

/ Avnet /IOTCONNECT Solutions Suite

Smart Generator Monitoring

AVNET®

/IOTCONNECT®

Manage | Secure | Deploy



/ Solution Accelerator & Marketplace Index

/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 Generator Monitoring powered by IoT and AI

Our solution allows you to remotely control your generators from anywhere with an internet connection. You can schedule on/off times, monitor fuel levels, consumption, coolant, engine temperature, RPMs, noise levels, power output, capacity, and running hours, and detect anomalies. Sensors collect data from your generators and send it to our IoT platform via a gateway. Machine learning algorithms analyze the data, delivering insights to your mobile devices for health monitoring, scheduling, and predictive maintenance. In case of faults, the system sends email/text alerts, notifies a monitoring station, or triggers alarms. Key features include real-time fuel/leak monitoring, alert notifications for deviations, mechanical issue detection, root cause analysis, fuel theft alerts, remote management, interactive dashboards, and predictive maintenance capabilities.

Visit Our Marketplace Listings



avnet (8 results) showing 1 - 8 Sort By: Relevance

- AVNET IoTConnect**
By Avnet
[Free Trial](#) | [Vendor Insights](#)
Avnet's IoTConnect is a comprehensive solution accelerator software that facilitates IoT device connectivity, real-time monitoring, and advanced analytics. It offers seamless device integration, robust security, and easy and clear methods to gain valuable insights for businesses to optimize...
- AVNET Avnet's Smart City Noise Detection Solution: Harnessing IoT and AI**
By Avnet
Avnet's pre-defined and configurable smart city solution focuses on the system integrators' biggest challenges: complexity, security, and scalability. As a global technology distribution and solutions, Avnet brings decades of experience and capabilities to enable digital...
- softweb solutions Data and Analytics Consulting Services: Data 360 workshop**
By Softweb Solutions AN AVNET COMPANY
Data in 0's and 1's do not serve any purpose. Data is useful when it can unlock the potential of your business. One of the biggest challenges business users face is the volume of data they have to deal with. With so much data available, it can be difficult to know where to start....
- softweb solutions IoT 360° Program: Transform Your Business with Advanced IoT Intelligence**
By Softweb Solutions AN AVNET COMPANY
An IoT 360° program is a comprehensive approach to leveraging the Internet of Things (IoT) for business success. It encompasses various aspects, from connectivity and data capture to processing, analytics, and integration with human value. One of the benefits of an IoT 360° program is its ability to...
- softweb solutions End-to-End AI now: From Strategy to Deployment with Softweb Solutions**
By Softweb Solutions AN AVNET COMPANY
Artificial intelligence (AI) is not about replacing humans, but augmenting them by using AI to solve complex problems and make better decisions fast. AI360° is a comprehensive and human-centered approach to adopting AI and intelligence. It aims to help you speed up your...
- softweb solutions Softwebs' Gen AI 360° Program: Go beyond the hype, unlock real AI value**
By Softweb Solutions AN AVNET COMPANY
Forget the buzzwords and unlock the true potential of Generative AI (GenAI) with the generation of Artificial Intelligence, with Softwebs' Gen AI 360° program. Your compass, guiding you through the exciting yet complex landscape of GenAI, so you create exponential, lasting value...

AVNET IoTConnect

Sold by: [Avnet](#)
[Free trial](#) | [Vendor Insights](#)
Avnet's IoTConnect is comprehensive solution accelerator software that facilitates IoT device connectivity, real-time monitoring, and advanced analytics. It offers 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.

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Product Overview

Avnet's IoTConnect is a comprehensive solution accelerator software that facilitates IoT device connectivity, real-time monitoring, and advanced analytics. It offers 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.

Application accelerators and integrations: Through APIs, these accelerator templates focus on end applications giving a prebuilt, head-start for any solution design.

Advanced data analytics: Gain valuable insights from IoT data through real-time monitoring and customizable dashboards.

Robust security measures: Industry-standard protocols and encryption mechanisms ensure the security of data transmission and device authentication.

Deployment Manager capabilities: OEM's can deploy custom products and solutions within IoTConnect and have instant access to features like subscription management, billing and support.

Sold by: [Avnet](#)

Product Video: [See product video](#)

Fulfillment Method: [Software as a Service \(SaaS\)](#)

/IOTCONNECT Platform

0:00 / 2:34

PREVIOUS | NEXT

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.

All Avnet Listings



Smart Generator Monitoring Solution

Avnet's AI-based Smart Diesel Generator Monitoring solution, built on Amazon AWS, offers a comprehensive approach to safeguarding your business continuity. This end-to-end system provides centralized monitoring and control for multiple industrial diesel generators, allowing you to optimize performance, reduce costs, and increase reliability.



