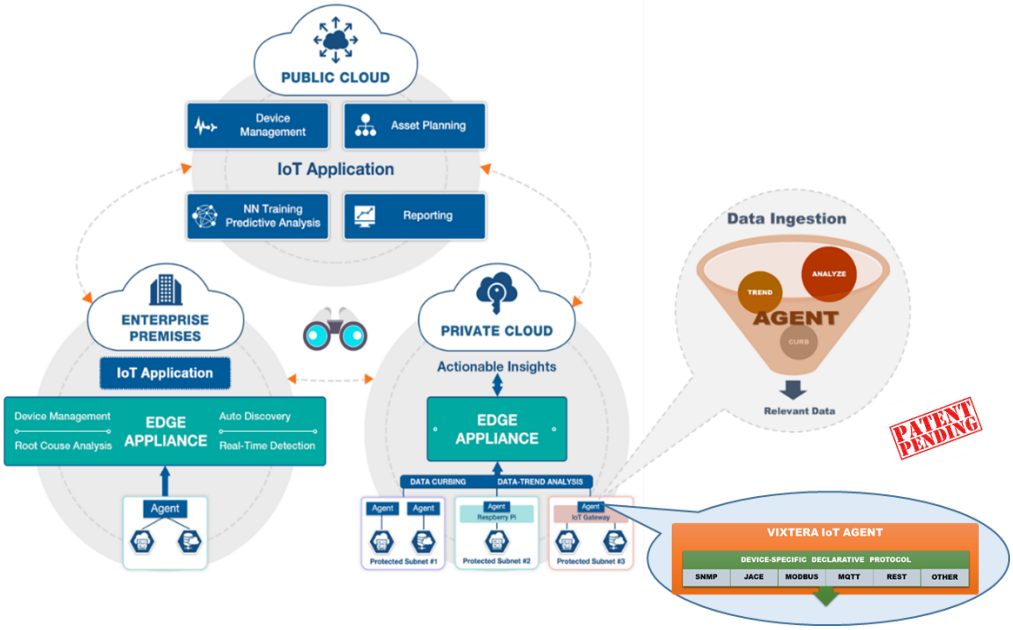
A PRACTICAL FRAMEWORK TO IIOT EDGE

The Industrial "Revolution" at the Edge

Have you accounted for the "edge" in your IoT journey? This software-based model radically improves operational efficiency bringing data governance, analysis and decision-making in the most optimal location close to action, reduces backend cost, solves critical latency-depending issues while improving serviceability and productivity of devices.
Vixtera is developing the IIoT Edge software framework and delivering integrated solutions for the mission-critical applications within asset-intensive industries. The virtualized edge appliance uses patented technologies helping to create the environment for connected devices while collecting, curating, analyzing and rapidly acting on the streaming data delivering commercially viable IIoT solutions. **Vixtera Edge makes it simple to jumpstart the IIoT journey.**

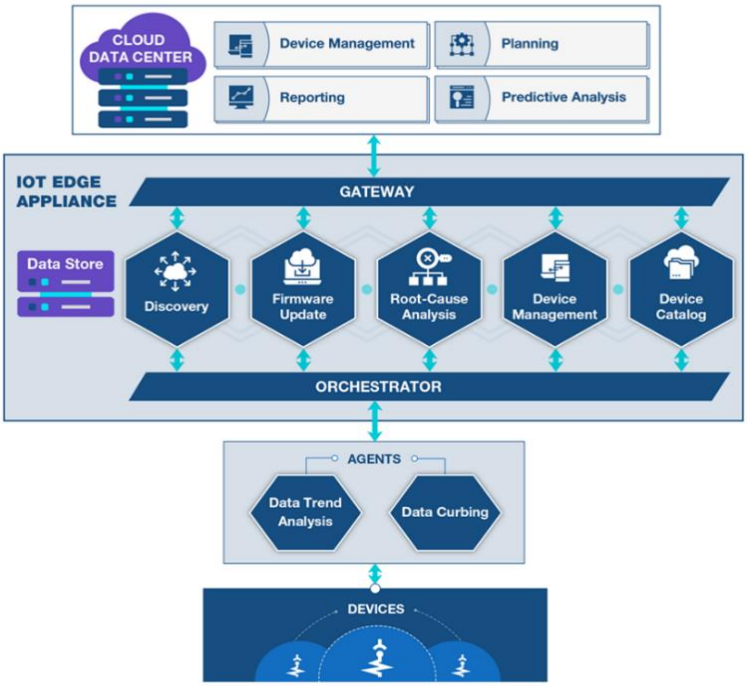


Out of the BOX

- **Ubiquitous Connectivity**
- **Data Curation**
- **Root cause analysis**
- **Real-time failure detection**
- **Predictive Analysis**
- **Up to the minute view**
- **Asset optimization**

Distributed Microservice Architecture and Data Agility

Vixtera IIoT Edge software framework is architected as a collection of connected microservices signifying purposely-built functions and applications offering unique set of out of the box capabilities and valued benefits for: ubiquitous device connectivity and control (requires no SDKs, drivers); multifaceted data curation; root cause analysis and real-time failure detection; auto-generation of NN training data sets for AI/DL modeling, predictive analysis and asset optimization.
The appliance is **cloud agnostic,** can be easily adapted to any cloud or premises, and allows rapid integration with legacy OTs and global IoT platforms establishing well-tuned end2end ecosystem.
As the result, Vixtera IIoT Edge helps to create seamless environment for high-performing data stream processes with actionable multifaceted analysis to any type of devices driving transformational evolution toward **subscription- and outcome-based services**.



