Collaboration Provisioning Service

Degree programme : MAS-IT Software Architecture

A cloud-based software solution to create, manage and enhance Microsoft 365 collaboration sites and software solutions: How to modernize a legacy application into a cloud native solution and improve a team‘s Application Lifecycle Management processes.

Context

The M365 Solution team at Swiss Post supports the business by designing, developing, and maintaining solutions based on the Microsoft 365 development platform. The team was tasked with modernizing an on-premises application built for an outdated software stack. The application‘s purpose is to standardize the creation and lifecycle processes for collaboration sites in SharePoint Online, Microsoft Teams and OneDrive for Business. Additionally, the business intends to enable owners of collaboration sites to apply templates to those sites for a set of real-life use cases. Finally, the M365 Solution team needs a standardized way of documenting the solutions they develop. This documentation must be easily accessible to all stakeholders. All these requirements should be fulfilled by the new software solution „Collaboration Provisioning Service (CPS)“.

Objective

The objective of the master thesis is to create a software design for the CPS. This design should be guided by the non-functional and functional requirements recorded during the thesis approval process. A set of risk-driven prototypes should be implemented to verify this design. The prototypes must run in Azure and interact with the Microsoft 365 tenants of Swiss Post. This thesis will lay the foundation for the completion of the CPS, so that the legacy solution can be replaced, and users can benefit from the new features.

Method

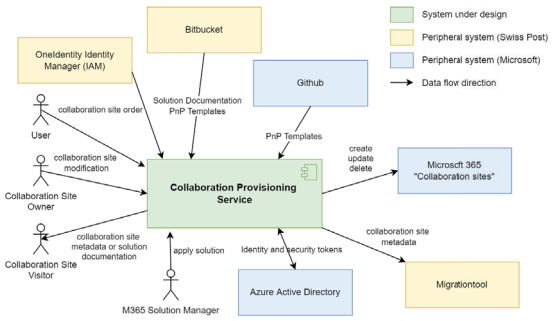
The thesis started by outlining the required technical and contextual concepts. The software design was then created based on the Arc42 template, and the prototypes were implemented sequentially based on the proposed solution design. During the implementation process, the design was improved iteratively through new insights and learnings. The prototypes were validated using acceptance tests to ensure their functional integrity. The progress of the thesis was made visible in the sprints of the team for feedback.

Results

The Arc42 template provided helpful guidance on aspects to focus on for the software design. The design could be verified successfully through the prototypes. The prototypes were developed using the .NET stack with a strong reliance on the Microsoft Identity platform for authentication and authorization. The setup of the required Azure and Azure Active Directory resources was provisioned using Terraform (Infrastructure-as-code). All components run in Azure App Service or Azure Function instances as docker containers. Azure Service Bus was used as messaging service to decouple the components. The solution‘s behavior is highly flexible and all processes for the collaboration sites can be defined using modules and configuration. Guidelines for how documentation must be written and presented to users were defined. The new features were surfaced to the users by extending a pre-existing SharePoint Framework frontend solution using a feature toggle.

Next steps

The M365 Solution team will pick up where the thesis left off; The kick-off meeting to onboard the entire team is planned and the goal is to have productive workloads running by the end of the year.



Business Context view of the CPS

David Aeschlimann

david.aeschlimann@outlook.com