



Case Study



Icreon

An Online Storefront for Gift Items

Our client wished to upgrade their existing online storefront in order to improve its performance and to provide additional features to their customers. Additionally, they required that the storefront application be synchronized with their CRM application. Based on their requirements, Icreon delivered to them a revamped storefront, built by integrating and customizing the Joomla! and VirtueMart open source packages. XML feeds were used to transfer data between the storefront and the CRM applications. A synchronization process was setup to identify new/updated feeds and process these at specific automated time intervals.

Customer Profile

Our Client., a UK based company, designs and produces a whole range of gift items and home accessories ranging from candles to chandeliers, charms, jewellery, dining room accessories etc. They supply products to retail and gift stores all around the world.

Business Requirements

Our client had an existing online storefront which they wanted to upgrade in order to take advantage of a more cost effective solution and yet be able to provide improved services and functionalities to their customers. Site tracking facilities were required to be built into the solution enabling administrators to monitor and review the performance of the storefront.

Our client has an existing back office (CRM) application that is used to store and maintain all orders, products and related information. They required the data between the e-commerce application (MySQL) and the back office application (MS SQL Server) to be synchronized, in order to maintain data consistency and avoid duplication of work. The data to be transmitted between the two applications includes product information, stock levels, orders, order status and payment stages. An administrator module was required enabling administrators to monitor and control the synchronization process.

An online storefront synchronized with CRM application

Icreon developed the solution in two phases; the first phase involved the development of an online storefront for retailing gift items. The second phase involved synchronizing the online storefront data with the data stored in our client's existing back office application.

E-COMMERCE APPLICATION

The solution developed by Icreon provides our client with a platform to retail gift items online. The e-commerce application was developed using VirtueMart, an open source shopping cart component of Joomla!. The VirtueMart component was customized to suit client requirements. The default

template layout and design was customized and modified to incorporate the designs provided by our client. The basic VirtueMart features were extended to provide users with additional functionalities such as options to e-mail product details to friends, view recently browsed products, set gift wrapping preferences, avail discounted offers etc.

Through the storefront, customers can search and browse product catalogues and place orders to purchase selected products online. Options have been provided enabling customers to track the status of their orders, subscribe for newsletters, add selected products to their wish list and recommend products to friends.

Through the administrator module, website administrators can manage and operate the online storefront. They can view details of registered users and purchase orders placed by customers. Reports detailing revenue earned, products sold etc can be generated. Administrators can publish and manage content appearing on the website such as FAQs, terms and conditions, press releases etc.

In addition to VirtueMart, various Joomla! components have been integrated with the solution in order to provide additional features and functionalities. Some of the components include:

- BSQ Site Statistics: Enables the capture of site visits and usage data thereby enabling administrators to generate and review statistics reports. Reports can be generated for total hits, unique visitors, top URLs etc.
- LetterMan: Enables administrators to create and send newsletters to subscribed users.

Technologies used in developing this application are:



SYNCHRONIZATION MODULE

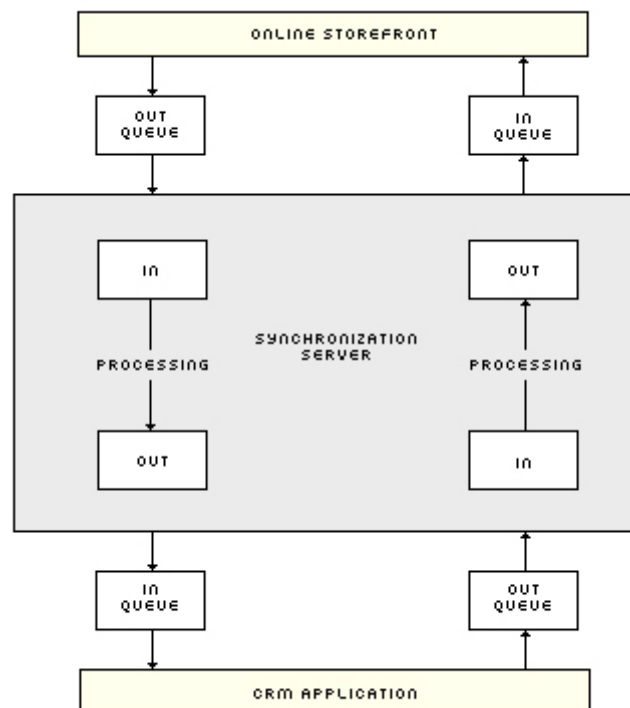
The synchronization module developed by Icreon enables our client to synchronize the online storefront data with that of their CRM application. Product and stock level information (of new and existing products), stored in the CRM application, is transmitted via the module to the storefront database. Similarly, order details and order status information is sent by the storefront to the CRM application. The synchronization module is designed to send and receive data as XML feeds. Message queues are used to transmit data to and from the synchronization server and are maintained on a first-in first-out basis.

In order to automate the scheduling and running of the synchronization process, a cron file was created and setup.

The synchronization process has been built as follows:

- All synchronization requests or messages to be transmitted are processed into XML files
- Requests are queued in the respective (CRM application or storefront application) application message OUT queues

- The messages are transmitted and put in the respective IN queue of the synchronization server. A unique id and time stamp are attached to the message thereby enabling the progress of the message to be tracked.
- Processing of the message takes place (the data is transformed from the CRM application format to the storefront application format and vice versa).
- The message is put in the relevant synchronization OUT queue, from where it is transmitted to the application IN queue.
- The database of the associated application is updated with the data contained in the message.



System Architecture

Administrator Module Extensions

This was developed to enable the administrator to manage and monitor the functioning of the synchronization module. Functionalities have been provided enabling administrators to start and stop the synchronization process in case of a server shutdown (for maintenance) or due to a failure in the synchronization process. The administrator can view details and status of all messages in the synchronization queue and can choose to cancel or delete any message from the queue. A message that has not been transmitted can be resent by the administrator. Synchronization reports, for a specific date range, can be generated and viewed by the administrator.

Technologies used in developing this application are:



Summary

By making use of the Joomla! open source package and its various components, Icreon has provided our client with a cost effective solution to operate and manage the online storefront. The solution is extensible and flexible enabling easy integration and implementation of additional functionalities and components.

Our solution has provided our client with a means to integrate and maintain data consistency between the online storefront and their back office application. The synchronization application formats the data, received via XML feeds, according to the application databases (MS SQL Server for the CRM application and MySQL for the e-commerce application) and updates the databases accordingly.