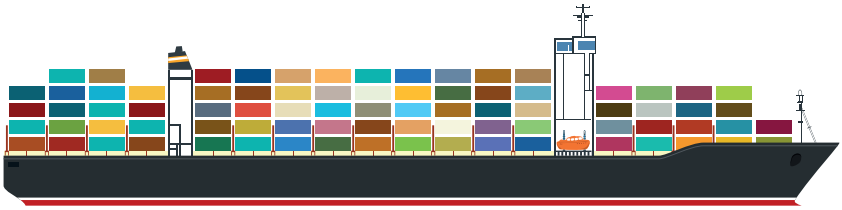
BigDataStack

Holistic stack for big data applications and operations

Real-time ship management



Overview

A vessel has to complete its route within a time-frame. When a part of the main engine fails unexpectedly, the ship risks staying off-hire for a long time. This can be very damaging to a shipping company, as chartering revenues decrease, while replacing a spare part immediately increases cost. Thus, identification of potential failure allows timely ordering, or even replacement of spare parts before failure.

Challanges

The main engine, posing the highest risk, consists of various spare parts depending on numerous parameters. Thus, it is difficult to accurately predict failures. If a false alarm were to be raised, the operating costs would automatically increase with the costs associated to ordering a unnecessary spare part.

The multivariate nature of a supply department makes the selection of the port where the spare part will be delivered, challenging. The price depends on the port as well as the time frame of order and the personnel replacing the part.

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Goals

Identification of malfunction patterns and notification of the supply department.

Automatic ordering of the appropriate spare part to be delivered at a port on route (take out hyphen in delivered).

Monitoring the main engine of a vessel.

Minimization of overall maintenance cost.

Avoidance of off-hire seasons due to machinery failures and unexpected but compulsory mainntenance.

Expected Impacts

Better organisation of the supply department.

Minimization of machinery failures that cause the ship to go off-hire.

Advanced monitoring of key components in the engine room and at office.

Reduction of operating costs, by optimising the aquisition process of new spare parts.

KPIs

- Increased data variety in analytics.
- Increased cross-stream events processed in real-time by CEP.
- Increased accuracy of predictions by considering additio-nal datasets.
- More efficient processes due to modelling and mining.
- Reduced maintenance and idle times due to predictive mainte-nance.
- Reduced fuel consumption due to dynamic routing.
- Reduced CO2 emissions due to dynamic routing.
- Increased service availability due to overall maintenance pro-cess optimization.

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