Report on the third laboratory

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The goal :

The main goal of the third laboratory was to create a worker located on the cloud that does some work that a client needs. Thus, the client and the worker have to be able to communicate and exchange resources.

In the first part, the client sends integers to the worker through an amazon simple queue service. Then the worker fetches these integers from the queue, calculates the mean, the minimum, the maximum of these numbers and sends back the response to the client through another queue.

In the second part, the client and the worker share images with each other thanks to the buckets of amazon S3. Whenever new images are loaded on S3, workers retrieve and process them, then export results back on S3.

Description of the project :

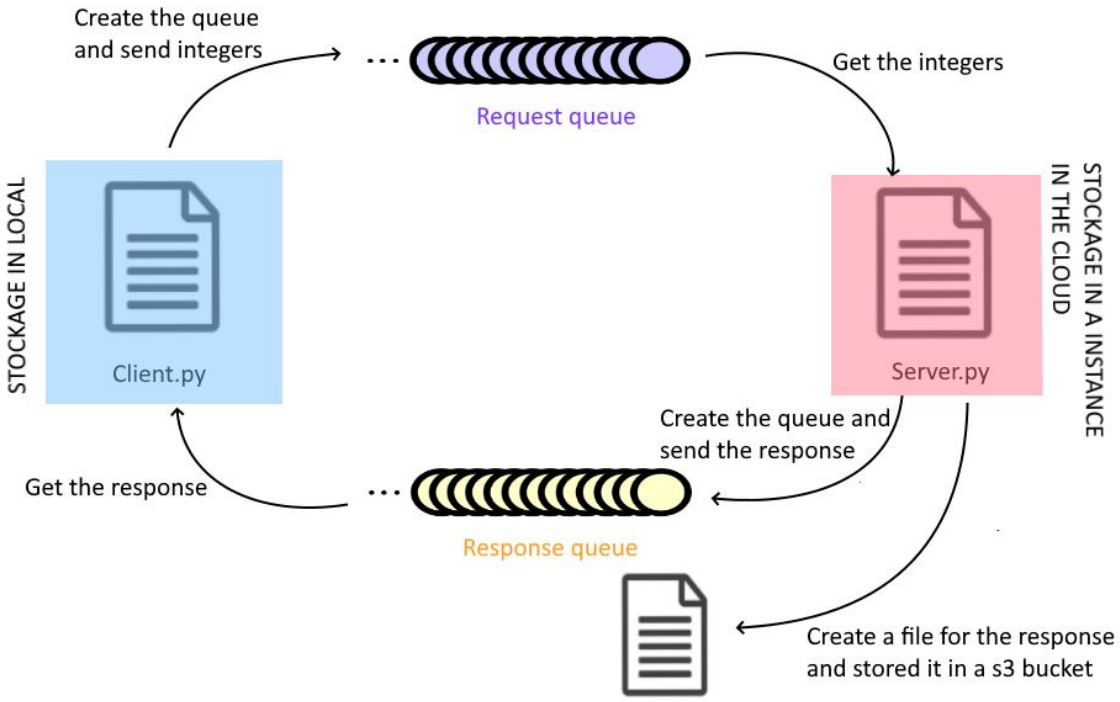
1) Operations on a list of integers

To achieve this part, we create an EC2 instance. We will execute a python file named *server.py* on this instance. This file will create two SQS.Queue instances (request queue and response queue), and an S3 instance. It will then wait for messages on the request queue in order to perform operations on these messages.

Then, we execute a file named *client.py* in our client. This program will read integers in a file named *input.txt* and send those integers to the request queue. It will then wait for a response from the response queue.

Once the server has received those values, it will determine the mean, the minimum, the maximum and the median of those values and send those numbers to the response queues. Those results are also stored on the S3 instance.

Finally, the client receives the messages from the request queue. Those results are printed on the standard output.

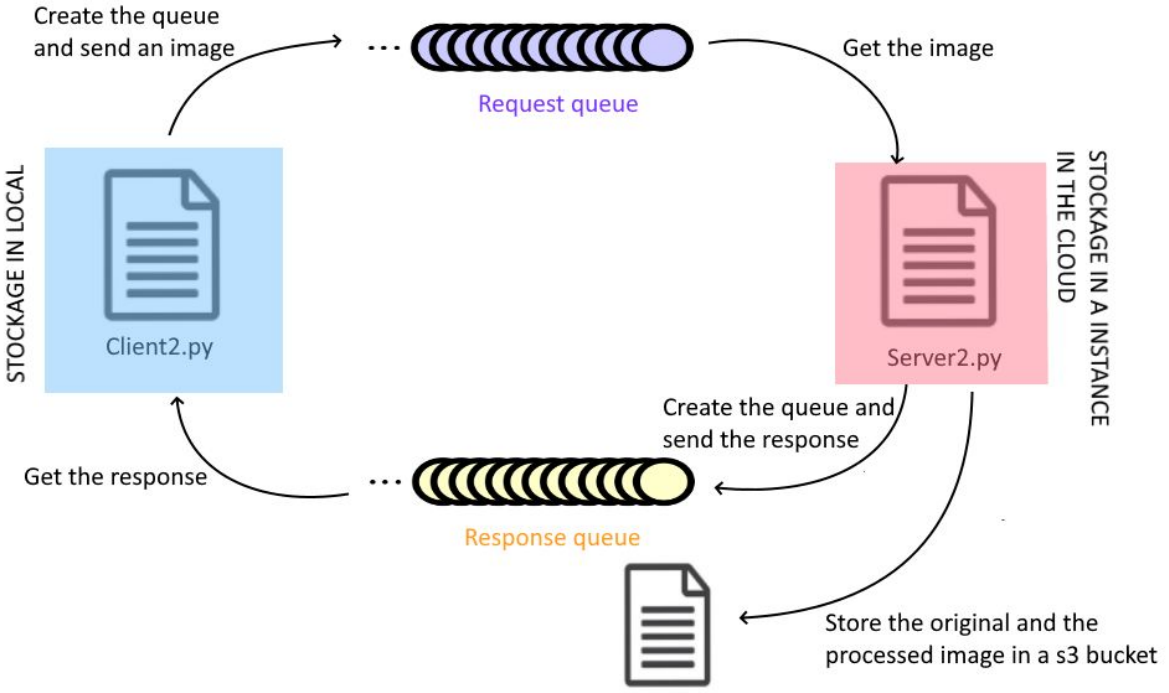


Please, watch the video *demonstration.mp4* to observe the execution of this task.

2) Operations on an image

Now, we want to use the EC2 instance to perform some processing on an image. To do it, we will now run the program *server2.py* on the EC2 instance and the program *client2.py* on the client.

The idea is very similar to what we have done previously. Instead of reading integers, the client will now read an image *image.jpg*. and send it to the request queue. The server will process the image in order to turn it into a black and white image. Then, it will send it back to the client in addition to storing it in the S3 instance. The client will save the processed image in a file *output_image.jpg*.



Please, watch the video *demonstration2.mp4* to observe the execution of this task.