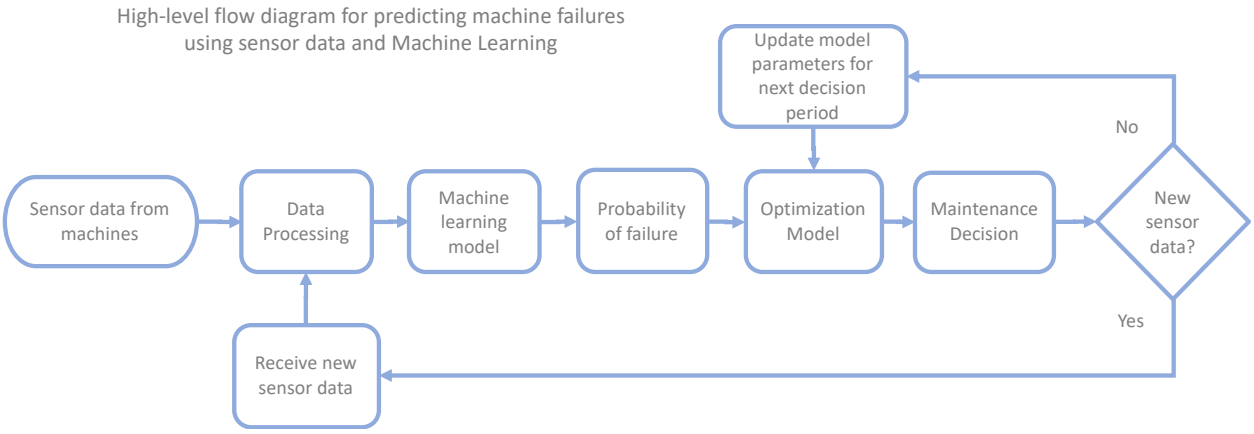
Case Study: Prediction of Machine Failures with Time-to-Failure Analysis

Regular preventive maintenance of critical machines can help lower the failures. However, with the increasing complexity of machinery and frequent changes in operating parameters, preventive maintenance alone may not be sufficient. Machine Learning models that consider numerous factors can help predict critical machine failure so decision makers can take timely actions to avoid downtime and costly damage.

We built a machine failure prediction system for boiler machines using sensor data and machine learning. We collected historical sensor data from the boiler along with failure information, and sent it to a machine learning platform to create a failure prediction model. We refined and optimized the model based on training data. In deployment, the sensor data is fed in regular intervals to the model to get failure predictions.



Below is the architecture diagram of the early warning system that uses predictive models built on AWS Machine Learning platform.