# Avnet /IOTCONNECT Solutions Suite

## Smart Warehouse Monitoring

AVNET®

/IOTCONNECT®

Manage | Secure | Deploy

# / Solution Accelerator & Marketplace Index

AVNET

## /IOTCONNECT enabled solutions

- Smart Generator Monitoring
- Smart City Noise Detection
- Smart Asset Monitoring
- Smart Facility Solutions
- Smart Factory Solutions
- Smart Fleet Management
- Smart Warehouse Monitoring

SaaS offering

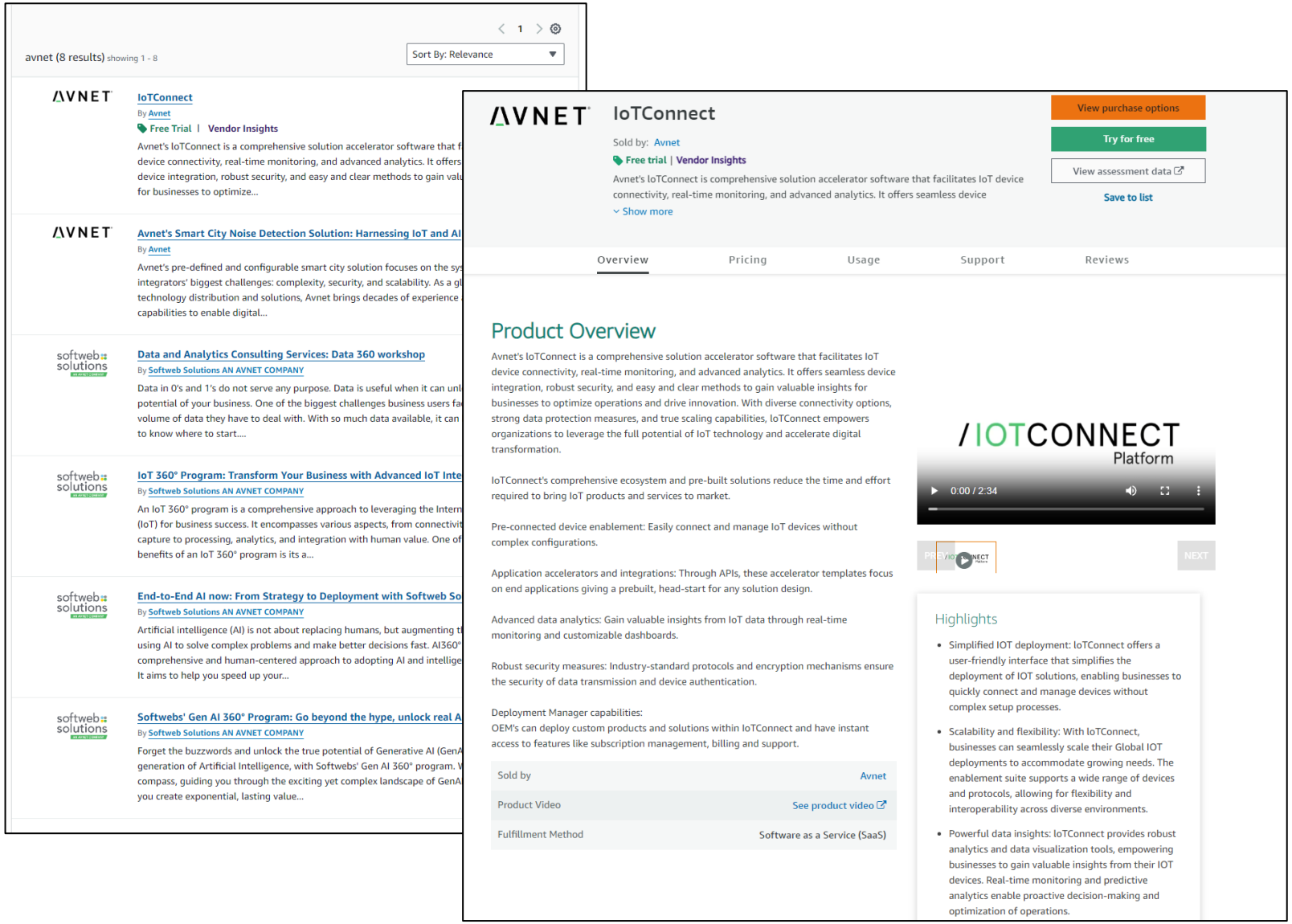
/IOTCONNECT®

### Avnet's Smart Warehouse Monitoring powered by IoT and AI

The modern warehouse has evolved into a dynamic hub for streamlined operations, driven by the need for efficiency and cost reduction. Our Smart Warehouse Monitoring solution, powered by Amazon AWS, integrates IoT technologies, Automated Control Systems (ACS), and Warehouse Management Systems (WMS) to optimize operations. The solution offers real-time monitoring of assets, geofencing, and inventory management using beacons and tags, ensuring transparency and security across locations. It enhances operations with proximity marketing, secure building access, authentication verification, and location-aware logistics. With features like smart logistics, workflow optimization, contact tracing, and keyless entry, the solution improves worker safety, prevents inventory shrinkage, and optimizes storage and pallet movements.

aws Qualified Software

# Visit Our Marketplace Listings




[All Avnet Listings]

# Smart Warehouse Monitoring Solution

Avnet's Smart Warehouse Monitoring Solution leverages /IOTCONNECT, powered by AWS and connected technologies to transform modern warehouses into dynamic, efficient hubs. As warehouses shift from being simple storage facilities to complex operational centers, organizations are adopting IoT-enabled Automated Control Systems (ACS) and Warehouse Management Systems (WMS) to optimize efficiency and reduce costs.

- **Reduced warehouse operating costs**
- **Effective, real-time location tracking**
- **Integration with warehouse management systems**
- **Improved operational efficiency**
- **Optimization of location bin & space utilization**
- **Enhanced forecasting accuracy**

