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TCS Enterprise Information Fusion

Innovation Labs

With the explosion in the usage of new technologies in mobility, automation and social media, the data volumes handled by large, global organizations have reached colossal proportions, with around 2.5 quintillion bytes of data created worldwide every day. Today, organizational data comes not only from within the enterprise but also from sources that earlier either did not exist (such as social media) or could not be tapped (such as mobile phone-based location apps).

In addition to intra-organizational data are media stories, customer feedback on the social Web, blog posts and team interactions across organizations, which generate high volumes of data in the public domain anytime, anywhere and sometimes inconspicuously. A TCS study on global trends in Big Data indicates that 49% of organizational data is unstructured or semi- structured.

Advancement of automation has led to a wide range of sensors which continuously produce volumes of data, which can be mined further for prediction.

The state-of-the-art predictive analytics of Tata Consultancy Services' (TCS') Enterprise Information Fusion Framework provides insights from Big Data early, enabling businesses to unleash significant financial value from their operations worldwide and be future-ready.

Overview

Much of Big Data, generated from sensors, meters and tickers or from human text-, image-, voice- or video-based communication, is non-numeric and subject to daily, seasonal or event-triggered peaks. Traditional database management fails to manage and mine this data because the volumes are large, the data is unstructured or semi-structured and the data surges are often unforeseen. Therefore, linking, matching, cleansing and transforming the data are essential because the knowledge embedded in the data is strategic to the enterprise.

Fusing and correlating data sets and their hierarchies and linkages are critical for semantic analysis of the data. A real time analysis of such Big Data allows company managements to identify and respond to intra and extra-organizational stakeholder needs and expectations.

Our Framework is a Big Data analytics framework that fuses data from disparate, incongruous sources to allow organizations to handle multidimensional data with ease. It is based on advanced algorithms developed by the TCS Innovation Labs in the areas of data harmonization, entity resolutions, and information fusion. It uses Big Data programming techniques with NoSQL on a robust, open source-based parallel stream processing architecture. Its near real time capability enables businesses to carry out a number of strategic tasks across millions of nodes – mitigate supply chain risks, detect fraud, forecast demand, determine competitor actions, analyze call records, monitor live video feeds etc.

Our framework is versatile and can be applied to the specific requirements of your industry or business. It addresses the three challenges of Big Data – volume, velocity and variety – at the fundamental level of data bytes, regardless of business domain.

Benefits

- Understand your business better with predictive insights: Capture and analyze strategic data streams as they are generated from within or outside your organization and instantly report their meaning and patterns to your executives. Our Framework's state-of-the-art algorithms have deep real-time analytic capabilities particularly suited to Big Data.

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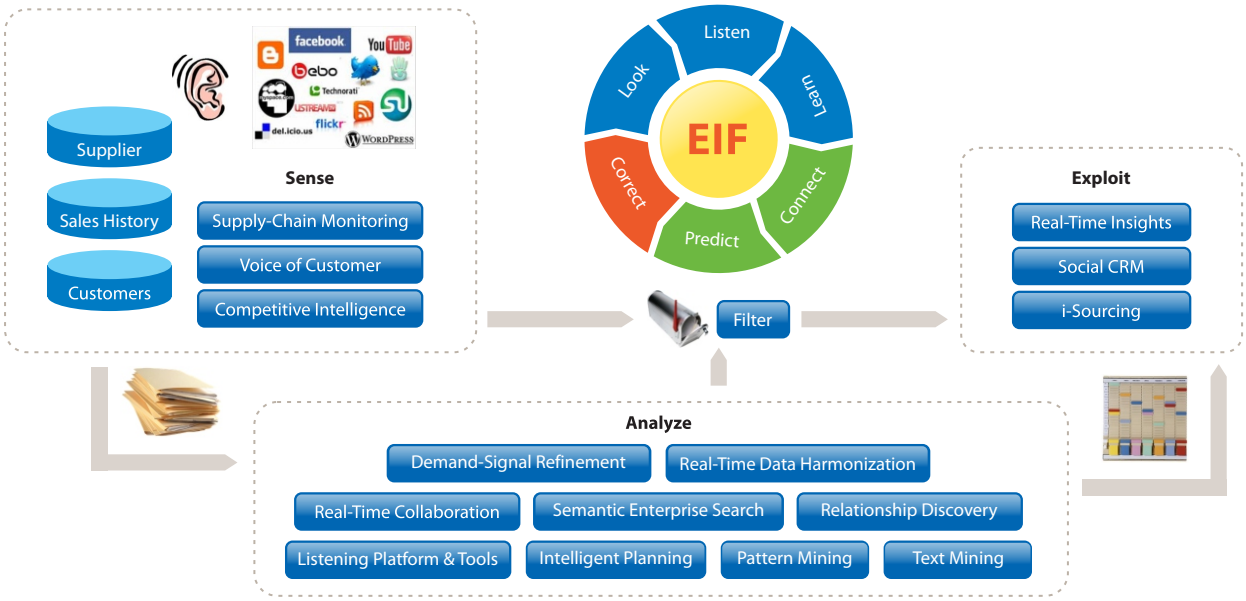

Figure 1: TCS' Enterprise Information Fusion framework - a view of Enterprise Big Data Analytics

- Know what your customers are saying: Detect customer sentiment from topics trending in social media, blogs and discussion forums and even corporate intranets regarding your brand, products or services, using our framework's new artificial intelligence-driven information management architecture that is based on Big Data technologies and new data sources available from social media.
- Make data based business decisions: Use our framework's superior modeling techniques to structure, collate and harmonize a wide range of data streams so that the resulting information fusion helps you plan and strategize through effective, proactive and low-risk decision-making and manage your key performance indicators (KPIs).

The TCS Advantage

Our large pool of software engineering professionals – researchers, data scientists and Big Data engineers – has advanced skills in Cloudera, Mahout, R and MapReduce, including Apache Hadoop clusters.

We specialize in parallel stream processing, distributed file systems and NoSQL databases.

We have alliances with leading Big Data technology vendors such as Cloudera, Hortonworks, MarkLogic, MongoDB, Pentaho, Microsoft and IBM.

Contact

To know more about TCS' Enterprise Information Fusion, contact ***innovation.info@tcs.com***

About Tata Consultancy Services Ltd (TCS)

Tata Consultancy Services is an IT services, consulting and business solutions organization that delivers real results to global business, ensuring a level of certainty no other firm can match. TCS offers a consulting-led, integrated portfolio of IT and IT-enabled infrastructure, engineering and assurance services. This is delivered through its unique Global Network Delivery Model™, recognized as the benchmark of excellence in software development. A part of the Tata Group, India's largest industrial conglomerate, TCS has a global footprint and is listed on the National Stock Exchange and Bombay Stock Exchange in India.

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