Big Data architecture delivered successfully

Unique Identification Authority of India (UIDAI)
Planning Commission Government of India

ABOUT CUSTOMER

Unique identification project was initially conceived by the Planning Commission Government of India as an initiative that would provide identification for each resident across the country and would be used primarily as the basis for efficient delivery of welfare services. It would also act as a tool for effective monitoring of various programs and schemes of the Government. A "Strategic Vision on the UIDAI Project" was prepared and submitted. It envisaged the close linkage that the UIDAI would have to the electoral database. At the same time, the Registrar General of India was engaged in the creation of the National Population Register and issuance of Multi-purpose National Identity Cards to citizens of India. Therefore, it was decided, with the approval of the Prime Minister, to constitute an empowered group of Ministers (EGoM) to collate the two schemes – the National Population Register under the Citizenship Act, 1955 and the Unique Identification Number project of the Department of Information Technology.

Aadhaar is a 12 digit individual identification number issued by the Unique Identification Authority of India on behalf of the Government of India. This number will serve as a proof of identity and address, anywhere in India. Aadhaar letter received via India Post and e-Aadhaar downloaded from UIDAI website are equally valid.

HCL Infosystems Limited:

HCL Infosystems Ltd. is India's Premier Distribution and IT Services and Solutions Company. HCL Infosystems' has one of the largest sales & distribution network in the country and provides value added distribution for partners including last mile connect and support in marketing and promotions for Telecom, IT , Office Automation and Consumer Electronics products covering more than 15000 towns across 664 districts in India.

HCL was awarded the contract for design, development, maintenance and support of intranet and knowledge management portal for the UIDAI project besides two other key procurement contracts. HCL Infosystems Ltd. collaborated and partnered with GrayMatter Software Services Pvt. Ltd. to execute the project successfully on multiple fronts.

TESTIMONIAL

"GrayMatter team's comprehensive understanding of a typical Big Data environment, the expertise in multiple tool sets and technologies set them apart to enable Big Data Analytics on the Pentaho platform per UIDAI's exacting requirements. The HCL team's astute understanding of the complexities and synergies with GrayMatter was pivotal in the success of this phase I"
- **UIDAI Executive team member**

CHALLENGES

The Project Brief:
Creating a Big Data Architecture suitable to the various data sources and types of data and harness this massive volume of data to make multiple validations. Another key requirement was to create business logic to perform multiple analytics on this vast data of National significance as per the UIDAI mandate.

Few of the challenges in this project:
➢ No conceivable storage platform was available for the data types and size
   o 1.3 billion records
   o 37 TB of data per month to begin with
   o Unstructured data type like biometrics, Iris
   o Transactional data from multiple agencies
➢ Absence of a database to execute any business logic as envisioned
➢ Also no tool available to perform aggregation of Big Data and thus perform the analytics
➢ Capability to perform on-line as well as off-line analytics was business critical

SOLUTION PROPOSED

The GrayMatter team with close collaboration with the HCL think-tank were together able to deliver a Big Data solution that eventually resolved multiple business critical challenges besides the ones mentioned above. The Big Data architecture solution was central to the success of the overall project executed.
Below are some key solution points executed:

➢ Solution was implemented with 150 nodes using MapR distribution and Pentaho's PDI for data integration & data processing in Hadoop
➢ The BI and reporting platform was created using Pentaho BI platform
➢ There were no readily available tools and technology for a viable solution which was finally a combination of multiple tools and technologies with Hadoop / Big Data
➢ Pentaho PDI was key to connectivity between source system and the Big Data/Hadoop platform
➢ Pentaho's Big Data friendly environment was key for the transformation of data into information based on business rules on the Hadoop platform

BENEFITS

The very success of the Big Data platform being in place was central to gaining immense advantages from the data that was harnessed and the flow of information enabled to perform some key validations and analytics.

Some of the benefits accrued are as follows:

➢ Comprehensive Big Data enabled platform in place
➢ A complete BI & analytics platform in place to create multiple analysis including business critical off-line analytics
➢ More than 5000 vendor agencies using this platform today seamlessly and successfully
➢ Authentication of user information executed successfully which was a fundamental need

WHY GRAYMATTER?

A BI, Analytics & Data Science specialist, GrayMatter has implemented 100+ successful Business Intelligence solutions across multiple industries, technology platforms in multiple geographies globally and is considered one of the leaders in the BI and Analytics industry. With unparalleled strengths in the Business Intelligence and Analytics arena using best-in-class technology, innovative DWH architecture combining it with varied domain/functional knowledge, our tailor-made industry specific KPI driven solutions is the game changer. The success of our solutions across industries like Airports, Logistics, Government, Insurance, BPO's, Manufacturing, Retail and Finance is a validation of the enterprise wide industry specific BI approach. Our Big Data expertise is an inherent trait and comes naturally due to our open source tools and technology genesis as early as since 2006. We are not only the pioneers on Big Data solutions but have also executed some proven Big Data solutions across Governments and industries like retail and services. GrayMatter continues to heavily invest into emerging technologies, talent and trends to ensure our Customer stays ahead and profitable.