## Features

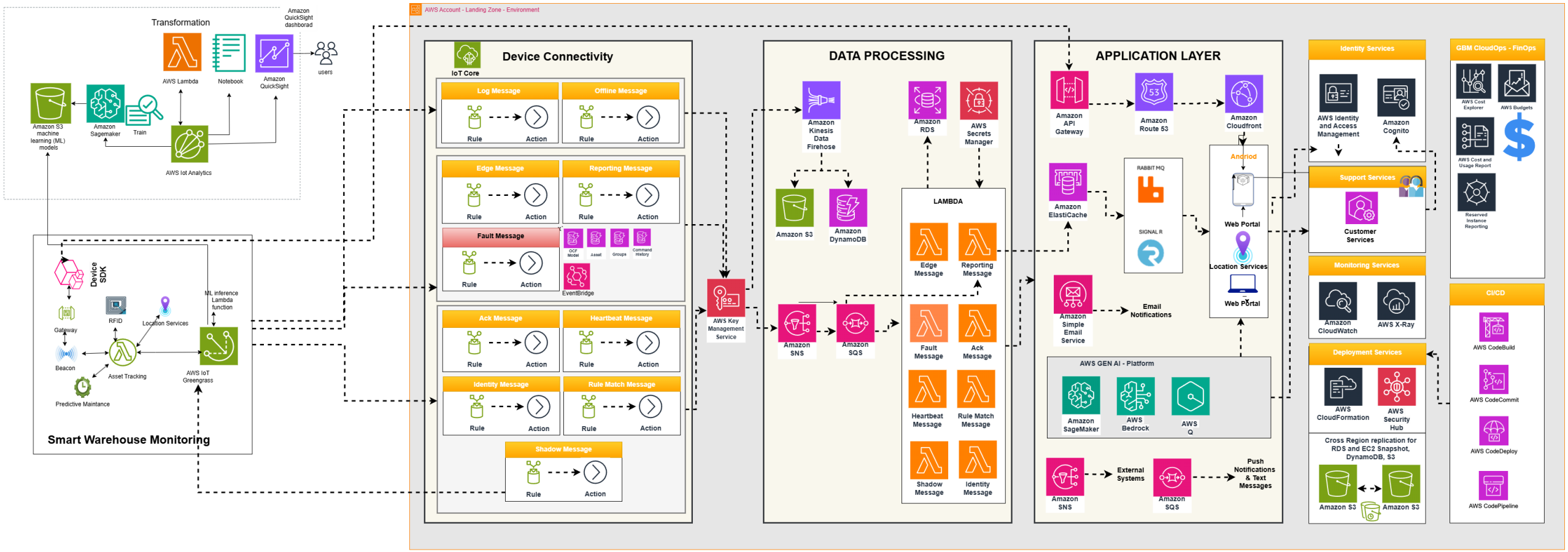
Our Smart Warehouse Monitoring Solution is designed to help organizations keep an automated track of all inventory-related activities. Our solution facilitates business managers to achieve increased profitability, performance and accuracy as well as provide widespread support for fleet management to enhance logistics.

- Smart warehouse management
- Warehouse pallet tracking & monitoring
- Environment & storage area monitoring

**Learn more** **Marketplace Listing**

# / Solution Architecture - Smart Warehouse Monitoring

powered by /IOTCONNECT



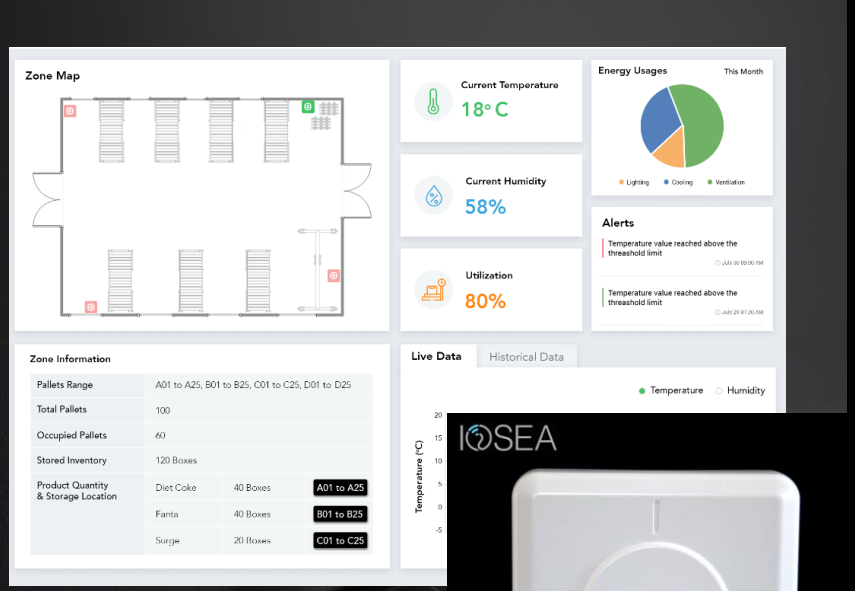
# Smart Warehouse, Asset & Worker Multi-Partner Solution

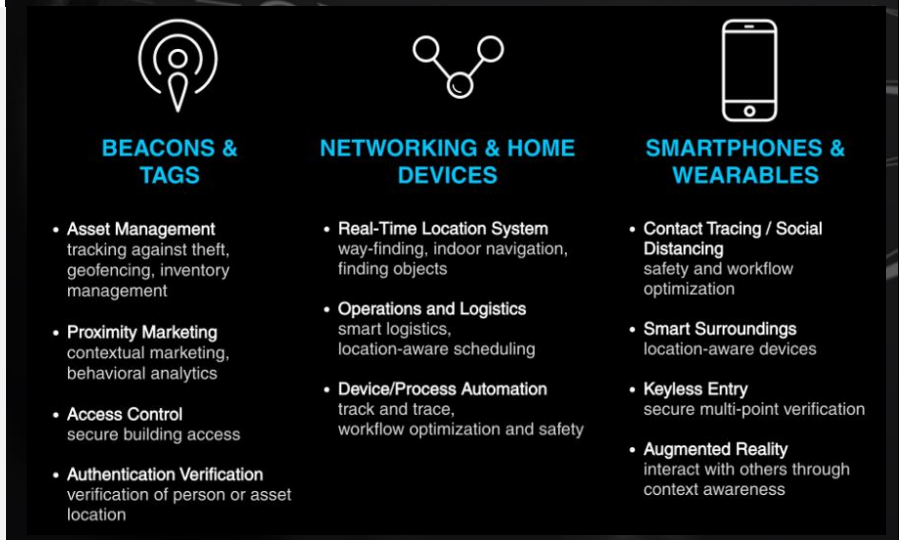
## SITUATION:

IOSEA is a private company focused on developing precision indoor location technology. IOSEA's asset tracking sensor is designed to provide real-time location data, enabling businesses to track and manage their assets more efficiently. The sensor uses advanced electromagnetic and signal processing algorithms enabling high accuracy and scalability.

## VALUE PROPOSITION:

- Target Customers
  - Cruise lines, warehouses / cross-docks, mines, and other use-cases requiring dead-reckoning, locations where a GPS fails inside facilities)
- >100,000 connected devices
- Multi-Partner Engagement (IOSEA, Avnet, Nordic, Renesas, Panasonic (Silicon Labs, Ublox)






→READ MORE

## IOTCONNECT ENABLED SOLUTION OUTCOMES:

Data science and IoT-enabled solution that provides information of Asset & People Monitoring

Monitor all major assets within a facility to increase operational efficiencies

Customized Experience with Avnet's Acceleration Frameworks

Ability to find improvement opportunities in the facility to generate safety compliance reports

# Summary & Next Steps

## Benefits

1. **Easy implementation:** Our Smart Warehouse solutions are powered by a modern networking infrastructure platform that works with the current system with minimal disruption.
2. **Accelerate ROI:** Our solutions feature state-of-art technologies such as advanced analytics, deep learning and artificial intelligence that provide real-time visibility and simplify the implementation of higher ROI solutions.
3. **Comprehensive security:** We follow best practices to ensure that all data are properly secured by following the highest standards in compliance with various industry and federal regulations.

