

4CDecision

INDUSTRY

Banking & Financial

PARTNER

www.clavax.com

EMAIL

info@clavax.com

PHONE

1-844 425 2829

ABOUT THE CLIENT

The client of 4CDecision that works for the mortgage lending industry came with the idea to develop a robust tool that can manage the loan-related data and derive insights to speed up the loan approval process. After thoroughly understanding the requirements, the team of Clavax proposes a solution with the concept of Big Data Analytics through the ETL (Extract, transform & Load) process to acquire smarter business decisions.

The main motive behind the development of the tool was to overcome the difficulties faced while collecting loan related data from various sources and to drive mortgages & property valuation using Analytics. This tool comprises a process of data warehousing that helps in extracting value from the Big Data for distilling Business Intelligence to achieve competitive advantage. Having years of experience in the field of Big Data, Clavax believes in leveraging the power of analytics, technology & Big Data to ensure the delivery of true business value in the mortgage industry.

GOALS

The mortgage firms are growing rapidly and have become highly competitive over the years. To survive better than the competitors, the organizations need to properly understand the behavior of the mortgagor and the latest industry trends like Big Data Analytics. The immensity of data that these firms deal with, requires special technology that can easily process them and draw meaningful information efficiently. There is a need of maintaining information of all the account holders in the system for better reporting at the loan and borrower level, which means data keeps growing tremendously into terabytes. Big Data helps lenders, appraisers as well as investors to estimate the present property value quickly & thereby helps in understanding better insights on market conditions.

Without proper analytics, mortgage firms may fail to learn about dangerous trends related to the market risks that may lead to more trouble. To get the desired results out of the client's interest, we have built a solution that can extract data from multiple sources, transform them to fit analytical needs & load into a common warehouse for analysis with a process known as ETL. Using the Big Data platform with MongoDB, a huge amount of mortgage-related data can be processed quickly for real-time analytics that will fasten the loan process and improve cost savings.

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CHALLENGES

When the client approached us with the requirements, the project seemed to be easy. However, as we proceed towards the development phase, we realized it was apparently not that simple. Here are some of the challenges that were faced in developing the project:

Multiple Data Sources

The ETL process involves heterogeneous data structures containing loan related information across multiple platforms such as relational database, legacy system, Emcompass360, Intacct, Excel files, REST, etc. Hence, it can be cumbersome & hard to manage them and gain insights from those data.

Consistency of the Data

It can be quite hectic to monitor the changes in all the data sources and maintain the consistency of the data. Without proper consistency checks, the data warehouse will have issues in maintaining the quality of data.

MISMO Standardization

MISMO is the common language of lending that maintain standards for all the mortgage industries. One challenge is to ensure that different data formats from the multiple systems are transformed as per the latest MISMO standard, which is essential to ease the process of information exchange.

Data Aggregation

Dealing with the database having millions of rows, there may be difficulty in running real-time queries for the information mining process i.e. data aggregation. It is because the query will be very slow or use many of the database server's resources.

