

CMPE 281 - LAB #2 - AWS Elastic Load Balancer

Started: Feb 2 at 11:09am

Quiz Instructions

Lab Documents:

- <http://docs.aws.amazon.com/autoscaling/latest/userguide/as-register-lbs-with-asg.html>
(<http://docs.aws.amazon.com/autoscaling/latest/userguide/as-register-lbs-with-asg.html>)
- <http://docs.aws.amazon.com/autoscaling/latest/userguide/autoscaling-load-balancer.html>
(<http://docs.aws.amazon.com/autoscaling/latest/userguide/autoscaling-load-balancer.html>)
- <http://docs.aws.amazon.com/elasticloadbalancing/latest/classic/elb-create-https-ssl-load-balancer.html> [_](http://docs.aws.amazon.com/elasticloadbalancing/latest/classic/elb-create-https-ssl-load-balancer.html)(<http://docs.aws.amazon.com/elasticloadbalancing/latest/classic/elb-create-https-ssl-load-balancer.html>)
- <http://docs.aws.amazon.com/autoscaling/latest/userguide/as-add-availability-zone.html#as-add-az-console> [_](http://docs.aws.amazon.com/autoscaling/latest/userguide/as-add-availability-zone.html#as-add-az-console)(<http://docs.aws.amazon.com/autoscaling/latest/userguide/as-add-availability-zone.html#as-add-az-console>)

Lab Source Files:

- <https://github.com/paulnguyen/cmpe281/tree/master/labs/lab2>
(<https://github.com/paulnguyen/cmpe281/tree/master/labs/lab2>)

In this Lab, you will be creating a small three instance auto-scaled cluster using the Linux AMI from your previous Lab. You will then configure an Elastic Load Balancer and create load on instances to observe Cloud Elasticity at work.

Note: If you did not already in the previous Lab, make sure to add a "index.html" file in your Apache Web Root. The contents of "index.html" should be:

```
<h1>Health Check Test Page</h1>
```

Key Steps Are:

1. Create or Select a Launch Configuration
2. Create an Auto Scaling Group
3. Using a Load Balancer With an Auto Scaling Group

PART 1 - CREATE LAUNCH CONFIG AND AUTOSCALE GROUP

Tutorial: Set Up a Scaled and Load-Balanced Application

DOC: <http://docs.aws.amazon.com/autoscaling/latest/userguide/as-register-lbs-wit>

[h-asg.html](http://docs.aws.amazon.com/autoscaling/latest/userguide/as-register-lbs-with-asg.html) [_ \(http://docs.aws.amazon.com/autoscaling/latest/userguide/as-register-lbs-with-asg.html\)](http://docs.aws.amazon.com/autoscaling/latest/userguide/as-register-lbs-with-asg.html)

Create or Select a Launch Configuration

Select My AMI:	cmpe281-ami
Instance Type:	T2-Micro (Free Tier)
Launch Configuration Name:	aws-php-autoscale
Enable Monitoring:	Enable CloudWatch detailed monitoring
Select Public IP:	Assign a public IP address to every instance.
Security Group:	cmpe281-dmz (SG)
Select Key Pair:	cmpe281-us-west-2 (or cmpe281-us-east-1)
Select VPC:	cmpe281 (VPC) & Public Subnet

Create an Auto Scaling Group

Create Auto Scale Group:	aws-php-autoscale
Group Size (Starts with):	1
Network:	cmpe281 (VPC) Public Subnet

Use scaling policies to adjust the capacity of this group

Scale between:	1 - 3 instances
Increase when:	AVG CPU >= 40% (for at least 1 minute)
Decrease when:	AVG CPU <= 15% (for at least 1 minute)

PART 2 - CREATE CLASSIC LOAD BALANCER

Tutorial: Set Up a Scaled and Load-Balanced Application

DOC: <http://docs.aws.amazon.com/autoscaling/latest/userguide/as-register-lbs-with-asg.html> [_ \(http://docs.aws.amazon.com/autoscaling/latest/userguide/as-register-lbs-with-asg.html\)](http://docs.aws.amazon.com/autoscaling/latest/userguide/as-register-lbs-with-asg.html)

Create or Select a Launch Configuration

Select My AMI:	cmpe281-ami
Instance Type:	T2-Micro (Free Tier)
Launch Configuration Name:	aws-php-autoscale
Enable Monitoring:	Enable CloudWatch detailed monitoring
Select Public IP:	Assign a public IP address to every instance.
Security Group:	cmpe281-dmz (SG)
Select Key Pair:	cmpe281-us-west-2 (or cmpe281-us-east-1)
Select VPC:	cmpe281 (VPC) & Public Subnet

Create an Auto Scaling Group

Create Auto Scale Group: aws-php-autoscale
 Group Size (Starts with): 1
 Network: cmpe281 (VPC) | Public Subnet

Use scaling policies to adjust the capacity of this group

Scale between: 1 - 3 instances
 Increase when: AVG CPU >= 40% (for at least 1 minute)
 Decrease when: AVG CPU <= 15% (for at least 1 minute)

Using a Load Balancer With an Auto Scaling Group

DOC: <http://docs.aws.amazon.com/autoscaling/latest/userguide/autoscaling-load-balancer.html> (<http://docs.aws.amazon.com/autoscaling/latest/userguide/autoscaling-load-balancer.html>)

Create ELB (Classic Load Balancer)

Name: aws-php-elb-classic
 VPC: cmpe281 (select public subnet)
 SG: cmpe281-dmz
 Port: 80
 Health Check: Default path, Unhealthy Checks: 2, Healthy Checks: 4
 Add Instances: Select running instance (from aws-php-autoscale)
 Edit Auto Scale Group: aws-php-autoscale
 Select ELB: aws-php-elb-classic

Expanding Your Scaled and Load-Balanced Application to an Additional Availability Zone

DOC: <http://docs.aws.amazon.com/autoscaling/latest/userguide/as-add-availability-zone.html#as-add-az-console>

Select Auto Scale Group: aws-php-autoscale
 Select Edit / Details / AZs: Select two Public Subnets (in us-west-1a and us-west-1b)
 Set the Desired and Min to: two instances

Question 1

5 pts

Submit a PDF document with screenshots showing:

- Your Auto Scale Group in the EC2 Dashboard showing Instances In Service.
- Your Load Balancer's Description Page in the EC2 Dashboard showing load balancer's AZ configuration.

Upload

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