

# / Avnet /IOTCONNECT Solutions Suite

Physical AI Solutions – Advantech + AWS

AVNET®

/IOTCONNECT™

Manage | Secure | Deploy



# / Solution Accelerator & Marketplace Index

## /IOTCONNECT enabled solutions

Smart Generator Monitoring

Smart Warehouse Monitoring

Smart City Noise Detection

AWS IoT Greengrass

Smart Asset Monitoring

AWS Physical AI

Smart Facility Solutions

STM32 Amazon Sidewalk

Smart Factory Solutions

Security CRA

Smart Fleet Management

SaaS offering

/IOTCONNECT™

### Physical AI Solutions – Advantech + AWS

Avnet's Physical AI Solution, built with Advantech and AWS, combines industrial edge computing and cloud AI services to enable scalable, real-world intelligent systems. Leveraging Advantech's NVIDIA-powered edge platforms with AWS for model training, simulation, and IoT connectivity, it supports applications like robotics, vision AI, and autonomous systems—helping customers accelerate deployment from prototype to production.

# Visit Our Marketplace Listings



**AVNET** [Connected UAV Drone Platform by Indeema](#)  
By [Avnet](#) | [AWS Specializations](#)  
Indeema Software is an engineering services company specializing in custom IoT solutions, combining deep expertise in both hardware and software. Indeema delivers end-to-end development that transforms connected devices into intelligent systems, helping companies accelerate innovation and bring...

**AVNET** [/IOTCONNECT | IoT Device Connectivity](#)  
By [Avnet](#) | [AWS Specializations](#)  
[Deployed on AWS](#) [Free Trial](#) [Vendor Insights](#) [Free Tier](#)  
Avnet's /IOTCONNECT is a comprehensive solution accelerator software that facilitates IoT monitoring, and advanced analytics. It provides native support for AWS Greengrass and AWS IoT Core, enabling seamless device integration, robust security, and...

**AVNET** [/IOTCONNECT™ - Pay-As-You-Go | IoT Device Connectivity](#)  
By [Avnet](#) | [AWS Specializations](#)  
[Deployed on AWS](#) [Free Trial](#) [Free Tier](#)  
Avnet's /IOTCONNECT™ is a comprehensive solution accelerator software that facilitates IoT monitoring, and advanced analytics. It provides native support for AWS Greengrass and AWS IoT Core, enabling seamless device integration, robust security, and...

**AVNET** [Avnet's Smart Warehouse Monitoring powered by IoT and AI](#)  
By [Avnet](#) | [AWS Specializations](#)  
Avnet's Smart Warehouse Monitoring Solution powered by /IOTCONNECT, built on AWS and modern warehouses into dynamic, efficient hubs. As warehouses shift from being simple storage centers, organizations are adopting IoT-enabled...

**AVNET** [Avnet's Smart Fleet Management powered by IoT and AI](#)  
By [Avnet](#) | [AWS Specializations](#)  
The Smart Fleet Management Solution powered by /IOTCONNECT, built on AWS, offers cost and management capabilities designed to enhance efficiency, safety, and compliance for fleets. The solution leverages cloud-based analytics, IoT...

**AVNET** [Avnet's Smart Asset Monitoring powered by IoT and AI](#)  
By [Avnet](#) | [AWS Specializations](#)  
Avnet's Smart Asset Monitoring solution is a comprehensive IoT-based system designed to reduce lifecycle costs for asset-intensive industries such as manufacturing, oil & gas, logistics, and rental, powered by /IOTCONNECT, built on AWS, this...

**AVNET** [Avnet's Smart Generator Monitoring powered by IoT and AI](#)  
By [Avnet](#) | [AWS Specializations](#)  
Avnet's AI-based Smart Diesel Generator Monitoring solution, powered by /IOTCONNECT, offers a comprehensive approach to safeguarding your business continuity. This end-to-end system provides centralized monitoring of multiple industrial diesel generators, allowing you to...

**AVNET** [/IOTCONNECT | IoT Device Connectivity](#) info  
Sold by: [Avnet](#) [↗](#)  
[Deployed on AWS](#) [Free Trial](#) [Vendor Insights](#) [AWS Free Tier](#)  
IOTCONNECT™ offers IoT device connectivity with real-time monitoring, advanced analytics and data visualization for seamless operations.  
☆☆☆☆☆ [10](#)  
[Overview](#) | [Features](#) | [Pricing](#) | [Legal](#) | [Usage](#) | [Resources](#) | [Support](#) | [Similar products](#) | [Reviews](#)  
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### Overview

**/IOTCONNECT Platform**

**Video 1**

Avnet's /IOTCONNECT is a comprehensive solution accelerator software that facilitates IoT device connectivity, real-time monitoring, and advanced analytics. It provides native support for AWS Greengrass and AWS IoT Core, enabling seamless device integration, robust security, and easy and clear methods to gain valuable insights for businesses to optimize operations and drive innovation. With diverse connectivity options, strong data protection measures, and true scaling capabilities, /IOTCONNECT empowers organizations to leverage the full potential of IoT technology and accelerate digital transformation.

/IOTCONNECT's comprehensive ecosystem and pre-built solutions reduce the time and effort required to bring IoT products and services to market.

Pre-connected device enablement: Easily connect and manage IoT devices without complex configurations.

### Highlights

- Simplified IoT deployment: /IOTCONNECT offers a user-friendly interface that simplifies the deployment of IoT solutions, enabling businesses to quickly connect and manage devices without complex setup processes.
- Scalability and flexibility: With /IOTCONNECT, businesses can seamlessly scale their Global IoT deployments to accommodate growing needs. The enablement suite supports a wide range of devices and protocols, allowing for flexibility and interoperability across diverse environments.
- Powerful data insights: /IOTCONNECT provides robust analytics and data visualization tools, empowering businesses to gain valuable insights from their IoT devices. Real-time monitoring and predictive analytics enable proactive decision-making and optimization of operations.

### Details

Sold by [Avnet](#) [↗](#)

Categories [Applications](#) [↗](#)  
[Device Connectivity](#) [↗](#)  
[Device Management](#) [↗](#)

Delivery method [Software as a Service \(SaaS\)](#)

Deployed on AWS [Yes](#)

All Avnet Listings



# Physical AI Solutions

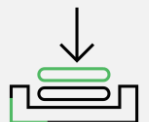
Avnet's Physical AI Solution brings together Advantech's industrial edge platforms, NVIDIA accelerated AI, and AWS cloud services to enable intelligent, real-world systems. By connecting edge devices to cloud-based model training, simulation, and lifecycle management, the solution supports applications such as robotics, vision AI, autonomous systems, and digital twins. Designed for scalable deployment, it allows organizations to process data and make real-time decisions at the edge while continuously improving AI models in the cloud.



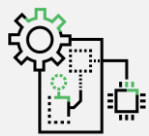
**Edge AI Inference:** Real-time AI processing at the edge.



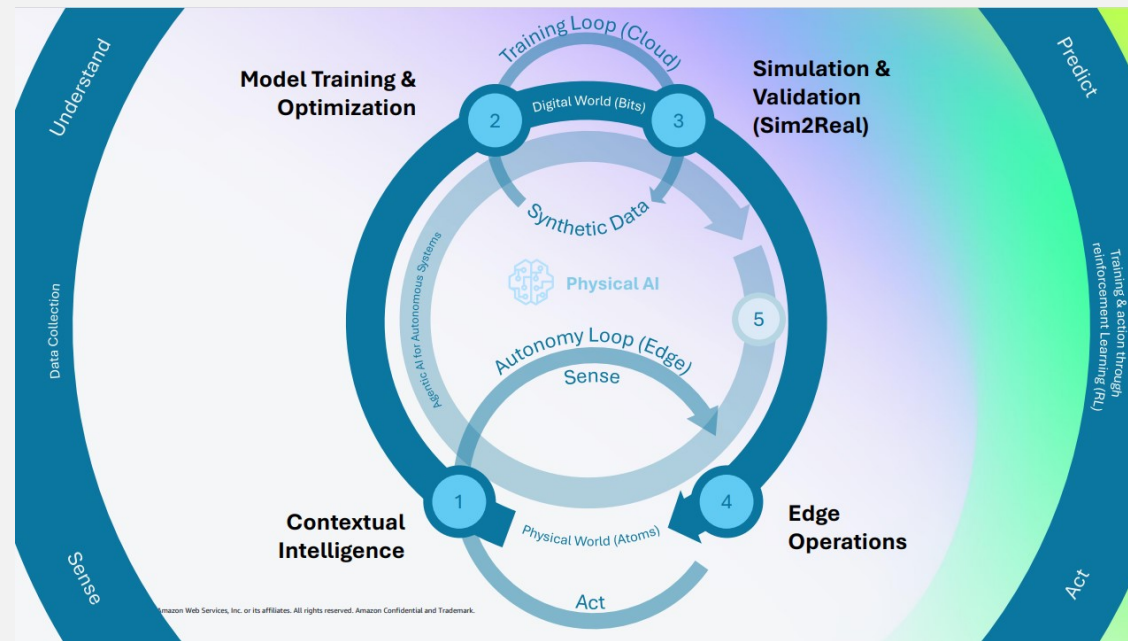
**Cloud AI Training:** Scalable model training in AWS.