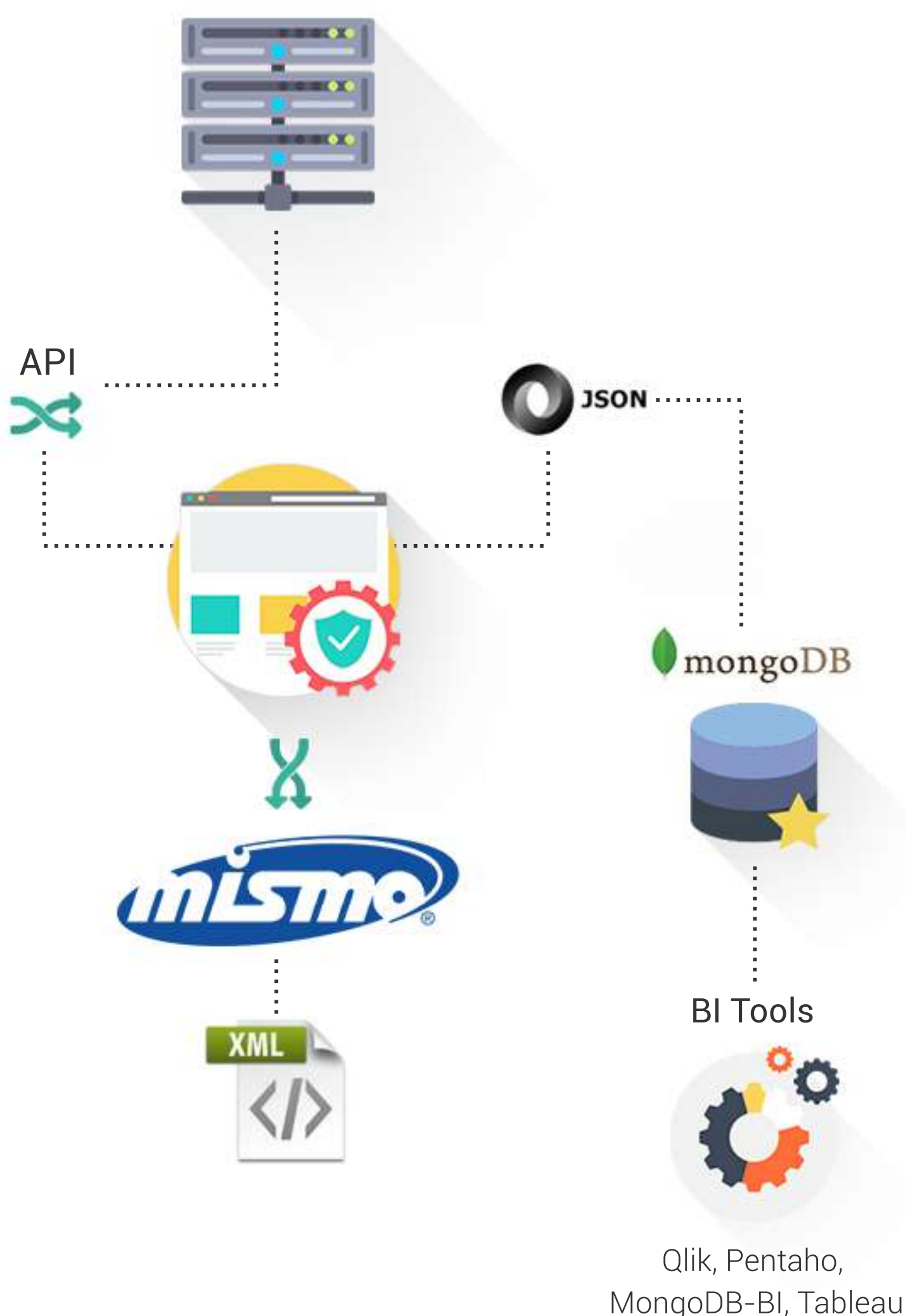


• SOLUTIONS

To have a deep analysis & understanding on the challenges, our team went through several interactive discussions. Moreover, many solutions were successfully implemented to address the challenges mentioned above. We have built a strong and fault-tolerant data transformation machine named "Mongrator" incorporated with the set of automated ETL Tools for mortgage lending firms. Through this process, the data from various sources like the relational database, legacy system, Emcompass360, Intacct, Excel files, REST, etc. are extracted. After that, data was transformed as per MISMO (Mortgage Industry Standards Maintenance Organization) standard that is commonly used by mortgage lenders, banks & mortgage services. Adopting this standard helps to resolve mortgage industry's business issues, reduce errors, improve margin & speed up communication. In the last step, the data will be loaded into the MongoDB database in JSON format, which is further processed to acquire business insights using Business Intelligence (BI) tools.

TECHNICAL ARCHITECTURE

Relational Database, Legacy System,
Emcompass360, Intacct, REST,MS Excel



With the use of data warehouses and Business Intelligence tools like Qlik, Pentaho, MongoDB-BI, Tableau, etc., information is managed and customer behaviors are analyzed to anticipate their needs better & faster. Deploying Big Data technology in the data warehouse featuring MongoDB helped in achieving the business success of mortgage industry as it enhances more predictive capabilities. It further promotes effective decision making to find the right loan with the best rates & terms as per the consumer's needs.

● TECHNOLOGIES USED

The tools & technologies that were used by the team of Clavax for the development of ETL Application are as follows:

- ✔ SDK: Encompass360, Intacct
- ✔ Programming Languages: C#, Java, Python, NodeJS
- ✔ Framework: .Net
- ✔ Platform Environment: Linux, Windows
- ✔ Database: SQL Server, MongoDB
- ✔ Project Management: JIRA
- ✔ Version Control: Git, GitHub, BitBucket
- ✔ Other Tools & Technologies: Supervisord, MongoDB-BI, Pentaho, Qlik, Tableau

● RESULTS

The future of mortgage lending firms is all about the speed driven by Big Data Analytics & technology. The ETL tool was successfully developed with the use of Big Data technology that helped in handling a large amount of data in mortgage financial corporations. The resultant data after the ETL mechanism is further processed using BI tools such as like Qlik, Pentaho, MongoDB-BI, Tableau, etc. to deliver real time & powerful analytics enabling mortgage lenders to monitor & manage operations efficiently. Using BI, data are not only integrated from different sources but also provide better analysis to understand customers, markets as well as risks. The power of data is unlocked using these tools to avoid business challenges and generate value-added services that benefit both borrower and lender in long term. Introducing the concept of Big Data & Business Intelligence in the world of mortgage & financial banking not only reduced the work involved in loan process but also helped in enhancing operational efficiency & new business opportunities.