

## Cloud based web application for condition monitoring and predictive maintenance



### Features

- Device and edge registration and configuration:
  - provisioning
  - association with assets
  - streaming time
- Data visualization
  - Device Live monitoring
  - Historical trends
- Asset health monitoring:
  - collect and download data
  - analyze historical trends
  - settable failure thresholds for alerts and warnings
- Position and status overview map of tracking system
- Available applications:
  - vibration monitoring
  - ultrasound monitoring
  - environmental monitoring
  - condition monitoring
  - events tracking
- Application framework based on Amazon Web Services
- Data volume limits:
  - Automatic user notification
  - Trial basis duration: 6 months
  - Max number of devices: 5
- User data segregation

Product summary	
Cloud-based CdM and PdM web app	DSH-PREDMNT
Cloud environment	Amazon web services
Application scenario	Condition Monitoring / Predictive Maintenance

### Description

The Predictive Maintenance Dashboard is a cloud application based on AWS services. It provides a highly functional and intuitive interface that is tailored for the logging, visualization and analysis of condition monitoring data from motion and acoustic vibration sensing elements, as well as temperature and other environmental data. You can use the dashboard to plot and graph real-time and historical data, monitor critical operating conditions such as running temperature, and set thresholds for automatic warnings when key parameters exceed acceptable limits. Once you collect and download the data, you can develop your own algorithms for edge processing and event visualization.

The cloud package can receive and process data streamed directly from compatible ST sensor nodes with real-time data pre-processing capabilities such as Fast Fourier Transforms (FFT), and also provides SDKs for the AWS Greengrass service to interface with edge gateways managing compatible ST devices capable of bulk data pre-processing and storage.

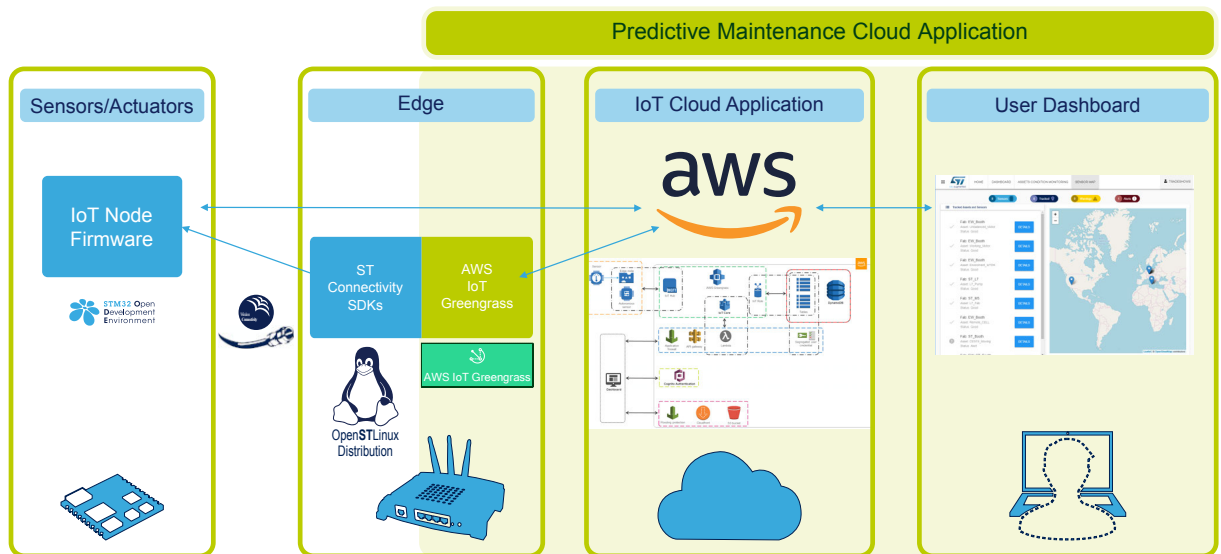
As the dashboard runs on a third party cloud storage service provider, the number of ST IoT sensor nodes you can connect on a free trial basis is limited to five, for a maximum duration of 6 months. Additional monitoring based on resource consumption can be applied to keep account consumption under control.

# 1 Predictive maintenance on cloud application overview

The Predictive Maintenance Dashboard is the interface for the complete IoT Cloud application devoted to condition monitoring and anomaly detection based on AWS web services, involving computation, storage, data management, networking, development tools, monitoring, security, notification of events representing anomalies, and so on, towards a predictive maintenance application.

The User Dashboard is the graphical browser interface through which you can set up or provision condition monitoring nodes in a virtual network, monitor and control the status and activity of the nodes, analyze incoming data and set trigger alerts for predictive maintenance purposes.

**Figure 1. Cloud predictive maintenance solution block diagram**



The other side of the solution consists of the actual smart sensor nodes and gateways nodes that you can set up using any of ST's highly functional kits for different use case scenarios and data processing strategies.

The package allows you to set up a centrally managed network, where the nodes stream data directly into the IoT Cloud Application for further processing and analysis, or a more sophisticated edge network where some of the processing is managed by the nodes themselves.

**RELATED LINKS**

*Visit the [ST Condition Monitoring / Predictive Maintenance application page](#) for more information on relevant ST applications and solutions*

## Glossary

**edge computing** Relates to the computational processing of data by edge devices near or at the collection point in order to reduce networking and processing burdens on data centers or cloud servers.

**edge device** Any device or combination of devices associated with the collection, processing, storage or management of data in a specific location or area, not directly connected with a centralized corporate or cloud monitoring and analysis facility.

**edge gateway** A local network server through which data centers and cloud applications can access stored or real-time data collected by individual or grouped edge devices.

## Revision history

**Table 1. Document revision history**

Date	Version	Changes
09-Jul-2019	1	Initial release.
21-Oct-2019	2	Updated Cloud predictive maintenance solution block diagram
04-Apr-2020	3	Updated cover page Features and Description Updated cover page Section 1 Predictive maintenance on cloud application overview and Figure 1. Cloud predictive maintenance solution block diagram

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