ANALYZING TM FORUM'S CUSTOMER MANAGEMENT OPEN API SPECIFICATION AND IMPLEMENT A COMMON TRANSACTIONAL ARCHITECTURE

H.K. Dhanushka Sampath Kumara

A dissertation submitted in partial fulfillment of the requirement for
Master of Science degree in Advanced Software Engineering

Department of Computing
Informatics Institute of Technology, Sri Lanka
in collaboration With
University of Westminster, UK

2021

Abstract

The existing issue in the telecommunication industry is not having a standard set of APIs to expose when designing their internal systems which leads to more labour cost and time consuming when integrating them with existing systems. Telecommunication companies have already identified the importance of having common API sets in their systems. But they are having a doubt of implementation whether it could cater existing requirements. It is because of the complexity of APIs. By this research project the author tried to identify the feasibility of mapping the data model given by TM Forum Open APIs to a database and implement the APIs in Customer Management Specification of TM Forum, according to its given features and performance.

The author has selected Java Spring boot as backend framework and Mongodb as the database after going through a deep requirement elicitation process to implement the CRUD of customer as in customer management API specification. An angular UI has provided incase of demonstrating the work that has been done. By using the aggregation function of mongodb for projecting only related fields at the time of querying and matching user given parameters to query even to objects inside objects, the author has developed a common method to get the TMF approved API query behaviour.

By following the above method the author was able to implement the query function as approved by TM Forum with filters and fields including other create, update, delete functions. So that this can be applied when implementing all other TMF Open APIs. As this research work contains a prototype level system this needs to be developed by adding advanced business logics according to the requirement of the company, when it comes to production level implementation.

Keywords: database, TMF API, high performance, database optimization