Price calculation system – fit for the future

The story in brief

Determining a fair market price for a product is something all companies must do in order to survive the tough competition. It is a particular challenge for products whose price depends on many factors, and whose market and competitor situation changes by the minute.

The group, a long-standing customer of Consist, operates an extensive network of branches throughout Central Europe for the sale of its products. Due to the enormous competitive pressure, determining the product price which reflects the current market situation without any time delay is of fundamental importance. This is the only way to secure the customer's market position and also to expand it in the medium term.

The group previously relied on a monolithic system for calculating prices. In recent years, it has become apparent that the system would no longer be able to cope with the increased market dynamics in the medium term. The solution to this was a new development of the system, with a focus on maximum flexibility.

It was also necessary to significantly improve the speed and scalability of the price calculation. In addition, 24/7 system availability is required, without significant maintenance windows. The basis for achieving this goal was the transition from on-premises to cloud infrastructure.

The new development was initiated on the basis of the waterfall model. For this purpose, specifications were drawn up in cooperation between the group and Consist during a 3-month period. The experience gained during this phase led to a rethink of the further course of action.

Preparing the specifications was already very time-consuming due to the complex functional requirements and processes. Expanding them into a complete technical specification document would have exceeded both the time and cost budget – especially since a rapid replacement of the existing system was necessary. In addition, it became apparent that significant market changes could make the require-

ments obsolete, and thereby jeopardize the suitability of the system for practical use. The group therefore decided to carry out the new development as an agile software project using Scrum.

The development took place in 14-day sprints. During the sprint reviews, the new functionalities were presented to the entire Scrum team, and could then be tested by the specialist department. This resulted in feedback from the users at a very early stage, which was incorporated into the further development. The user stories were regularly evaluated and assessed using magic estimation. It was often possible to simplify complex user stories in dialog between the developers and the specialist department, without any noticeable losses in the functionality of the system.

Ultimately, the close and trusting cooperation of the entire team using the agile approach led to the rapid development of a price calculation system that is fit for the 2020s.

The task

- Rapid functional and technological modernization of a comprehensive and enterprise-critical system
- Rapid reaction to market changes
  - Flexible system with reduced time to market (TTM) for new features
- Improved scalability and speed of price calculation processes
  - Objective: „Real-time price calculation = 1 minute"
- Increase system availability to 24/7

The challenge

- Handling the functional complexity of the system, which was constantly updated during the course of the project due to market changes
- Smooth replacement of an enterprise-critical application, which is integrated into the customer's system landscape via numerous interfaces and processes
- Transitioning a monolithic system architecture to a microservice system architecture

- Flexibility of the system and time to market for new functionalities
- Significant increase in speed and scalability
- Very high system availability without significant maintenance windows
- Moving from an on-premises infrastructure to a cloud infrastructure
  - Security in the cloud and secure interfaces with the on-premises systems

The solution with Consist

- Agile approach using Scrum
- Flexible microservice architecture
  - Use of domain-driven design to replace the monolithic architecture
  - Development based on the twelve-factor app rules
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  - Monitoring using log aggregation and distributed tracing
- Amazon Web Services (AWS) cloud infrastructure

- Use of AWS EKS and Lambda as the basis
- AWS security with Okta for identity management
- DevOps
  - Use of Terraform as an infrastructure-as-code solution

Particular strengths of Consist

- Extensive expertise in agile projects
- Use of state-of-the-art technologies with an eye on practical relevance
- DevOps focus - seamless transition from development, operation, and further development

Customer advantages

- Flexible, easy-to-use price calculation system with optimized functional scope
- High user acceptance due to direct involvement in the agile development process

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