

/ 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, provides an 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](#)
[View purchase options](#)
[Try for free](#)
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[Try agent mode](#) [Create proposal](#) [Ask question](#)

Overview

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

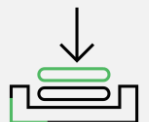
Avnet's Physical AI Solution brings together Advantech's industrial edge platforms, NVIDIA accelerated AI, and AWS cloud services to enable intelligent, real-world systems. By connecting edge devices to cloud-based model training, simulation, and lifecycle management, the solution supports applications 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.



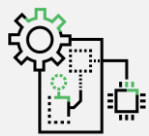
Edge AI Inference: Real-time AI processing at the edge.



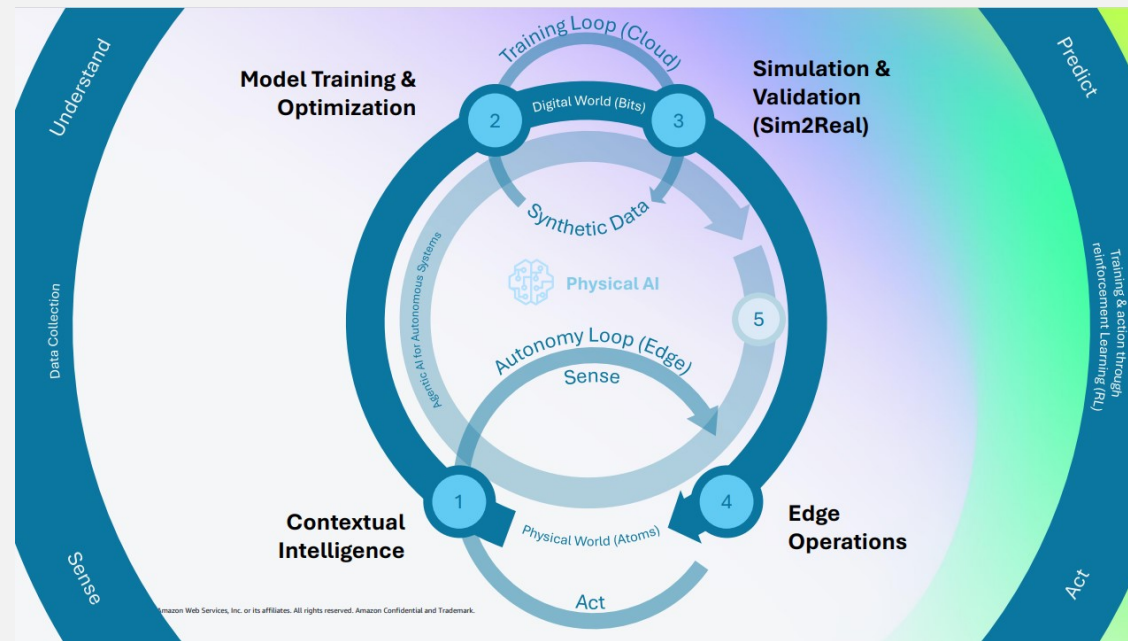
Cloud AI Training: Scalable model training in AWS.



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



Simulation & Digital Twins: Test and optimize before deployment.



