RZ Ecosystem Partner Solution

IoT83 Smart Edge/Smart Cloud Convergence

Solution Summary

IoT83 has developed this cloud-based platform that helps creates end-to-end Vision AI applications and load models to [RZ/V](https://iot83.com) series MPUs in the Renesas Virtual Lab, for detailed real-world validation of the Vision AI models. The solution supports RZ/V2M and RZ/V2L evaluation boards, with standard models (e.g., ONNX format), a DRP-AI translator to convert any ONNX pre-trained model into executable binary. This solution performs AI inference while reporting key metrics such as FPS, FPS/Watt, Inference Time etc.

Features/Benefits

• Zero-Touch client on-boarding allows users to simply sign up and start using the service.
• A highly streamlined workflow for smart edge model building and validation on RZ/V MPUs.
• Users can build & validate different smart edge models & validate in Renesas Virtual Lab.
• SaaS/multi-tenant Application Enablement Platform allows easy solution expansion
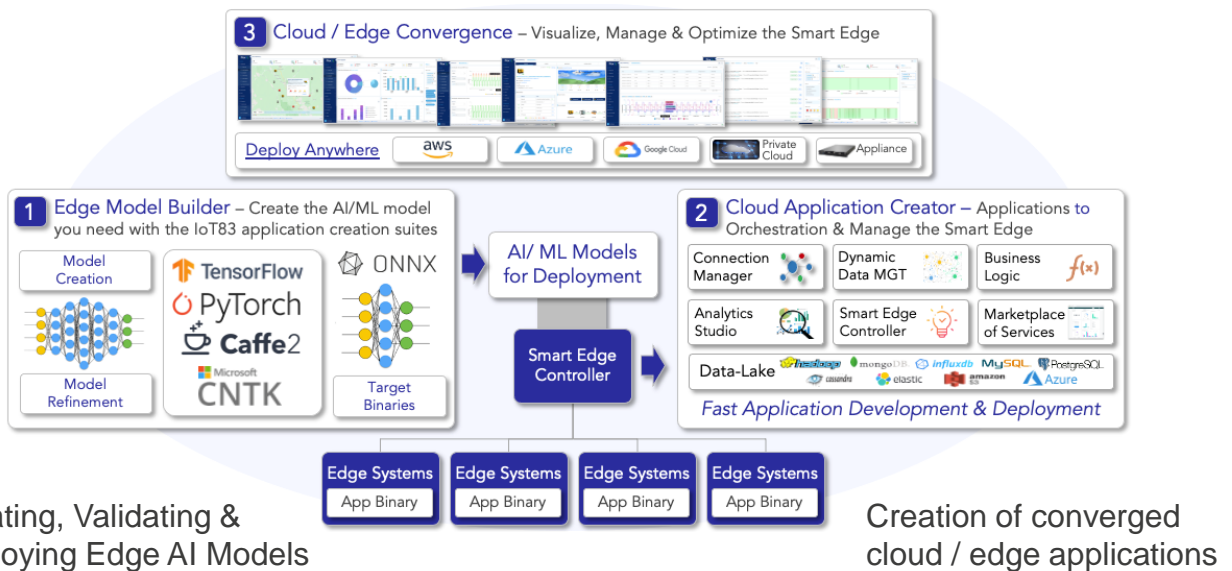
Diagram/Graphics
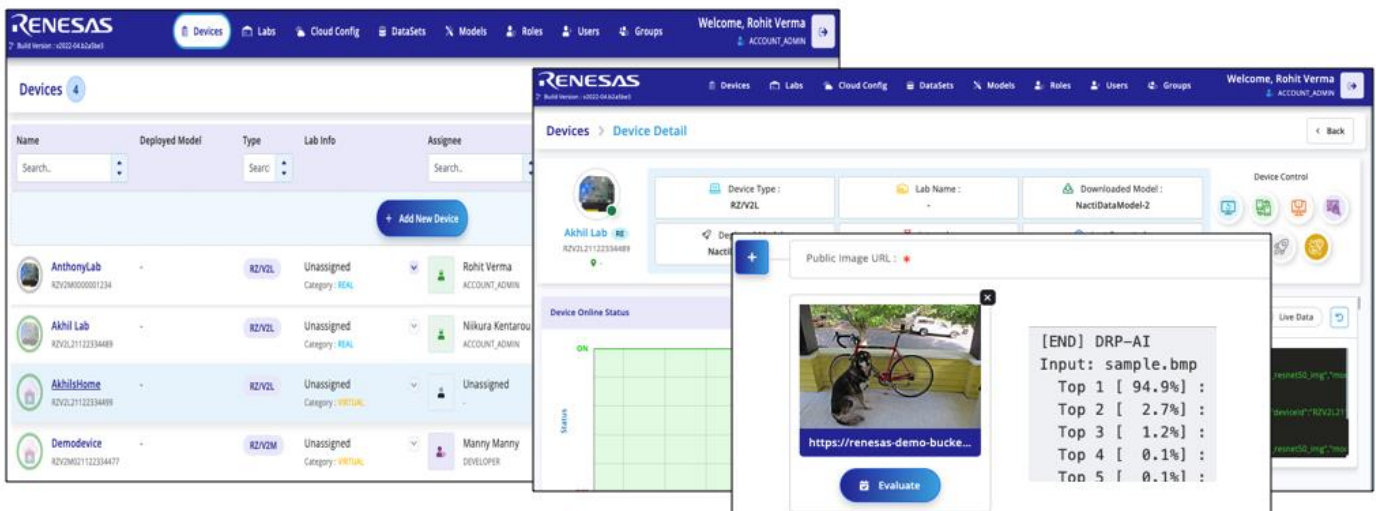
Target Markets and Applications

