

/ Avnet /IOTCONNECT Solutions Suite

Smart City Noise Detection Solution

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 City Noise Detection Solution: Harnessing IoT and AI

Avnet's Smart City Solutions address the growing concerns of public safety and noise pollution in rapidly urbanizing cities by leveraging IoT, AI, and advanced sensor technologies. The solution combines real-time monitoring and intelligent noise classification to provide cities with the tools to enhance situational awareness and optimize resource allocation for improved safety and security, as well as provide insights which can be used to mitigate the impact of excessive noise on residents' health and well-being. Avnet's /IOTCONNECT platform ensures scalability, data privacy, and ease of deployment, empowering city authorities to engage citizens, foster community responsibility, and build resilient, sustainable, and secure communities for generations to come.

Visit Our Marketplace Listings



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

- AVNET IoTConnect**
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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 IOTCONNECT 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 City Solutions

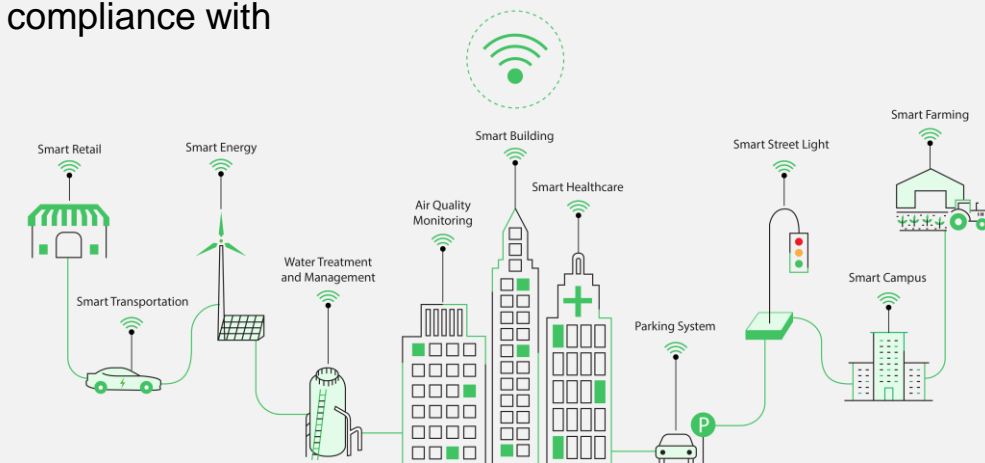
Avnet's smart city solution addresses complexity, security, and scalability, leveraging decades of experience and a partnership with AWS for advanced IoT, AI, and analytics. Our /IOTCONNECT platform and Smart City accelerator enable rapid, scalable digital transformation, optimizing resources and enhancing public services for improved urban living.

Easy implementation: Our smart city solutions are powered by a modern networking infrastructure platform that works with the current system with minimal disruption.

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.

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.

Proven scalability: The /IOTCONNECT® platform supports a wide range of application features, connected devices, users and analytics capabilities to meet future needs.



Solutions

- Smart Building
- Smart Environment
- Smart Water Treatment
- Smart Traffic Management
- Smart Parking
- Smart Energy
- Smart Farming

[Learn more](#)

[Marketplace Listing](#)

AVNET

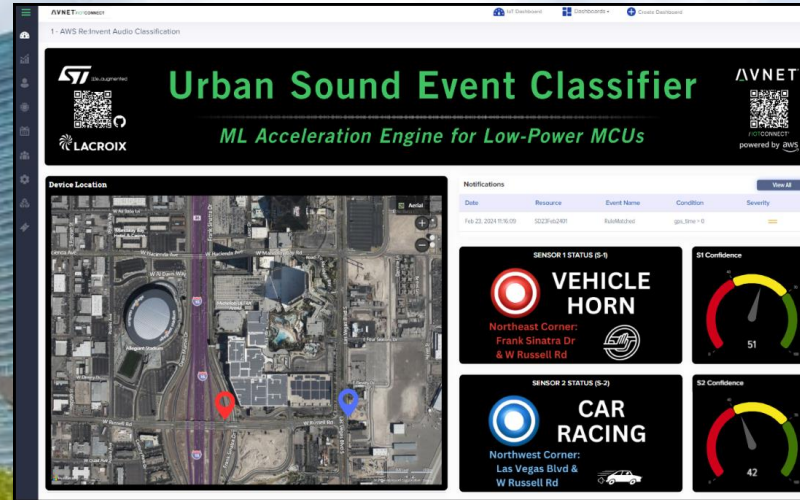
Urban Sound Event Classifier

SITUATION:

- Tackling the growing challenges of noise pollution and public safety in urban environments
- Providing city authorities with effective tools to monitor and mitigate noise disturbances
- Enhance quality of life for residents and improving urban safety

VALUE PROPOSITION:

Leveraging the robust capabilities of the B-U5851-IOT02A Discovery kit with STM32U5 Secure MCU for IoT, our solution is designed to deliver actionable insights, ensuring scalable, secure, and efficient urban management.



PROJECT SCOPE:

Originally developed from a collaborative GitHub project with AWS, this local version allows for streamlined, on-site operation using pre-generated AI model files under STMicroelectronics' SLA0044 license. This approach enhances the flexibility and responsiveness of urban noise management systems.

