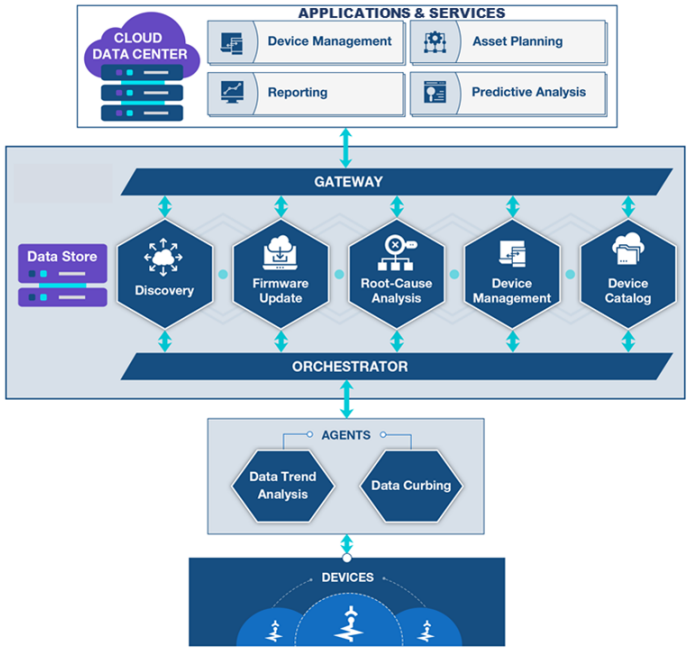
A PRACTICAL FRAMEWORK FOR IIOT EDGE

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 distributed software and delivering integrated solutions to Industrial Enterprises, Manufacturers and VARs with a single focus on accelerating and simplifying IIoT deployment and operation.

The ready-made software framework (ViEdge) is powered by patent-pending algorithms and techniques helping to speed up time to value, expand operational visibility and reduce the cost to automate infrastructure and operation.

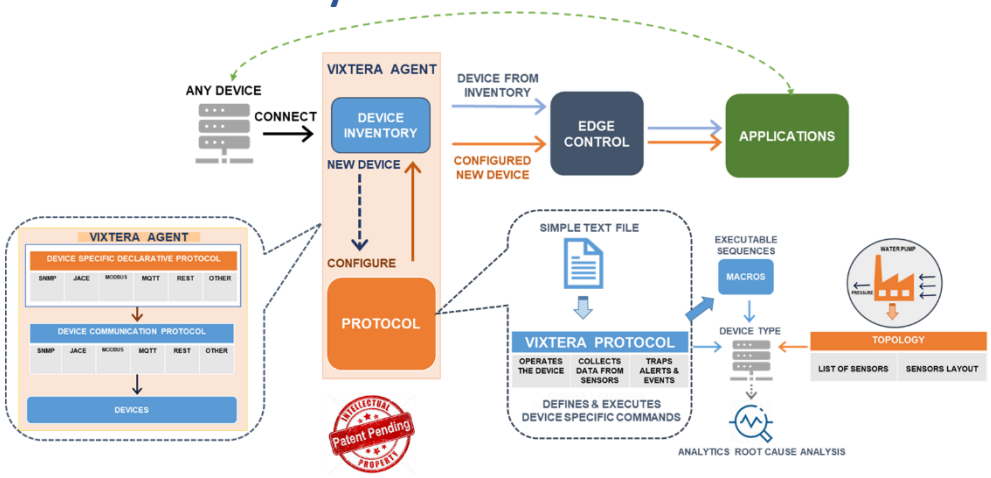


Out of the BOX

- **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, take a pain to develop a driver or may find an SDK to connect the device. Yet, you still have to constantly "mingle" with code when making software changes or upgrades – think about large-scale deployment. The **enormity of different brands and types of IIoT devices** demands a far-reaching approach to solve this alarming problem.



Vixtera **patented technique allows** effortless onboarding, maintenance and management of ANY device across ANY communication 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 instantly adapting to ever-changing conditions of complex heterogenous IIoT environment.

VIXTERA

www.vixtera.com
www.linkedin.com/company/vixtera-inc

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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 prediction and prevention of potential problems.

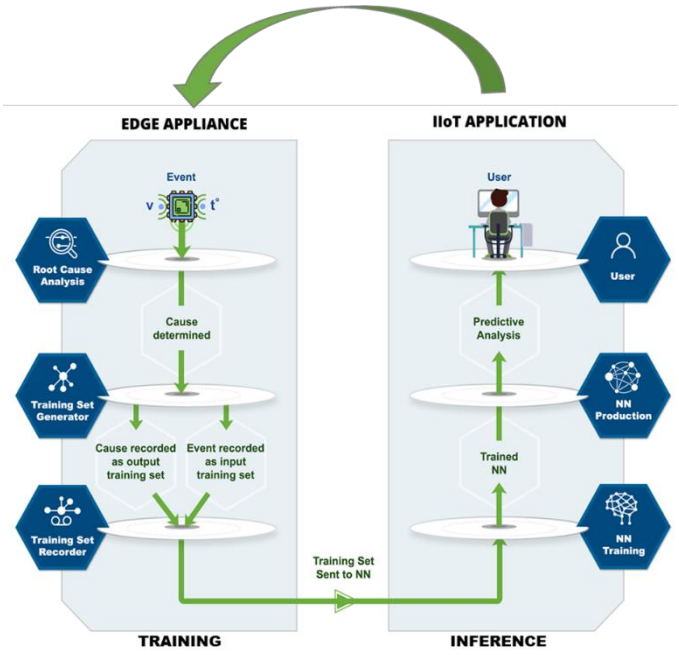
Vixtera developed an **algorithm helping to detect IIoT system anomalies and identify source of failures** preventing potential breakdowns and costly track rolls. The patented methodology takes holistic approach to gauge inputs and outputs of connected devices while using correlation-based analysis, rules and priorities to parse-out actionable interconnected events. This technique is more earnest and less complex than NN training and error-prone AI/DL modeling, and is a better fit to solve the uptime issues of Industrial IoT.