## Outcomes

1. **Enhanced Operational Efficiency:** Integrates IoT, ACS, and WMS for real-time monitoring, inventory management, and workflow optimization, streamlining warehouse operations.
2. **Improved Security and Transparency:** Utilizes geofencing, beacons, tags, secure building access, and authentication to ensure transparency and security across locations.
3. **Increased Worker Safety and Loss Prevention:** Features like proximity marketing, contact tracing, and keyless entry improve worker safety, prevent inventory shrinkage, and optimize storage and pallet movements.

## Next Steps

**Let's team up to automate your warehouse**

**Contact us:** IoT@Avnet.com

# More about Avnet /IOTCONNECT and Softweb solutions (an Avnet company)

# About Avnet

## Quick facts

- Founded in 1921
- Headquartered in Phoenix, Arizona
- $26.5B in revenue (FY23)
- AVT listed on the NYSE since 1960
- AVT listed on NASDAQ since 2018
- #163 on FORTUNE 500 (US) in 2022

**15,300**
Employees worldwide

**1,925**
Engineers around the world

**2.8M+**
Engineering community members

**1M+**
Customers in 140 countries

**250+**
Locations globally

**283B+**
Units shipped annually

# Avnet Investments

AVNET

CORE SEMI

softweb solutions AN AVNET COMPANY

CLOUD APPLICATION DEVELOPMENT

Witekio AN AVNET COMPANY

EMBEDDED SOFTWARE DESIGN SERVICES

TRIA AN AVNET COMPANY

EMBEDDED MODULES & BOARDS

DESIGNED BY AVNET

SOLUTIONS DEVELOPMENT: ADVANCED APPLICATIONS GROUP

## IoT Sales Team

A global specialized IoT team focused on providing unique hardware, software and cloud expertise to OEMs

## Extensive line card

Semiconductors, IP&E, embedded systems, software and cloud

## Hardware Edge Design

Technology selection and support provided by 800+ Field Application Engineers

## Embedded Software Design

Design, develop, and integrate embedded OS, firmware, and application software

## Cloud and Digital Design

Complete IoT solutions (cloud, apps, data insights) built on /IOTCONNECT

## Supply Chain and Logistics

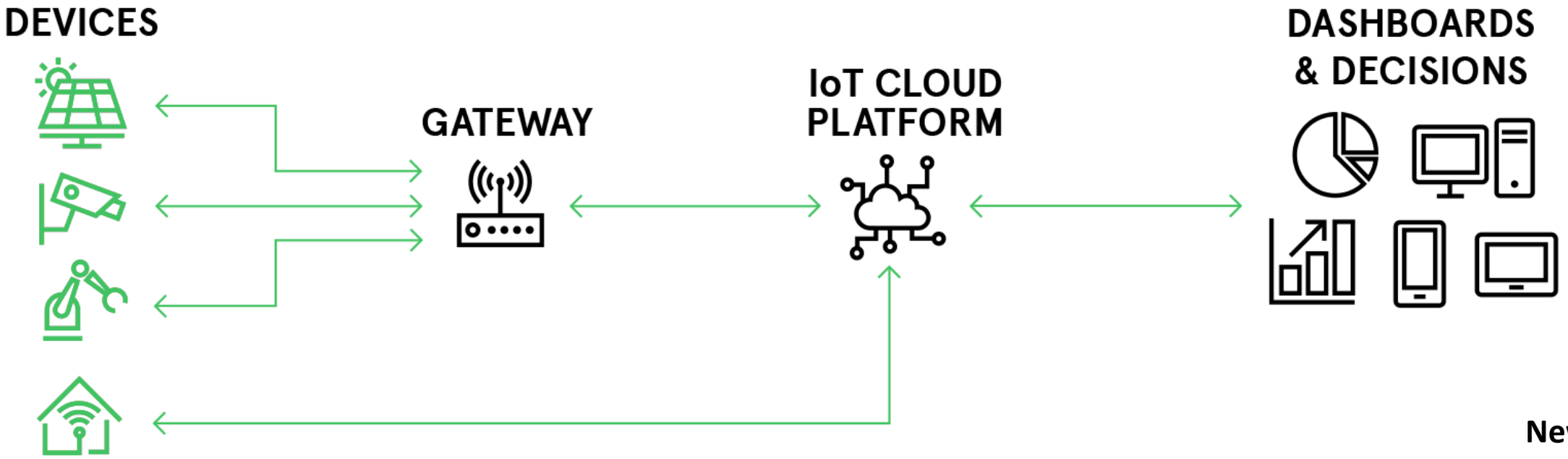
Supply chain models to address each customer's priorities

## Lifecycle Management

Digital Managed Services, OTA updates, post sales support

Gives us Unmatched Capabilities

# Challenge of IoT




**Current Generation Product**

**New Hardware Development**

**New IoT Platform**

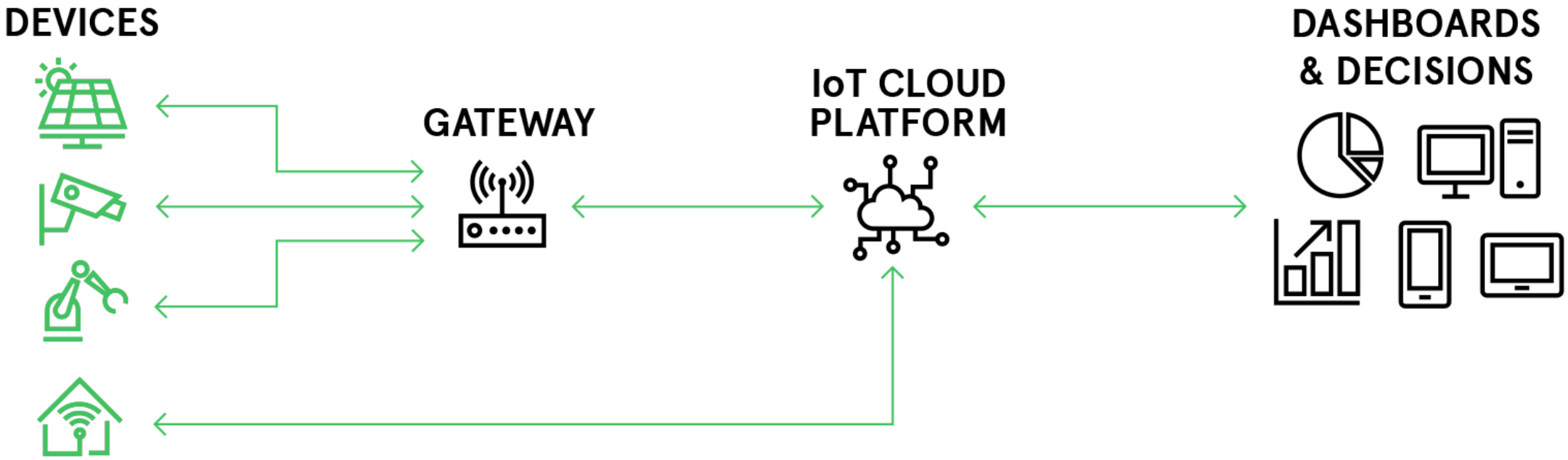
**Legacy Infrastructure**

**New Communication Interfaces**

**Mobile App Integration**

Developing an IoT product is costly, cumbersome, and time consuming.

