Summary

The client is a company which specializes in payments technology. It offers customized software solutions in this field. At the time of executing this project, the client wanted to develop solutions that were futuristic in nature. Its aim was to prompt the population of an entire country to shift some part of its cash-based transactions towards cards and coupons.

The solution under discussion was built for retailers to enable their customers to perform various types of top-up transactions using POS devices. The challenge was to develop an end-to-end solution which offered its users real time transaction responses. Currently the client is established as the leading electronic mobile top-up service provider in the country. Having grown at a remarkable pace it also provides solutions for bills payment, customer loyalty and customer management services, specifically tailored to the local market.
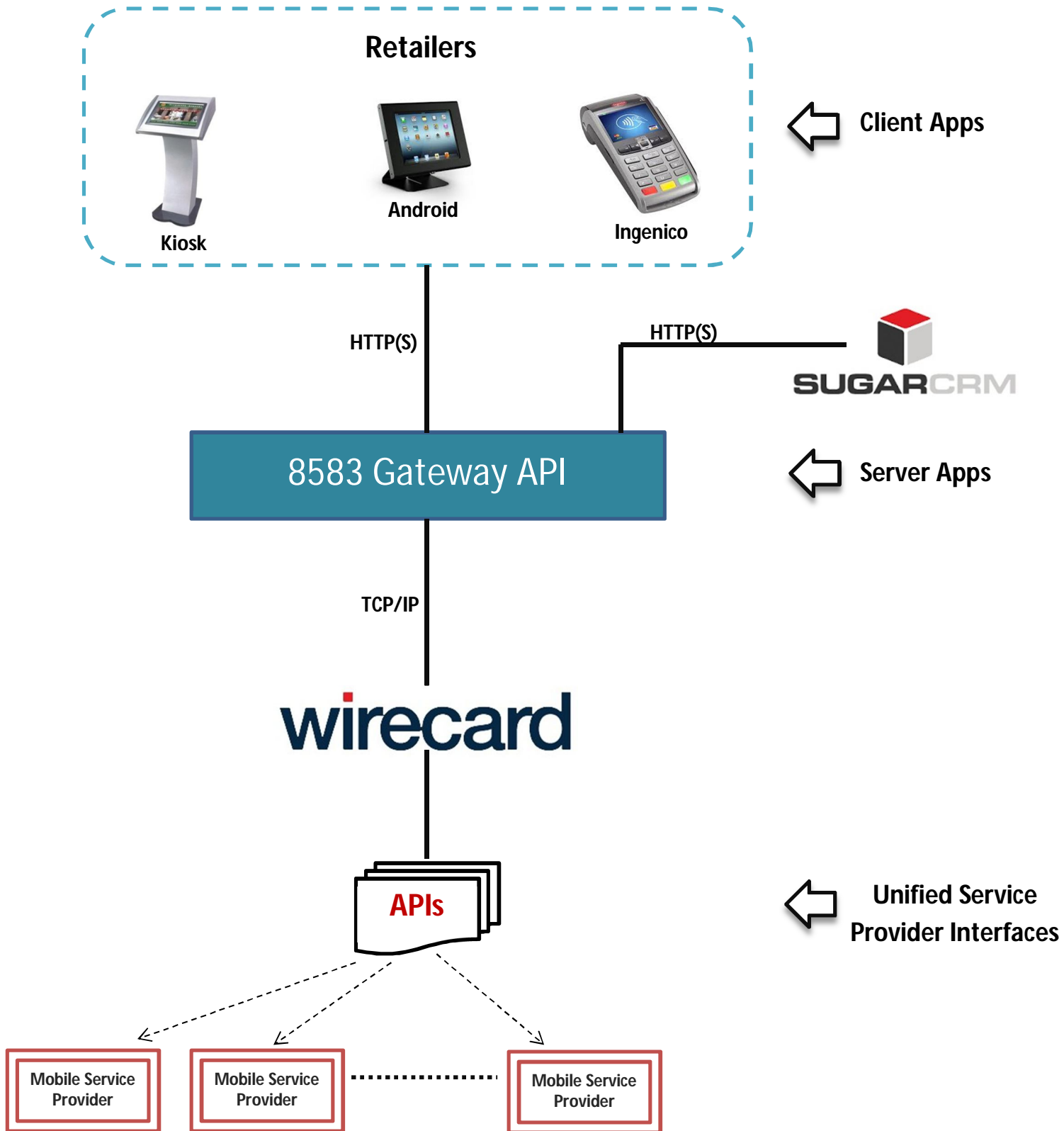
About the Client

