/course-v1:chef+LocalDev101+Perpetual/about
- learn_chef_httpd - This basic cookbook configures Apache on Red Hat Enterprise Linux.
  - https://github.com/2f9743hfjkdw9/learn_chef_httpd
- Linux Training Academy - Command Line Cheat Sheet - Used as a reference for locating Linux command-line tools/scripts for testing performance.
  - https://www.linuxtrainingacademy.com/linux-commands-cheat-sheet/