



Cloud Sales System Design Exercise

This is a system design exercise for architecture and analysis. It isn't a coding or pseudo coding exercise. If you are not familiar with the system design questions and way to address them, please check online more about them.

You may take any assumptions you need as long as you state those assumptions. Read the case, read the questions and if you need any additional information, clarification please reach out to our team (contacts are shared in the email). Prepare as following:

1. Design high level architecture
 - Come up with an initial blueprint for the design.
 - Draw box diagrams with key components.
 - Do back-of-the-envelope calculations to evaluate if your blueprint fits the scale constraints.
2. Design deep dive – detailed design
 - Dig deeper into major component(s)
 - List technologies that you would use.
 - Present an API request - flow diagram

Please wrap up prepared work and send it back via email. Then the presentation of your case solution will be done in a session with Crayon. The time box for this presentation is 45 minutes, including discussions and questions. Details about that session will part of this email.

Case description- Introduction

Crayon wants to implement a solution for cloud sales, which will serve customers in Europe and APAC. Crayon has a business partner, a Cloud Computing Provider (called CCP from now on). The CCP offers an API that Crayon can use to automate the business.

Crayon wants to create a way to sell these services to its customers in two ways:

1. A web portal where Crayons customers can log in and perform the actions.
2. A web API where Crayons customers can integrate their systems, and perform the same operations without any user interaction. System to System.

Crayon wants to provide exactly the same set of services in both of the above cases. A customers should be able to choose to use alt 1 or alt 2, or use a combination of 1 and 2.

No restrictions on the hosting and deployment model.

Case description – Data model

- Crayon has two types of sales businesses: Channel and Direct.
- A direct customer is a customer that buys from Crayon and uses the software themselves.
- A re-seller buys software from Crayon and then sells it to their customers (the end-customer).
- A re-seller creates end-customers in Crayons systems, which they themselves manage.
- A direct customer is the end-customer themselves.
- A customer can set up a management account. The account is then used to take on services.
- Each end-customer can have a number of services running in their account.
- A service is set up with a quantity (the number of allowed users for the service).
- The CCP provides a service catalogue with all the available services.
- The service catalogue also contains prices. This is Crayon's purchase prices (not the sales prices).
- The CCP provides a service which returns the billing information for Crayon, separated on end-customers and their services. This includes all the services that we have ordered/provisioned and services' (that are currently run) charges.

Case Description – Services

- Crayon wants its customers to be able to securely log in.
- A customer can have more than one user.
- A customer can create a new account.
- A customer can look at the list of services.
- A customer can order a new service for an account.
- A customer can view and download their invoice information.
- Crayon wants to create the invoices automatically by downloading the billing information (procurement cost for the service) from the CCP and create invoices to the re-sellers and direct customers.
- The customers shall be able to create and submit a support case to Crayon
- Customers can use services directly on CCP (e.g., order new service for an account)