# / Challenge of IoT




/ IOTCONNECT®

With /IOTCONNECT, IoT development becomes simple, secure, and scalable.

/IOTCONNECT®

AVNET

Things

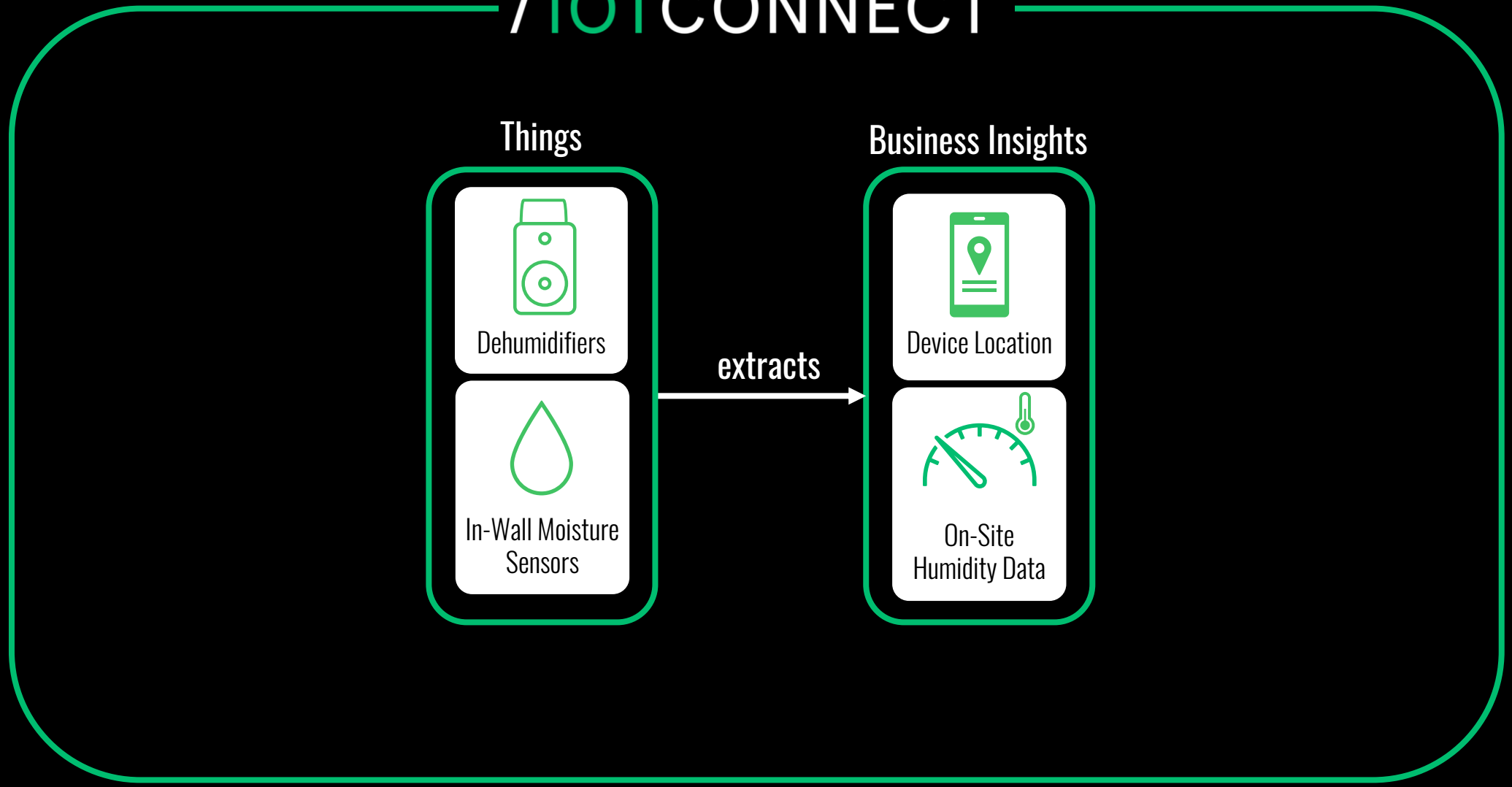
Dehumidifiers

In-Wall Moisture Sensors

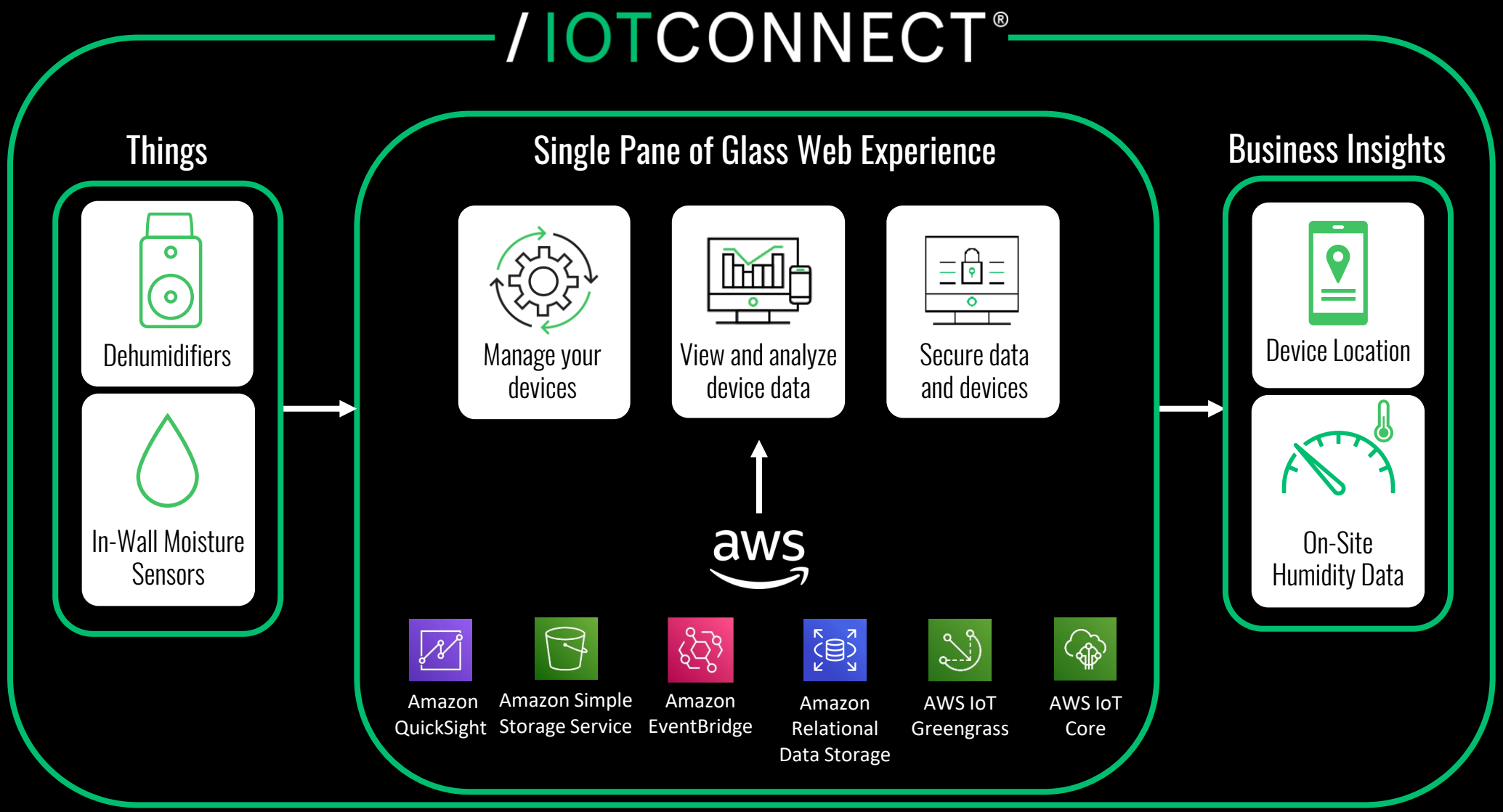
It takes **things** like **connected dehumidifiers** and **moisture sensors**

