

CS15-319 / 15-619

Cloud Computing

Recitation 6

October 1st and 4th, 2013

Announcements

- Encounter a general bug:
 - Post on Piazza
- Encounter a grading bug:
 - Post Privately on Piazza
- Don't ask if my answer is correct
- Don't post code on Piazza
- Search before posting
- Post feedback on OLI

Project 2

- Introduction and APIs
 - Single Instance Benchmarks
- Updated: Elastic Load Balancing (Updated)
 - Elastic Load Balancer
 - Static Load Benchmarking
- **AutoScaling on Amazon**
 - Auto Scaling



Available Modules

- UNIT 3: Virtualizing Resources for the Cloud
 - Module 6: Introduction and Motivation
 - Module 7: Virtualization
 - Module 8: Resource Virtualization - CPU
 - Module 9: Resource Virtualization - Memory
 - Module 10: Resource Virtualization – I/O
 - Module 11: Case Study
 - Quiz 3: Virtualizing Resources for the Cloud

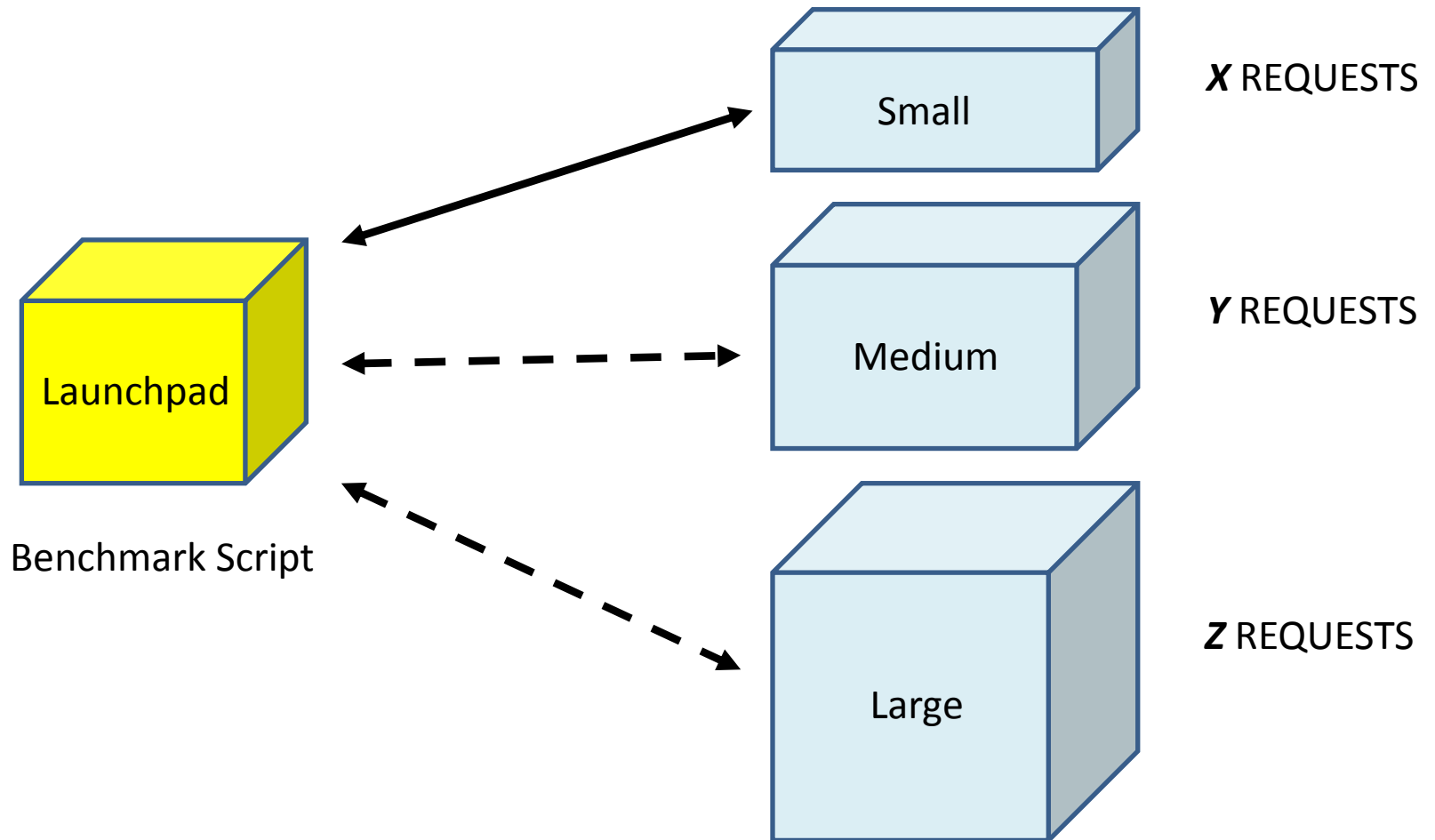


Piazza Questions

- Script/Program must be under the same folder as the benchmark folder
- When trying to run the apache benchmark, please make sure that you are not including the HTTP in front of DNS
 - `apr_sockaddr_info_get()` for `http::`: Unknown error 14642 (14642)
- Manual grading the Static Load Benchmarking Checkpoint Question #3
 - Due to EC2 variations

