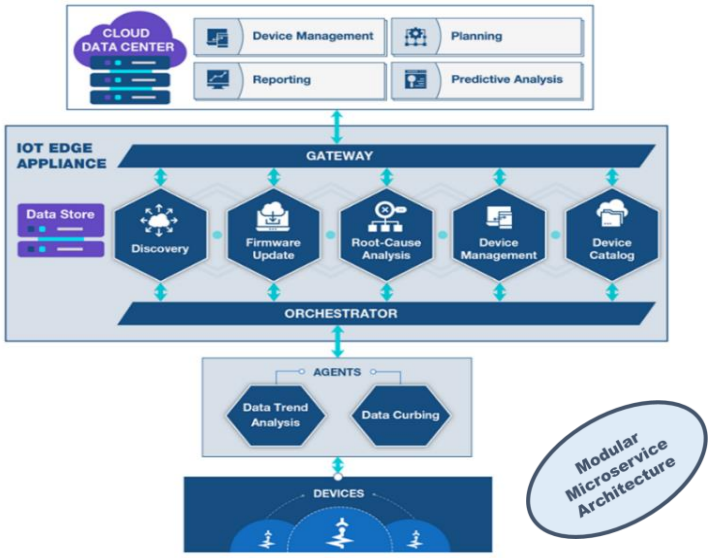
A PRACTICAL FRAMEWORK FOR IIOT EDGE

The Industrial "Revolution" at the Edge

Have you accounted for the "edge" in your IIoT journey? This software-based model radically improves operational efficiency bringing data governance, real-time analysis and decision-making to the most optimal location close to action, reduces backend cost, solves critical latency-depending issues while improving serviceability of devices.

Vixtera is developing the IIoT edge software (ViEdge) and delivering integrated solutions for the mission-critical applications within asset-intensive industries. The ViEdge provides industrial enterprises with out-of-the-box operational experience delivering broad and robust device, event and data management, automated mass installation and scalable deployment governed from a Single Pane of Glass dashboard. It detects a problem and promptly identifies its root cause helping to prevent potential failures and costly track rolls. The patent-pending algorithms and techniques help to accelerate asset management, visibility and decision-making offering tangible benefits for cost-effective operation.

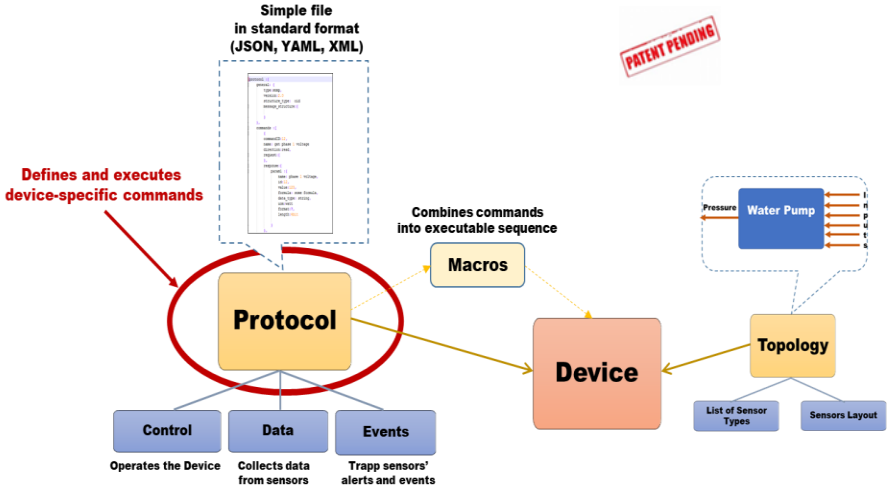


Out of the BOX

- **Ubiquitous Connectivity**
- **Bulk Config and Upgrades**
- **Multifaceted Data Curation**
- **Root cause analysis**
- **Real-time failure detection**
- **Predictive Analysis**
- **Up to the minute view**
- **Asset Optimization**

The Hidden Truth of IIoT Device Connectivity

In the perfect world, you pick a communication protocol, develop a driver and connect the device. But, surprise, you have to code again to adapt the driver, and again to deploy it. And your troubles are not over having to "mingle" with code, again... and again while making config changes or upgrading the software – think about large-scale deployment. Hence, the **enormity of different types of IIoT devices** demands a far-reaching approach to solve this problem.



Vixtera **developed and patented technique allows** effortless onboarding, maintenance and management of ANY device across ANY comm protocol without ANY need for a driver, SDK or firmware change (e.g., adapting device to MQTT). Regardless of model or brand, one can quickly configure a declarative protocol specific to a device or its class - minimum effort is required. The protocol commands and micros can be easily customized providing rapid response to frequent changes and upgrades while enabling tuning of devices and their reporting to ever-changing conditions of complex heterogenous IIoT environment.