/IOTCONNECT®

AVNET




and **extracts valuable insights** to improve business intelligence




to create a **single pane of glass** experience that's **built on AWS`**

Amazon QuickSight

Amazon SageMaker

Amazon Kinesis

Amazon EventBridge

Amazon Managed Grafana

Amazon DynamoDB

Amazon Relational Data Storage

AWS IoT Core

AWS IoT Core for Sidewalk

AWS IoT Core for LoRaWAN

AWS IoT Greengrass

Amazon Simple Storage Service

FreeRTOS

AWS Lambda

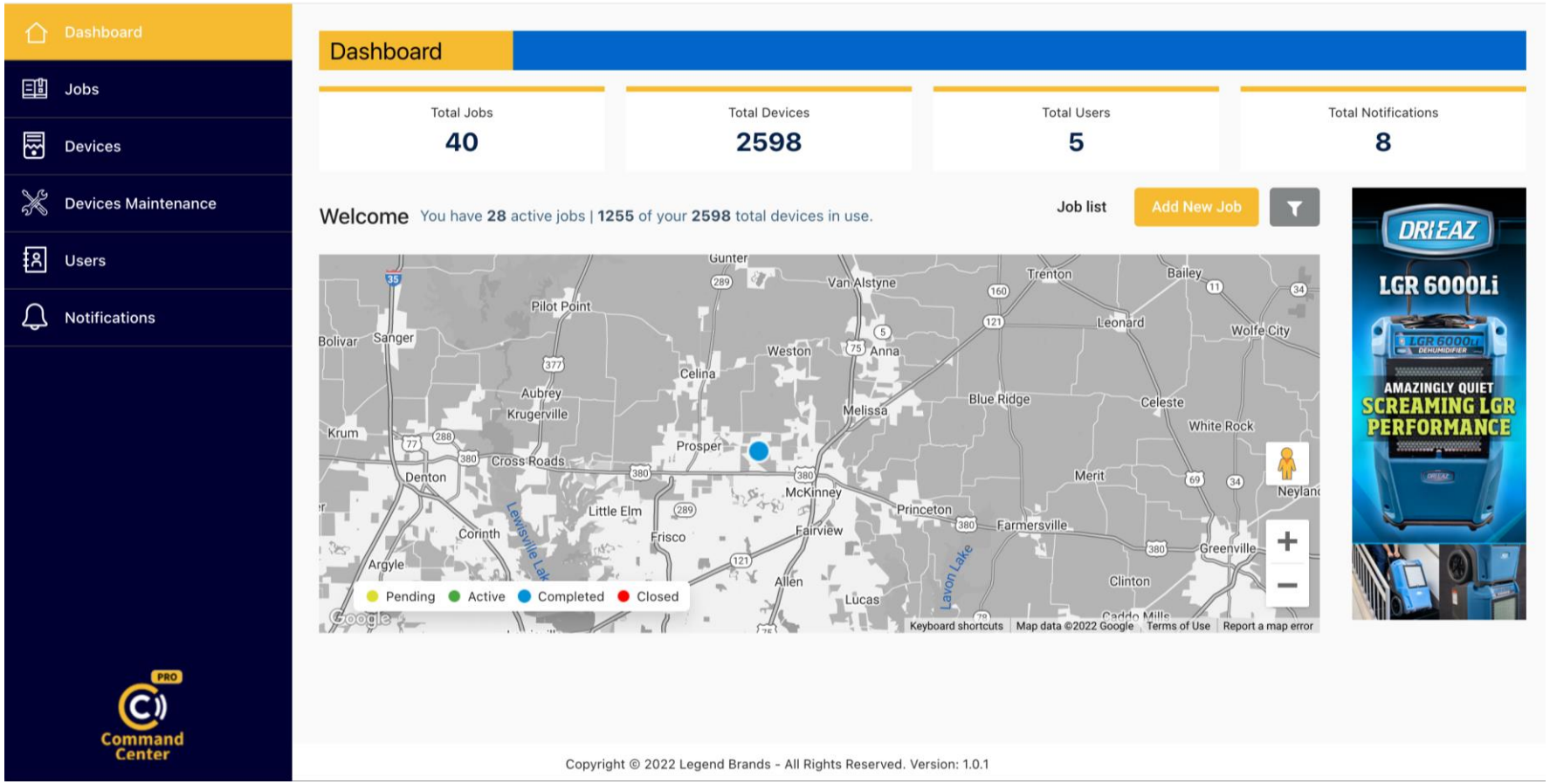
We take needed **AWS services** for IoT solution development