**Edge-to-Cloud Connectivity:** Connect devices to cloud intelligence.



**Simulation & Digital Twins:** Test and optimize before deployment.



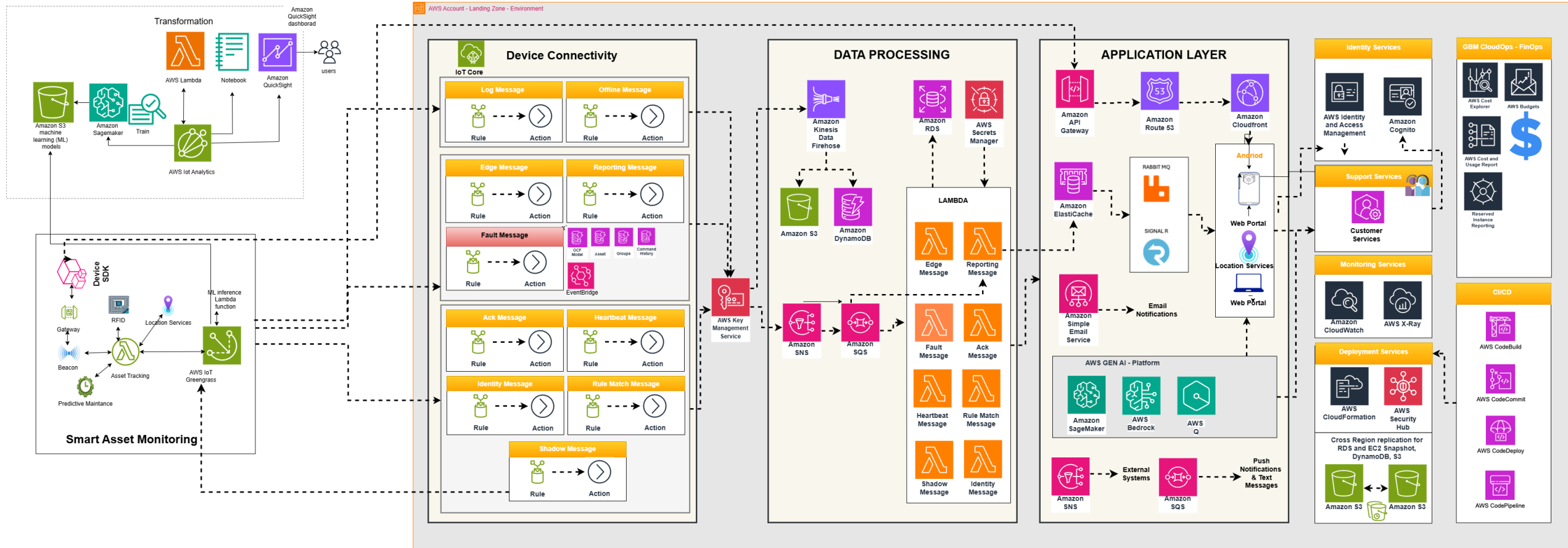
## Features

The Physical AI Solution from Advantech and AWS brings together edge AI inference, cloud-based training, seamless connectivity, and simulation capabilities to enable intelligent real-world systems. By processing data at the edge while continuously improving models in the cloud and validating them through digital twin environments, the solution provides a scalable and efficient path for deploying robotics, vision AI, and autonomous applications.

[Learn more](#)

[Marketplace Listing](#)

# Solution Architecture – Physical AI Solutions



# Smart Warehouse, Asset & Worker Tracking

IOSEA — Indoor Location Technology | Multi-Partner Solution 

## Challenge

Businesses require exact indoor location tracking where aGPS fails — inside warehouses, cruise ships, mines, and cross-dock facilities. Manual asset management and worker tracking cannot provide real-time visibility at scale, leading to operational inefficiencies and safety gaps.

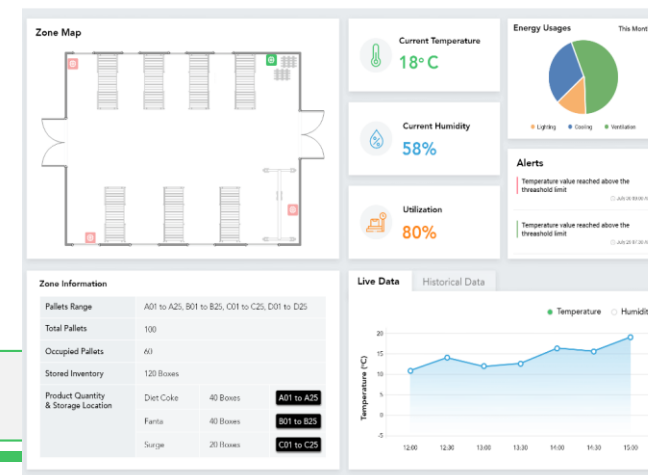
## Solution

IOSEA's hardware asset tracking sensor uses advanced electromagnetic and signal processing algorithms for high-accuracy indoor positioning. Connected via Avnet IOTCONNECT with multi-partner engagement (IOSEA, Avnet, Nordic, Renesas, Panasonic, Silicon Labs, Ublox). Supports beacons & tags, networking devices, and smartphone/wearable integrations for comprehensive facility intelligence.

## Key Results

- ✓ Data science & IoT-enabled asset and people monitoring
- ✓ Monitor all major assets within a facility for operational efficiency
- ✓ Customized experience with Avnet's Acceleration Frameworks
- ✓ Target: 120,000 connected devices across 12 customer wins
- ✓ Expected ARR: \$255,050

*Use Cases: Cruise lines, warehouse/cross-dock, mines — dead-reckoning location where aGPS fails*



**CUSTOMER**  
IOSEA Indoor Location  
Multi-partner: IOSEA · Avnet + silicon

**SCALE**  
120K devices  
12 customer wins

**PIPELINE**  
\$255K ARR target  
Warehouse · cross-dock · cruise · mines

**SILICON**  
5-vendor BLE stack  
Nordic · Renesas · Panasonic · SiLabs · Ublox

## EDGE / ON-PREMISE

<b>IOSEA ArgusOne</b> <i>Locator · BLE mesh</i>	<b>MTB06 / Moxel</b> <i>Printable BLE tags</i>
<b>Container / Fork</b> <i>IP67 · KanBan moves</i>	<b>Cold Chain Tag</b> <i>Temp · humidity · IP67</i>



**Industrial IoT Gateway**  
*Customer HW · Linux*

/IOTCONNECT SDK · BLE mesh aggregation · dead-reckoning where aGPS fails

**PROTOCOLS** BLE 5.x (beacon + mesh) · MQTT/TLS · HTTPS




## /IOTCONNECT

*Ingestion + Management Plane*


- **Device Mgmt + Templates**  
*120K devices · 12 sites · multi-tenant*
- **Cert Lifecycle + KeyScaler**  
*X.509 auto-rotate · PKI integration*
- **OTA Firmware**  
*HW + SW version separation*
- **Device Twin + Commands**  
*BLE config · geofence policy*

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**BUILT ON AWS**

  
IoT Core

  
Kinesis

  
Defender

## AWS CLOUD | Customer Solution AWS Services

<b>COMPUTE &amp; EVENTS</b>			
 <b>Lambda · triangulation + geofence</b>	 <b>Step Functions · alert flow</b>	 <b>EventBridge</b>	 <b>SNS · worker safety</b>
<b>APIS &amp; DATA</b>			
 <b>API GW · IOSEA portal</b>	 <b>Timestream · location TS</b>	 <b>DynamoDB · asset registry</b>	 <b>S3 · event archive</b>
<b>AI / ML</b>			
 <b>SageMaker · occupancy + worker safety ML</b>	 <b>Bedrock · facility GenAI insights</b>		
<b>APPS · IDENTITY · AUDIT</b>			
 <b>Location · facility map</b>	 <b>QuickSight · live zones</b>	 <b>Cognito · worker SSO</b>	 <b>KMS + CloudTrail</b>

1 Tags emit BLE · Locator scans RSSI safety alerts    2 Gateway → /IOTCONNECT    3 IoT Core → Kinesis → Lambda    4 Timestream + Location Service    5 ML anomaly → SNS    6 QuickSight + IOSEA portal

**AVNET DELIVERY SCOPE**

**HARDWARE**  
ArgusOne + BLE tags, multi-vendor silicon

**FIRMWARE**  
/IOTCONNECT SDK, BLE stacks

**INSTALL**  
Site survey, locator placement

**ISV**  
IOSEA engine + Avnet Acceleration Framework

**MANAGED**  
Device ops · cert rotation · ML retrain

# Fluid / Leak Detection

## Energy Sector

### Challenge

Required automated detection of liquid pooling and leakage at industrial facilities using thermal and RGB camera feeds. Manual rounds missed intermittent events and couldn't provide 24/7 coverage.

