

# Enterprise Data Lake for Advanced Analytics

Alliance and Technology



Data is a key component shaping today's digital economy. Rapid technological advancements have enabled businesses to access large volumes of data flowing in through multiple touch points across the network. However, without the capability to collate, structure, and analyze data, it remains largely unusable. A unified data storage and analytics system can facilitate data driven decision-making based on actionable insights.

TCS' Enterprise Data Lake for Advanced Analytics facilitates rapid discovery of historical and trending patterns across different customer segments. Data is aggregated in real-time from various sources, such as social media, emails, client correspondence, application details, wikis, clickstream, blogs across distributed file systems, and NoSQL databases. It is then segmented and structured based on behavior, preferences, needs, and sentiments. This allows businesses to optimize various functions across the customer lifecycle, while overcoming cost constraints and meeting regulatory requirements.

## Overview

The current business landscape is marked by the emergence of an expanding range of digital products and services. Enabled by a growing number of digital touch points, the consumer journey is now omni-channel. With an increasing amount of information flowing in from across channels, traditional silo-ed data warehouses can no longer be used to drive efficiency or identify new opportunities. In order to retain a competitive edge and brand loyalty, businesses need to embrace digital transformation to consistently deliver relevant, individualized, and compelling customer experiences. Within this context, understanding the customer's needs, preferences, and expectations is critical for success.

Our Enterprise Data Lake for Advanced Analytics allows organizations to store data generated at every stop of the customer's journey. The collected information, in its native format, can be accessed and analyzed at any given time, enabling businesses to gain a systematic understanding of customer sentiments. In turn, this helps improve customer experiences, streamline operations, reduce churn, and identify channel vulnerability to fraud. The data lake is globally accessible and is delivered through a secure, robust, and scalable platform—AWS Cloud.

## Our Solution

TCS' solution delivers:

- **Unified storage:** Amazon S3 is used to store all types of data in its native format.
- **Centralized data management:** A microservices layer written using AWS Lambda is the foundation for data processing. The combination of technologies such as Kafka, Kinesis Streams, Spark Core and Spark Streaming are used to systematically transform raw data into fit-for-purpose data sets.
- **Machine learning and advanced analytics:** Spark MLlib empowers businesses to predict consumer behavior and churn, and enables real-time contextual communication. Analytical insights are visualized using Tableau.
- **Integrated system:** Provides an integrated system for job scheduling, provisioning, and managing data which empowers end-users to collate and consume information.
- **Data governance:** An automated and mandatory metadata management system for attributes like data lineage, data quality, and usage history, which are vital for DynamoDB.
- **Security and controlled access:** AWS' Identity and Access Management provides a virtual network environment, key pairs, complex privacy rules, and policies that allow real-time access to the data.





## Benefits

With the data lake solution, you can experience



**Improved agility and scalability:** Through a pay-as-you-go cloud-based architecture.



**Greater data integration synergy:** From almost all customer touch points, including emails, survey responses, website behavior, to uncover relevant insights.



**Higher return on marketing investments:** By executing relevant marketing campaigns aimed at distinct buyer groups, tracking customer responses on new product launches, as well as visitor behavior on your website, mobile apps, and stores.



**Enhanced operational efficiency:** With a highly scalable cloud-based platform for data integration, visualization, and analytics tools.



**Increase in revenue growth:** Leverage data-driven insights to expedite decision-making, increase focus on customer-centric business processes, and maximize customer lifetime value.

## The TCS Advantage

By partnering with us, you can leverage:

- **Technology-agnostic framework:** –Based on the organization's need we can use AWS-native services, open source products and interoperable ISV software on the AWS marketplace on public or hybrid cloud.
- **Next-gen technologies:** Our offering references the Lambda architecture to enable simultaneous integration of real-time and batch data modes by balancing latency, throughput, and fault-tolerance for both the modes.
- **Strong alliance and partnerships:** Our business solutions lab and strategic alliances with leading product vendors and global technology providers ensure that we deliver business-specific, customer-centric solutions.
- **Global reach and industry experience:** With our unmatched global reach, collaborative approach towards value creation, multi-technology expertise, proprietary frameworks, and industry knowledge, we enable your business to experience certainty.

## Awards & Recognitions

---



---

### To know more

Visit the [Alliance and Technology](#) page on [tcs.com](#)

Email: [atu.marketing@tcs.com](mailto:atu.marketing@tcs.com)

### About TCS' Business Solutions Unit (BSU):

TCS' strong partnerships with technology vendors, Global Business Solutions Labs, specialized knowledge of emerging technologies, deep domain expertise, and global teams, enables us to help customers solve business problems or develop new business models through proof of concept, proof of technology, and validation of solution architecture. We drive Business innovation for our Customers by leveraging technologies in the areas of Cloud, Cyber Security, Business Analytics, Big Data, Blockchain, APIfication, Connected Networks, Artificial Intelligence, Integration Services, Business Visualization and Simulation enablers. Our industry-specific business solutions that leverage leading and disruptive technologies on an interoperable platform supported by a workforce with cross-technology skills help clients drive Digital Re-imagination and Simplification.

### 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.

For more information, visit us at [www.tcs.com](#)

[IT Services](#)

[Business Solutions](#)

[Consulting](#)

All content / information present here is the exclusive property of Tata Consultancy Services Limited (TCS). The content / information contained here is correct at the time of publishing. No material from here may be copied, modified, reproduced, republished, uploaded, transmitted, posted or distributed in any form without prior written permission from TCS. Unauthorized use of the content / information appearing here may violate copyright, trademark and other applicable laws, and could result in criminal or civil penalties.