

Alchem recruitment candidate engagement

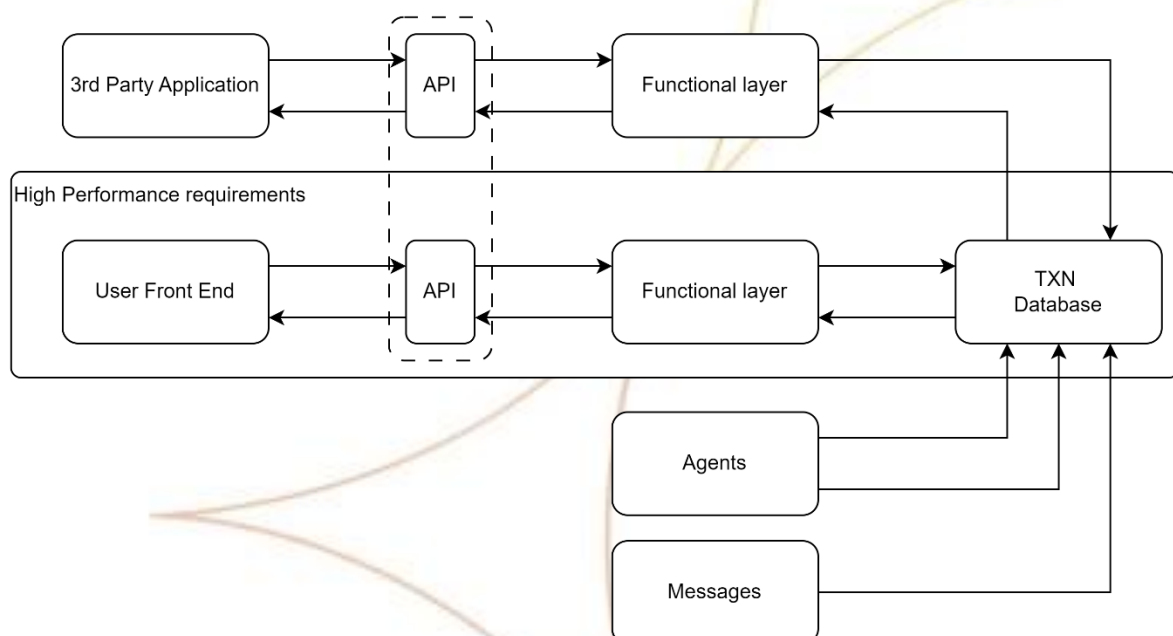
Why do the test?

At Alchem we are looking for Software Engineers; people who really want to be involved in the code and take an active role in developing the solution to the problems that we are trying to solve. As a Software Engineer, we would like you to

- Work as part of an integrated team, developing solutions, prototypes and concepts that can be taken forward
- Explore yourself, the product, technologies and the solution to really become the best in all areas
- Develop world class production solutions that are fit for purpose across our diverse customer base

What is the problem?

Below is a system diagram of a three-tier architecture with some additional components. The system is performing badly and, as a company, we would like to have more visibility of what is happening across the system. Each system component has information inside it that we would like to collate and exploit for user analysis and diagnostics, leading to better understanding of customer and system behaviour.



As a basic set of solution design principles

- You can not add any more load to the TXN database as it is operating at full capacity
- The third-party applications are currently synchronous, but unreliable
- The messaging infrastructure is available to you

- More APIs (public and private) can be made available
- Functional layers can be developed and deployed in the micro service architecture

The objective

1. Create a simple management console which can auto refresh the status of an object in a database
2. Create an API (or openAPI specification) which can be polled by your management console
3. A simple one table database (repository) to hold some event data
4. A simple simulator that generates events to update your table
5. A simple test to prove that your solution works end to end

What are we looking for?

We are looking for a working solution prototype !! BUT !! Do not spend a long time on this! If it's more than a day it's too long. We are after concepts that you can consider as building blocks as part of your overall solution.

The key to this task is to identify your approach to the problems you are addressing. Then describe what your solution(s) is doing to address the problem.

Consider your own ideas on how to prove it can be done, quickly and with compromise, if necessary.

Technology constraints

We are an Angular / Python development team – please consider using this tech stack when building your POCs. Although we do use AWS services, we do not expect you to create an AWS working solution, but we will ask questions around AWS to test and tease your thinking! There are no wrong answers, so do not feel under any pressure. We want to explore through conversation if there any gaps in your understanding and your approach to problem solving.

Incidentally – we already have a working solution for this problem.

On the technical interview day

When you are ready to discuss your solution, we will pull together a PR call, in which you will lead your technical peers through your solution, the code you have written, any data used, test strategy and security considerations We will work with you to understand your thought process.