Case Study

Datamart Helps Grow Profits & Customer Satisfaction

RTS Labs helps accounting services provider improve operational efficiencies and customer retention through the development of a customer self-service datamart.

Company:
Accounting services provider who manages AR for their customers via third party payment agents.

Challenge:
- Customer satisfaction and retention
- Reporting on client's data was static, unorganized and stale
- Manually consolidating disparate data into spreadsheets

Solution:
- RTS developed a datamart with data integration
- Embedded Business Intelligence to provide insights into customer data
- Implemented Tableau dashboards and reporting

Results:
- Helped streamline business process
- Increased profitability and reduced customer service costs
- Increased customer satisfaction

Our Client's business is managing accounts receivables for their customers via third party payment agents. The Client must be able to receive their customers' transaction files on a nightly basis through an upload process. The transaction files contain all of the invoice information for their customers: transaction numbers, dates, dollar amounts, payment status, customer names, payment agent name, etc. All of these files are stored in one database. A number of the Client's customers have asked for visibility into all their data, since it is all stored in the Client's database.

Additionally, the Client has several of their own, internal, operational databases for systems and workflow. They do not have cross-system visibility, and are managing their reports through Excel spreadsheet exports from each system. This makes their reporting time-consuming and clumsy.

Their operations could be streamlined drastically if only the data from their multiple systems could be aggregated, and one set of reports derived from that aggregate data.

Two Main Challenges Tor RTS To Tackle

Challenge #1: Improve Customer Satisfaction:
1. Client's customers have no visibility into their own data.
2. Client's customers' file formats change periodically.
3. Each of the Client's customer's files have their own proprietary format.
4. Poor data quality due to files coming from multiple sources. Several customers violate the upload rules consistently.
5. Client's system support personnel spend a lot of time diagnosing data upload problems.

6. Large files due to nightly additions of data that may run into hundreds of thousands of rows (mainly because each upload reflects the entire history for every transaction).
7. As a result, the database design is not optimal for reporting.

Challenge #2: Improve Internal Operational Efficiences:
1. Client's reporting is suboptimal.
2. Stale data stored in dated spreadsheets perpetuates misinformation and leads to misdirected business decisions.
3. Opportunity costs are high because of no realtime insights to data.
4. Business processes are suboptimal because of mistakes in the data.

How RTS Helped

Improve Customer Satisfaction
- Provide a better way for the Client's customers to manage their file uploads, with minimal problems and support intervention.
- Provide the Client's customers with the requested insights into their data.

Solution #1: Data Integration and a Datamart to drive reporting
The Client desired to provide a new process for its customers to get their data into the system – one which allowed each customer to specify their own custom data format and to change that data format as needed.

RTS Labs delivered a web-based solution that would work with continuously changing data formats from multiple sources. The web application provides security for each customer to log in, manage their data templates through a saved profile, and upload their data files.

The data is extracted from the uploaded files and stored in a staging database. The data is then cleaned, transformed, and loaded into a datamart. The sole purpose of the datamart is to drive reporting, so the actual schema of the datamart was denormalized in order to increase the performance of the reports.
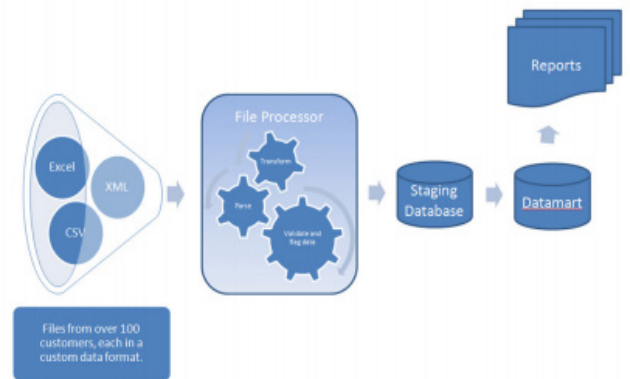
Support for Multiple Media: Files can come from three different media sources – email attachments, FTP uploads or manual web uploads. The files can enter into the Enterprise Service Bus (ESB) from any of these media. The data integration process kicks-in as soon the files are pushed into the ESB.

The data integration process involves the following high level components:
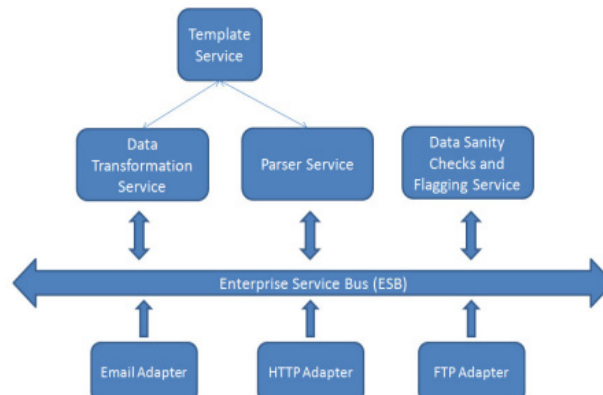
Template Services: Each customer may provide files in one or more data formats. A template needs to be defined for each format before uploading the files to the system. They can update or create new templates whenever there is a change in the data format.

