# System Reliability Lead Challenge

## Description

Hi there! Thank you very much for taking the time and the interest to join us. We promise you it will be an interesting voyage.
This exercise is the first part of our interview process and may be an interesting educational experience.
The exercise is split in two parts, one is compulsory which is related to the development of a system utility which we have developed internally and is an interesting mental exercise.
The second is the bonus part and it requires adding additional functionality to the first part, which will be the addition of KPI collection and visualization.

### Introduction

There was an internal requirement in Ooredoo to enable Data Scientists, Business Intelligence Analysts and web services to trigger the execution of jobs on YARN clusters in data centers in which no direct access is allowed, where only batch file transfer via SFTP is enabled.
For this purpose, we developed a software module which accepts jobs submitted by these users and schedules their execution on these YARN clusters with reduced accessibility, multiple firewalls and trust zones.
The installation of the software running on the YARN cluster and the module is performed by us but the access is time limited and only for Operations tasks. Every other user who wants to utilize the cluster needs to submit his tasks via the module.

### Tasks

Write a software application, service, daemon or web application which will accept requests from remote users in order to trigger the execution of shell scripts which have been already deployed in the machine and the module is aware of their location and also naming.
The scripts should accept parameters which are passed by the module. We recommend to model this behavior with a shell script which will accept strings as arguments and write them in a text file.
The remote user can transfer files to a local directory and pickup result files if any. No SSH shell access should be invoked in the process. It can be considered that the module is operating in a highly trusted environment so no authentication is required in the context of the exercise.
Any file output of the shell script's execution should be stored retrieved from the query and stored in a directory defined by you. You can assume that there is full transparency in the location of the script's output, you can make it the easiest way possible for you.
Any output in the standard output should be stored in a separate file, in order to identify later any possible error in the script's execution.
The bonus part of task will be to add the collection of KPIs and visualize them with any tool of your choice. The KPIs we recommend you to collect are the following:

- Timestamp or date time of the execution for every task submitted.
- Number of tasks submitted and executed within the day.
- Free disk space after the execution of every submitted task (remember that in production this module is handling files with 100s of Gigabytes of size so this metric is crucial).

Visualizing the KPIs with any tool of your choice will be the icing on the cake. :-)

### Conditions

- You can use any language and framework you wish and host you wish.
- You should not publish your solution online or by any other means without Ooredoo's consent.
- Style and sane principles will be appreciated.

- Submitting your solution after the deadline will render it invalid.

Deliverables

- A compressed file (tar.gz or zip) containing your submission.
- Instructions on how to deploy the module. The deployment of the module should be automated with any deployment tool of your choice, it can be as simple as a shell script, but automating the deployment.
- A description of your solution, how it works, design choices and implementation details.
- Any other supporting document you would like to include.

Good luck!