

# A System Architecture for Monitoring the Reliability of IoT

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## Abstract

The Internet of Things has gained momentum in recent years, supported by new technologies and computing paradigms such as Cloud Computing and Service Oriented Architecture and an increasing demand from the enterprise. With hundreds of billions of devices to be connected in the near future, IoT will need new methods for addressing key challenges in security and reliability. One particular challenge we will focus on is the ability of the system to prevent itself from failing by continuously introspecting its own state and take decisions without human intervention. We will demonstrate how this can be achieved using new time series databases and monitoring systems such as Prometheus, InfluxDB, OpenTSDB and Graphite. By logging performance and other transaction metrics, the system can use specific algorithms to predict potential issues and react. We will then show how machine-learning algorithms could be used to reveal new insights, patterns and relationships across data.

**Keywords:** IoT, monitoring, reliability, self-management, time series, automation, Prometheus, OpenTSDB, InfluxDB

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