Product Brief

eDatX™
Data Aggregation Platform

Introduction

The eDatX™ data platform ingests and aggregates data from diverse input sources to provide a manageable, accessible body of data in the end network (in-vehicle) and in the cloud.

Data from the connected car need not be an all-or-nothing proposition. eDatX allows OTA-updatable rules/policy-based data retention and granularity adjustments to provide a comprehensive toolset to gather the right data, in the right amounts, from any number of vehicles.

eDatX seamlessly integrates with an eSync data pipeline, to manage the flow of data from all electronic devices across any number of vehicles. eDatX offers a secure service-oriented architecture to provide access to the data from heterogeneous networks to drive system efficiencies, learning cycles, and data monetization opportunities in the automotive and related markets.

Built on the eSync Data Pipeline

The eDatX data platform makes use of the capabilities and resources of the Excelfore eSync data pipeline or similar eSync Compliant bi-directional data pipelines. It may also be customized to other data pipeline architectures.

The in-vehicle eDatX service is an embedded software components available for a wide variety of the operating systems and microprocessor/controller families.

Applications and Use Cases

Prognostics

Predict remaining useful life of automotive components. Aggregate operational data from ECUs to enable analytics and fleet level learning. Reduce service costs and improve customer satisfaction.

Predicting Failures

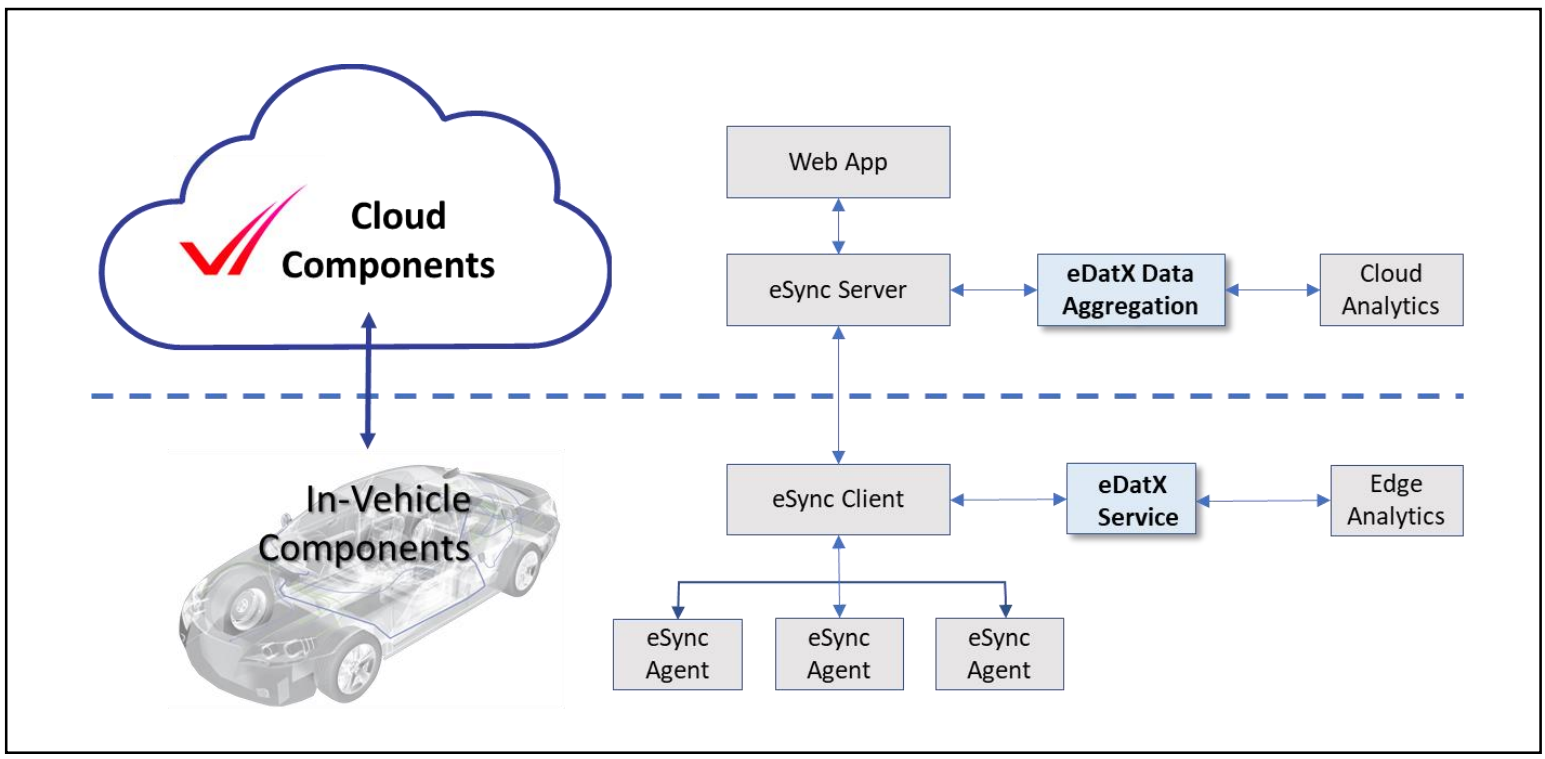
Set triggers to alert server when ECU, HPC or sensor data drifts outside of normal operating bounds, or when combinations of in-range co-variables occur. Initiate remedial actions before error codes indicate device failure.

