Introduction to Amazon CloudFront

**Lab Details:**

1. This lab walks you through to Amazon CloudFront. In this lab you will create an Amazon CloudFront distribution that will use a CloudFront domain name in the url to distribute a publicly accessible image file stored in an Amazon S3 bucket.
2. Duration: 01:00:00 Hrs
3. AWS Region: US East (N. Virginia)

**Tasks:**

1. Login to AWS Management Console.
2. Upload an image to existing sample S3 bucket namely with **Numeric Digits** .
3. Make that uploaded image public.
4. Create a new Amazon CloudFront distribution
5. Make your CloudFront distribution to serve that image file by selecting your created bucket.
6. Test your created distribution on browser

**Steps:**

1. Launch your lab environment by clicking on **Start Lab** button.
2. Once your lab environment is created successfully your **Console Login** button will be active, Now click on **Console Login** button, this will open your **AWS Console** Account for this lab in a new tab.
3. Choose S3 from services tab from top menu.
4. Select bucket from the list namely with **Numeric Digits**
5. Now,Upload an image to the bucket
6. **Make Image Public :**
   1. **Click on image name, You will see the image details like Owner, size, link etc.**
   2. **Open image Link** in a new tab.
   3. You will see **AccessDenied** message, means the object is not publicly accessible.
   4. Keep this browser tab open, but return to the web browser tab with the S3 Management Console, and goto your bucket and open your uploaded image again.
   5. click the **Permissions** tab, then configure:
      1. Under the **Public access** section, select **Everyone**.
      2. Select **Read object**
      3. Click **Save**
7. Now copy the link of the image file to your clipboard.
8. Paste the link in a new browser tab, then press **Enter**.
9. If you can see your uploaded image in browser, It means your content is publicly accessible. If not it means you need to check your object permission and make it to public
10. Now your ready to create your distribution.
11. Select CloudFront from services menu.
12. Now your on CloudFront Dashboard, Click here on **Create Distribution** button.
13. Select a delivery method **Web**
14. Now configure distribution as follows-:   
    **- Origin Domain Name:** You can see the origin name like **bucketName.s3.amazonaws.com**  
    Here **bucketName** is your bucket name in which you uploaded object in step 5. Select this Origin Domain Name.  
    - No need to change anything in configuration, just scroll down and click on **Create Distribution**
15. Now you can see the **Status** column shows **In Progress** for your distribution. After Amazon CloudFront has created your distribution, the value of the **Status** column for your distribution will change to **Deployed**. At this point, it will be ready to process requests. This should take around 15-20 minutes. The domain name that Amazon CloudFront assigns to your distribution appears in the list of distributions. It will look similar to *sajuiurenbrt.cloudfront.net*
16. Amazon CloudFront now knows where your Amazon S3 origin server is, and you know the domain name associated with the distribution. You can create a link to your Amazon S3 bucket content with that domain name, and have Amazon CloudFront serve it.
17. For testing you distribution, copy your domain name and append your image name which you uploaded to s3 after a slash to the domain name, so your test link look like -: *sajuiurenbrt.cloudfront.net/myimage.jpg*
18. Now Paste the link in a new browser tab, then press **Enter**. you can see your uploaded image
19. You can see that how faster the CloudFront URL of the image is loading as compare to s3 URL. When end users request an object using cloudFront domain name, they are automatically routed to the nearest edge location for high performance delivery of your content.
20. **Configuring custom error pages:**
    1. We can create the custom error pages that we want CloudFront to return to viewers when our origin returns HTTP 4xx or 5xx errors. Save the pages in a location that is accessible to CloudFront
    2. In this example we are using the same bucket folder which we used to create distribution, folder name is **customeErrors**
    3. To configrue custom error page, go to S3 dashboard and select bucket **yourbucket**
    4. Now create a folder in bucket namely **customeErrors**
    5. Now in bucket click on folder **customeErrors**
    6. Inside this folder upload your custome HTML page for showing error and make it public.
    7. Now Goto cloudFront Dashobard and select your created distribution and click on **Distribution Settings**.
    8. On setting page you can see various settings tabs, select **Error Pages** Tab from them.
    9. On error setting page , click on **Create custom error response** button.
    10. Now we need to setup our custom error page, Select **404: Not Found** from Http error code.
    11. Next, Select **Yes** from Customize Error Response.
    12. Next, Enter your **Response Page Path** like **/customeErrors/yourpage.html** .
    13. Finally, select **200: Ok** from **HTTP Response Code** .
    14. Now go to distribution list and wait for your distribution to complete State to change **Deploy**
    15. Once state changed to **Deploy**, for testing your error page enter the URL of an object which is not exists in your bucket with cloudFront domain name look like **sajuiurenbrt.cloudfront.net/abc.jpg**
    16. If you can see your HTML error page in the browser, means you successfully setup you custom error page.
21. **Restricting the Geographic Distribution of Your Content :**
    1. If you need to prevent users in selected countries from accessing your content, you can specify either a whitelist (countries where they can access your content) or a blacklist (countries where they cannot) by using restrictions
    2. On distribution setting page in settings tabs, select **Restrictions** and select Geo Restriction and click on **edit**.
    3. Now from setting form select **Yes** from **Enable Geo-Restriction**
    4. Next select Restriction Type accordingly for now select **Blacklist**
    5. Next selct county you want to restrict the content for now select **India** and click on yes
    6. Now go to distribution list and wait for your distribution to complete State to change **Deploy**
    7. Once state changed to **Deploy**, for testing retriction enter the your Domain of your cloudFront object in browser and you can see a error message like **403:Error The Amazon CloudFront distribution is configured to block access from your country.**
    8. If you see the error means you successfully restricted your contents.
22. **Invalidating Files:**
    1. f you need to remove a file from CloudFront edge caches before it expires you can use invalidate setting.
    2. Invalidate the file from edge caches, Means the next time a viewer requests the file, CloudFront returns to the origin to fetch the latest version of the file.
    3. To invalidate files, you can specify either the path for individual files or a path that ends with the \* wildcard, which might apply to one file or to many, as shown in the following examples:  
       /images/image1.jpg  
       /images/image\*  
       /images/\*
    4. On distribution setting page in settings tabs, select **Invalidations** and select **Create Invalidation**.
    5. Now in text box For the files that you want to invalidate, enter one invalidation path per line. like /images/\*, for now make it for all wiht **/\***
    6. Once this process is complete, the object cached on the Edge Locations will be removed from them and the new version will be cached the next time it is requested.
23. You have successfully completed the lab.