Real-time monitoring: Monitor the critical parameters of every DG in real-time and receive alerts via SMS/Email for immediate actions.



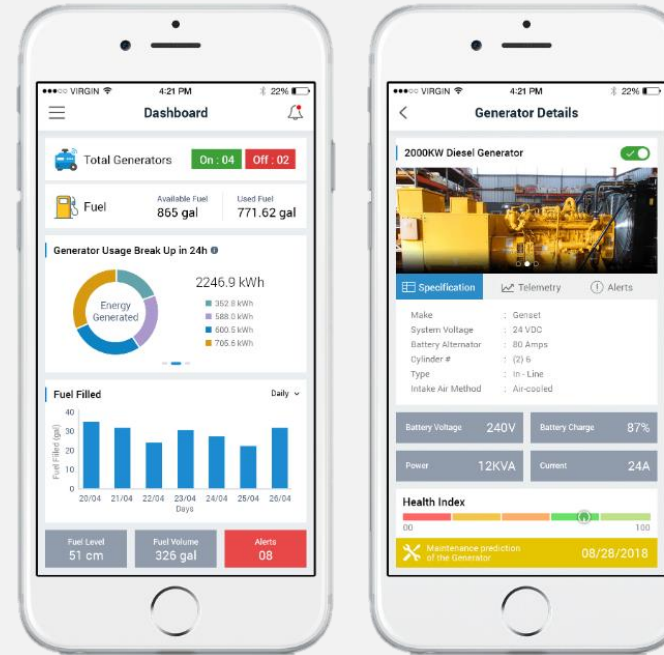
Security and surveillance: Constantly monitor the access of entry and exit points as well as people movement within the premises and get alerts when unauthorized access occurs.



Automated Scheduling: Turn your DG sets on/off remotely from anywhere by eliminating manual handling and experience increased user convenience.



Reporting Dashboard: Receive daily, weekly, or monthly reports on daily fuel consumption rate and easily identify a mismatch in energy produced and fuel consumed.



Features

- Real-time fuel/leak monitoring
- Sends alerts if there's any deviation
- Detects potential mechanical problems
- Root cause analysis
- Fuel theft alerts
- Remote management
- Real-time interactive dashboards
- Predictive maintenance

[Learn more](#)

[Marketplace Listing](#)

AVNET®

Helping Sutron gather real-time weather data with /IOTCONNECT

SITUATION:

- Customer looking to improve data management by connecting data loggers to a central system for real-time transmission to mobile devices.
- Require real-time data reception from Hydro-Met/Oceanic Monitoring and Control Systems

VALUE PROPOSITION:

- Softweb deployed its /IOTCONNECT platform which connects the data loggers with the central system and sends data to Sutron employees on their mobile devices.
- The LinkComm mobile app receives real-time data gathered from Hydro-Met/Oceanic Monitoring and Control Systems over the Internet.



INTEGRATED WITH THE FOLLOWING DATA LOGGERS

- Sutron SatLink 3 Data Logger – This unit monitors 32 independent measurements of most hydrological, meteorological, environmental or related sensors.
- Sutron XLite 9210 Data Logger – Data recorder and communications device ideal for remote real-time data acquisition, control, and communications.



→ [READ MORE](#)

DEPLOYING IOT WITH AVNET HAS ENABLED:

Seamless Data Integration: /IOTCONNECT Platform integrates data loggers with a central system, ensuring centralized and accessible data.

Mobile Accessibility: Enables remote monitoring and control, enhancing operational efficiency.

Enhanced Decision-Making: Real-time alerts and notifications for quick decision-making. Data analytics and visualization tools for informed decision-making based on accurate data.

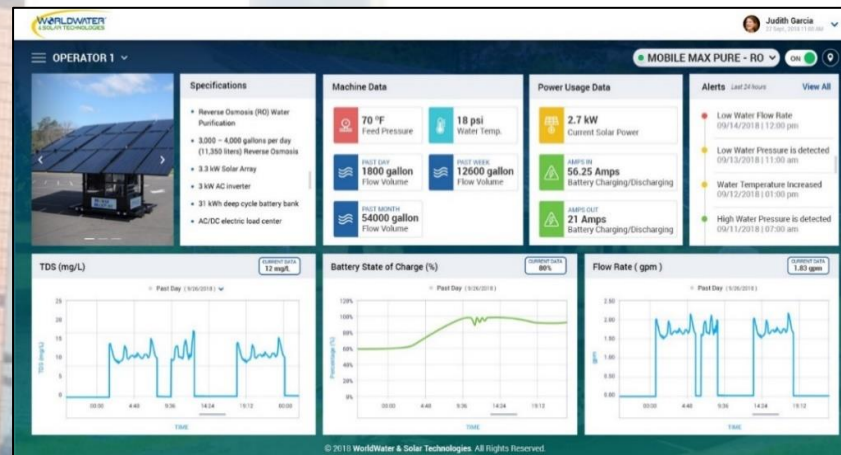
Water purifier solution Business case & IoT use case definition

SITUATION:

- They were looking for the solution that can help them to create web application to monitor and track their solar powered water purification systems.
- Company leases these machines to the operators, so they required a system to verify amount of water purified by the machines vs. reports from operators.

