



*Strengthen customer relationship by providing real-time order information*



Case study

## An Order Processing Engine

### Introduction

The incentive program is designed to cater promotional events for the big players in the market. Applications are designed, developed to manage the B2B loyalty reward programs for the end customers. The web portals are developed using the cold fusion technology and API integration in DotNet targeting the existing market share and also keeping the future trends into consideration.

### Problem Statement / Requirement

The requirement is to consolidate the entire user base, redemptions into one single platform. The solution should work seamless with the existing customers, future customers, integrations and should be a one-stop solution for all the business needs. Apart from this the daily scheduled process and notifications should work without any issues

### Solution

We at Apeiro Technologies had proposed a framework to fulfill the current and future needs of our client. We have brainstormed enough and after talking to the architects, experts we proposed to build a solution on Microsoft DotNET 4.0 framework and Microsoft SQLServer 2008 R2 as the backend database to store and expand to the future needs.

We have proposed the following layered architecture.

- ❖ Front-end Integration Module
- ❖ SOA-based Middle Tier
- ❖ Order Processing Engine at the backend
- ❖ CRM Module

Apart from these we have some value added features, daily jobs, reports, customized notifications to effectively communicate and meet the business needs of customer and merchant.

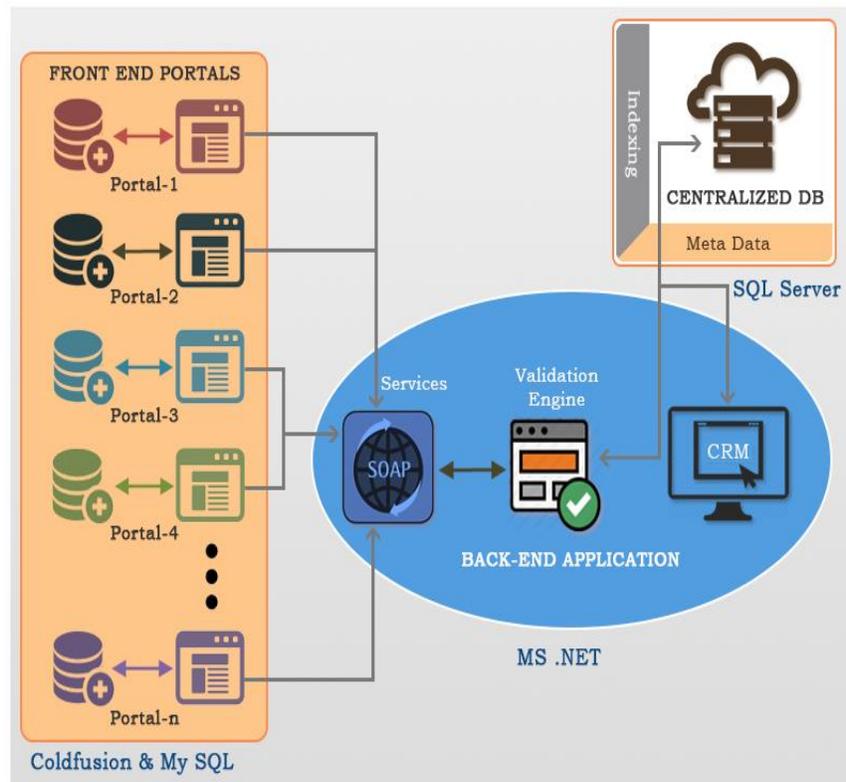


Figure 1 : Architecture Diagram.

### a) Front-end Integrations Module:

This Module is part of the portals and is programmed in ColdFusion. It captures the required information during registration process, profile update or order placement and passes it to the back-end using the SOA web-service layer discussed below. The data has to be in a specific format so that it can be sent to the back-end.

We used XSDs to validate the data. Any discrepancy in data would fail to save the information to the back-end. The front-end systems would follow their own validations, but they need to follow the above XSD validations while passing the data to back-end using web services. Each portal is given a unique identifier called AccessID. This is used for both, authorizing the use of web-service and also acts as a unique identifier to know the source of the request (In this case it identifies which web portal is requesting).

## b) SOA-based Middle Layer:

This SOAP based web service layer acts as a bridge between the order processing engine and the web portals and hence was the most critical and complicated in terms of achieving the desired results. Any new registrations that happen, any new order placed in any of the portals needs to be sent to the back-end system without any human involvement. The challenge was to develop a layer that needed to be feasible, easy and quick to integrate with all existing and future portals.

This layer authenticates and authorizes web portal requests based on access key and accessed id. Access key is a unique key that verifies whether the request is from a valid source whereas AccessID is unique identifier for each front-end system.

## c) Order Processing Engine at the Back-end:

This centralized back-end data base is used to maintain all the orders (redemptions) from all the portals. The users of this system are only the firm employees and have full access to the data. Most of the data is read-only, and in only few cases adding or changing specific details like tracking number, order status etc., is provided. The system has dashboards, filtered tabs, and optimized search engine to retrieve data in the most efficient manner.

## d) CRM Module:

This module consists of portal manager, user management, vendor management and product management. All the users from all the web portals are consolidated but can be filtered based on the web portal using the AccessID. The profile of each user from each portal is maintained individually. The profile also displays all the redemptions made as of current date.

In addition to these, the system has some automated systems as follows:

### **Order Filtering system:**

This system filters physical orders and digital orders into two different excels and send an email with attachment to the desired email (Vendor email) for order processing.

### **User Management system:**

It connects to the portal database as per the selection and downloads required information like downloading all registered users etc.

### **Database Comparison and Migration:**

Though the above systems capture all the registrations and orders, there are some unhandled cases where the data might not go to the back-end like manual entries. There are systems build that compares both (portal and back-end) and identify missing/unmatched information. That is then migrated to the back-end so that everything is in sync.

### **Result:**



- The system helped the firm maintain data from all the portals with ease.
- This system helped the firm saving lot of time in tracking the orders from various portals.
- This also acts as a permanent backup system for all the portals.