Client Name: Confidential | **Location:** Ireland | **Industry**: Retail

Technologies

Android, SQLite Database, PHP, Symfony, Doctrine and MySQL, Memcache, C++, Sugar CRM, Rest, Soap, C#, .Net

POS Mobile Top Up Solutions

mindfire

Flow Diagram

Retailers

Kiosk

Android

Ingenico

Client Apps

HTTP(S)

HTTP(S)

SUGARCRM

8583 Gateway API

Server Apps

TCP/IP

wirecard

APIs

Unified Service
Provider Interfaces

Mobile Service
Provider

Mobile Service
Provider

Mobile Service
Provider

Description

Retailers using this application are connected to multiple services providers of various types. Customers get the convenience and the option to use the offers provided by these service providers. ISO 8583 format is used to integrate with the payment gateway so as to facilitate different systems to exchange transaction requests and responses. Wirecard is the payment processing solution provider. SugarCRM is used to manage the customer data.

The entire solution comprises of three essential components:

- Client Apps built for POS systems
- 8583 Gateway API
- Unified Service Provider Interfaces

Client Apps for POS Systems

The sales representatives visit different retail stores to install the devices used of POS transactions. These are of 3 types:

- Ingenico – these are terminals which come installed with C++ applications
- Android – these are tablets with android OS
- Kiosk – devices running application built in C#/ .Net application

Offers from various kinds of service providers, belonging to different industries, are accessed through these devices.

8583 Gateway APIs

This pass through service is an http gateway which allows performing of 8583 transactions over TCP/IP with a third-party service provider, Wirecard. Mindfire started with facilitating one transaction for one service provider. Wirecard's function was to take the request and in turn use an API to interface with the corresponding service provider through TCP/IP. On successfully achieving the desired outcome, the team developed the capabilities to support multiple transactions across multiple service providers.

One of the challenges faced was to get Wirecard to interface with multiple service providers. Sighting possible delays in Wirecard developing the required functionalities, the team at Mindfire volunteered to develop the APIs. Wirecard could thus interface with multiple service providers using the APIs provided by Mindfire. The APIs Mindfire developed then in turn could be using different protocols for data exchange like TCP/IP, http, Soap,

One of the challenges faced was to get Wirecard to interface with multiple service providers. Sighting possible delays in Wirecard developing the required functionalities, the team at Mindfire volunteered to develop the APIs. Wirecard could thus interface with multiple service providers using the same SOAP APIs, which in turn could be using any of the known protocols for data exchange like TCP/IP, http, Soap, Rest, ftp.

Wirecard exposes TCP/IP interfaces and so it is possible for Ingenico and android devices to talk to Wirecard directly though TCP/IP. Due to audit log requirements and allowing the services we implemented to be consumed by other such clients, we implemented RESTful interfaces. Inspite of using https for data exchange, our aim was to develop a solution which was efficient and optimized enough to match the performance and response times of direct TCP/IP based transactions. Optimal response times were achieved by tuning the Gateway API.

Unified Service Provider Interfaces

These SOAP interfaces were developed to facilitate easy integration for wirecard with actual service provider end-points which are exposed via HTTP, SOAP, REST, TCP/IP, sFTP, etc. protocols. The biggest challenge for the development team at Mindfire was to build a system capable of providing responses to upstream customer-orders within stipulated time frames – making them appear real-time.

Failure to achieve the same, i.e. offer responses within the stipulated time, would mean the devices triggering cancellation requests for these user-orders. In essence, we had to avoid situations where the cancellations requests got triggered about the time the orders got processed. Our depth in software engineering capabilities enabled us to sail through the hurdle. Required degree of optimization was achieved at the web server, code and database to keep the response times within the required limits.