VIXTERA

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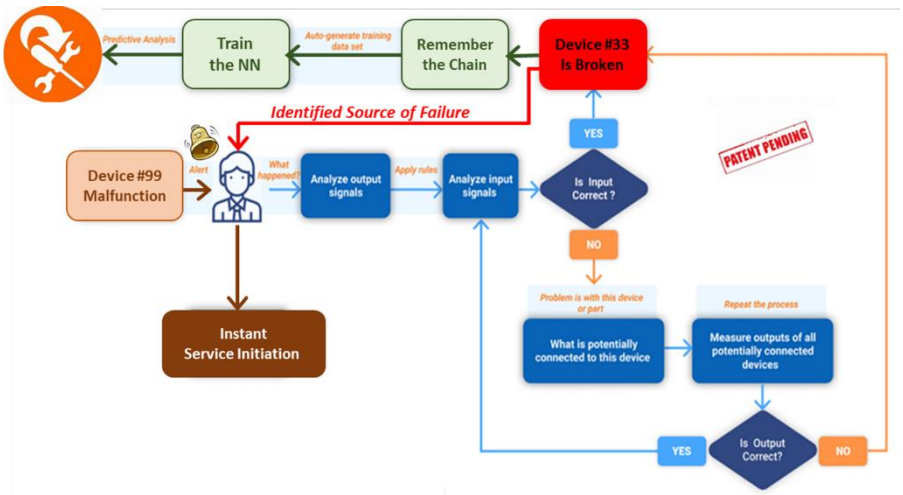
Identifying IIoT Problem is like Looking for a Needle in a Haystack



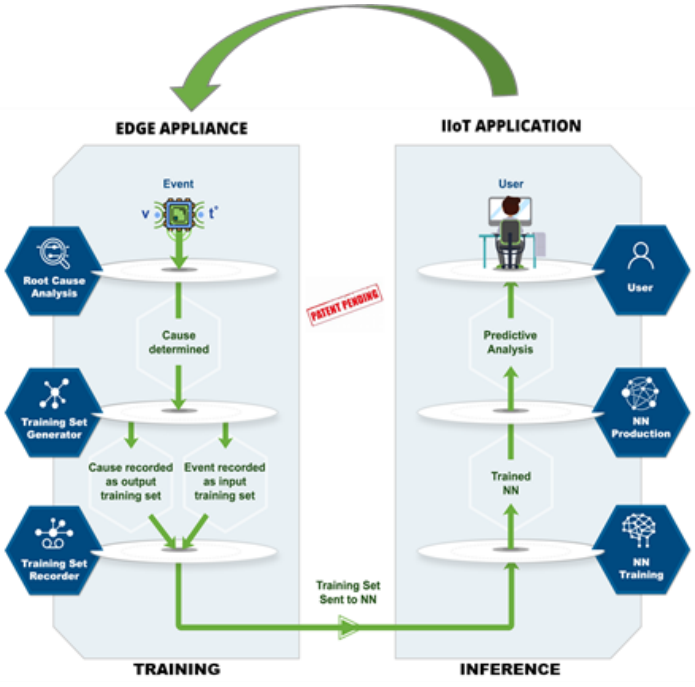
Running mission-critical applications and working in highly-constrained environment leaves no room for failure and requires a solution that: a) detects irregularities and **pinpoints a failure in real time**; b) provides mechanism for prevention of potential problems.

Vixtera developed an **algorithm helping to detect IIoT system anomalies and identify source of failures** preventing potential breakdowns and costly track rolls. The patent-pending methodology takes holistic approach to gauge inputs and outputs of connected devices while using correlation-based analysis to parse-out actionable interconnected events. The technique is more earnest and less complex than NN training and error-prone AI/DL modeling.

To **mitigate the AI/DL labeling issue**, a machine-generated source of failure can be used as a reliable "etalon" for accurate predictive analysis.

Building Foundation for Reliable Predictive Services

One of the hardest problems in Deep Learning (DL) is collection and identification of data that correlates with the outcome you want to predict. In order for neural network (NN) to be used, it has to be trained. Each training data set consists of input and "etalon" data sets. The "etalon" data set is used for comparison between data sets generated by NN and desired data sets. The biggest challenge with today's NN training is that a huge army of labor is needed to manually label information and train AI systems – a time-consuming, costly and error-prone process. **Vixtera developed and patented Root Cause Analysis algorithm explicitly identifying and using cause of failure as a reliable source (label) for auto-generation of Neural Network (NN) training data sets**. This method provides significant uplifting helping to eliminate manual, error-prone labeling for AI/DL modeling providing machine-based, automatic, accurate and dependable source for predictive analysis. Therefore, allowing generation of trustworthy data for variety of IIoT applications and services.



We make it Simple to Facilitate your IIoT journey

To get you started, we offer an extensible software framework with core components and empower you with variety of services and smart applications assisting with rapid productization of your solution, integration with of OT/ IoT platforms and clouds. Get in touch!

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