AVNET'S ROLE:

- IoT-based remote monitoring solution
- Custom hardware kit connected via Aeris
- Web application that monitors machine sensors



Industrial asset & remote monitoring solution

- Web application for remote monitoring
- Solar-power water purification tracking

→ [READ MORE](#)

DEPLOYING IOT WITH AVNET HAS ENABLED:

A web application that monitor the data points of machines from the various sensors such as pressure sensor, water temperature sensor, flow volume, flow rate sensor, TDS sensor along with the GPS to track location of machines.

Solution also provides all power or solar measurements i.e. current solar power, battery state of the charge.

This solution provides the alerts based on the rules defined within the system and Reports based on the usage of machines and other real time data of the machines.

/ Summary & Next Steps

Benefits

1. **Easy implementation:** Our Smart Generator 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. **Remote Monitoring and Control:** Enables remote management of generators, including scheduling on/off times, monitoring key metrics (fuel levels, temperature, RPMs, etc.), and detecting anomalies from anywhere with internet access.
2. **Predictive Maintenance and Insights:** Utilizes IoT sensors and machine learning to analyze generator data, providing actionable insights for health monitoring, predictive maintenance, and scheduling.
3. **Proactive Alerts and Issue Detection:** Sends real-time alerts for faults, deviations, mechanical issues, and fuel theft, ensuring quick responses and minimizing downtime through email/text notifications, alarms, and root cause analysis.

