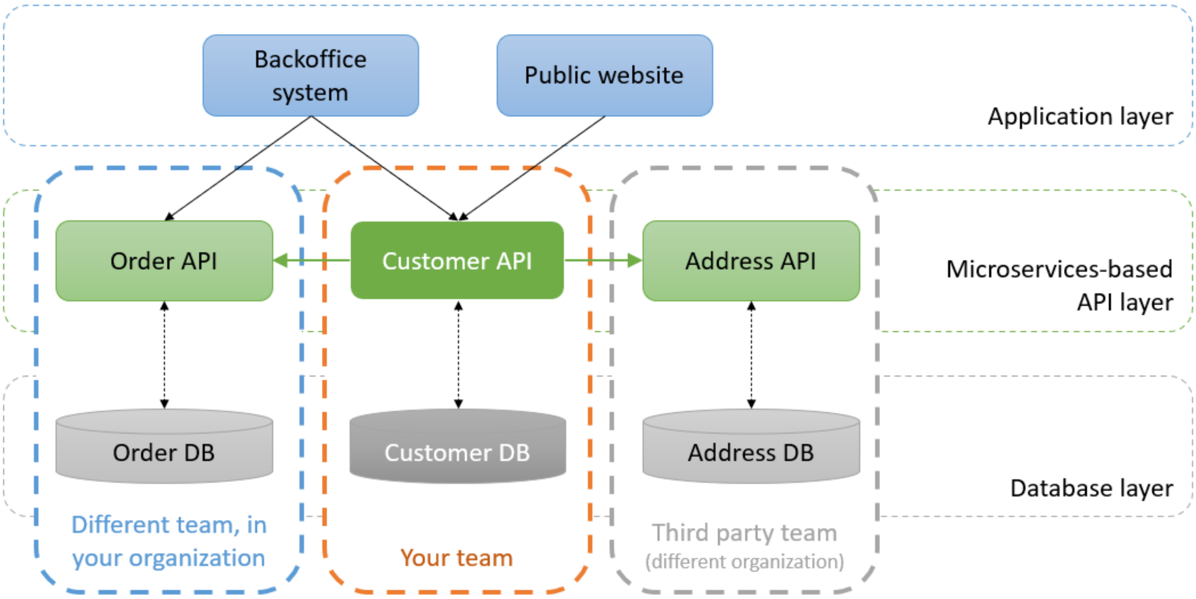
Case: Team Customer

Your organization

The organization you're working for is a market leader in selling and delivering sandwiches online. The company website, https://www.sandwiches.online, has a daily visitor count in the hundreds of thousands, and the number of regular customers is in the tens of thousands.

The web application that serves the website and handles all orders that come through is built on a microservices-based architecture, part of which is shown here:



Your team

You are a member of team Customer, the team that is responsible for the development and deployment of the Customer API and the underlying database.

Your product

The Customer API allows its consumers to retrieve and manage customer data. A description of all possible operations can be found here:

https://www.ontestautomation.com/files/customer.html

For now, there are two parties that consume the Customer API:

- The public website (to store new customer data and show existing customer data)
- The back office system (to manage and troubleshoot orders placed by a specific customer, for example)

The Customer API, in turn, consumes two other APIs:

- An Order API, developed by another team in your organization, that is used to manage orders placed by a customer on the website
- A third-party Address API that is used to manage addresses associated with a customer (the website has an address book function for registered customers)

There are plans, however, to expose the Customer API to other systems in the future as well. Management would like a mobile app to be launched in the nearby future, for example.

Other important (?) things to consider

The main development language used in your team is Java.

To become more flexible and preserve the competitive advantage the organization has, teams are shifting towards a **Continuous Delivery and Deployment** strategy. This means that new versions of the Customer API are built, tested and, if all goes well, deployed into production by means of an automated build pipeline.

The company motto is 'The consumer is king!', which means that they pride themselves on their **customer-friendly image**. This image is reflected in everything their organization does, from the behavior of the delivery staff to the behavior of all individual components of their IT architecture.

The website serves hundreds of thousands of visitors and thousands of orders daily (up to 250 per minute just before lunchtime), which means that all components should hold **security, reliability and performance** in very high regard. Outages and component malfunctioning is directly reflected in revenue and loss of customers (people have to eat!).

The Address API is a **third party API** that contains and returns valid residential addresses in your country, which can be associated with customers (e.g., to populate their address book). Customers can have zero or more addresses associated with them.

Your assignment

You are tasked with creating a testing and automation strategy for this product and for your team. This means you'll have to address (among others) the following questions:

- How are we going to assess the quality of our Customer API?
- How are we going to investigate if our Customer API works correctly with the other layers in our application architecture?
- How are we going to investigate if our Customer API can communicate correctly with the other APIs as shown in the diagram?
- Does using simulations make sense in this case and if so, how?
- Which types of testing are we going to employ and how? Think
    - Unit testing
    - Integration (API-level) testing
    - End-to-end ('full stack') testing
    - Nonfunctional testing (performance, security, …
    - …
- Which tools are we going to use?
- How are these tests going to fit in a Continuous Delivery pipeline? When are we going to run which tests?

Are there any other aspects that you think make a vital part of the testing and automation strategy? Feel free to list those as well!

Briefly (~ 5 minutes) present your strategy to the other teams.