### Solution

Image segmentation model distinguishes liquid textures, color, and reflectivity from normal surfaces. Anomaly detection learns normal baseline conditions and flags deviations like pooling liquids. Deployed on thermal cameras for 24/7 leak monitoring with bounding box + Leak-ID tracking.

### Key Results

- ✓ Real-time leak identification with Leak-ID
- ✓ Thermal + RGB camera fusion
- ✓ Anomaly-based detection (no labeled data needed)
- ✓ Automated alert pipeline for containment

**DC Application: Coolant leak detection, water ingress near racks, HVAC condensation, raised floor flooding**



[Video Link](#)



[Video Link](#)



[AVI Video Link](#)

[MOV Video Link](#)

**CUSTOMER**  
**Energy & Industrial**  
 Energy sector

**COVERAGE**  
**24/7 leak ID**  
 Thermal + RGB fusion · Leak-ID tracker

**DC APP**  
**Coolant · HVAC**  
 Water ingress · raised-floor flooding

**MODELS**  
**Seg + anomaly**  
 No labeled data needed · learn baseline

**EDGE / ON-PREMISE**

**FLIR Thermal**  
*Fixed industrial camera*

**RGB Camera**  
*ONVIF-compliant*

**NVIDIA Jetson Edge**  
*Greengrass v2 · GStreamer*

Image segmentation · anomaly detection · Leak-ID tracker (local inference, no cloud dependency)

**PROTOCOLS** RTSP / ONVIF · MQTT/TLS · KVS video producer



**/IOTCONNECT**

*Ingestion + Management Plane*

- Device Management**  
*Camera + Jetson fleet*
- Cert Lifecycle + KeyScaler**  
*X.509 auto-rotate · PKI*
- OTA Firmware + Models**  
*Edge ML model versioning*
- Edge Rules + Twin**  
*Leak-ID thresholds per site*

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**BUILT ON AWS**

IoT Core   Greengrass   KVS   Defender

**AWS CLOUD | Customer Solution AWS Services**

**COMPUTE & EVENTS**

Lambda · alert pipeline   Step Functions · containment   EventBridge   SNS + SES alerts

**APIS & DATA**

API GW · ops console   DynamoDB · Leak-IDs   Timestream · events   S3 · video + training

**AI / ML · MLOps**

SageMaker Pipelines · auto-retrain on drift   Bedrock · GenAI incident summary

**APPS · IDENTITY · AUDIT**

QuickSight · leaks   CloudWatch · edge   Cognito · ops SSO   KMS + CloudTrail

- 1 Cameras → Jetson (RTSP)
- 2 Greengrass edge ML → Leak-ID
- 3 /IOTCONNECT → IoT Core + KVS
- 4 Lambda + Step Functions alert
- 5 Bedrock incident summary
- 6 Drift → SageMaker retrain loop

<b>AVNET DELIVERY SCOPE</b>	<b>HARDWARE</b> FLIR thermal + RGB cameras, NVIDIA Jetson	<b>FIRMWARE</b> Greengrass + edge ML, GStreamer pipeline	<b>INSTALL</b> Camera placement, thermal calibration	<b>ISV</b> CleanConnect.ai detection + ops console	<b>MANAGED</b> Model retraining, drift monitoring, ops
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# Energy Management Solution

Engenuity Systems — Building Automation & Smart Energy



## Challenge

QSR chains, retail, and corporate facilities needed optimized energy management across thousands of locations. Existing systems lacked AI/ML capabilities for predictive maintenance and couldn't integrate diverse building hardware — meters, HVAC controllers, sensors, actuators, thermostats, and refrigeration units.

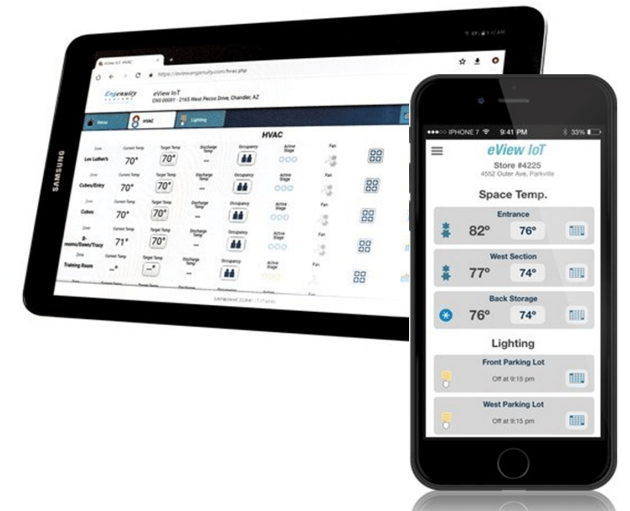
## Solution

Engenuity's eViewIoT platform on Avnet IOTCONNECT delivers end-to-end building energy monitoring. Incorporates energy and flow meters, lighting and HVAC controllers, a wide array of sensors and actuators, and application-specific controllers. AI/ML capabilities provide demonstrable value with predictive maintenance and energy optimization across hundreds of supported Building & Energy OEMs.

## Key Results

- ✓ Optimized budget while increasing profitability
- ✓ Stay ahead of maintenance with energy-saving measures
- ✓ Hundreds of Building & Energy OEMs supported
- ✓ Wells Fargo: New opportunity across 3,500+ facilities

Customers: Burger King, Wendy's, McDonalds, Five Below | Partners: Engenuity, Avnet, Axsys Automation



**CUSTOMER**  
**Engenuity eViewIoT**  
 Partners: Engenuity · Avnet · Axsys

**SCALE**  
**3,500+ facilities**  
 Wells Fargo 600+ opportunity

**QSR ANCHORS**  
**Burger King · Wendy's**  
 McDonald's · Five Below

**OEM REACH**  
**Hundreds of B&E OEMs**  
 multi-tenant by site / brand / region

**EDGE / ON-PREMISE**

<b>Energy + Flow Meters</b> <i>Modbus RTU / TCP · pulse</i>	<b>HVAC Controllers</b> <i>BACnet IP / MSTP</i>
<b>Lighting + Thermostat</b> <i>0-10V / DALI / Zigbee</i>	<b>Refrigeration</b> <i>Modbus / BACnet</i>

**Building Edge Gateway**  
*Greengrass v2 · per-site*

Protocol translators · BACnet · Modbus · MQTT · local rules + offline store

**PROTOCOLS** BACnet IP/MSTP · Modbus RTU/TCP · MQTT/TLS · Zigbee



**/IOTCONNECT**

*Ingestion + Multi-Tenant Management*

- Multi-tenant Hierarchy**  
*3,500+ sites · brand / region*
- Cert Lifecycle + KeyScaler**  
*Bulk provision · auto-rotate*
- OTA Firmware**  
*Gateway + controller FW*
- Protocol Adapters**  
*BACnet / Modbus normalization*

**BUILT ON AWS**

**AWS CLOUD | Customer Solution AWS Services**

**COMPUTE & EVENTS**

- Lambda · demand response
- Step Functions · workflows
- EventBridge · DR events
- SNS · maintenance

**APIS & DATA**

- API GW · eViewIoT
- Timestream · energy TS
- DynamoDB · sites
- S3 · historical + bills

**AI / ML**

- SageMaker · predictive maintenance + optimization
- Bedrock · GenAI savings insights

**APPS · IDENTITY · AUDIT**

- QuickSight · portfolio
- AppSync · portal
- Cognito · tenant SSO
- KMS + CloudTrail

1 Equipment → Gateway (BACnet / Modbus) 2 Greengrass → /IOTCONNECT MQTT 3 IoT Core → SiteWise + Kinesis 4 SageMaker predictive maintenance 5 Bedrock savings insights 6 eViewIoT portfolio dashboards

<b>AVNET DELIVERY SCOPE</b>	<b>HARDWARE</b> Meters, controllers, sensors — multi-OEM	<b>FIRMWARE</b> Greengrass + protocol translators	<b>INSTALL</b> Site rollout · OEM integration (Axsys)	<b>ISV</b> Engenuity eViewIoT on /IOTCONNECT	<b>MANAGED</b> Multi-tenant ops · savings optimization
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# Smart Factory Solution

Leading Powder Coating Manufacturer — Production Intelligence 

## Challenge

A world-class powder coating manufacturer — the largest privately owned in the U.S. — needed centralized monitoring of production lines across two state-of-the-art facilities. Manual processes couldn't provide real-time visibility into production efficiency, anomaly detection, or predictive maintenance at scale.