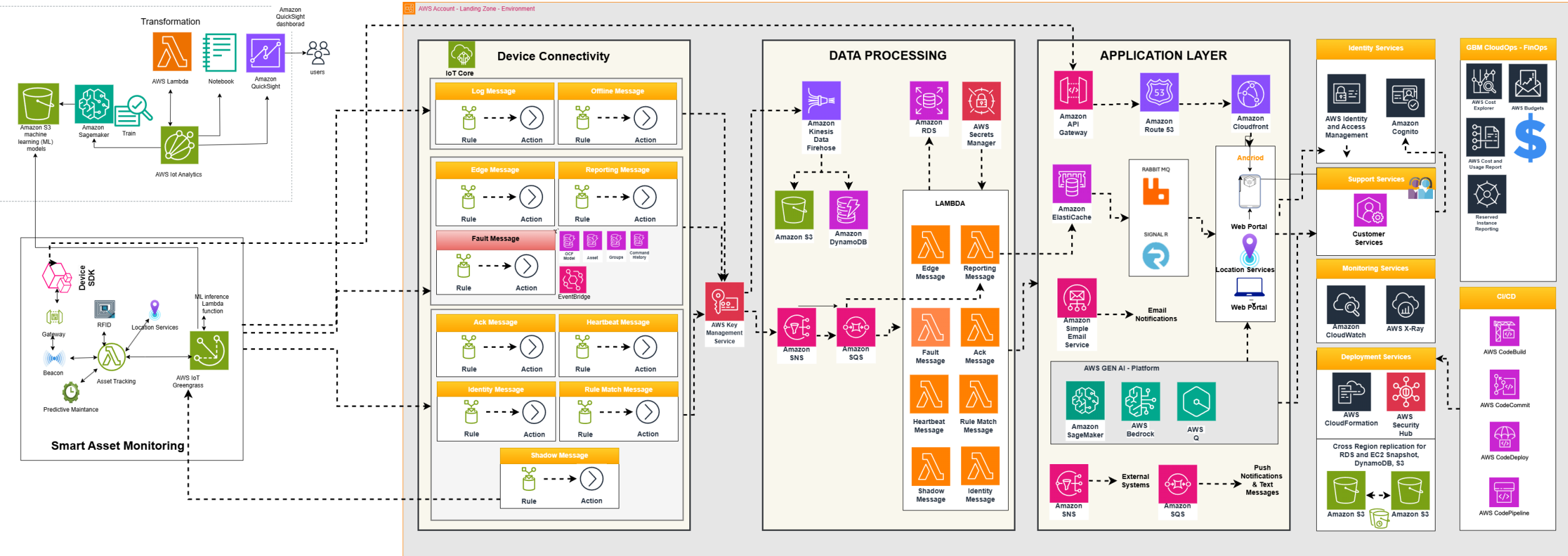
Features

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

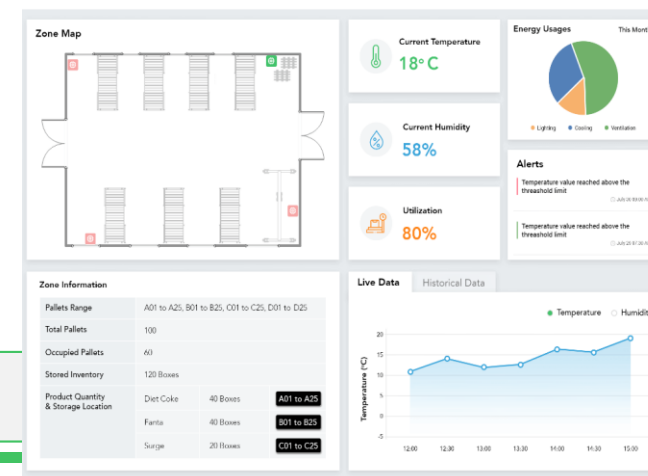
IOSEA's hardware asset tracking sensor uses advanced electromagnetic and signal processing algorithms for high-accuracy indoor positioning. Connected via Avnet IOTCONNECT with multi-partner engagement (IOSEA, Avnet, Nordic, Renesas, Panasonic, Silicon Labs, Ublox). Supports beacons & tags, networking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

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

BUILT ON AWS

IoT Core Kinesis Defender

AWS CLOUD | Customer Solution AWS Services

COMPUTE & EVENTS

Lambda · triangulation + geofence Step Functions · alert flow EventBridge SNS · worker safety

APIS & DATA

API GW · IOSEA portal Timestream · location TS DynamoDB · asset registry S3 · event archive

AI / ML

SageMaker · occupancy + worker safety ML Bedrock · facility GenAI insights

APPS · IDENTITY · AUDIT

Location · facility map QuickSight · live zones Cognito · worker SSO KMS + CloudTrail

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

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

AVNET DELIVERY SCOPE	HARDWARE FLIR thermal + RGB cameras, NVIDIA Jetson	FIRMWARE Greengrass + edge ML, GStreamer pipeline	INSTALL Camera placement, thermal calibration	ISV CleanConnect.ai detection + ops console	MANAGED 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.