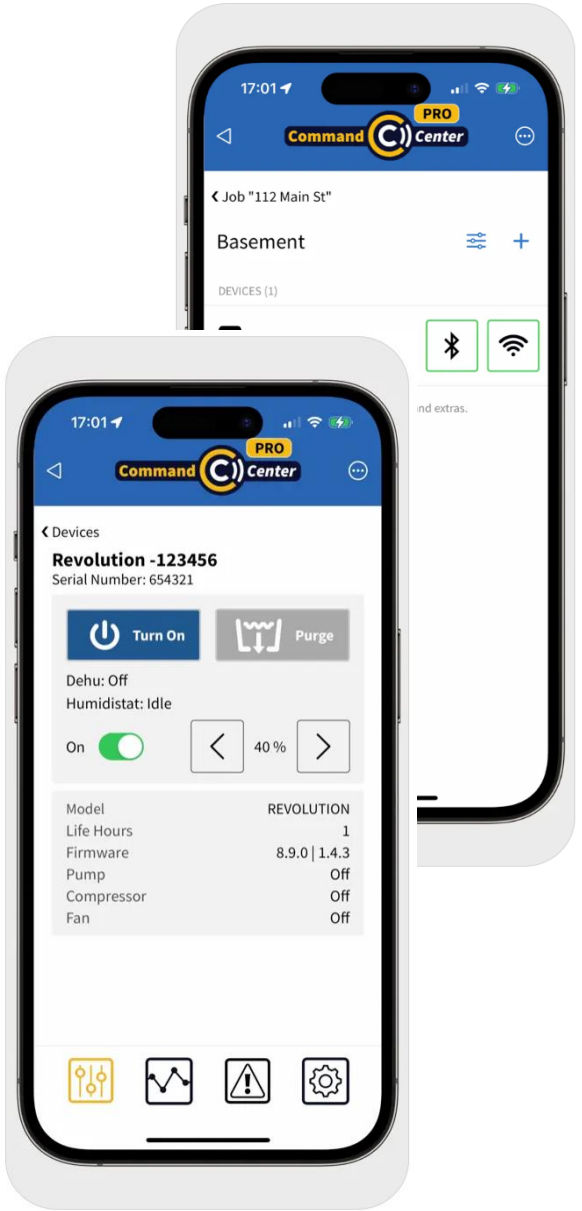
# /IOTCONNECT®
## Solutions Suite

One interface for AWS services

And aggregate them to create **one ecosystem** for **production ready IoT**

# /IOTCONNECT SaaS Application in Action



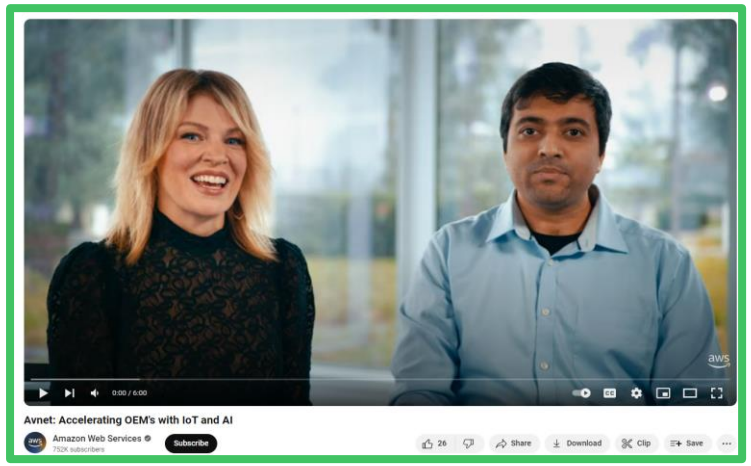



# Next Steps

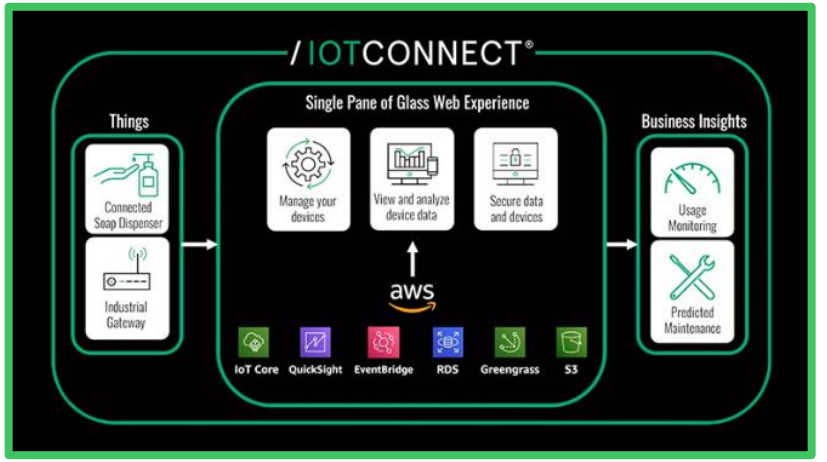
Contact us!

Learn more

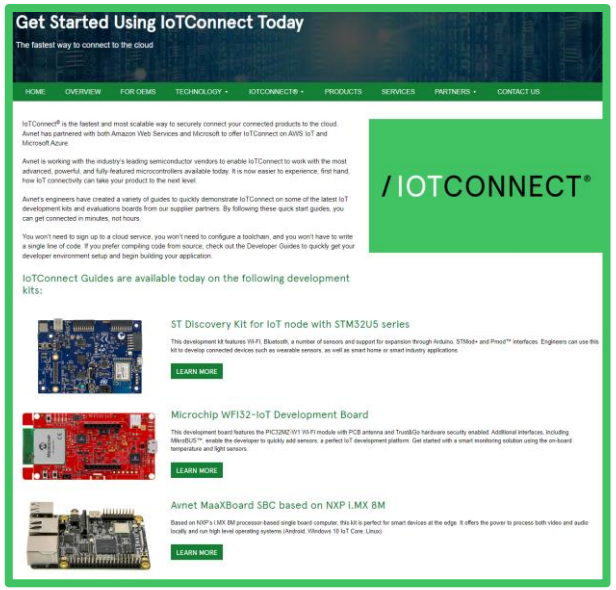
# / Resources




[Avnet and AWS:
This is My Architecture]




[Avnet
/IOTCONNECT Webinar]



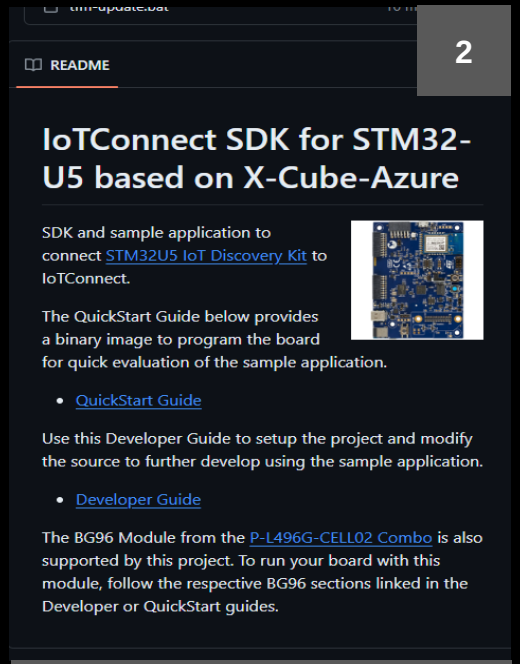

[/IOTCONNECT Quick Start
Development Kits]

# /IOTCONNECT Quick Start Enablement

AVNET

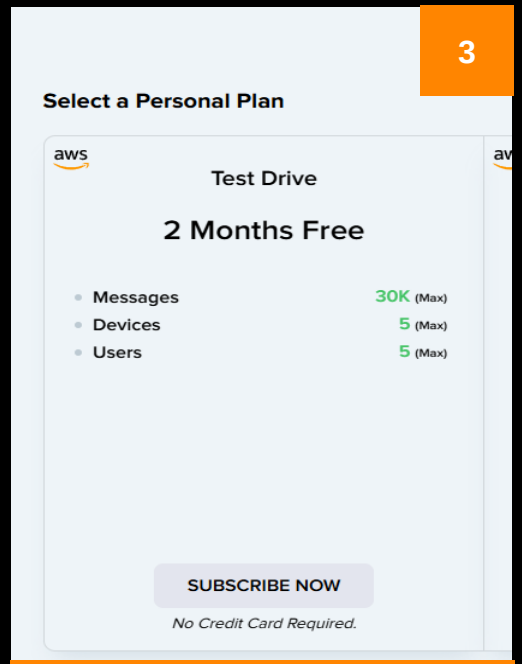
## Pick a Board

Access our quick start landing page to look at the variety of developer board options that we have enabled. Select which board fits your need.