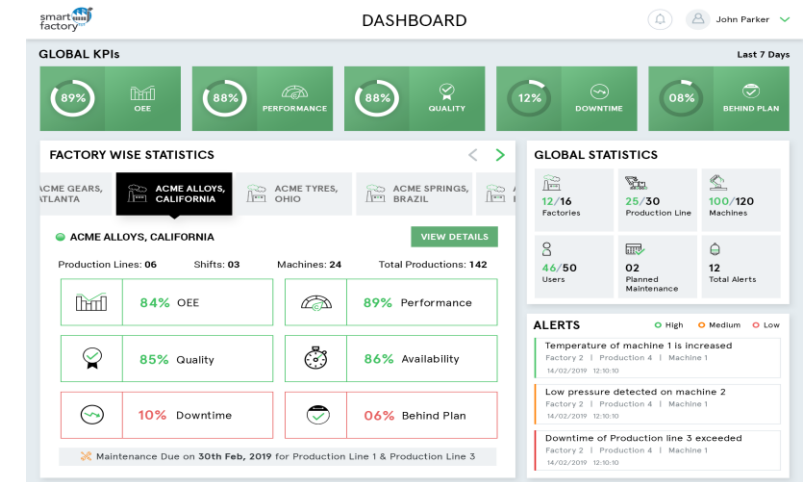
## Solution

Avnet's Smart Factory solution connected multiple production lines and machines to a centralized dashboard. Enabled data acquisition at different stages of production with remote monitoring, analytics, anomaly detection, and predictive maintenance. Smart rules engine enables autonomous actions based on real-time sensor data and ML-driven insights.

## Key Results

- ✓ 59 assets made connected and smart
- ✓ Increased throughput by ~23%
- ✓ Reduced inventory/material holding costs by 11%
- ✓ \$0.97 million in ROI generated by March 2019 (first quarter)

*Capabilities: Real-time alerts, ML anomaly detection, usage-based reports, autonomous actions*



**CUSTOMER**  
**Powder Coating Leader**  
 Largest privately-owned in US

**SCALE**  
**59 connected assets**  
 2 state-of-the-art facilities

**OUTCOMES**  
**+23% throughput**  
 -11% inventory · \$0.97M ROI Q1

**CAPABILITY**  
**Autonomous actions**  
 Real-time alerts · ML anomaly · reports

**EDGE / ON-PREMISE**

**PLCs (lines)**  
*OPC-UA / Modbus*

**Vibration Sensors**  
*Motor health*

**Vision Cameras**  
*QC + defect detect*

**Temp / Pressure**  
*Process sensors*

**Industrial Edge Gateway**  
*Greengrass v2 · DIN-rail*

OPC-UA client · local edge ML · smart rules engine · autonomous action dispatch

**PROTOCOLS** OPC-UA · Modbus · MQTT/TLS · EtherNet/IP



## /IOTCONNECT

*Ingestion + Management Plane*

- **Fleet Mgmt**  
*59 assets · 2 facilities*
- **Cert Lifecycle + KeyScaler**  
*X.509 auto-rotate · PKI*
- **OTA Firmware**  
*Gateway + PLC program updates*
- **Rules + Device Twin**  
*Threshold + autonomous dispatch*

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**BUILT ON AWS**

IoT Core

Greengrass

SiteWise

Kinesis

**AWS CLOUD | Customer Solution AWS Services**

**COMPUTE & EVENTS**

**Lambda · autonomous actions**

**Step Functions · maintenance**

**EventBridge · alerts**

**SNS · ops alerts**

**APIS & DATA**

**API GW · CMMS / ERP**

**Timestream · production TS**

**DynamoDB · asset log**

**S3 · reports**

**AI / ML**

**SageMaker · anomaly + predictive maintenance**

**Bedrock · GenAI shift reports**

**APPS · IDENTITY · AUDIT**

**QuickSight · OEE**

**CloudWatch · ops**

**Cognito · operator**

**KMS + CloudTrail**

- 1 PLCs + sensors → Gateway (OPC-UA)
- 2 Greengrass → /IOTCONNECT MQTT
- 3 IoT Core → SiteWise + Kinesis
- 4 ML anomaly → Lambda → EventBridge
- 5 Step Functions autonomous action
- 6 QuickSight global OEE dashboards

<b>AVNET DELIVERY SCOPE</b>	<b>HARDWARE</b> Industrial gateways, sensors, vision	<b>FIRMWARE</b> Greengrass + OPC-UA + edge ML	<b>INSTALL</b> Factory-floor integration · 2 facilities	<b>ISV</b> Avnet Smart Factory on /IOTCONNECT	<b>MANAGED</b> Rules tuning · model retraining · SLA
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## CUSTOMER

### Leading Global Pharma

Vertically integrated

## PLC FLEET

### 74 PLCs · 5 vendors

Panasonic · Siemens · Mitsubishi · AB · Omron

## COMPLIANCE

### 21 CFR Part 11

Audit · e-sign · data integrity · access


## HARDWARE

### Dell Edge 3003

Masibus MINT D/A I/O processor

### EDGE / ON-PREMISE

<b>Panasonic / Siemens</b> <i>Process · S7 / ProfiNET</i>	<b>Mitsubishi / AB</b> <i>MC · CC-Link · EtherNet/IP</i>
<b>Omron PLCs</b> <i>FINS · EtherCAT</i>	<b>Masibus MINT</b> <i>D/A I/O processor</i>



**Dell Edge Gateway 3003**  
*Greengrass v2 · HSM / TPM*

Signed firmware · audit logging · store-and-forward for offline compliance

**PROTOCOLS** S7 / ProfiNET · CC-Link · EtherNet/IP · MQTT/TLS + X.509


## /IOTCONNECT


*Ingestion + Compliance Management*


- **Device Mgmt (74 PLCs)**  
*5-vendor fleet · GMP hierarchy*
- **Cert Lifecycle + HSM**  
*KeyScaler PKI · TPM bind*
- **OTA (Signed Firmware)**  
*Change-control audited*
- **Audited Command Routing**  
*Every action → CloudTrail*


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**BUILT ON AWS**

  
IoT Core


  
Greengrass


  
SiteWise


  
Defender


### AWS CLOUD

**COMPUTE & EVENTS**


 **Lambda · ML control**


 **Step Functions · batch flow**


 **EventBridge · deviations**


 **SNS · alerts**

**APIS & DATA**


 **API GW · MES / CMMS / ERP**


 **Timestream · tamper-evident**

 **DynamoDB · recipes / batches**


 **S3 Object Lock · WORM**


**AI / ML**


 **SageMaker · validated model registry**


 **Bedrock · GenAI batch summaries**

**21 CFR PART 11 · AUDIT · IDENTITY**

 **CloudTrail · immutable audit**

 **Cognito MFA · e-sign**

 **KMS · HSM-backed**

 **Secrets Mgr + IAM**

- 1 PLCs → Masibus MINT → Dell Edge
- 2 Greengrass → /IOTCONNECT (signed)
- 3 IoT Core → SiteWise + Timestream
- 4 Every action → CloudTrail audit
- 5 Cognito MFA e-sign on release
- 6 S3 Object Lock WORM batch records

<b>AVNET DELIVERY SCOPE</b>	<b>HARDWARE</b> Dell Edge 3003 · Masibus MINT · 74 PLCs	<b>FIRMWARE</b> Greengrass + signed firmware + drivers	<b>INSTALL</b> GxP-validated rollout · IQ / OQ / PQ	<b>ISV</b> Custom Pharma MES on /IOTCONNECT	<b>MANAGED</b> 21 CFR Part 11 continuous compliance
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# Connected AI-Enabled Drone Telemetry

Avnet/Indeema UAV Platform — AWS IoT Core & IOTCONNECT 

## Challenge

Identifying the right sensors, camera solution & flight controllers in a disparate marketplace. Customers struggle to right size solutions to support agriculture to municipalities.

## Solution

Avnet/Indeema drone platform showcases a connected UAV platform streaming telemetry, sensor data, and AI-derived insights into /IOTCONNECT. The solution demonstrates secure connectivity, real-time monitoring, and cloud-based analytics for autonomous systems. Being a platform, customers are able to leverage the functional base drone solution from the platform and customize this off the shelf solution specific to the end customer business use-case at an accelerated scale.

## Key Details

- ✓ **Target Hardware:** AI-Enabled UAV Platform
- ✓ **Technologies Used:** AWS IoT Core, /IOTCONNECT, Indeema UAV Stack
- ✓ Secure connectivity with real-time monitoring and cloud-based analytics
- ✓ Customizable off-the-shelf platform for agriculture to municipalities



[AWS Marketplace](#)

[About the Platform](#)

[View Demo](#)

**CUSTOMER**  
**Avnet / Indeema**  
 AWS Marketplace listing

**TARGETS**  
**Ag · municipalities**  
 Infrastructure inspection

**EDGE ML**  
**Jetson Orin on-drone**  
 RGB + thermal · object + crop + terrain

**STACK**  
**Platform solution**  
 Base + customize per engagement

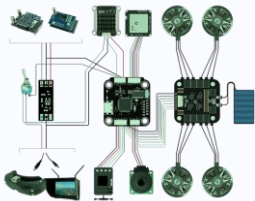
**EDGE · ON-DRONE**

- RGB + Thermal**  
4K gimbal · FLIR radiometric
- GNSS + IMU**  
RTK-GPS · flight controller
- LIDAR / Ultrasonic**  
Obstacle + altitude
- Cellular Modem**  
4G / 5G (eSIM)

**NVIDIA Jetson Orin (on-drone)**  
 Greengrass v2 · Indeema UAV stack

AI on imagery · object + terrain + crop · store-and-forward (LTE outage)

