Argumentation on job application

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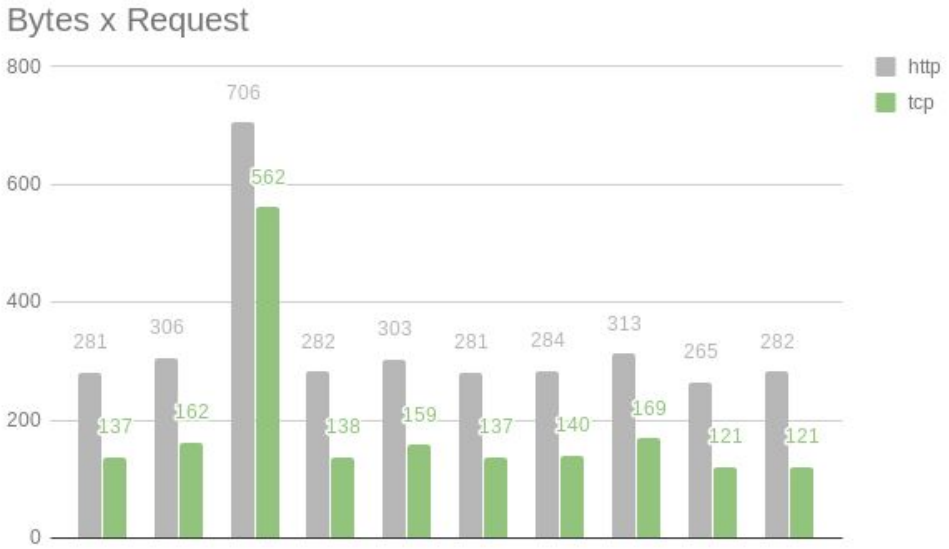
After the first meeting, with a RH expert in Relayr, it was given to me the task of make a client that receives some sensor readout and send it to a server. The server, with help from a test script, send messages and analyses the behavior of responses. In this short document, I defend the actions I took in the challenge.

The test asked to compress the data send and do not exceed the response time over 2 seconds. Well, the server was actually working, but with HTTP protocol. Besides that, because of the small nature of the messages, a short latency, and small amounts of data, been transferred between the client and server.

Nevertheless, to improve it, one possible solution was implement a SOCKET server. The SOCKET, which HTTP make uses of, did not send the headers. That measure, by itself, made a great improvement in the total of transferred bytes, as can be seen in the Graph 1.

The measures was made with the bytes sent over both protocols responses. As expected, HTTP request, they send a lot of extra bytes, because of the headers of protocol. The SOCKET method, in the end of the ten sample requests, sends 56% less bytes than HTTP method, without any type of compression, as shows in the Graph 1.



Graph 1: Bytes per request, (Author).

To make sure that application would work as expected, Javascript Mocha was used, a library that makes tests on environments. With Mocha, was used the Javascript Chai library, that make the assertions in the test cases. That way, would be possible know if the functions are behaving like they meant to be.

Another way to dealing with the compression problem, is to make a buffer of data, and then compress and send it in one connection. That solution, make better use of the javascript asynchronous communication and decrease the number of connections to the server, reducing the overall time.

Ultimately, this approach is one way to transfer that type of data, but, without any other informations than the sensors data, iit can be one of the best ways. It was tried something more radical, just for fun, and set an UDP server, but without the handshake and receive notification, it may has some data lost.

Finally, i personally like the challenge, must because it didn't have a correct answer, but have various ways to get a better solution for the problem. I take one approach but i know that many others exists. So it has been a pleasure to take the test and any questions I am at your disposal.