## Access GitHub

Click the GitHub link to see the sample code we have created for each of these developer kits. These include templates and dashboards.




## Sign up for Free Trial

Using the provided link from the quick start guide, sign up for a free /IOTCONNECT account and demo all of the design acceleration features.

## Start Developing

With dynamic dashboards and easy onboarding widgets, /IOTCONNECT makes designing for your application simple, secure, and scalable.

# Appendix

# /IOTCONNECT Supports All Devices

AVNET

| Services | AWS IoT Core | AWS IoT Core for LoRaWAN / amazon sidewalk | AWS IoT Greengrass |
|---|---|---|---|
| Device Types | Connected Devices; Gateway & Child Devices; Private LoRaWAN Base Station | Private LoRaWAN Concentrator; Public LoRaWAN Device; Amazon Sidewalk Device | Edge Server or Gateway |

## Device Enablement

GitHub

freeRTOS

AWS IoT Greengrass

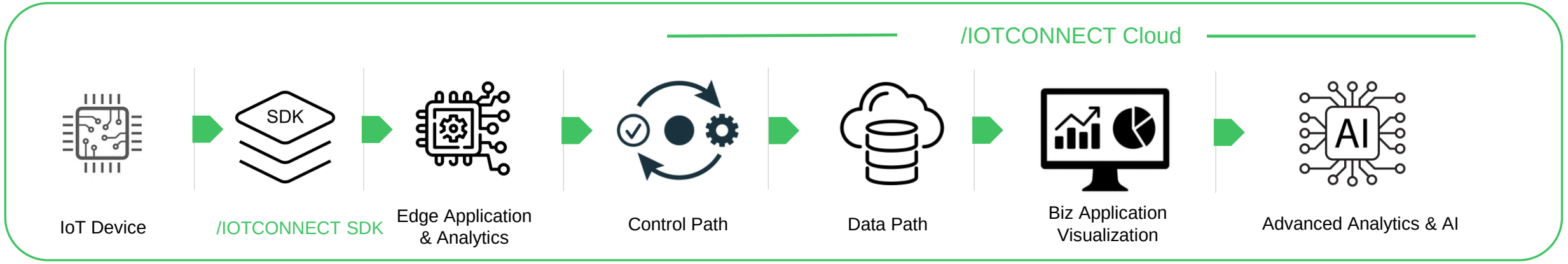
DEB

ECLIPSE FOUNDATION ThreadX

yocto LINUX

/IOTCONNECT enables ALL devices types through a single pane of glass.

# /IOTCONNECT Building Blocks w/ AWS




FreeRTOS

Python

C

Greengrass

Transport

amazon sidewalk

LoRaWAN

PRIVATE | PUBLIC

IoT Core

EventBridge

Kinesis

Lambda

RDS

S3 Data Lake

S3

DynamoDB

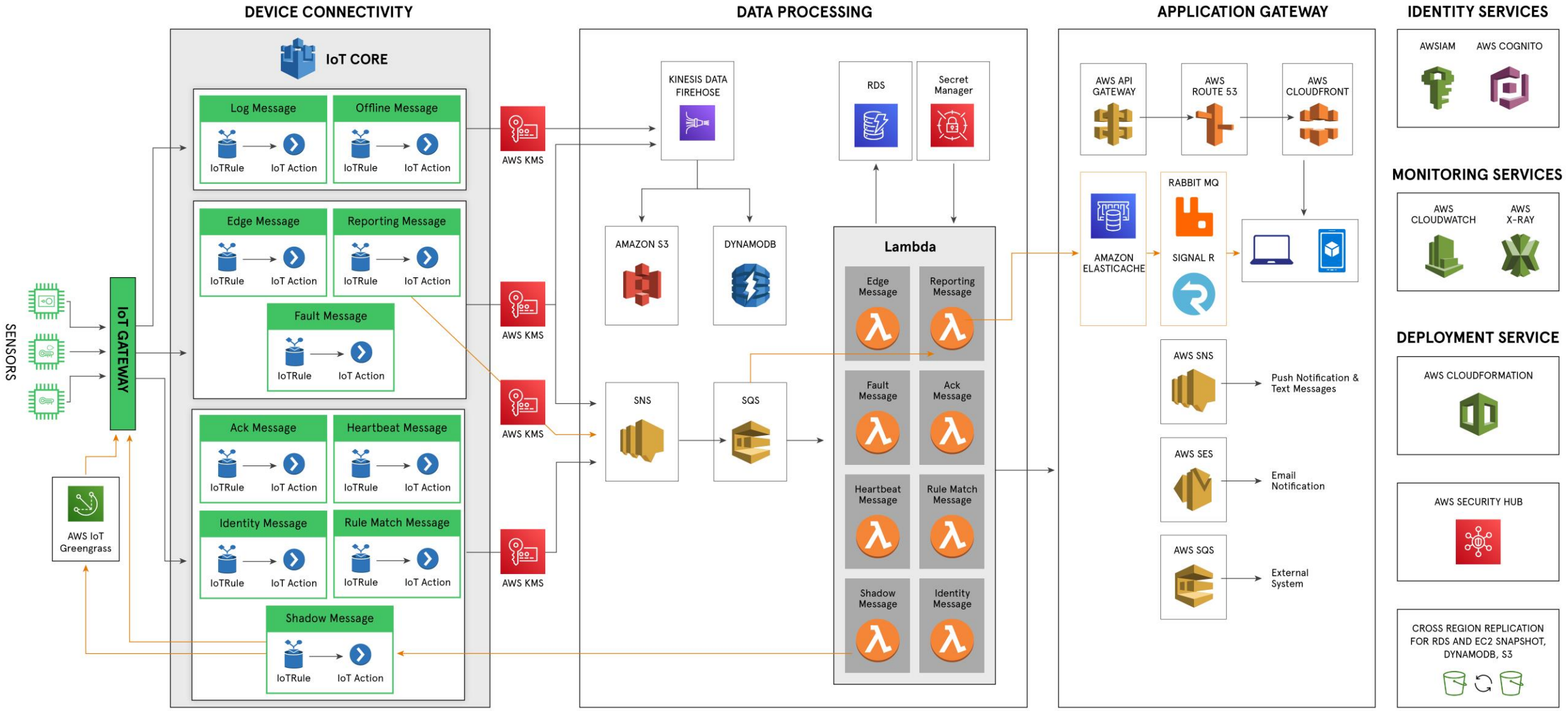
QuickSight

Grafana

SageMaker

/IOTCONNECT®

# /IOTCONNECT Platform Architecture



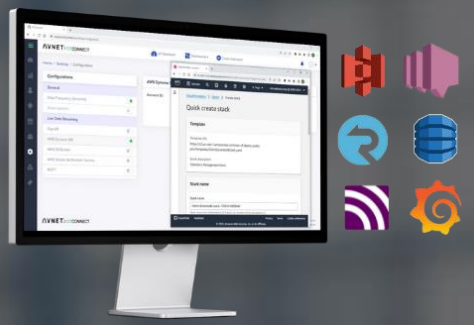
# //IOTCONNECT Developer Personas

- Device, User, Roles, and Entity Admin
- Security manag
- Basic dashboarding
- Internal Ops