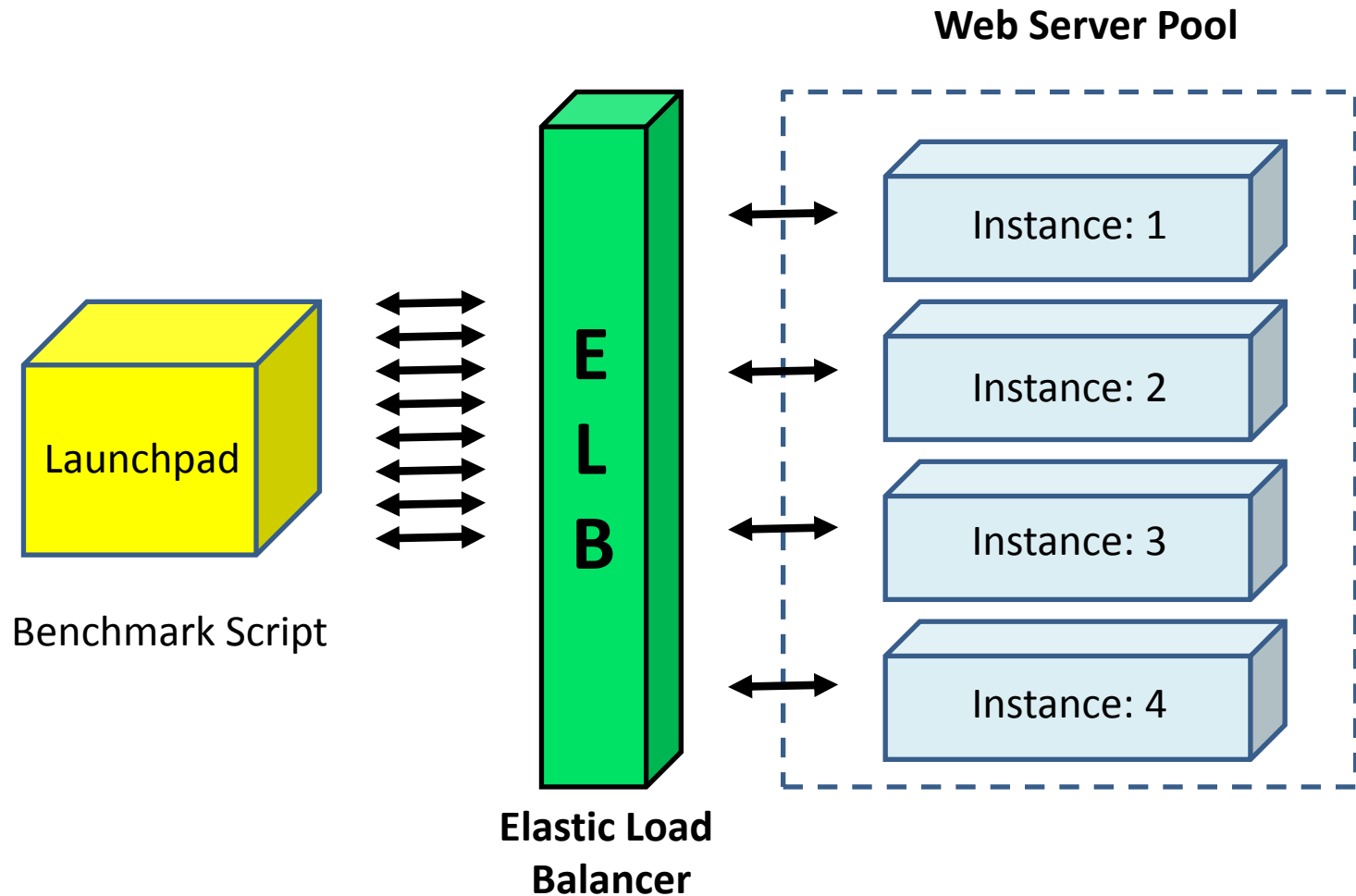
Elasticity

- Vertical Scaling



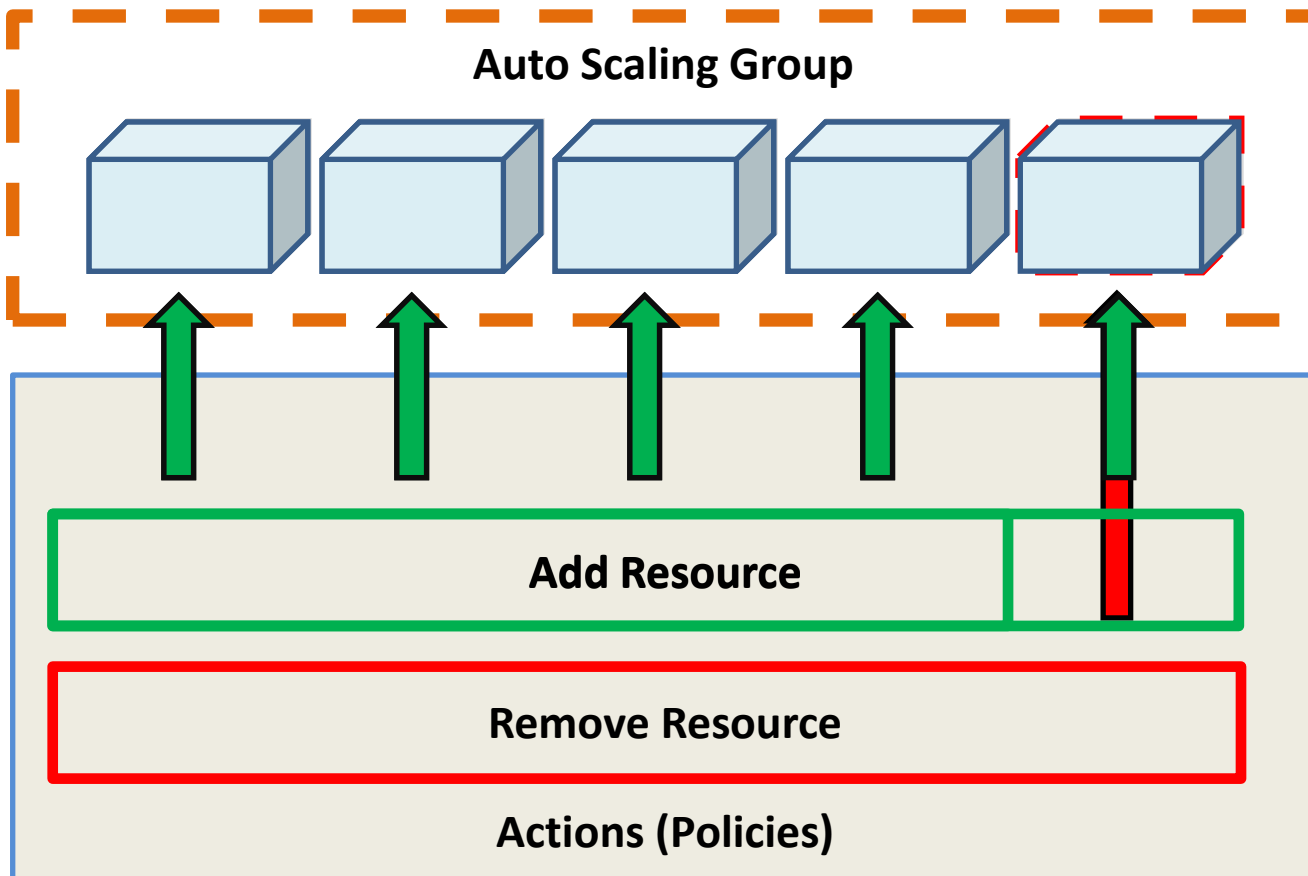
Elasticity

- Horizontal Scaling



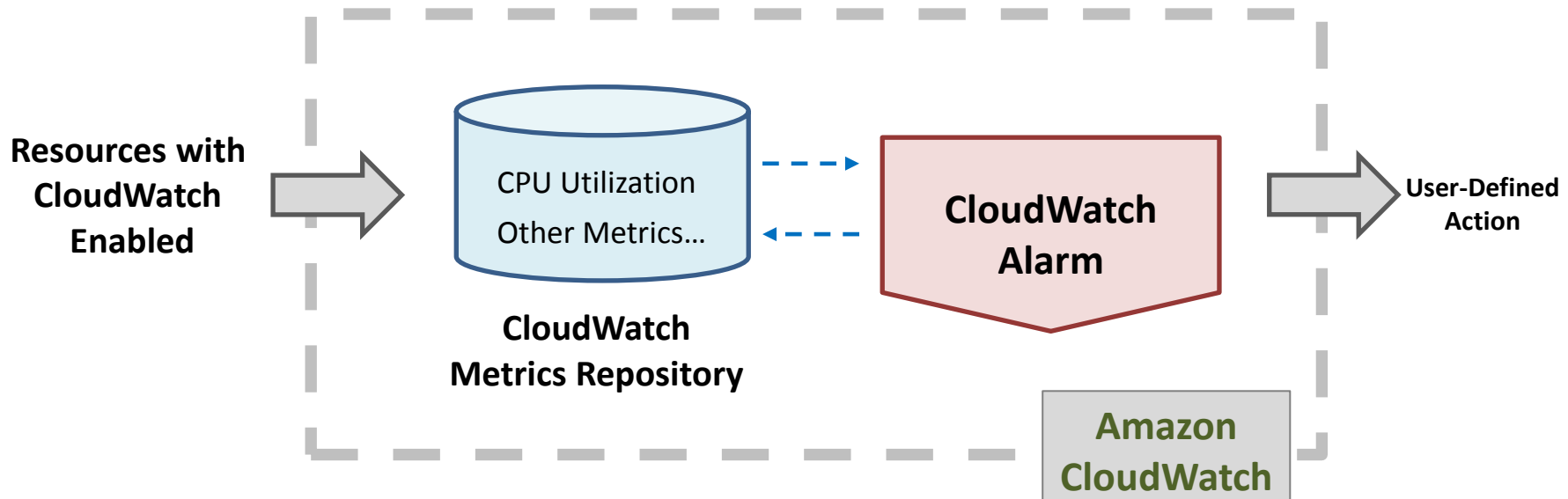
Elasticity

- Amazon's Auto Scaling Service



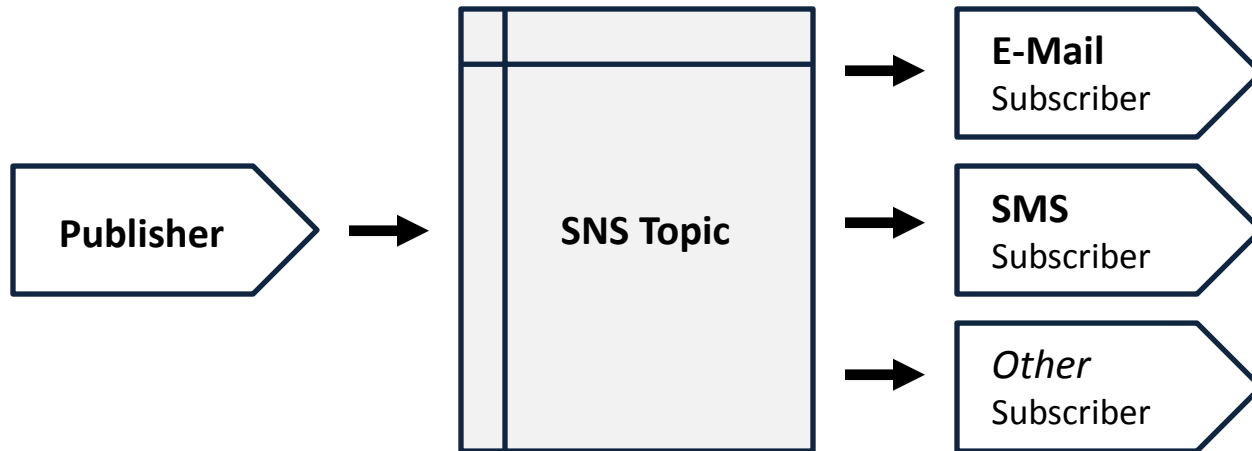
Amazon's CloudWatch Alarm

- Monitors CloudWatch metrics for triggers and invokes a defined action



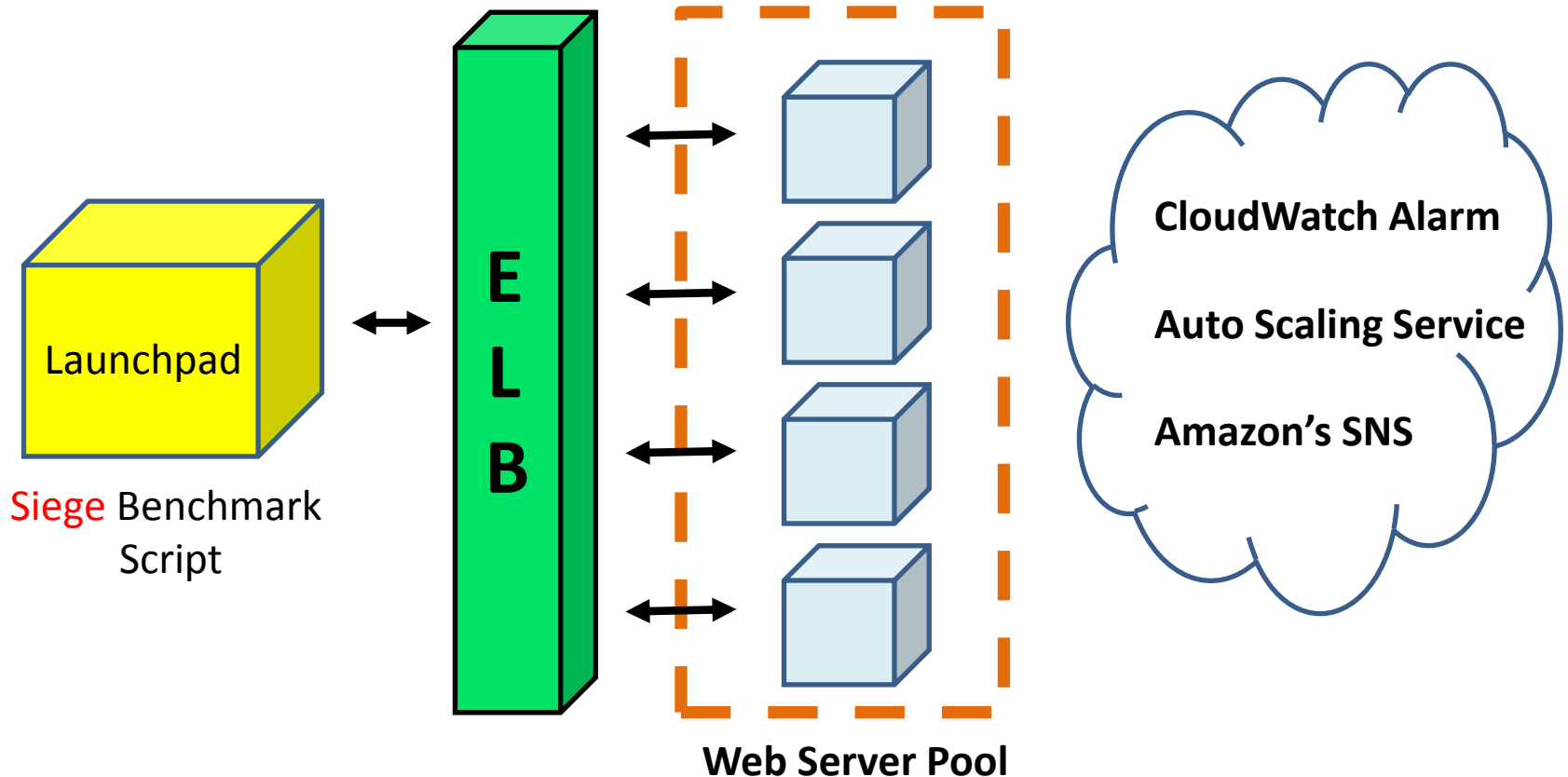
Amazon's SNS

- SNS (Simple Notification Service)
 - Messaging Service



Your Task

- Build Infrastructure to Test Benchmark Requests



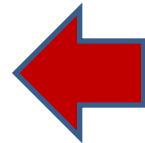
Resources

- Amazon's Auto Scaling Service
 - <http://aws.amazon.com/autoscaling/>
- Amazon's CloudWatch Alarm