**PROTOCOLS** MQTT / TLS over 4G/5G · KVS producer · WiFi ground-station fallback



**/IOTCONNECT**

*Ingestion + Fleet Management*

- UAV Fleet Mgmt**  
Mobile fleet · per-mission
- Cert Lifecycle + KeyScaler**  
Rotating X.509 for mobile
- OTA Models + Firmware**  
Push to flying fleet
- Device Twin + Geofence**  
Mission params · restricted-zone

**BUILT ON AWS**

- IoT Core
- Greengrass
- KVS
- Kinesis

**AWS CLOUD | Customer Solution AWS Services**

**COMPUTE & EVENTS**

- Lambda · flight events
- Step Functions · missions
- EventBridge
- SNS · incident

**APIS & DATA**

- API GW + AppSync · mobile
- Timestream · telemetry
- DynamoDB · flight registry
- S3 · imagery + logs

**AI / ML**

- SageMaker · train + MLOps
- Rekognition · object detect
- Bedrock · GenAI mission

**APPS · IDENTITY · AUDIT**

- Location · geofence
- QuickSight · fleet
- Cognito · pilot SSO
- KMS + CloudTrail

- Sensors + cameras → Jetson on drone
- On-drone ML inference (edge)
- Cellular → /IOTCONNECT → IoT Core
- KVS video + Kinesis telemetry
- Location geofence check
- Bedrock mission summary

- AVNET DELIVERY SCOPE**
- HARDWARE** UAV · Jetson on-drone · RGB + thermal · modem
- FIRMWARE** Greengrass + Indeema flight stack
- INSTALL** Field setup · ag + municipalities
- ISV** Indeema UAV Stack on /IOTCONNECT
- MANAGED** Fleet mgmt · mission planning · updates

# / Summary & Next Steps

## Benefits

1. **Real-Time Intelligence at the Edge:** Process data locally for faster decisions and reduced latency in real-world environments like robotics and manufacturing.
2. **Scalable AI Development in the Cloud:** Train and continuously improve AI models using AWS to support growth and evolving use cases.
3. **Accelerated Deployment with Simulation:** Validate and refine AI systems using digital twins and simulation before deploying in the field.

## Outcomes

1. **Faster Time to Production:** Move from prototype to deployment more efficiently with integrated edge and cloud workflows.
2. **Improved Operational Efficiency:** Optimize processes with AI-driven automation and real-time insights across physical systems.
3. **Enhanced System Performance & Accuracy:** Continuously improve model performance through cloud training and real-world data feedback loops.

## Next Steps

**Let's Accelerate Your Journey to Intelligent Automation**

Contact us: [IoT@Avnet.com](mailto:IoT@Avnet.com)

# More About Avnet /IOTCONNECT & Softweb Solutions (an Avnet company)

# / About Avnet

## Quick facts

- Founded in 1921
- Headquartered in Phoenix, Arizona
- AVT listed on the NYSE since 1960
- AVT listed on NASDAQ since 2018
- #181 on FORTUNE 500 (US) in 2025