**Device Builders & Deployment Managers**

- RESTful API
- Predictable URLs
- Intelligent error handling
- OAuth 2.0 authentication
- Access to all IoTC functions

**Application & UX Developers**



- Dynamo DB, S3
- Signal R
- MQTT
- Grafana
- AWS SNS

**Cloud Developer & Data Science**

# /IOTCONNECT SDKs: Deliver a Positive Developer Experience

## Objectives:

- Deliver device-builders a positive developer-experience
- Integrate into the Avnet Supplier's development flow and ecosystem
- Provide confidence for a successful outcome at the onset of our customer's IoT journey

## Software Resources

- /IOTCONNECT Enablement, Witekio, and Softweb service teams
- Access to global and scalable Avnet software services
- Skills: C, Python, Java, OS/RTOS, Applications, AI/ML

## Deliverables

- /IOTCONNECT Library
- SDK (C / C# / Python / …)
- Test Strategy
- Platform Targeted Samples
- Developer Guide
- QuickStart Experience

# Device Enablement: SDKs

## Generic SDKs

### Multiple Languages and Environments

C, C++, C#, python, node.js, Kotlin, Swift

## Platform-specific SDKs

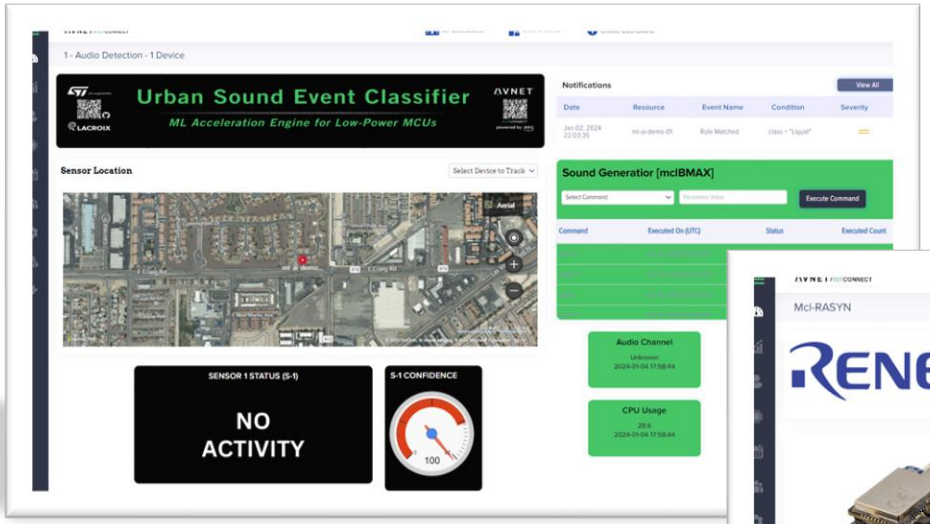
### Development Boards and Embedded Hardware

Infineon, Microchip, NXP, ST life.augmented, Renesas, intel, ASUS, Advantech, DELL

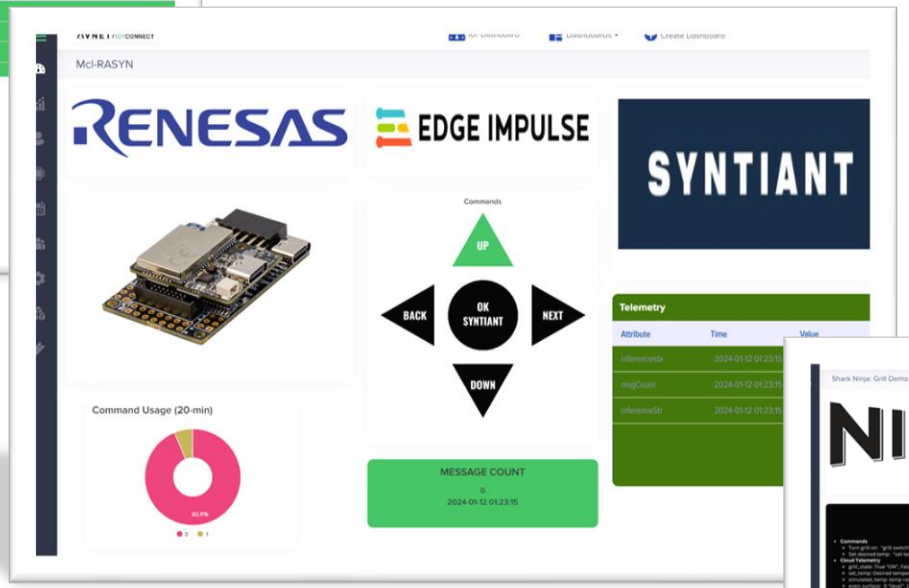
https://docs.iotconnect.io/iotconnect/sdk/

https://github.com/avnet-iotconnect/

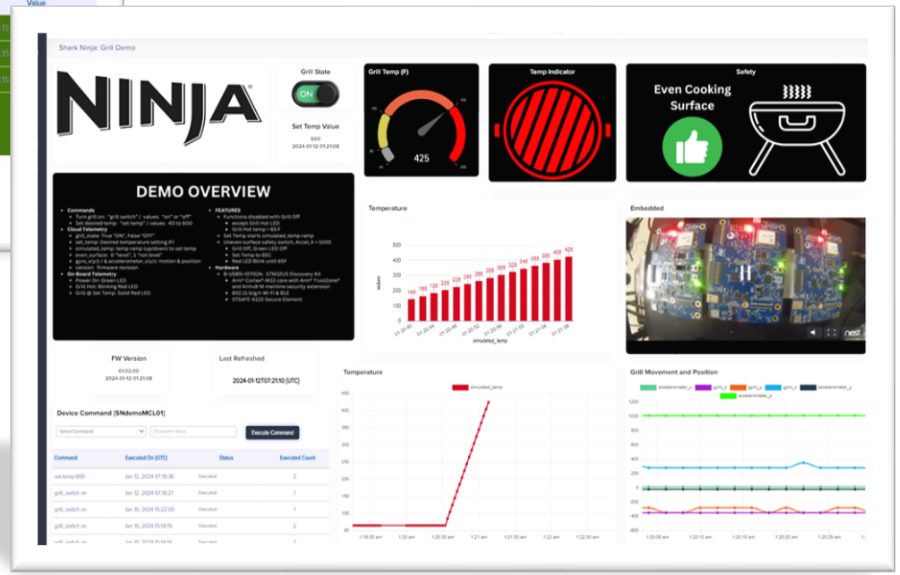
# /IOTCONNECT AWS Demo Examples




AI/ML Audio Classification




Edge ML Voice and Motion Detection




Consumer Indoor Grill