 - <http://aws.amazon.com/cloudwatch/>
- Amazon's SNS (Simple Notification Service)
 - <http://aws.amazon.com/sns/>

Upcoming Deadlines

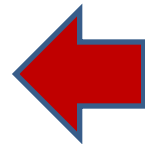
- Project 2:

AutoScaling on Amazon (Gradebook) (Learning Dashboard)		
Auto Scaling	Checkpoint	Available 9/30/13 12:01 AM Due 10/6/13 11:59 PM



- Unit 3:

UNIT 3: Virtualizing Resources for the Cloud	
Module 6: Introduction and Motivation (Gradebook) (Learning Dashboard)	
Module 7: Virtualization (Gradebook) (Learning Dashboard)	
Module 8: Resource Virtualization - CPU (Gradebook) (Learning Dashboard)	



Demo Outline

- 1. Create Auto Scaling Group using CLI
 - Install Auto Scaling CLI
 - Create Auto Scaling Launch Configuration
 - Create Auto Scaling Group
 - Create Auto Scaling Policy
 - Configure SNS
 - Delete Auto Scaling Group
- 2. Create Auto Scaling Group using Java API

Install Auto Scaling CLI

- Set JAVA_HOME variable
- Set AWS_AUTO_SCALING_HOME & PATH variable
- Set AWS_CREDENTIAL_FILE variable
- Verify
 - as-cmd
- <http://docs.aws.amazon.com/AutoScaling/latest/DeveloperGuide/UsingTheCommandLineTools.html>

Create Auto Scaling Launch Configuration

- `as-create-launch-config`
LaunchConfigurationName --image-id *value* --
instance-type value
- <http://docs.aws.amazon.com/AutoScaling/latest/GettingStartedGuide/CreateASGroup.html#create-auto-scaling-group>

Create Auto Scaling Group