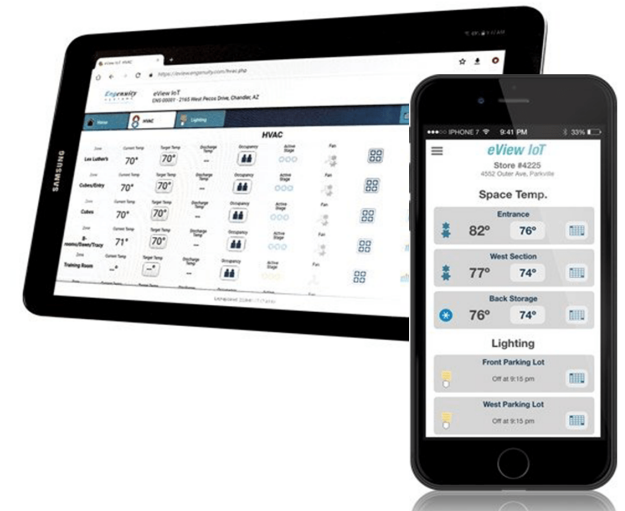
Solution

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

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

IoT Core · Greengrass · SiteWise · Kinesis

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

AVNET DELIVERY SCOPE	HARDWARE Meters, controllers, sensors — multi-OEM	FIRMWARE Greengrass + protocol translators	INSTALL Site rollout · OEM integration (Axsys)	ISV Engenuity eViewIoT on /IOTCONNECT	MANAGED 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.

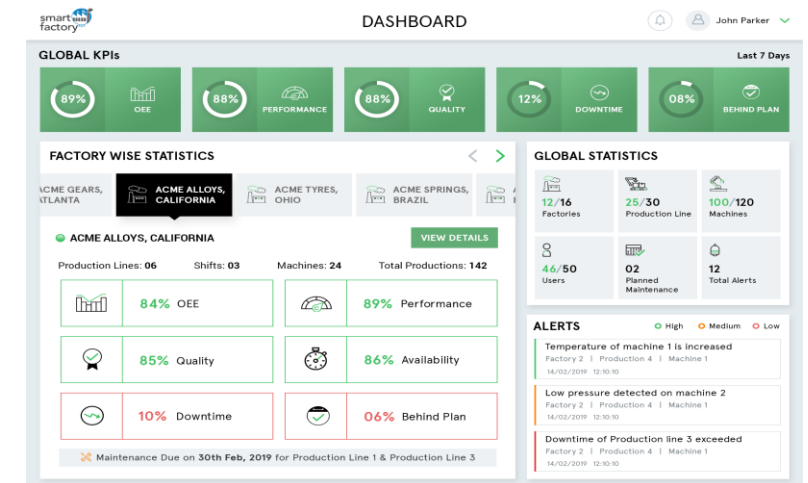
Solution

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

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

AVNET DELIVERY SCOPE	HARDWARE Industrial gateways, sensors, vision	FIRMWARE Greengrass + OPC-UA + edge ML	INSTALL Factory-floor integration · 2 facilities	ISV Avnet Smart Factory on /IOTCONNECT	MANAGED 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

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

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

AVNET DELIVERY SCOPE	HARDWARE Dell Edge 3003 · Masibus MINT · 74 PLCs	FIRMWARE Greengrass + signed firmware + drivers	INSTALL GxP-validated rollout · IQ / OQ / PQ	ISV Custom Pharma MES on /IOTCONNECT	MANAGED 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

