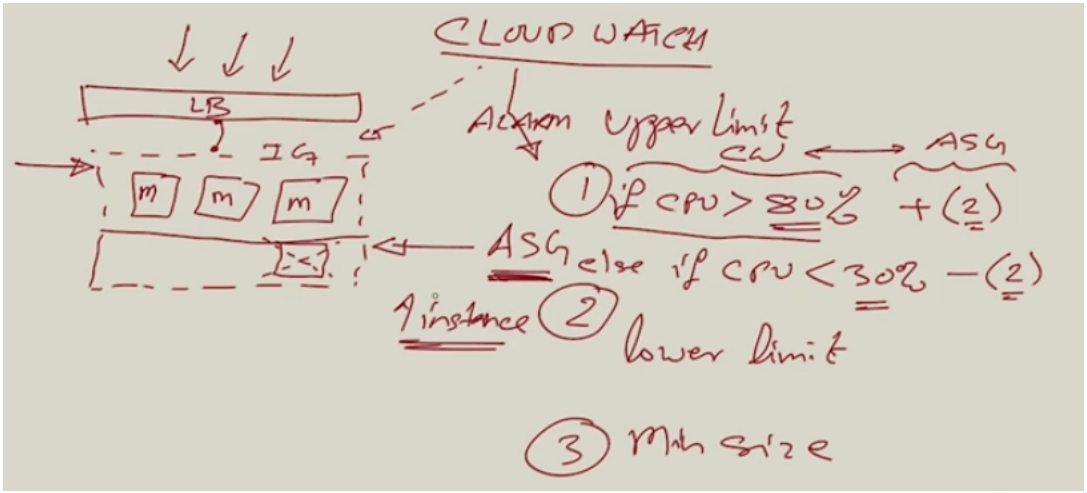
Try it out objective

Use this hands-on to get started with launch templates (LT) and auto scaling group (ASG). You'll learn how to use the elasticity tools and setup an application for high availability.

The goal

The following are the goals of this hands-on:

1. Understand the elasticity tools and services by AWS
2. Create a target group (TG) with EC2 instances
3. Create a load balancer (LB)
4. Associate a TG with the LB
5. Create a launch template (LT)
6. Setup the auto scaling group (ASG)
7. Cleaning up all the resources



From module 7a - Autoscaling principles (6:56)

Please note if a field (short for text field/text area/checkbox/radio/dropdown/list or any other UI element) is not specified in the following steps, it means the default value of the field set by AWS needs to be used. No change is needed for those fields as part of this hands-on.

A. Hands-On: Setup EC2, TG and LB

1. Open the EC2 management console at https://console.aws.amazon.com/ec2/ (you will be required to sign in)
2. Ensure the region is **N Virginia**
3. Follow the steps detailed in the earlier "Try it out" exercises to setup two EC2 instances, a TG and the LB
4. Hit the DNS of the LB and ensure the page is alternating between the two instances

B. Hands-on: Create a Launch Template (LT)

1. Go to the EC2 management console at https://console.aws.amazon.com/ec2/
2. Ensure the region is **N Virginia**
3. In the left navigation, under Instances, choose **Launch Templates**
4. Click on the **Create Launch Template** button (right side top of the screen)
5. Under **Launch template name and description "**card**"**, use the following values -
   a) In the **Launch Template Name** field paste the following value -

   ```
   web-lt
   ```

   b) In the **Template version description** field paste the following value -

   ```
   Web application launch template v1
   ```

c) Click on the **checkbox** under Auto Scaling guidance

6. In the **Amazon machine image** (AMI) card click on the dropdown and observe a **search field** appear at the **top of this dropdown**. Paste the following **search criteria** and hit **enter**

```
amazon linux 2
```

7. **Select** the entry from the dropdown which looks like "**Amazon Linux 2 AMI (HVM), SSD Volume Type**", this should be the **first entry**

8. Under the **Instance type** card click on the instance type dropdown and observe a **search field** appear at the **top of this dropdown**. Paste the following **search criteria** and **select t2.micro**

```
t2.micro
```

9. Under the **Network settings** card use the **SG created as part of the earlier exercise** which opens ports for HTTP (80) as well as SSH (22)

10. Expand the **Advanced details** card and paste the following script in the **User data** field -

Important note - please copy the complete script properly. A typical mistake is to not select the first and the last few characters.

```
#!/bin/bash
yum update -y
yum install httpd -y
service httpd start
chkconfig httpd on
IP_ADDR=$(curl http://169.254.169.254/latest/meta-data/public-ipv4)
echo "ASG instance with IP $IP_ADDR" > /var/www/html/index.html
echo "ok" > /var/www/html/health.html
```

11. Click on **Create launch template** button
12. Click on **View launch templates** button. This will bring you back to the EC2 management console where the launch template will be listed

C. Hands-On: Create the Auto Scaling Group (ASG)

1. Go back to the browser tab EC2 management console
2. In the left navigation, under **Auto Scaling**, choose **Auto Scaling Groups**
3. Click on the **Create Auto Scaling group** button
4. Step 1 - Choose launch template
    a) Under **Name** card for the **Auto Scaling group name** field paste the following value -

    ```
    web-asg
    ```

    b) Under **Launch template** “card” for the **Launch template dropdown** select the **web-lt** created in the earlier step
    c) Click on the **Next** button
5. Step 2 - Choose instance launch options
    a) Under **Network** card ensure the **default vpc** is already selected
    b) Click on the **Availability zones and subnets** dropdown then **click on all the availability zones** listed **one after the other** until all the AZs are selected
    c) Click on the **Next** button
6. Step 3 - Configure advanced options
    a) Under the **Load balancing card** select the **radio** button for **Attach to an existing load balancer**

b) Under the **Attach to an existing load balancer** card select the target group created in the earlier step/exercise (should be **web-tg**) from the dropdown **Existing load balancer target groups**

c) Under the **Health checks** card set the **Health check grace period** field value to **180** (the default value may be 300, such values can change from time to time)

d) Click on the **Next** button

7. Step 4 - Configure group size and scaling policies

a) Under the **Group size** card set the **Maximum capacity** field value to **2**

b) Under the **Scaling policies** card click on the radio button for **Target tracking scaling policy**

c) Set the **Target value** field value to **80** (the default value may be 50, such values can change from time to time). Instead of specifying a lower and a high utlization limits, a single value can be specified too. ASG will automatically add/remove instances within the min/max group size.

d) Set the **Instances need** field value to **180**

e) Click on the **Next** button

8. Step 5 - Add notifications

a) Click on the **Next** button (no change is needed for this step)

9. Step 6 - Add tags

a) Under the **Tags** card **click** on the **Add tag** button

b) Paste the following value for the **Key** field (case sensitive)

```
Name
```

c) Paste the following value for the **Value** field

asg-instance

d) Click on the **Next** button

10. Step 7 - Review
    a) **Click** on the **Create Auto Scaling group** button at the **bottom of the page**
11. The ASG and the instances will take about 5 minutes to get setup (can happen sooner)
12. Copy the **DNS** of the **LB** and paste in a **new browser tab** and keep hitting **refresh** button (or F5 depending on the browser)
13. Observe the page text upon each refresh (The html with ASG instance will be included)

D. Hands-On: Cleaning up!

1. Go back to the browser tab EC2 management console
2. Visit the autoscaling group page and delete it (this take about 5 mins, can be done sooner)
3. Visit the load balancer page and delete it
4. Visit the target groups page and delete the TG
5. Terminate both the EC2 instances (EC2 created by the ASG will be auto terminated)