- `as-create-auto-scaling-group`
AutoScalingGroupName --availability-zones *value[,value...]* -- launch-configuration *value* -- max-size *value* --min-size *value*
- `as-describe-auto-scaling-groups`
[AutoScalingGroupName]
- <http://docs.aws.amazon.com/AutoScaling/latest/GettingStartedGuide/CreateASGroup.html#create-auto-scaling-group>

Create Auto Scaling Policy

- `as-put-scaling-policy PolicyName --type value -
-auto-scaling-group value --adjustment value`
- <http://docs.aws.amazon.com/AutoScaling/latest/DeveloperGuide/as-scale-based-on-demand.html>

Configure SNS

- Create a SNS topic
- Subscribe to topic with email
- `as-put-notification-configuration`
`AutoScalingGroupName --notification-types`
`value --topic-arn topic-ARN`
- <http://docs.aws.amazon.com/AutoScaling/latest/DeveloperGuide/ASGettingNotifications.html>

Delete Auto Scaling Group

- Terminate all instances
 - `as-update-auto-scaling-group` *AutoScalingGroupName*
- Delete Auto Scaling Group
 - `as-delete-auto-scaling-group` *AutoScalingGroupName*
- Delete Auto Scaling Launch Configuration
 - `as-delete-launch-config` *LaunchConfigurationName*
- <http://docs.aws.amazon.com/AutoScaling/latest/GettingStartedGuide/DeleteASGroup.html>

Create Auto Scaling Group using Java API

- Useful packages
 - `com.amazonaws.services.autoscaling`
 - `com.amazonaws.services.autoscaling.model`
- http://aws.amazon.com/articles/3586?_encoding=UTF8&jiveRedirect=1