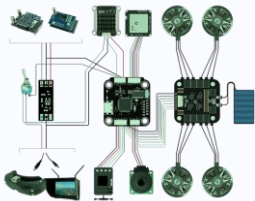
EDGE · ON-DRONE

- 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

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

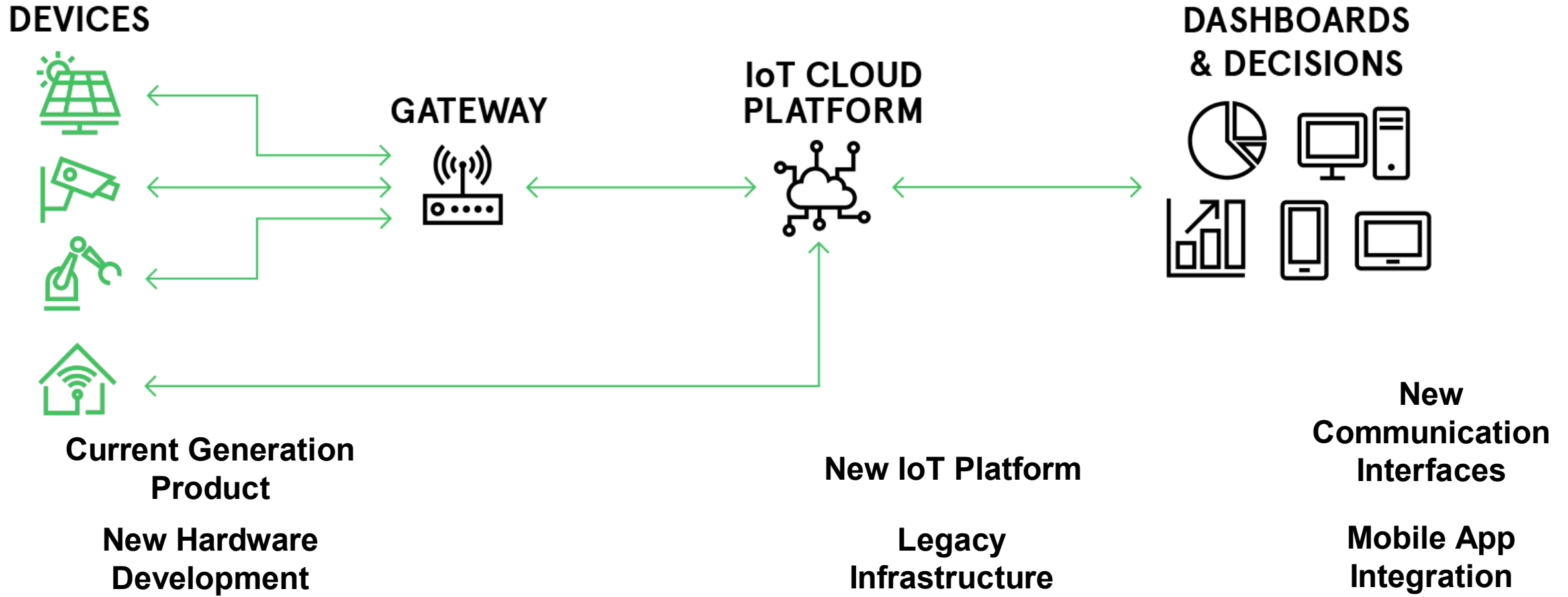
Mission-critical apps running on AWS



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



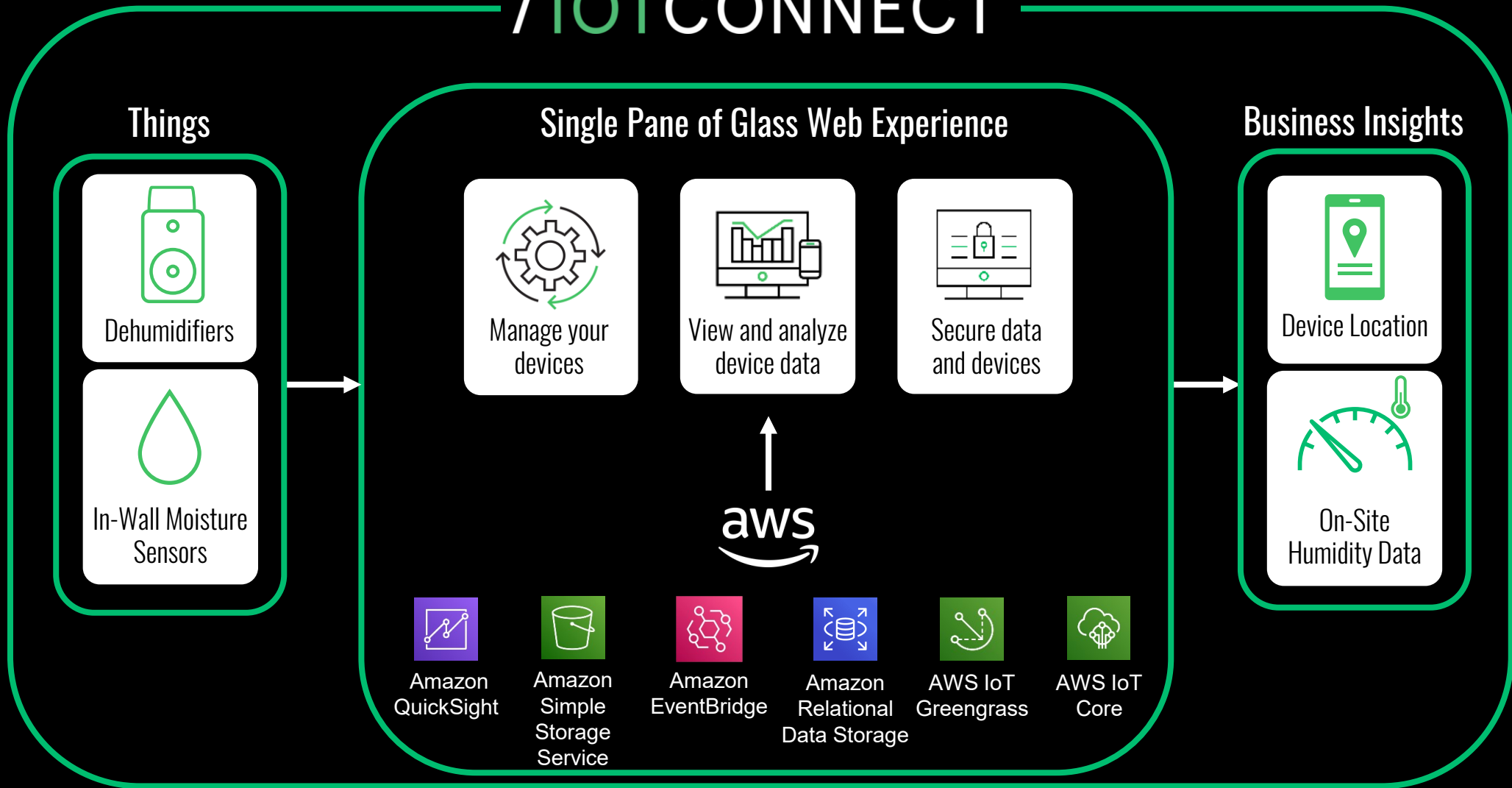
Device Location



On-Site
Humidity Data