**14,500+**

Employees  
worldwide

**2,000+**

Engineers around  
the world

**3.3M+**

Engineering  
community members

**450K**

Customers in  
140 countries

**250+**

Locations  
globally

**\$22.2B**

FY25 Revenue

# Avnet Capabilities

AVNET®

CORE SEMI

softweb  
solutions

AN AVNET COMPANY

CLOUD APPLICATION  
DEVELOPMENT

TRIA™  
AN AVNET COMPANY

EMBEDDED MODULES  
& BOARDS

/IOTCONNECT™

IOT PLATFORM  
FOR OEMS

W  
Witekio

AN AVNET COMPANY

EMBEDDED SOFTWARE  
DESIGN SERVICES

DESIGNED BY AVNET

SOLUTIONS DEVELOPMENT:  
ADVANCED APPLICATIONS  
GROUP



## Cloud Migration | MAP SPRINTS

Migrate data sets and apps to the cloud securely



## AWS AI / ML | Gen AI

Rekognition, SageMaker, Bedrock & more



## Mobile Applications

Powerful mobile apps for global audiences



## Server Monitoring

Detect cloud computing and network issues



## Big Data & Analytics

Scalable and secure big data solutions



## Enterprise Applications

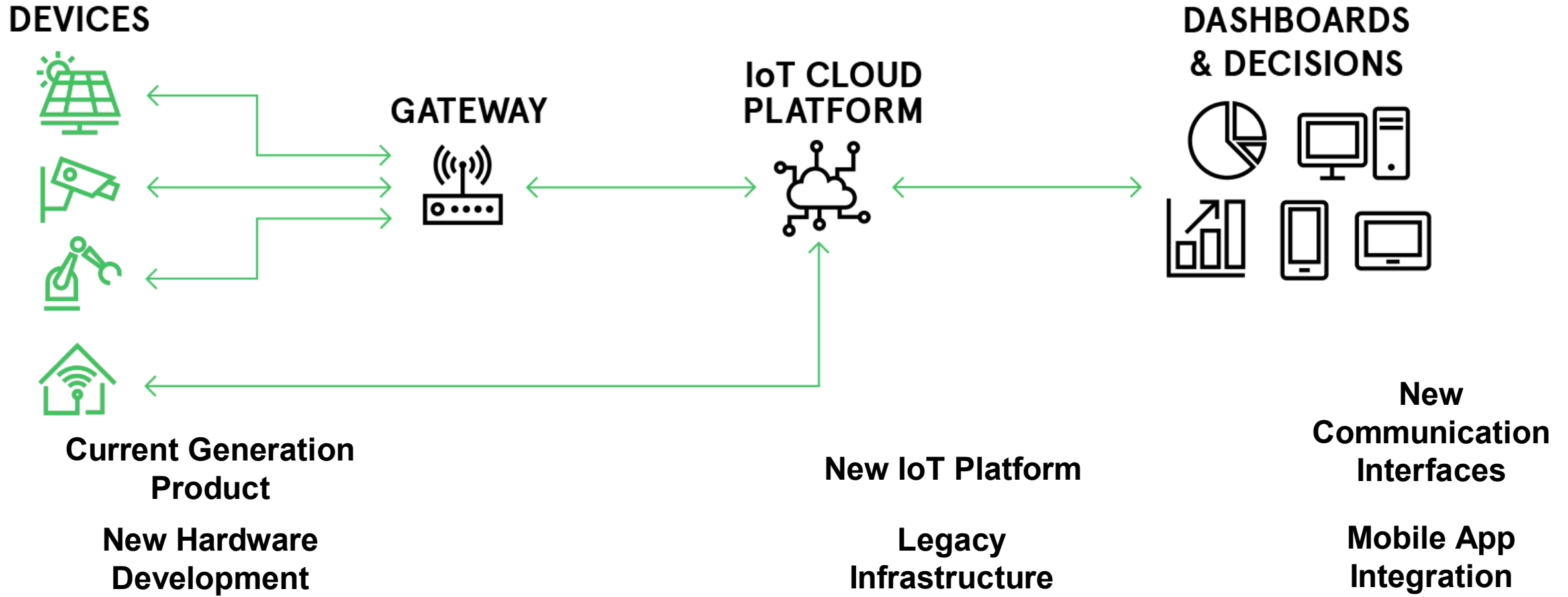
Mission-critical apps running on AWS



## Managed Services

Infrastructure management on AWS

# / Challenge of IoT



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

# / Challenge of IoT

DEVICES



GATEWAY



IoT CLOUD PLATFORM



DASHBOARDS & DECISIONS



← /IOTCONNECT® →

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

## Things



Dehumidifiers



In-Wall Moisture  
Sensors

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

## Things



Dehumidifiers



In-Wall Moisture  
Sensors

extracts

## Business Insights



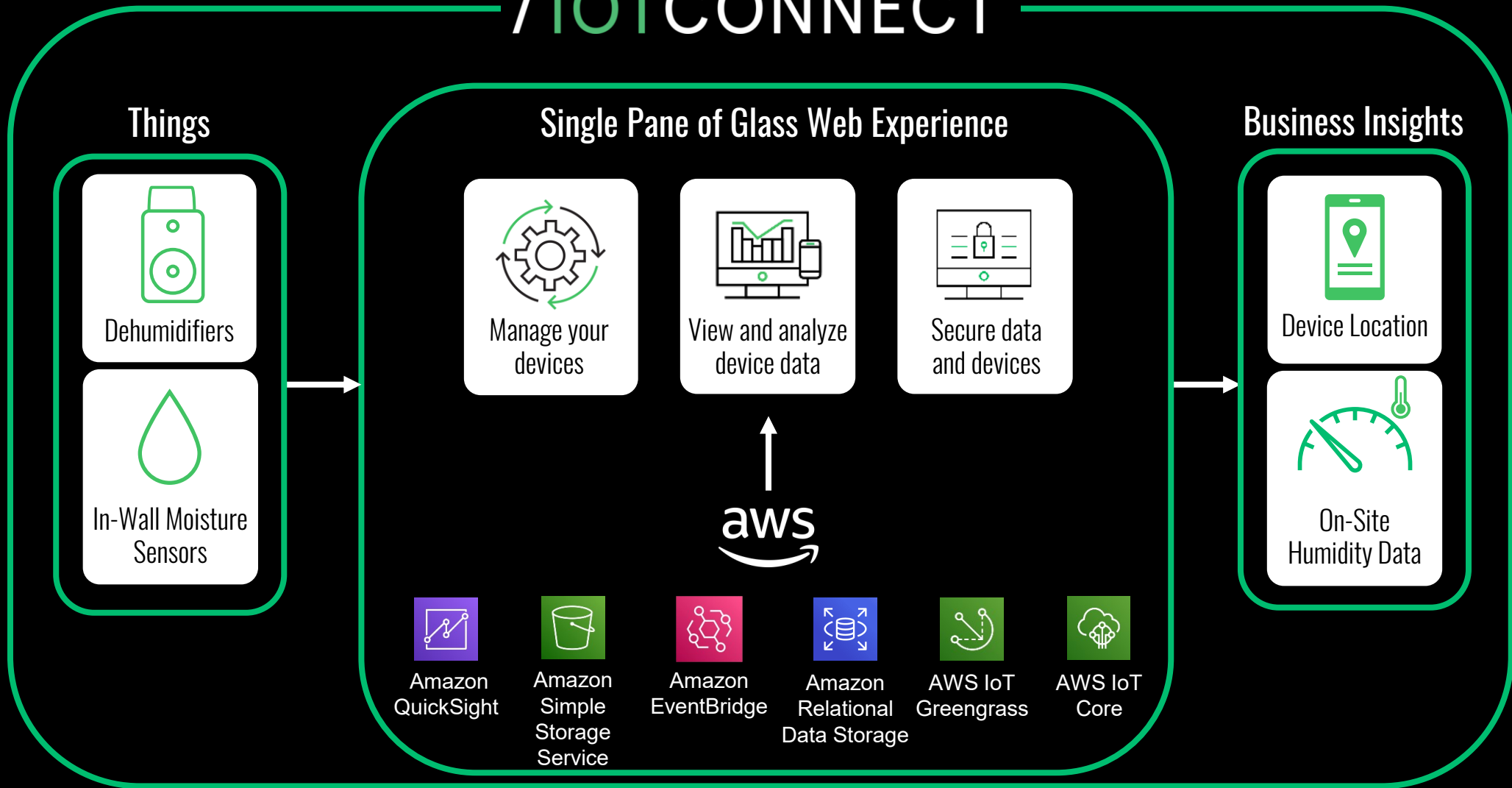
Device Location



On-Site  
Humidity Data

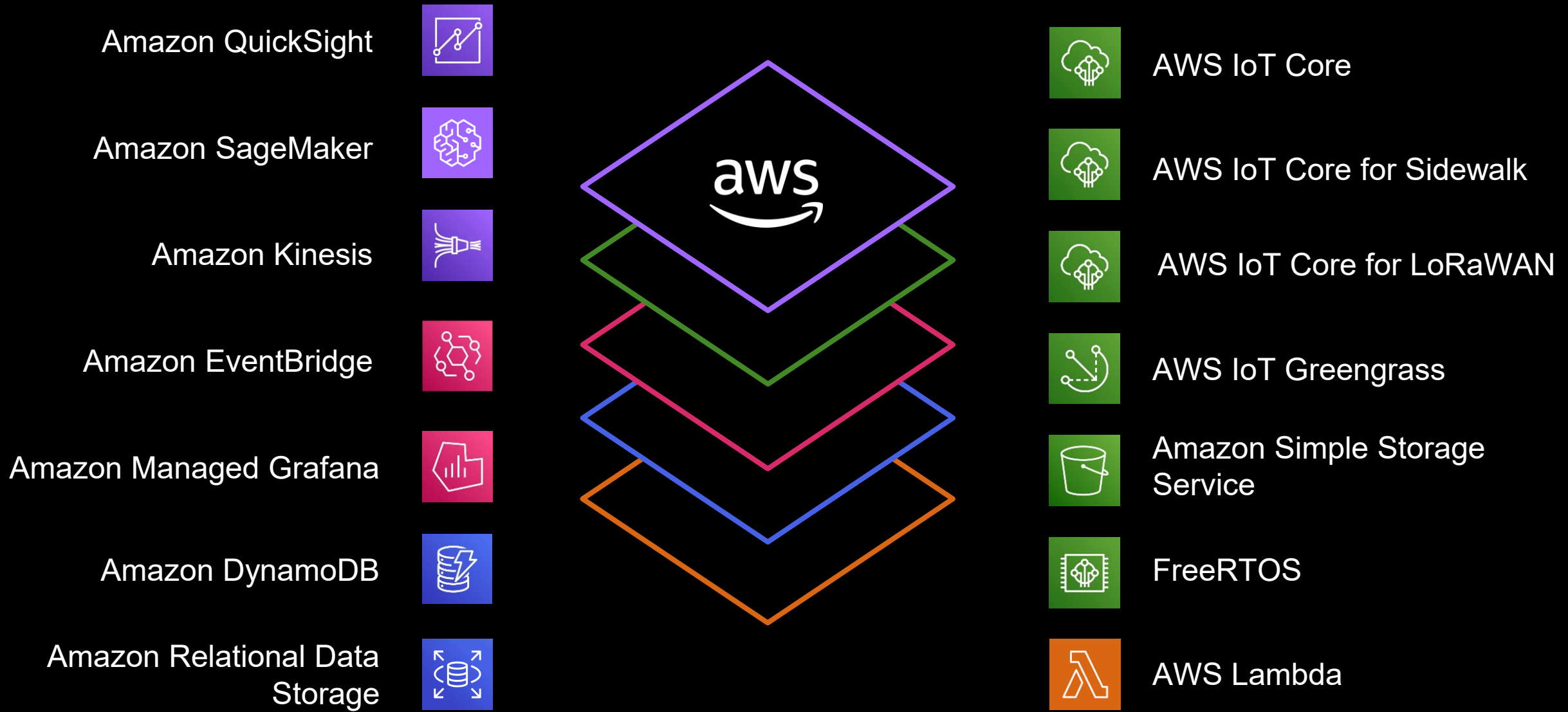
and **extracts valuable insights** to improve business intelligence

# /IOTCONNECT<sup>®</sup>



to create a **single pane of glass** experience

that's **built on AWS**



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

# / IOTCONNECT<sup>®</sup>

## Solutions Suite



One interface for  
AWS services

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

# /IOTCONNECT SaaS Application in Action

The dashboard features a dark blue sidebar with navigation options: Dashboard, Jobs, Devices, Devices Maintenance, Users, and Notifications. The main content area has a blue header with the 'Dashboard' title. Below the header are four summary cards: Total Jobs (40), Total Devices (2598), Total Users (5), and Total Notifications (8). A welcome message states: 'Welcome You have 28 active jobs | 1255 of your 2598 total devices in use.' Below this is a map showing job locations with a legend for Pending (yellow), Active (green), Completed (blue), and Closed (red). A 'Job list' button and an 'Add New Job' button are visible. A DRIEAZ LGR 6000Li advertisement is on the right. The footer contains the copyright notice: 'Copyright © 2022 Legend Brands - All Rights Reserved. Version: 1.0.1'.

The top smartphone screen shows a job detail view for 'Job "112 Main St"'. It displays the location 'Basement' and a list of devices. The bottom smartphone screen shows the control interface for a 'Revolution -123456' device (Serial Number: 654321). It includes 'Turn On' and 'Purge' buttons, status indicators for 'Dehu: Off' and 'Humidistat: Idle', and a humidity control slider set to 40%. A technical specifications table is also present:

Model	REVOLUTION
Life Hours	1
Firmware	8.9.0   1.4.3
Pump	Off
Compressor	Off
Fan	Off

The bottom navigation bar of the mobile app includes icons for settings, analytics, alerts, and a gear icon.

# Next Steps

**AVNET**

**/IOTCONNECT®**

**Physical AI Solutions – Advantech + AWS**

---

**Challenges**  
**Bridge the gap between AI innovation and real-world deployment**

Organizations working to deploy Physical AI solutions often struggle to bridge the gap between cloud-based AI development and real-world environments. Running advanced AI models on large volumes of sensor, vision, and operational data requires powerful and reliable edge infrastructure capable of real-time processing. At the same time, building, training, and scaling those models demands robust cloud resources and data pipelines. Ensuring seamless connectivity between edge systems and the cloud adds further complexity, while validating AI performance in dynamic environments—such as factories, robotics, or autonomous systems—can be costly and time-consuming without effective simulation and digital twin capabilities.

**Avnet /IOTCONNECT Solution**  
**Unlock scalable, real-time intelligence from edge to cloud**

The Physical AI Solution from Advantech and AWS addresses these challenges by unifying industrial-grade edge computing with scalable cloud AI services into a single, cohesive architecture. Advantech's NVIDIA-powered edge platforms enable real-time data processing and decision-making directly at the source, while AWS services support model training, simulation, and lifecycle management in the cloud. Integrated IoT connectivity ensures seamless data flow between physical systems and cloud intelligence, allowing organizations to continuously improve models using real-world data. By combining edge inference, cloud scalability, and simulation capabilities, the solution accelerates deployment, reduces risk, and enables organizations to efficiently bring advanced applications—such as robotics, vision AI, autonomous systems, and digital twins—into production.