Accelerating Development

Draw real time operational data from devices in diverse geographies. Access and investigate from remote engineering facilities. Drive updates and changes across distributed test fleets that can be implemented over-the-air in minutes.

Monitoring Usage

Integrate and access sensor and telematics data to reveal patters of use of features and access behavioral correlations.



Data Ingestion:

In-vehicle data management begins with the data ingestion process.

- Rules-Based Configuration and Data Trimming
- Streaming Data Preprocessing and Transformation Data Published to Topics Queue
- Data Stored in Topics for a Configurable Retention Period

Rolling Buffers:

The in-vehicle eDatX service can provide and manage rolling buffers for all streaming devices. The policy function allows updatable sizing of the rolling buffers, which can be fixed by key events and immediately stored to the data store and published to the server in the cloud.

- Rules-Based Buffer Sizing
- Configurable by OTA Update

In-Vehicle Data Stores

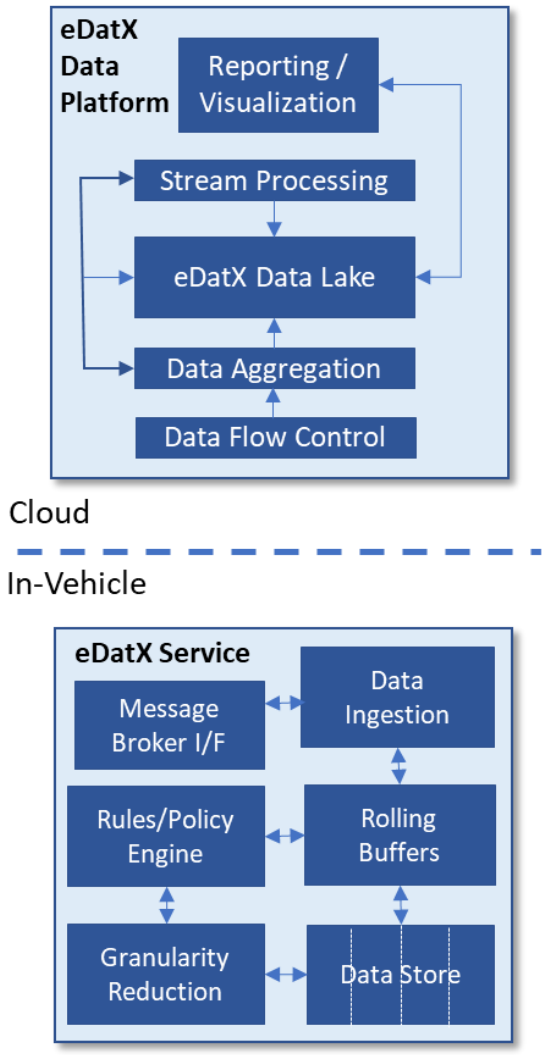
The eDatX Platform retains data in the cloud in a multi-format data lake:

- Local Storage Management
- Encrypted Storage of Data at Rest
- Data Granularity Reduction
- Data Transmission:
  - Upload Continuously
  - Upload Periodically
  - Upload Based on Connection
- Rolling Buffer Management
- Overwrite-Protected Portions (for Critical Data)

Data Lake in the Cloud

The eDatX Platform uses multiple data storage formats for data retention in the cloud:

- Hadoop Distributed File System: to Store Raw and Staging Data
- Mongo DB: to Store Diagnostics Data
- Elasticsearch: to Store Structured Data Processed by Aggregation and Learning Services
- Relational Database: to Store User, Role and Configuration Data



Integrates with eSync Data Pipeline:

eDatX adds capabilities to an established data pipeline. It relies upon a pipeline for essential features, and provides useful incremental management for local and cloud management of data generated by the sensors and ECUs in a connected car.

The eDatX Platform can be seamlessly integrated with an eSync Data Pipeline. In such an application, the eSync Pipeline provides:

- Data Transmission over MQTT
  - Upto 128KB Packet Size
- Secure TLS 1.2 Communication Channel
- Device Authentication
- Scalable Architecture

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