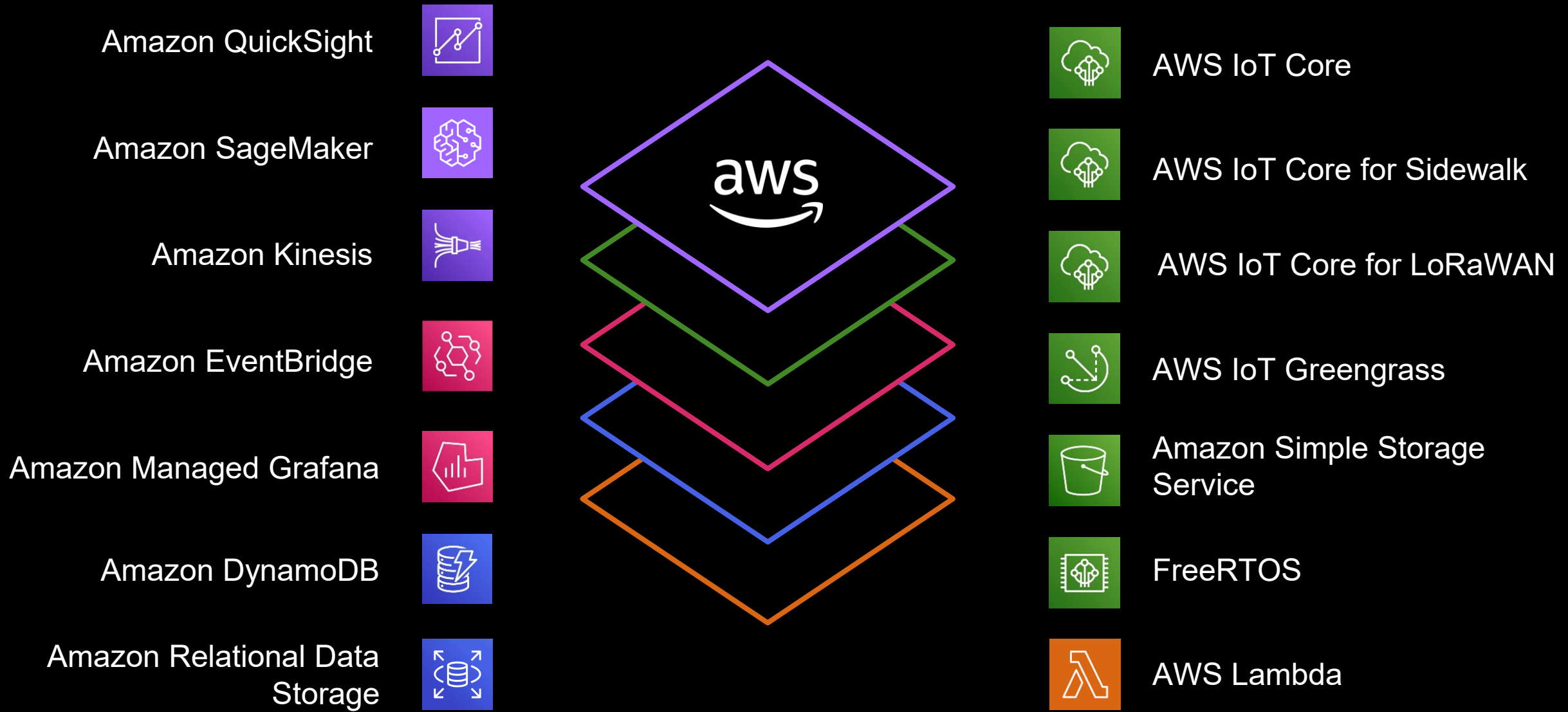
and **extracts valuable insights** to improve business intelligence

/IOTCONNECT[®]



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

that's **built on AWS**



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

Dashboard

Total Jobs: 40

Total Devices: 2598

Total Users: 5

Total Notifications: 8

Welcome You have 28 active jobs | 1255 of your 2598 total devices in use.

