

TCS Sensor Data Analytics Framework

Digital Enterprise Unit



In a bid to evaluate performance, improve applicability and quality, organizations across industries specifically Manufacturing are increasingly deploying sensors in their products and equipment. With these numerous sensors generating voluminous data, organizations need an efficient solution that facilitates data storage, retrieval and processing. Enterprises inundated with this Big Data are looking for solutions to store, process, and analyze sensor data to harness the potential insights it can offer.

Tata Consultancy Services' (TCS') Sensor Data Analytics (SDA) is a configurable framework built to rapidly acquire, transform, analyze and report on all types of sensor or log data. Our solution consolidates and maps data from multiple sensors, and improves its relevance by enriching the data with additional insights such as geographic or weather conditions. Built on Big Data technologies, the offering delivers scalability and flexibility, processing high volume sensor streams to present business relevant insights.

Overview

With the number of sensor-embedded intelligent devices increasing exponentially, enterprises struggle to effectively manage the generated voluminous sensor data. Different sensors imply different formats of data, which are difficult to correlate. Creating analytical models for this varied Big Data to provide alerts to end users in real time is an increasingly challenging task. In today's globalized market, leveraging this sensor data to identify strategic insights is essential to sustaining competitive advantage.

The TCS SDA framework addresses these challenges by enabling organizations to collect, process, store and analyze the voluminous sensor data. Its powerful analytics engine leverages the MapReduce paradigm of Big Data processing to analyze large volumes of data in parallel, generating actionable insights rapidly. With the capability to configure and integrate various data sources and formats, SDA ensures data quality and facilitates analysis of integrated high volume sensor streams. Its built-in correlation engine analyzes fragmented data, identifies events and triggers counter-actions based on pre-configured rules. Our SDA offering extends support for enterprise logs management and analytics, harnessing Big Data technologies to deliver faster, more accurate insights.

Benefits

- **Accelerate time to market:**
Reduce your time to market with SDA's ready to use components that bring in build capabilities such as data extraction, transformation, reporting, and deep dive analytics.
- **Correlate multiple sources:**
Improve the relevance of decision making by leveraging cross functional insights based on data from different sensor devices available in different data formats.
- **Reduce data management overheads:**
Reduce support and maintenance costs and upfront investment by using a single solution to analyze geospatial data, time-series data, telematics data, and large machine generated log files.
- **Improve processing time:**
Reduce processing time by 70 percent as compared to traditional analytical models with SDA's distributed analytical models that leverage machine learning algorithms.

Acquire, Transform, Analyze and Report on voluminous machine data to derive actionable business insights and unearth new business models.

Sensor Devices



An Overview of the TCS Sensor Data Analytics Framework

The TCS Advantage

The Analytics, Big Data and Information Management (ABIM) sub group of the TCS Digital Enterprise Unit provides end-to-end services and solutions for data management and analytics, for both the IT organization and the business. TCS SDA framework leverages our extensive domain understanding and technology expertise and adds value through our:

- **Highly configurable framework:**
Our framework offers the flexibility to configure multiple data sources using an intuitive web interface for data acquisition, data transformation and reporting.
- **Distributed analytical models:**
TCS SDA delivers a unique amalgamation of generic as well as domain-specific analytical models. Developed with support from the TCS Innovation Lab, these mature assets leverage the combined benefits of machine learning algorithms and the distributed processing approach.
- **Support for multiple data sources and formats:**
Ability to connect to different sensor sources like PLC, SCADA, Historian, etc to acquire the data. Also supports data ingestion from SFTP server, Java Message Service (JMS), Web Services or any RDBMS. It also supports voluminous log files for Log Event correlation and analytics.
- **Real-time Data Analytics:**
Capable of acquiring streaming data at real-time coming at very high frequency from multiple sources and doing real-time analytics on the fly for developing a quick response system.

About TCS' Digital Enterprise Unit

TCS adapts the capabilities of the digital five forces – Mobility and Pervasive Computing, Big Data and Analytics, Social Media, Cloud, and Artificial Intelligence & Robotics – to the unique needs and opportunities of each industry. We leverage a combination of these technologies to help clients digitally reimagine their business models, products and services, customer segments, channels, business processes, and workplaces to gain sustained competitive advantage.

Our experienced global team includes strategy experts, business analysts, digital marketers, user experience designers, data scientists, and engineers trained and certified in the latest technologies. By combining our technology vendor partnerships, our pre-built customizable products and reusable assets, and our deep industry expertise, we offer enterprises everything they need for a complete digital transformation – from strategy and use cases, to system implementation and maintenance – and everything in between.

Contact

To know more about TCS' Sensor Data Analytics Framework, contact digital.enterprise@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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