To **mitigate the AI/DL labeling issue**, a machine-generated source of failure can be used as a reliable "etalon", a label, 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 latter is used for comparison between data generated by NN and desired data sets.

But, the biggest challenge with today's NN training, especially in Industrial IoT with its plurality of connected devices, is that an 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 NN training data sets. This method significantly improves IIoT operational efficiency helping to eliminate shortcomings of manual labeling providing AI with machine-based, automatic, accurate and dependable data for predictive analysis, applications and services.

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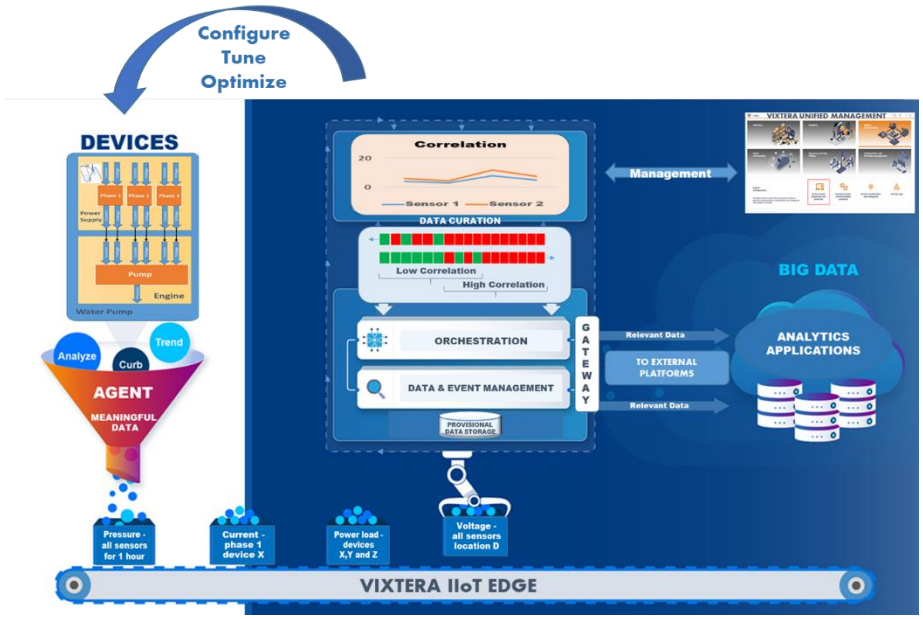
Performing Time-Critical Data Processing and Analysis

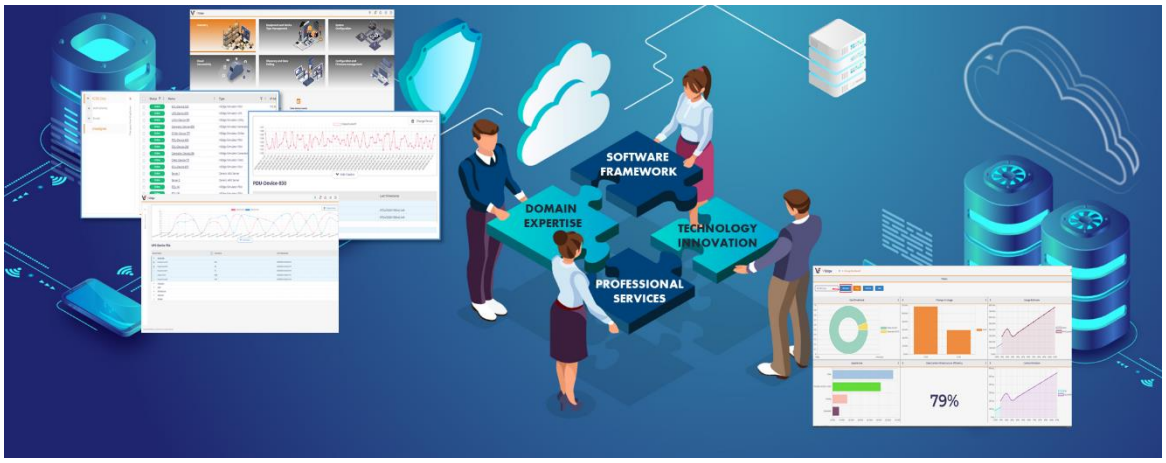


They say..., collect and sample sensor data, publish it to external systems, grasp the desired outcome and drive it home. Well, applying this paradigm to mission-critical applications across bazillions of disparate connected devices and running it in the asset/data-intensive and delay sensitive industrial environment has many unforeseen ramifications - and you'd better be ready.

Vixtera IIoT edge uses tiny, agile and configurable software agents deploying it closer to action or anywhere across the network. Agents apply innovative trend analysis, create provisional footprint storage and normalize data streams while quickly identifying and filtering meaningful events coming from devices. As the result, it allows asynchronous application independent event processing, driving rapid measurable response to any malfunction, while using novel methodology for real-time failure detection.

The extracted data is instantly analyzed at the edge along with historical data and is managed by customizable UIs. The system can rapidly condition and dispense aggregated relevant data to external platforms for further processing and analysis.

We Uplift your IIoT journey



To get you started, we offer an extensible software framework with essential components to start the deployment, and empower you with variety of services and applications to assist with rapid customization and productization of your solution.