• Allow OEMs to add Vision AI Intelligent Edge Solutions according to the product needs.
• Accelerate new Cloud/Edge Convergence AI-IoT solutions for smart building, smart city, retail, security, manufacturing, service, and maintenance applications

https://iot83.com

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Smart Edge / Smart Cloud Convergence with AI-IoT

IoT83's Application Enablement Platform (AEP) dramatically simplifies the three key elements of Smart Edge / Cloud Convergence :

Deploying highly flexible, scalable & secure solutions
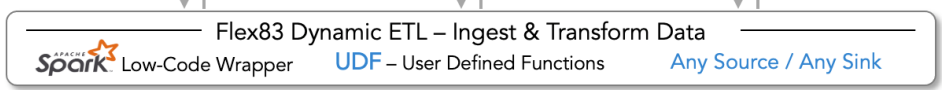– on private or public clouds or even on appliances.

3 Cloud / Edge Convergence – Visualize, Manage & Optimize the Smart Edge

Deploy Anywhere | aws | Azure | Google Cloud | Private Cloud | Appliance

1 Edge Model Builder – Create the AI/ML model you need with the IoT83 application creation suites

- Model Creation
- TensorFlow
- PyTorch
- Caffe2
- Microsoft CNTK
- ONNX
- Model Refinement
- Target Binaries

AI/ ML Models for Deployment

Smart Edge Controller

2 Cloud Application Creator – Applications to Orchestration & Manage the Smart Edge

- Connection Manager
- Dynamic Data MGT
- Business Logic $f(x)$
- Analytics Studio
- Smart Edge Controller
- Marketplace of Services
- Data-Lake: hadoop, mongoDB, influxdb, MySQL, PostgreSQL, cassandra, elastic, amazon S3, Azure

Fast Application Development & Deployment

Edge Systems — App Binary | Edge Systems — App Binary | Edge Systems — App Binary | Edge Systems — App Binary

Creating, Validating & Deploying Edge AI Models

Creation of converged cloud / edge applications

A Complete Analytics & AI Development Suite: The IoT83 AEP provides a powerful & versatile set of tools & studios to build, deploy & operate powerful smart solutions.

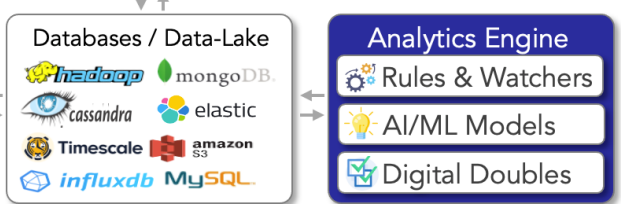Connect to virtually anything with the Connection Manager

Flex83 Connection Manager
5G | LoRa | MQTT | WiFi | LTE-M | http:// | sigfox | kafka | {REST} | aws | Azure

Ingest, normalize & transform data with the Dynamic ETL

Flex83 Dynamic ETL – Ingest & Transform Data
Spark Low-Code Wrapper | UDF – User Defined Functions | Any Source / Any Sink

Use the Code Engine to easily build custom Application logic

Code & Logic Engine
- Core App'n Logic
- Batch Scheduler
- Action–On-Event

Databases / Data-Lake
- hadoop
- mongoDB
- cassandra
- elastic
- Timescale
- amazon S3
- influxdb
- MySQL

Use the Analytics Engine to add dimensions of intelligence

Analytics Engine
- Rules & Watchers
- AI/ML Models
- Digital Doubles

Smart System Intelligence lets you build & deploy advanced automations & Actions

Analytics Triggered Automations & Actions
- Automatically Schedule Service
- Trigger Multi-Level Alarms
- Predict Expected Failures
- Prescribe Preventative Actions
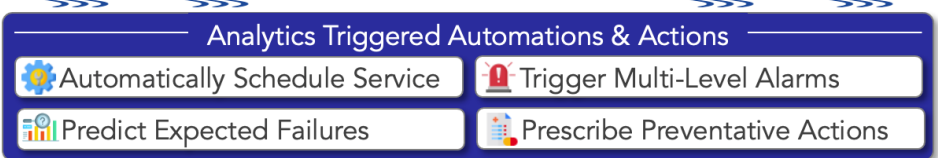
About IoT83: IoT83's business mission is to dramatically simplify the cost, risk, and time to market for big-data & IoT solutions. In short, we democratize big-data & IoT and provide a highly scalable, portable, & secure IoT core to deploy your solutions, along with the powerful workflows, tools, studios & templates to truly simplify the creation of powerful & expansive applications. Visit us at https://iot83.com. Contact: sales@iot83.com / akhil.arora@iot83.com