Next Steps

Let's team up to monitor your generator efficiently

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

**W
Witekio**

AN AVNET COMPANY

EMBEDDED SOFTWARE
DESIGN SERVICES

TRIA
AN AVNET COMPANY

EMBEDDED MODULES
& BOARDS

A

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

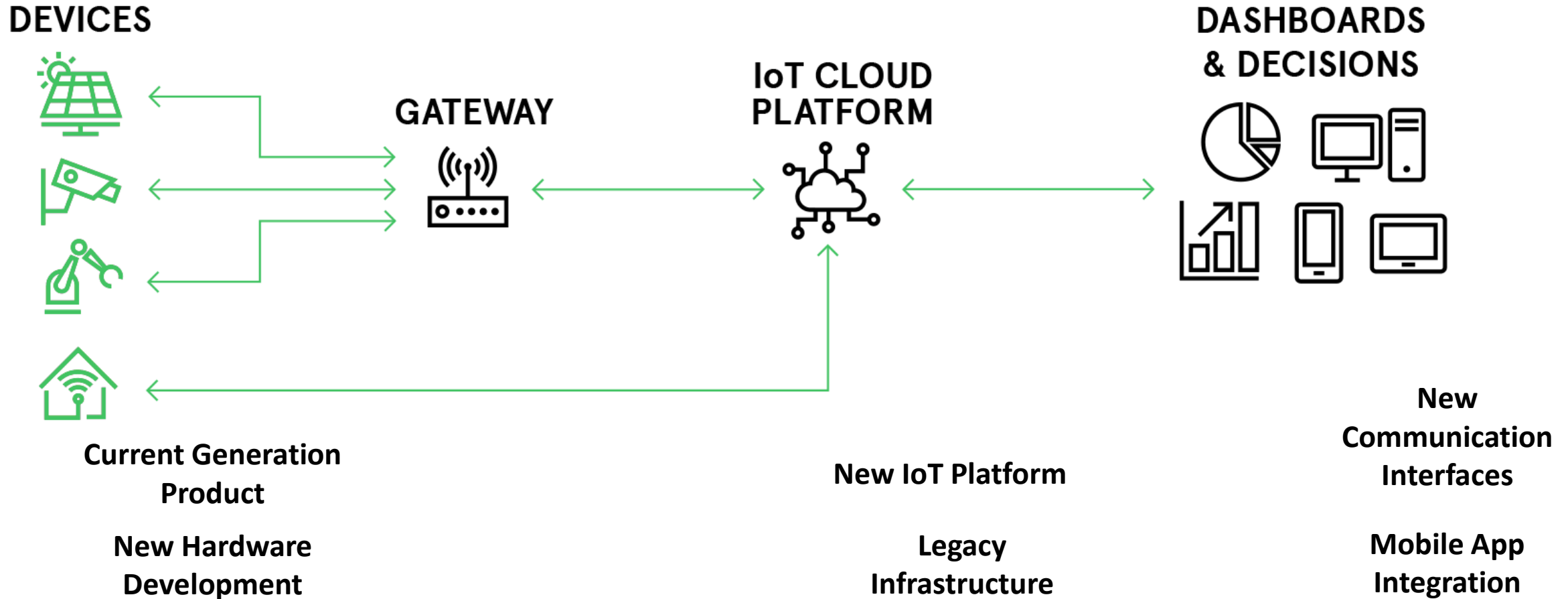


Lifecycle Management

Digital Managed Services, OTA updates, post sales support

Gives us Unmatched Capabilities

/ Challenge of IoT



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



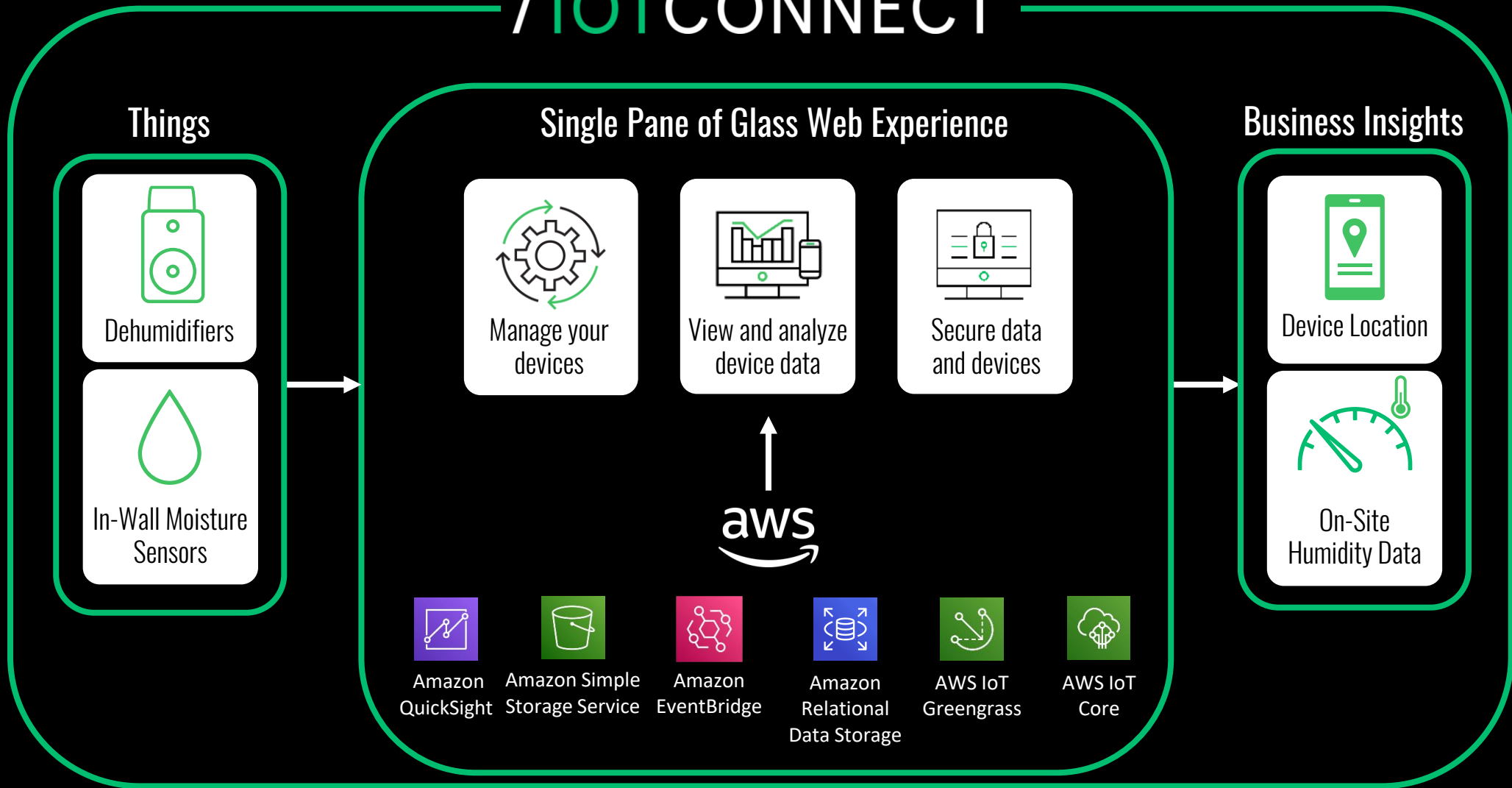
Device Location



On-Site
Humidity Data

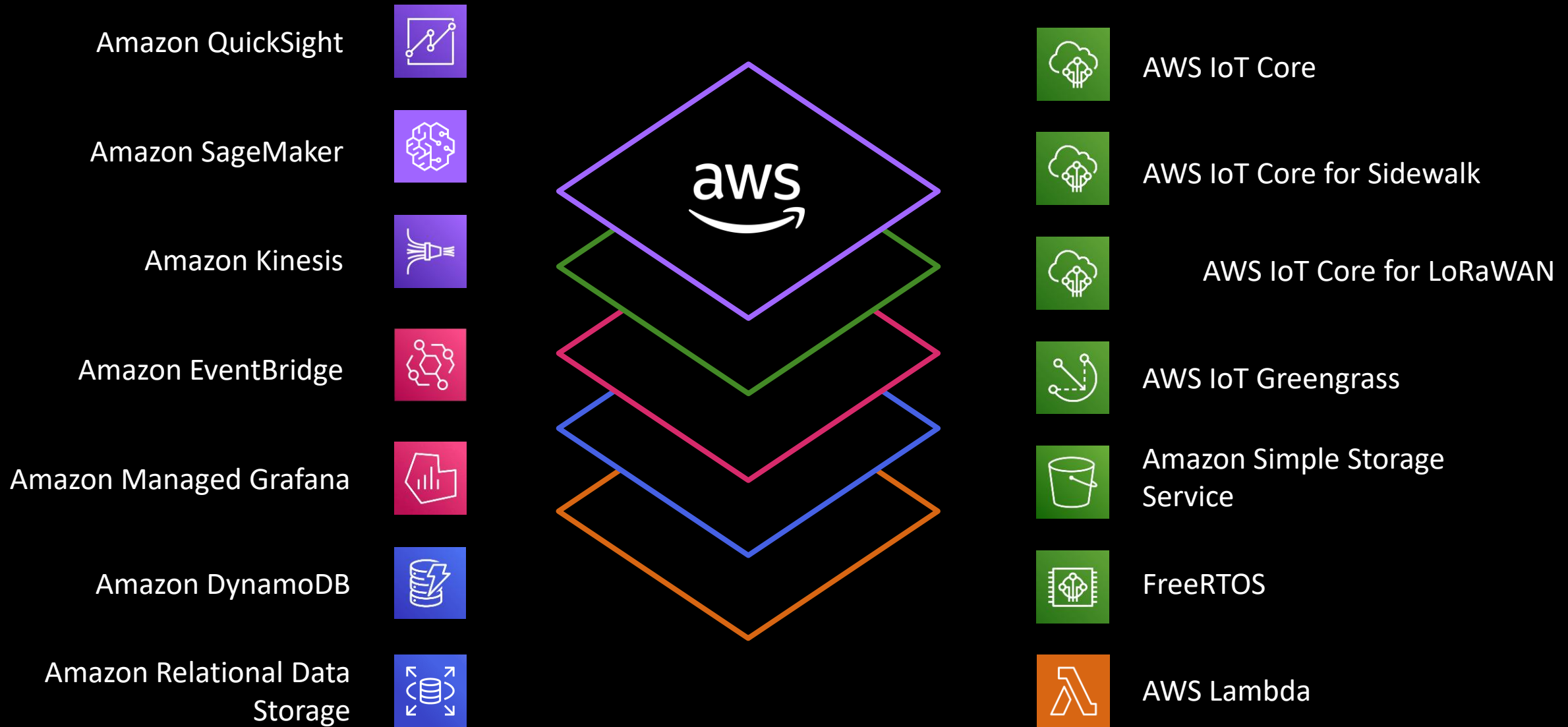
and **extracts valuable insights** to improve business intelligence

/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)

Command Center PRO

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

Command Center PRO

Next Steps

AVNET

/IOTCONNECT®

Avnet's Smart Generator Monitoring powered by IoT & AI

Challenges
Take remote control of your genset and obtain daily operational insights

Will a sudden power outage directly affect your overall productivity? Do you have a requirement to monitor generators installed at multiple sites?

If you answered "Yes" to any of the above, then Avnet's AI-based Smart Diesel Generator Monitoring is the solution you've been looking for to guard your business continuity. We monitor the vital KPIs that you require from your remote generators to help manage your business's efficiency and provide you with peace of mind.