**Benefits**

- Unified Device Management**  
 The solution provides a single /IOTCONNECT portal to register, monitor, and manage Amazon Sidewalk-enabled STM32 devices, eliminating the need to build and maintain custom backend services.
- GPS-Free Location Resolution**  
 By integrating with AWS IoT Core Device Location, the solution enables location awareness using BLE, Wi-Fi, or GNSS data without requiring power-hungry GPS hardware, extending battery life for low-power devices.
- Secure Manufacturing at Scale**  
 The solution supports secure factory provisioning through HSM-based certificate generation, Sidewalk signing tools, and automated control log consolidation, enabling scalable and compliant mass production.
- Accelerated Sidewalk Qualification**  
 Avnet manages the "Works with Amazon Sidewalk" qualification process, including donor qualification when applicable, helping reduce testing effort and shorten time to market.

Contact our IoT experts – [mailto:iot@avnet.com](mailto:mailto:iot@avnet.com)

**AVNET**

**res**

built on three core capabilities: scalable Physical AI deployment. By leveraging edge intelligence, cloud scalability, and unified lifecycle management, it provides a foundation for connected, real-world AI

**Edge-to-Cloud**

Each edge system, AWS /IOTCONNECT into a scalable, seamless data flow and management.

**AI at the Edge**

NVIDIA-powered edge devices enable fast, low-latency decision-making in dynamic environments.

**Device & Data (IOTCONNECT)**

Purchased through AWS Marketplace, flexible pricing and billing options allow you to align costs with your business needs.

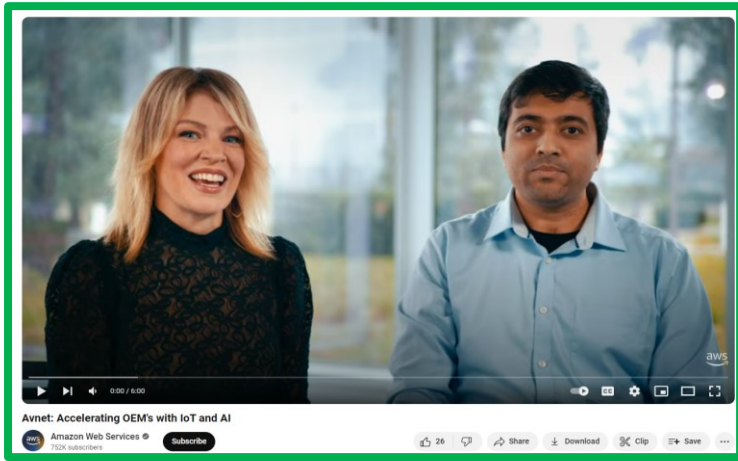
**is available on a free marketplace**

**aws**  
**Qualified Software**

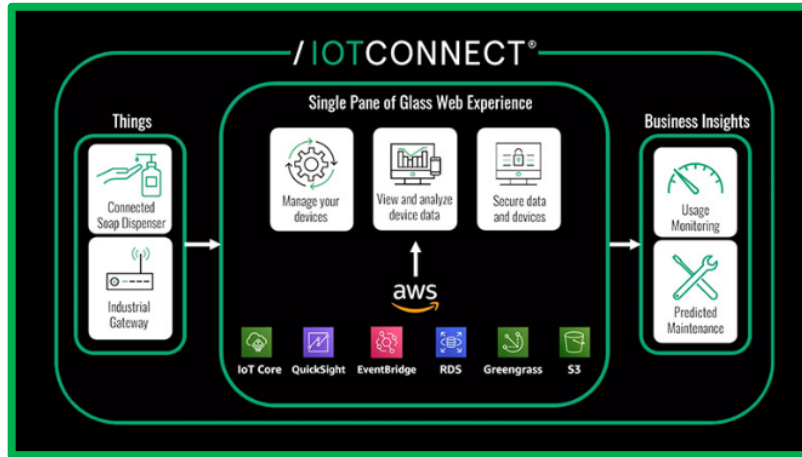
Contact us!

Learn more

# /Resources



[Avnet and AWS:  
This is My Architecture](#)



[Avnet  
/IOTCONNECT  
Webinar](#)



[/IOTCONNECT Quick  
Start Development  
Kits](#)

# /IOTCONNECT Quick Start Enablement

IoTConnect Guides are available today on the following development kits:

- 1** **ST Discovery Kit for IoT node with STM32U5 series**  
This development kit features Wi-Fi, Bluetooth, a number of sensors and support for expansion through Arduino, STM32 and Proton™ interfaces. Engineers can use this kit to develop connected devices such as wearable sensors, as well as smart home or smart industry applications.  
[LEARN MORE](#)
- Microchip WiFi32-IoT Development Board**  
This development board features the PIC32MZ101 WiFi module with PCB antenna and TrustZone hardware security engine. Additional interfaces, including MicroBUS™, enable the developer to quickly add sensors, a perfect IoT development platform. Get started with a smart monitoring solution using the on-board temperature and light sensors.  
[LEARN MORE](#)
- Avnet MaaXBoard SBC based on NXP i.MX 8M**  
Based on NXP's i.MX 8M processor based single board computer, this kit is perfect for smart devices at the edge. It offers the power to process both video and audio locally and run high level operating systems (Android, Windows, IoT Core, Linux).  
[LEARN MORE](#)
- Renesas CK-RX65N Cloud Kit Based on RX65N MCU Group**  
This kit combines the RX65N MCU with an LTE Cellular CAT-M1 module and Ethernet connectivity. With IoTConnect support, you start capturing data in the field and send to the cloud in minutes.  
[LEARN MORE](#)
- Infineon XENSIV Kit with PAS CO2 sensor**  
The XENSIV™ connected sensor kit is ideal for battery-powered IoT devices. Its small size hides a lot of performance. With both Wi-Fi and Bluetooth connectivity, the kit includes a CO2 sensor and the OPTIGA™ Trust M security device. The kit works with IoTConnect's Secure Device Management features to provide IoT connectivity with total end-to-end security.  
[LEARN MORE](#)

**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.

**2**

## IoTConnect SDK for STM32-U5 based on X-Cube-Azure

SDK and sample application to connect [STM32U5 IoT Discovery Kit](#) to IoTConnect.

The QuickStart Guide below provides a binary image to program the board for quick evaluation of the sample application.

- [QuickStart Guide](#)

Use this Developer Guide to setup the project and modify the source to further develop using the sample application.

- [Developer Guide](#)

The BG96 Module from the [P-L496G-CELL02 Combo](#) is also supported by this project. To run your board with this module, follow the respective BG96 sections linked in the Developer or QuickStart guides.

**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.

**3**

## Select a Personal Plan

Test Drive

### 2 Months Free

- Messages **30K (Max)**
- Devices **5 (Max)**
- Users **5 (Max)**

**SUBSCRIBE NOW**

*No Credit Card Required.*

**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.

**4**

Temperature: 30.979  
Pressure: 843.168  
Humidity: 14.748

Env Sensors

Time	Pressure	Humidity	Temperature
14:15 pm	843.168	14.748	30.979
14:30 pm	843.168	14.748	30.979
14:45 pm	843.168	14.748	30.979
15:00 pm	843.168	14.748	30.979
15:15 pm	843.168	14.748	30.979
15:30 pm	843.168	14.748	30.979
15:45 pm	843.168	14.748	30.979
16:00 pm	843.168	14.748	30.979