Job list Add New Job

Legend: Pending (Yellow), Active (Green), Completed (Blue), Closed (Red)

Copyright © 2022 Legend Brands - All Rights Reserved. Version: 1.0.1

Command Center PRO

Job #112 Main St

Basement

DEVICES (1)

Bluetooth, Wi-Fi

Command Center PRO

Devices

Revolution -123456
Serial Number: 654321

Turn On Purge

Dehu: Off
Humidistat: Idle

On 40%

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

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

AVNET

es

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

Edge-to-Cloud

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

AI at the Edge

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

Device & Data Management (IOTCONNECT)

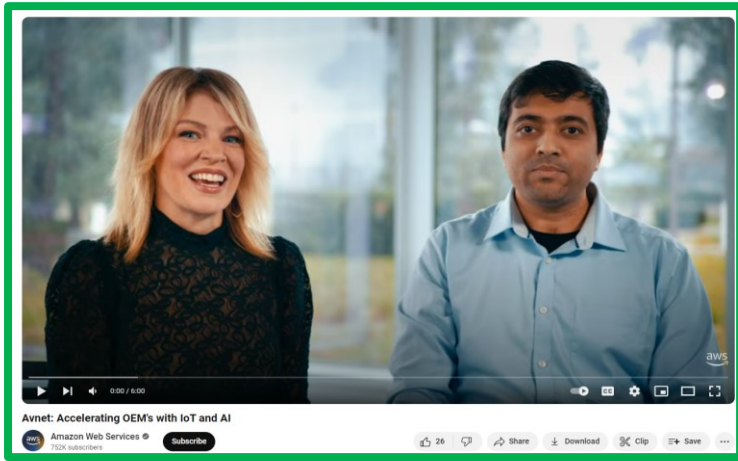
Managed through AWS IoT, the solution offers flexible pricing and billing models to align costs with your business needs.

is available on a free marketplace

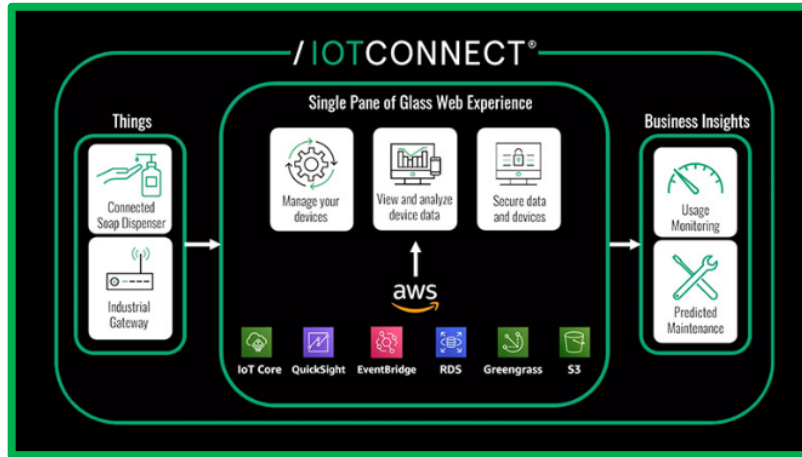
aws
Qualified Software

Contact us!

Learn more



[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 Wi-Fi module, with PCB antennas 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[®] 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