- Better asset monitoring
- Improved equipment reliability
- Centralized monitoring
- Fuel monitoring and pilferage control

Avnet IoTConnect Solution
Drive down your operational costs with genset monitoring system

By implementing Avnet's Smart Diesel Generator Monitoring solution, you can significantly improve equipment reliability, streamline maintenance processes, and drive operational efficiency. The system's AI-driven insights and interactive dashboards provide total control over fuel consumption, performance, and maintenance scheduling, enabling proactive management and optimized generator performance through data-driven decision-making.

Whether you're managing a single generator or a fleet across multiple sites, this solution offers the tools and insights needed to ensure business continuity, reduce operational costs, and maximize the return on your generator investments.

Benefits



- » **Real-time monitoring**
Monitor the critical parameters of every DG in real-time and receive alerts via SMS/Email for immediate actions.
- » **Security and surveillance**
Constantly monitor the access of entry and exit points as well as people movement within the premises and get alerts when unauthorized access occurs.
- » **Automated Scheduling**
Turn your DG sets on/off remotely from anywhere by eliminating manual handling and experience increased user convenience.
- » **Reporting Dashboard**
Receive daily, weekly, or monthly reports on daily fuel consumption rate and easily identify a mismatch in energy produced and fuel consumed.

Avnet Contact: Gauri Kulkarni | Gauri.K@avnet.com

AVNET

es

Smart Diesel Generator Monitoring, built on Amazon AWS, offers a secure approach to safeguarding your facility. This end-to-end system provides centralized monitoring and control for multiple diesel generators, allowing you to optimize performance, reduce costs, and ensure business continuity.

Control & Scheduling
Turn generators on or off from anywhere with a mobile app or web interface. You can also schedule specific on and off times for your generators.

Comprehensive Monitoring
Monitor key performance indicators such as fuel levels, engine temperature, oil pressure, and noise levels. You can also monitor generator capacity and running hours to optimize performance.

Integration
Integrate your generators to collect data and send it to the IoT platform via a gateway.

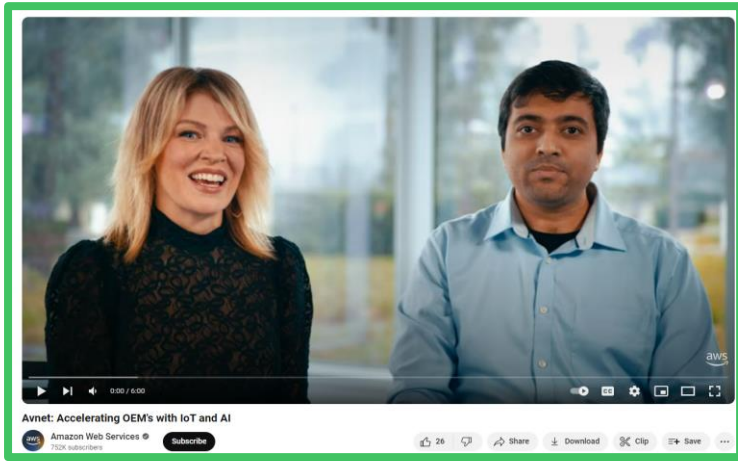
Available for a free trial on the marketplace

aws
Qualified Software

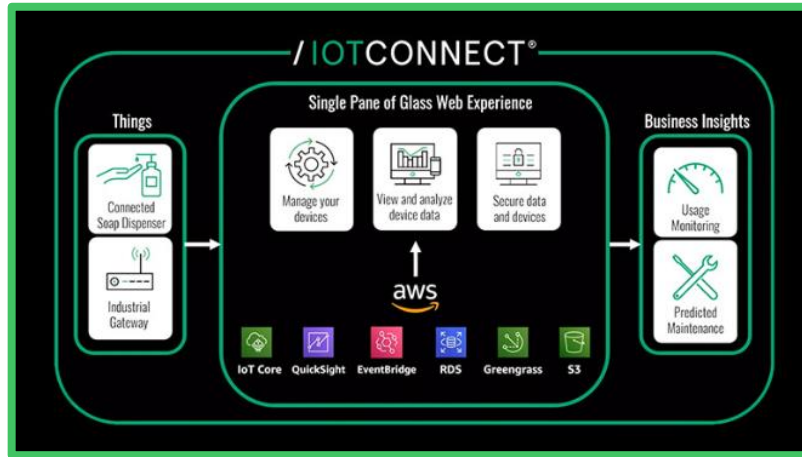
Contact us!