Device Command

Select Command:  Parameter Value:  **Execute Command**

Command	Executed On (UTC)	Status	Executed Count

**Start Developing**

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

# Appendix

# /IOTCONNECT<sup>®</sup> Supports All Devices



AWS IoT Core



AWS IoT Core for  
LoRaWAN amazon sidewalk



AWS IoT Greengrass  
+ Greengrass lite

Device  
Types



Connected  
Devices



Gateway &  
Child Devices



Private  
LoRaWAN  
Base Station



Private  
LoRaWAN  
Concentrator



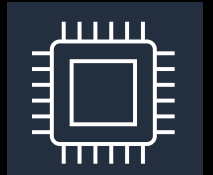
Public  
LoRaWAN  
Device



Amazon  
Sidewalk  
Device

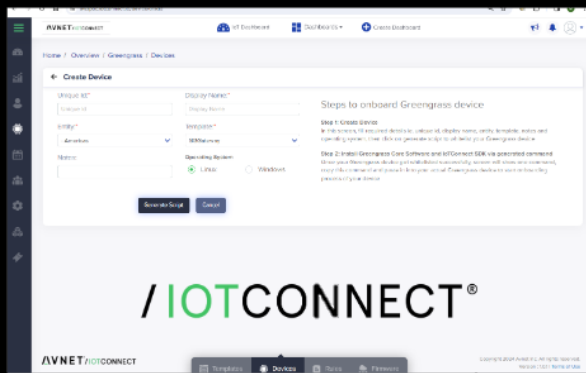


Edge Server  
or Gateway



Memory Constrained  
Edge Device

Device  
Enablement

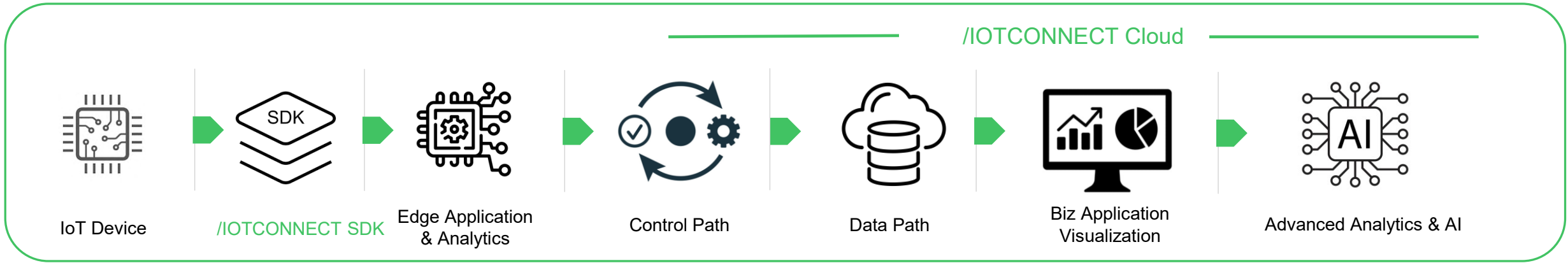


AWS IoT  
Greengrass



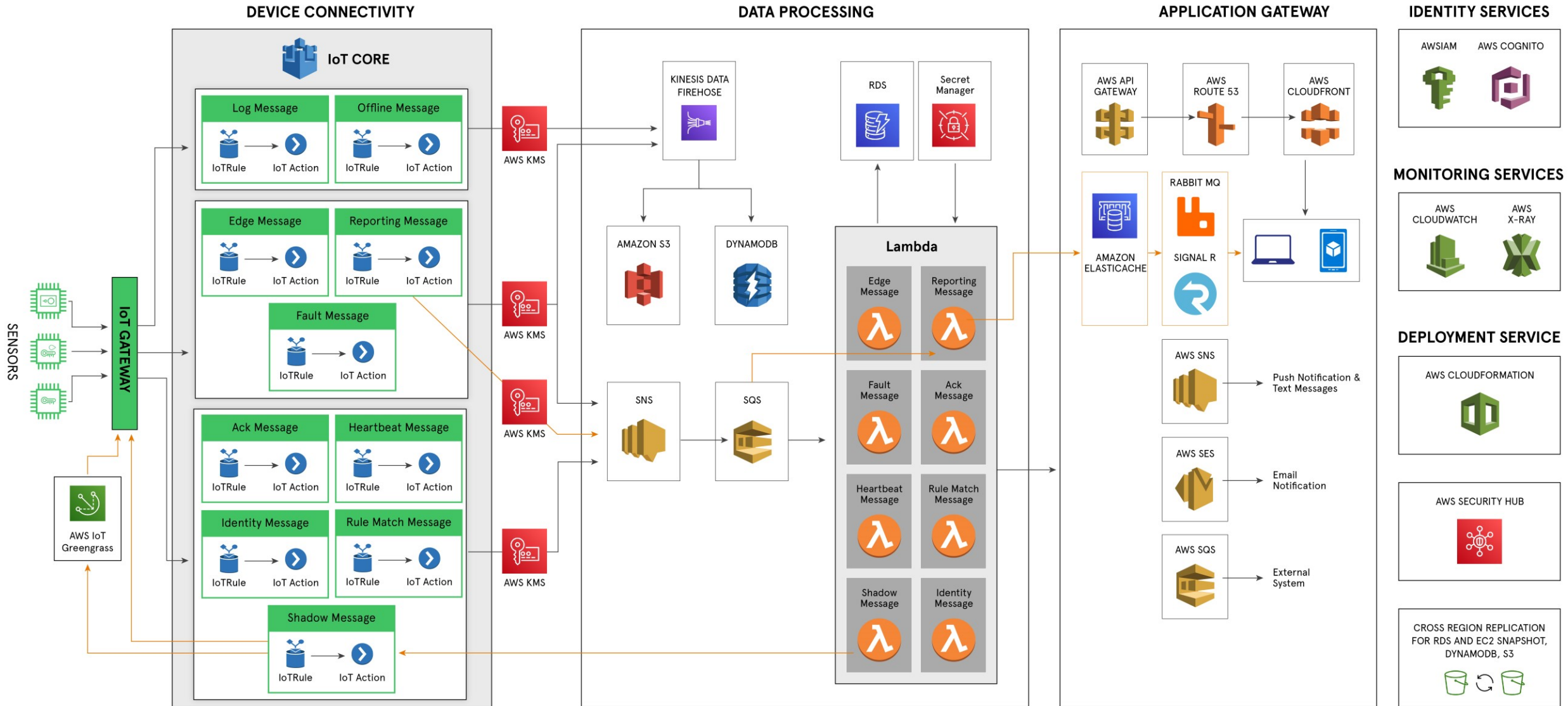
/IOTCONNECT<sup>®</sup> enables ALL devices types through a single pane of glass.

# /IOTCONNECT Building Blocks w/ AWS



FreeRTOS	Python	Greengrass	IoT Core	RDS	QuickSight	SageMaker
C			EventBridge	S3 Data Lake	Grafana	
<b>Transport</b>			Kinesis	S3		
amazon sidewalk	<b>LoRaWAN™</b> PRIVATE   PUBLIC		Lambda	DynamoDB		

# /IOTCONNECT Platform Architecture

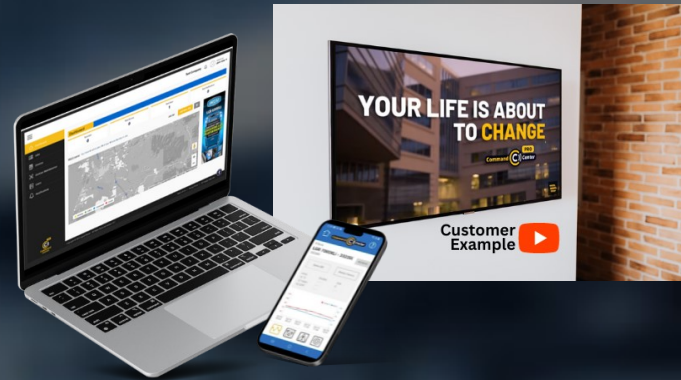


# //IOTCONNECT Developer Personas



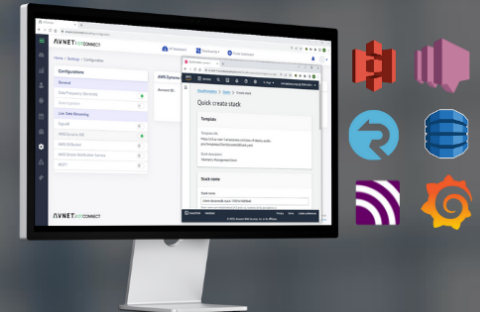
- Device, User, Roles, and Entity Admin
- Security manag
- Basic dashboarding
- Internal Ops

**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



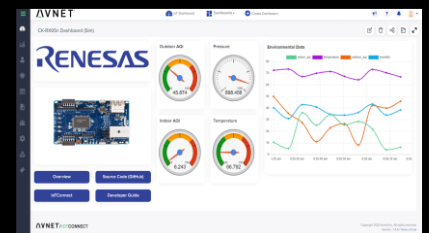
## Platform-specific SDKs

Development Boards and Embedded Hardware



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

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



# /IOTCONNECT AWS Demo Examples



1 - Audio Detection - 1 Device

### Urban Sound Event Classifier

ML Acceleration Engine for Low-Power MCUs

Sensor Location

Sound Generator (mciBMAX)

NO ACTIVITY

Date	Resource	Event Name	Condition	Severity
Jan 02, 2024 22:02:30	ml-ai-demo-01	Rule Matched	class == "Signal"	

AI/ML Audio Classification

MCI-RASYN

RENESAS EDGE IMPULSE SYNTIANT

Commands: UP, DOWN, BACK, NEXT, OK SYNTIANT

MESSAGE COUNT: 0

Attribute	Time	Value
inferencelabel	2024-01-12 01:23:15	
msgCount	2024-01-12 01:23:15	
inferencelabel	2024-01-12 01:23:15	

Edge ML Voice and Motion Detection

## NINJA

Grill State: ON

Grill Temp (F): 425

### DEMO OVERVIEW

Temperature

Grill Movement and Position

Command	Executed On (UTC)	Status	Executed Count
setTemp 500	Jan 12, 2024 07:16:26	Success	2
grill_unlock on	Jan 12, 2024 07:16:27	Success	1
grill_unlock on	Jan 12, 2024 12:02:00	Success	1
grill_unlock on	Jan 12, 2024 15:16:19	Success	2
grill_unlock on	Jan 12, 2024 16:16:19	Success	1

Consumer Indoor Grill