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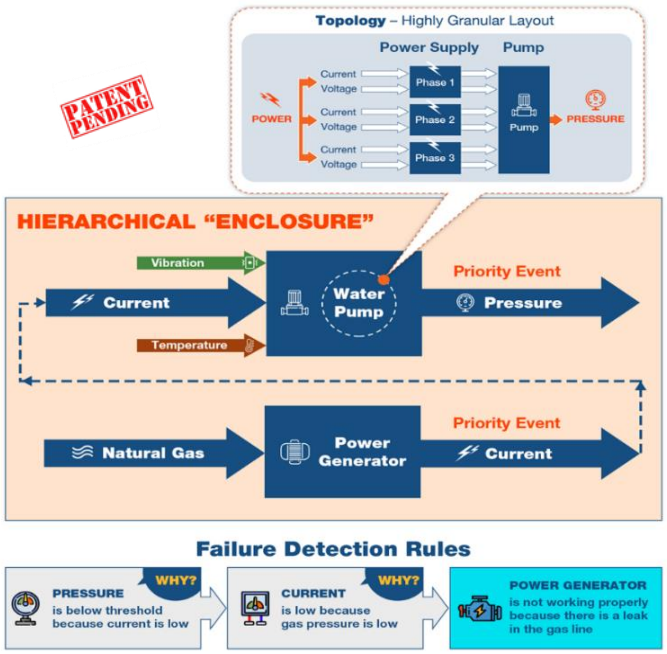
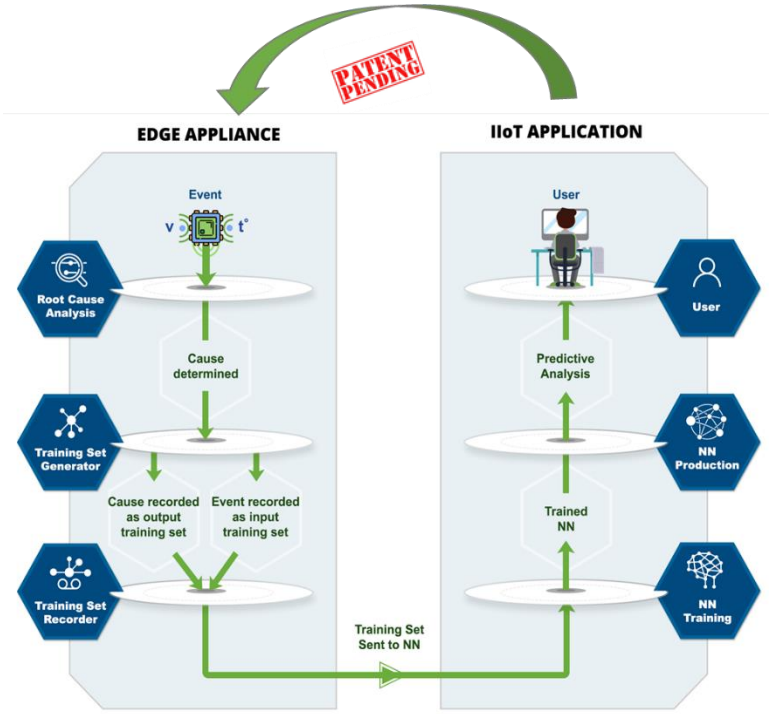


Real-Time Failure Detection

Running mission-critical applications and working in highly-constrained environment leaves no room for failure and requires a solution that, a) **pinpoints a problem with high-level of accuracy**; b) provides reliable source of failure in real time; c) equips with robust mechanism for prevention and prediction of potential problems.
Vixtera developed patented algorithm utilizing root cause analysis (RCA) for **real-time failure detection.** Based on FMEA methodology for identifying and evaluating potential failures, it makes certain assumptions about malfunctioning device(s), its input and outputs as well as internal and external environment in plurality of connected devices of IIoT ecosystem.
This innovation radically improves serviceability of IIoT devices reducing unscheduled downtime and improving time-to-repair fulfillment.

Predictive Analysis



One of the hardest problems in Deep Learning (DL), a widely used AI technique for predictive analysis, 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 "etalon" data sets have to be created manually (i.e. labeling) – a time-consuming and error-prone process. To resolve these challenges, 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 error-prone human involvement in AI/DL modeling providing accurate and dependable source for predictive analysis therefor generating trustworthy data for variety of applications and services.

We make it Simple

Out-of-the-box Vixtera Edge auto-discovers devices while balancing and contextualizing collected data. At the push of a button, it identifies the root cause of detected problem, therefore using it as a reliable source for NN training and AI modeling. We use pre-built software framework for **rapid productization** of your solution and integration with the choice of platforms, clouds and services helping to jumpstart your IIoT journey.

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