Learn more

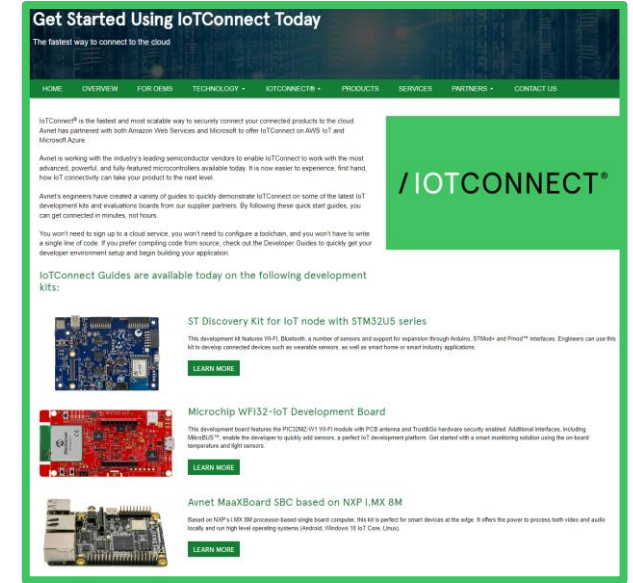
/Resources



[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 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

Device Command

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

Device
Types



Connected
Devices



Gateway &
Child Devices



Private
LoRaWAN
Base Station



Private
LoRaWAN
Concentrator



Public
LoRaWAN
Device

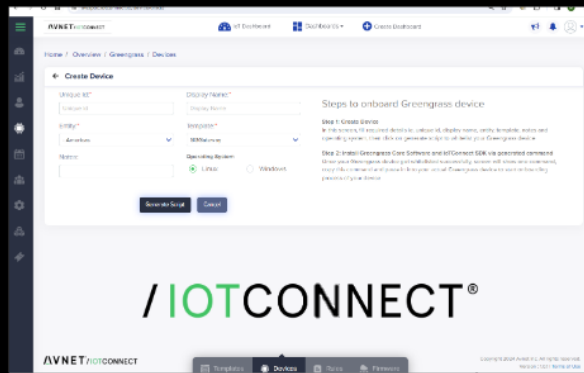


Amazon
Sidewalk
Device



Edge Server
or Gateway

Device
Enablement

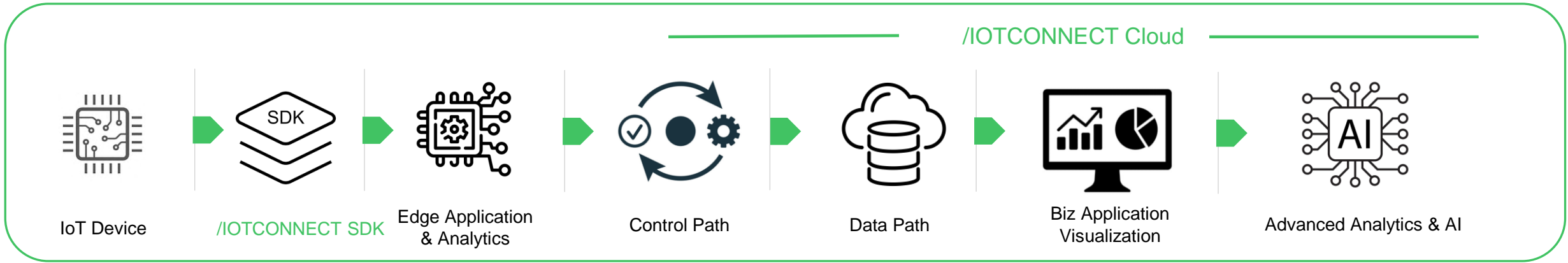


AWS IoT Greengrass



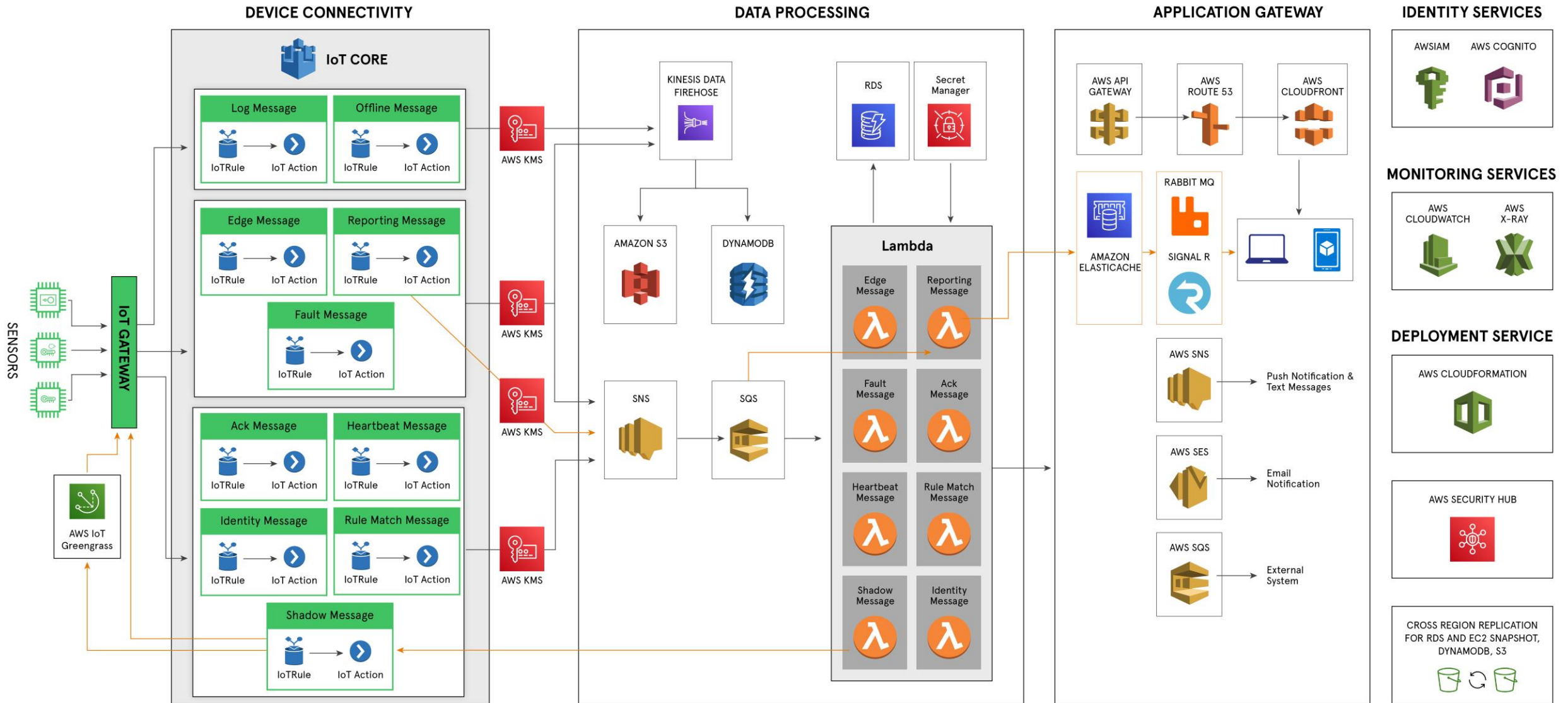
/IOTCONNECT enables ALL devices types through a single pane of glass.

/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

yocto
PROJECT



free
RTOS

Azure RTOS ThreadX



AWS IoT Greengrass

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: [Map]

Sound Generator (mciBMAX)

Notifications

| Date | Relevance | Event Name | Condition | Severity |
|-----------------------|-----------|-------------|----------------|----------|
| Jan 02, 2024 22:02:30 | High | Gun Matched | Class == "Gun" | High |

SENSOR 1 STATUS (S-1): NO ACTIVITY

S-1 CONFIDENCE: 100

