Digital transformation in Molecule, a leading insurance company

Briefing

We will not ask you to design a fancy algorithm. In the end that is not what you are going to do on a daily basis if you work for us. Your responsibility will be to drive architectural alignment and knowledge sharing throughout the company.

That is why we would like you to design a target architecture and a presentation for the task mentioned below. The architecture should be high-level but considering details and pitfalls about integrations and coupling of components. How you solve the problem is up to you, but you should be able to discuss the pros and cons of the architecture and find opportunities for improvements. With the presentation you should be able to sell the idea to tech as well as business people, if you feel like it you can also do two presentations for the different proposals.

Task

You are working at Molecule and Chris, a product owner, approaches you. He got info from Nina, the CTO, that Molecule has a very interesting lead with an Asian company selling an insurance product. The product is a short-life policy that covers rentable short-range drone carriers from lift-off to delivery. The prices of the policies are bound to the route of each delivery and are tracked real-time by the drone's aviation control system.

For that we have to augment our IT landscape with the next-generation, microservice-based solution, that wraps around the well-functioning traditional core-system of the company. In addition, the old core system needs extensive maintenance downtimes which have been done in the past during the night and early morning hours. Due to the real-time requirements of the drone insurance and the time zones differences such long downtime are no longer acceptable.

The functionalities that they would like to extract from our core-system at first are:

- Underwriting: To be able to roll-out personalized, AI driven real-time underwriting processes to the market
- Payments: Because the old system has problems integration new payment methods like cryptocurrencies
- Documents: Because the old system is not supporting the latest version of holographic-technologies that they would like to add to their portfolio to compete with all the fancy start-ups out there

Business functionality supported by the new system:

- If a policy is created, then we try to deduct the money from the customer's account
- If the payment fails, then the policy is cancelled
- If the payment is successful, then we send out the documents regarding the policy to the customer
- In this case we send out two documents
- The legal policy contract containing the details of the policy
- An invoice about the purchase, containing the id and the price of the policy

Technical requirements of the system:

- The selling of policies must function even if the core is experiencing downtime
- Policies and payments have to be synchronized back to the core system which is much slower than the other two systems
- Documents do not have to be stored in the core system as they are not considered for legal audits