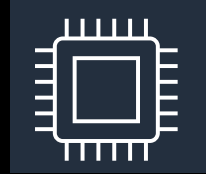
Public
LoRaWAN
Device



Amazon
Sidewalk
Device

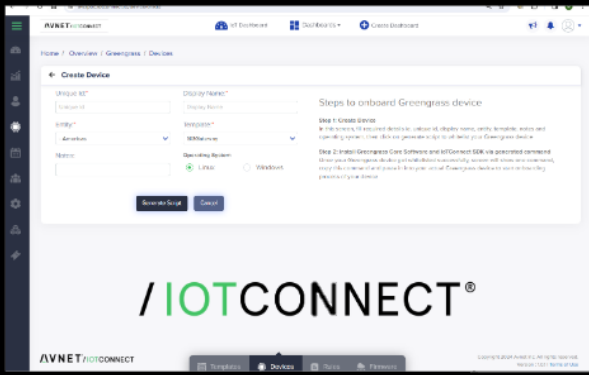


Edge Server
or Gateway



Memory Constrained
Edge Device

Device
Enablement

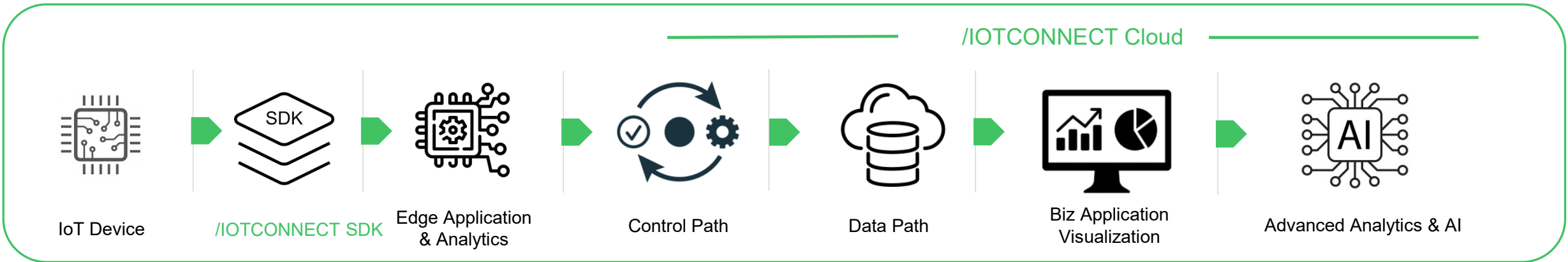


AWS IoT
Greengrass



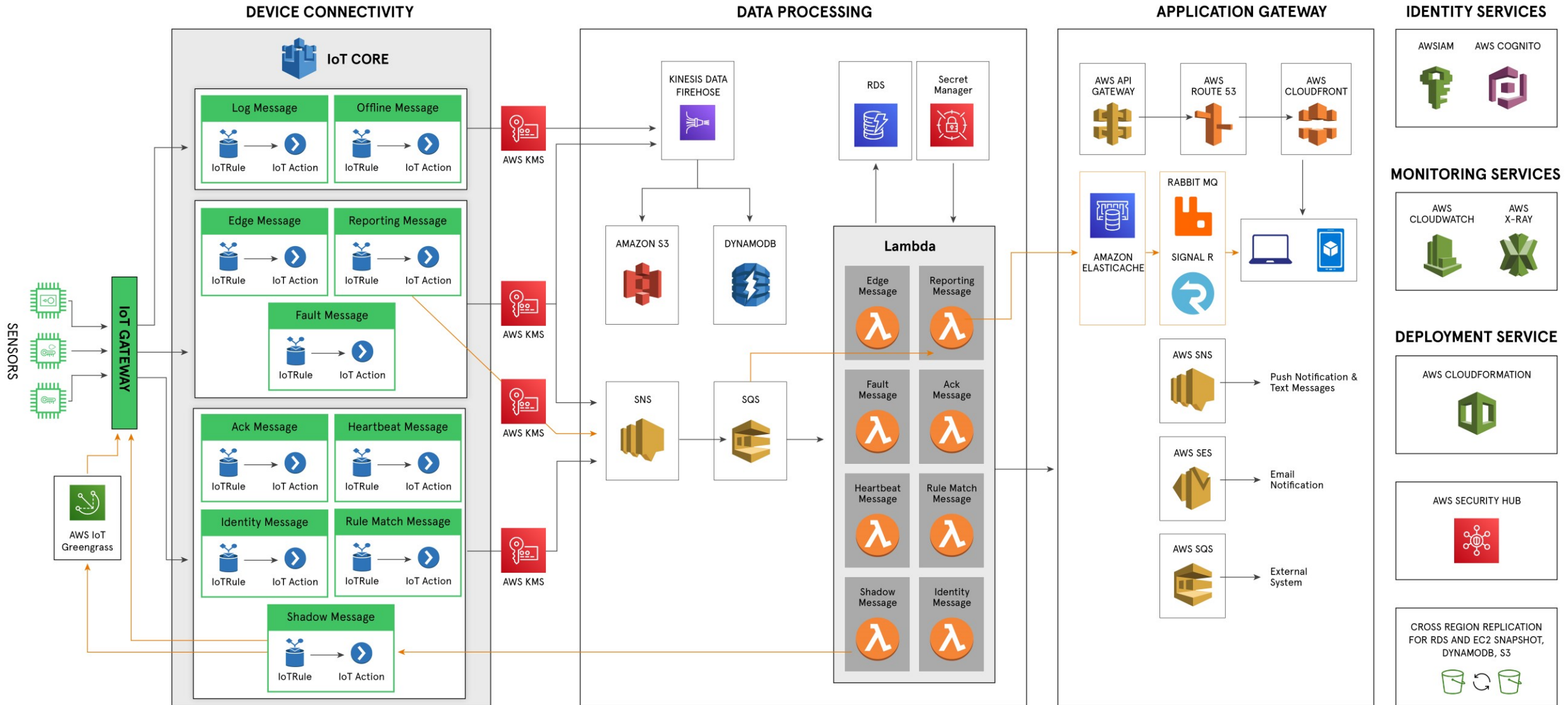
/IOTCONNECT[®] enables ALL devices types through a single pane of glass.