Audio Channel: [2024-01-04 17:38:44]

CPU Usage: [2024-01-04 17:38:44]

AI/ML Audio Classification

McI-RASYN

RENESAS EDGE IMPULSE SYNTIANT

Commands: UP, DOWN, BACK, NEXT

MESSAGE COUNT: 0 (2024-01-02 01:23:10)

Telemetry

| Attribute | Time | Value |
|--------------|---------------------|-------|
| messageCount | 2024-01-02 01:23:10 | 0 |
| msgCount | 2024-01-02 01:23:10 | 0 |
| messageID | 2024-01-02 01:23:10 | 0 |

Command Usage (20-min): [Donut chart showing 65.7%]

Edge ML Voice and Motion Detection

NINJA

Grill State: ON

Grill Temp (F): 425

Temp Indicator: [Red circle]

Even Cooking Surface: [Thumbs up]

DEMO OVERVIEW

Temperature: [Bar chart showing increasing temperature over time]

Grill Movement and Position: [Line graph showing grill position over time]

Device Command (SINEMA_MCL01)

| Command | Executed On (UTC) | Status | Executed Count |
|-----------------|-----------------------|---------|----------------|
| set temp 500 | Jan 10, 2024 07:16:36 | Success | 2 |
| grill enable on | Jan 10, 2024 07:16:27 | Success | 1 |
| grill enable on | Jan 10, 2024 02:22:00 | Success | 1 |
| grill enable on | Jan 10, 2024 01:16:19 | Success | 2 |

Consumer Indoor Grill