

Track and Trace Accelerator

Description

The logistics industry has experienced a great deal of change over the past decade. Traditional postal products are dropping off the radar, giving a new importance to parcel delivery. The proliferation of eCommerce and online shopping has made efficient and timely deliveries key to both vendor and customer satisfaction. Retailers entering the logistics market like Amazon and Ocado have increased pressure on incumbent operators to improve their offerings. These new entrants are not necessarily better, but they can be cheaper and more agile, combined with modern information systems help them to be more efficient. But customers ultimately drive revenue, and if they're unhappy with a delivery they will complain to the retailer. Retailers want happy customers, and a healthy logistics marketplace is required to improve services and maintain competitive pricing.

The Track and Trace Accelerator is a reference architecture for a new generation tracking technology based on event processing software. The process is configuration-driven which allows for easy modification of states and allows introduction of new logistics products in days or hours rather than weeks. The real-time dashboard for operations staff gives an at-a-glance view of network health while flagging up exceptions that require attention. With active SLA management the system can predict when parcels will be late, upwards of 8 hours before this actually happens. This also provides tools for adaptable last mile delivery changes based on customer preference.

Components

The Accelerator shows several use cases tracking a package throughout its lifecycle from collection through to delivery. The parcel is announced to the system, and then a series of barcode scans known as observations occur as the parcel transits the network. Updates on estimated delivery are recalculated at every step so that active monitoring of SLA violations can determine if a parcel will be delivered within the guidelines for a given product.

The main business rules engine is implemented using TIBCO Cloud™ Events as Event Manager. It contains an in-memory representation of the lifecycle of a parcel delivery, driven by a decision table-based state model. The Simulator and Dashboard is a NodeJS application running in TIBCO Cloud™ Integration. This dashboard wraps a TIBCO Cloud™ Spotfire® DXP to visualize the lifecycle of the parcel. This is connected to TIBCO Cloud™ Data Streams which is a Real-Time Datamart containing live data. The integration between the Event Manager and the Real-Time Datamart is via TIBCO Cloud™ Messaging.

Software Dependencies

Software	Minimum Version
TIBCO Cloud™ Data Streams	Latest
TIBCO Cloud™ Events	Latest
TIBCO Cloud™ Integration	Latest
TIBCO Cloud™ Messaging	Latest
TIBCO Cloud™ Spotfire®	Latest

Deployment Environment

The Accelerator requires a TIBCO Cloud™ account. The account should be in either the EU or US region, and have active subscriptions for all listed software dependencies.

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