/IOTCONNECT Building Blocks w/ AWS



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

/IOTCONNECT Platform Architecture

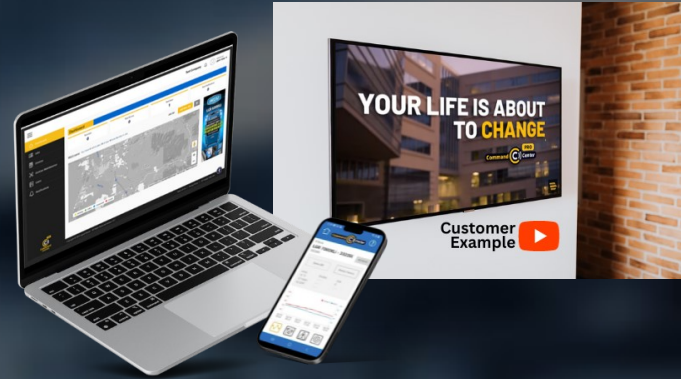


//IOTCONNECT Developer Personas



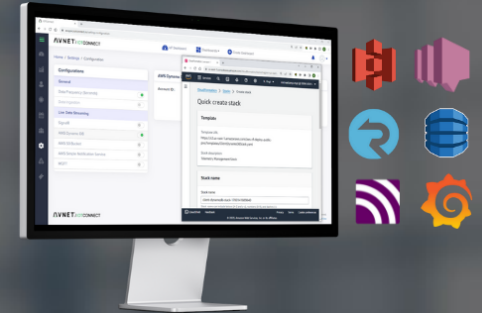
- Device, User, Roles, and Entity Admin
- Security manag
- Basic dashboarding
- Internal Ops

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



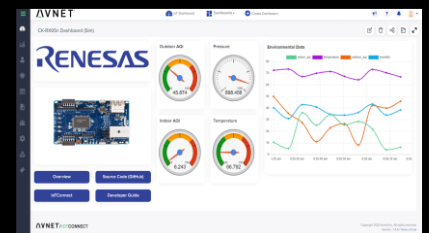
Platform-specific SDKs

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

5:1 CONFIDENCE

Date	Resource	Event Name	Condition	Severity
Jan 02, 2024 22:02:30	ml-ai-0000-01	Rule Matched	class = "liquid"	

AI/ML Audio Classification

MCI-RASYN

RENESAS EDGE IMPULSE SYNTIANT

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

MESSAGE COUNT: 0

Attribute	Time	Value
mciRasyn001	2024-01-12 01:23:15	
msgCount	2024-01-12 01:23:15	
mciRasyn001	2024-01-12 01:23:15	

Edge ML Voice and Motion Detection

NINJA

Grill State: ON

Grill Temp (F): 425

DEMO OVERVIEW

FW Version	Last Refreshed
01.03.00	2024-01-12 01:23:15

Device Command (SINAMAACLOT)	Executed On (UTC)	Status	Executed Count
set temp 500	Jan 12, 2024 01:23:06	Success	2
grill enable on	Jan 12, 2024 01:23:07	Success	1
grill enable on	Jan 12, 2024 01:23:09	Success	1
grill enable on	Jan 12, 2024 01:23:10	Success	2
grill enable on	Jan 12, 2024 01:23:12	Success	1

Consumer Indoor Grill