Data Transformation Service: Each customer's template is used to translate an incoming file into one of the common formats that the Parser Service can understand.

Parser Service: Extracts the customer's data from the file, verifies the data to ensure consistency with database schema, and loads the data into the database. Post-load verifications are conducted to ensure accuracy of data type, row counts, etc.

Data Sanity Checks and Flagging Service: Runs default and custom rules on the data extracted from the files to include, exclude or flag a particular record. A screen inside the customer's area lets the user define the custom rules.

The architecture of the system is flexible, providing a plug-in capability to easily author new modules to process additional kinds of data.

Solution #2: Embedded Business Intelligence to provide insights into customer data

The Client's customers were requesting the following insights into their data:
- Look at their biggest accounts, both in terms of the paying agents managing their money and the customers who bring in the most revenue
- identify problem customers based on thresholds for average days open and average days to close transactions.
- Compare paying agent collection performance with the industry average so that they can identify problem areas, such as if poor collection performance can be attributed to the paying agent or if the issue is more with the company's clients.
- Receive automatic notifications of invoices that will soon become past due.

RTS Labs solved this problem by using JasperSoft to embed customer reports into the custom web application. The process:

- Create an aggregate table that summarizes the facts (amount billed, amount paid, count of transactions under different payment stages, etc.) for every transaction, customer and paying agent. The purpose of this was to denormalize the data so that reports could run more   quickly.
- Build an ETL process to harvest data from the operational tables and transform it into report-friendly format (optimized for reporting efficiency).
- Add rules to the report to deal with bad data (e.g., duplicate transactions, missing data, incorrect dates, etc.).
- Embed reports on this newly refined data into the custom web application for easy access by the customers.

Result: Customers were thrilled with the new features

1. The Client's customers realized enormous efficiencies in their collection processes. Before, they had to follow up manually with their customers' payables departments on unpaid invoices.
2. With these new reports easily accessible, the Client's customers were able to automate the process before the invoices became past due
3. The Client's customers were able to better understand the collection performance of their paying agents. The industry average gave them crucial insights into whether the issue was internal or external and enabled their customers take steps accordingly.
4. Customers' back office efficiencies were greatly improved, as well as their relationships with the largest accounts and paying agents. Collectively, these improvements led to enhanced customer/vendor relationships and stronger cash flows.

**Boost Client's Operational Efficiencies**

The Client's own reporting was static and clumsy, deriving charts from data exported from multiple systems. The Client's data analysts desired to be able to slice and dice real-time data across multiple systems, which was simply not possible using the exported spreadsheets.

Solution: Datamart, Dashboards and Reporting

RTS Labs worked with the Client's data analysts to determine the key data points they needed from the existing databases in order to better function in their roles. RTS then analyzed the top industry standard business intelligence solutions, and determined that Tableau best fit the Client's needs. Then, RTS:

1. Built ETL processes for each system to extract only the data that was required, transform it into report-ready format, and load it into the datamart
2. Used Tableau to set up dashboards for key personnel
3. Set up reports in Tableau that supported the data analysts' needs

Below is an example of the kind of dashboard that RTS set up for the Client:
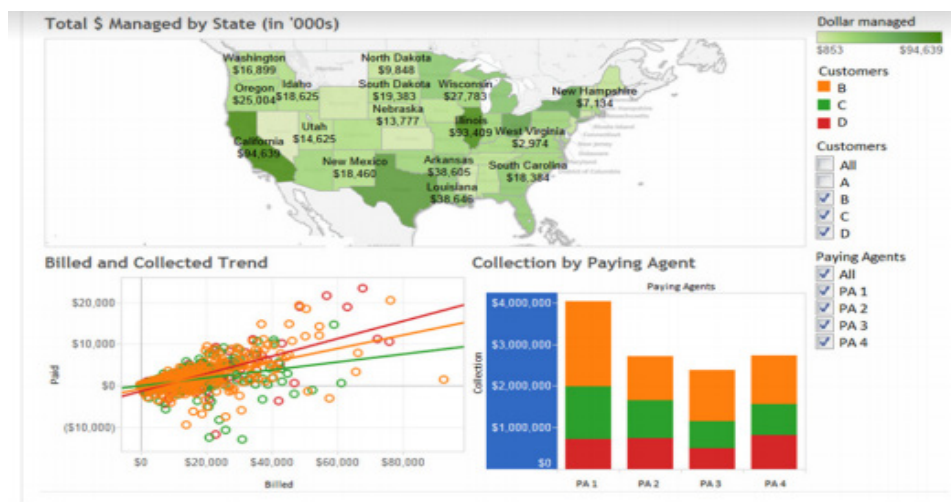
* Please note that all data has been modified from the original values for confidentiality purposes.

Conclusion

RTS successfully enabled both the Client and the Client's customers to streamline their business processes. This increased profitability not only for the Client's customers, but for the Client itself. Customer retention was solidified, if not increased, by adding the new reporting features, and enabling self-service for customers to manage their own data formats.

Customer service costs on the Client's end were reduced by enabling customers to manage their own data formats, and the Client's own internal processes were significantly improved by the timely insights into the data across systems. The Business Analysts had immediate and continuous access to the data they needed, allowing them to make better business decisions.

And, another happy customer of RTS Labs.