[→ READ MORE](#)

DEPLOYING IOT WITH AVNET HAS ENABLED:

Optimized for Efficiency - facilitates a straightforward local setup with pre-generated AI model files, eliminating the need for complex cloud integrations.

Advanced Noise Classification - system excels in distinguishing between various urban sounds—from traffic noises to human activity.

Harmonized System Integration – seamlessly integrate with existing urban surveillance infrastructure, augmenting city-wide noise monitoring & management capabilities.

Powered by /IOTCONNECT

Summary & Next Steps

Benefits

1. **Accelerating Edge AI:** The open-source /IOTCONNECT EdgeAI development framework integrates AWS ML services and STMicroelectronics AI solutions into a simple & flexible software framework, enabling ML model inference at the edge of wide-area networks.
2. **Performance and low power:** This breakthrough solution unlocks real-time processing, enhanced privacy, and continuous operation, driving innovation and redefining what's possible in multiple industries.
3. **Seamless OTA updates:** Enables users to easily manage, schedule, and perform AWS IoT over the air. (OTA) updates to seamlessly deploy new firmware to the ST-based hardware endpoints. New features and products fixes can be deployed at scale and in real time across wide areas and multiple devices remotely.

Outcomes

1. **Intelligent Noise Management:** Integrates acoustic sensors with AI to classify and analyze noise types, allowing city authorities to prioritize responses and take targeted actions to minimize the impact of noise pollution on residents' health and well-being.
2. **Real-Time Monitoring and Incident Response:** Provides real-time insights into noise pollution levels, automatically triggering alerts for safety-critical events like raised voices or car horns, enabling swift responses to prevent escalation.
3. **Enhanced Transparency and Community Engagement:** Empowers citizens by offering real-time noise level reporting, fostering community responsibility, and ensuring accountability for city efforts to reduce noise pollution through transparent communication channels.

Next Steps

Let's team up to make your city smarter

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

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



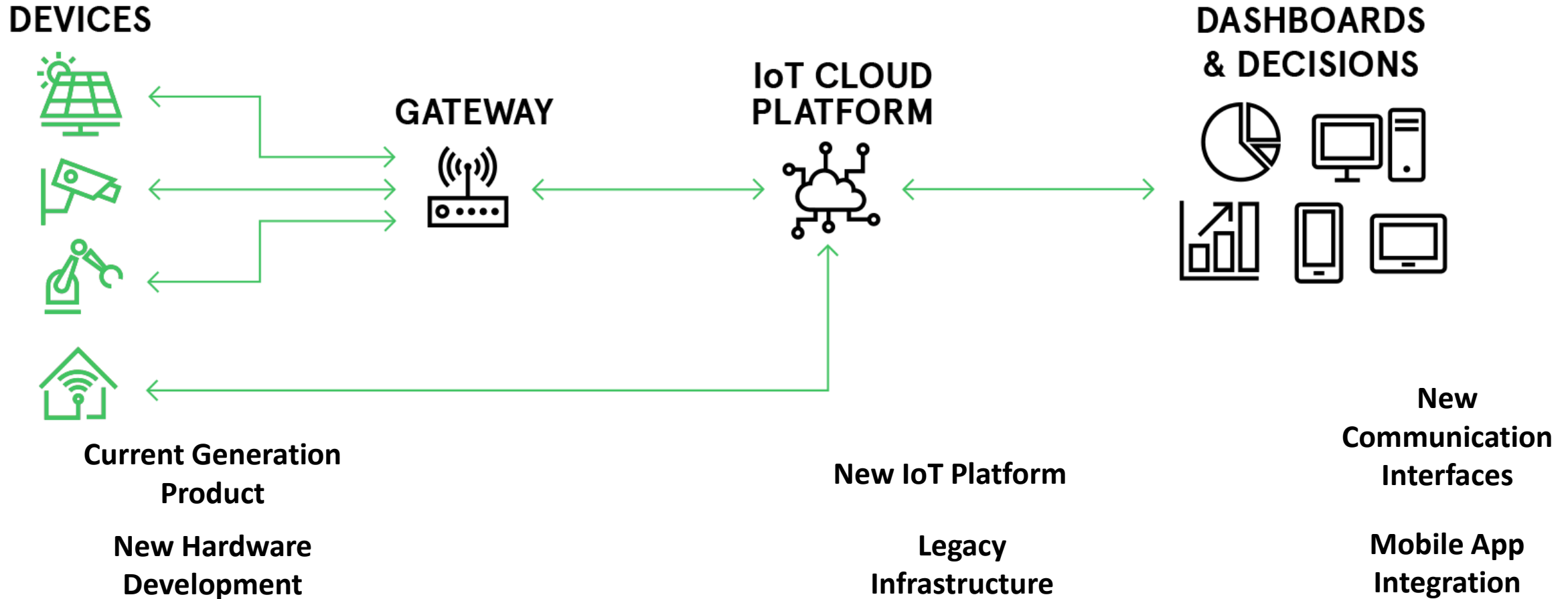
Lifecycle Management

Digital Managed Services, OTA updates, post sales support

Gives us Unmatched Capabilities

AVNET

/ 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



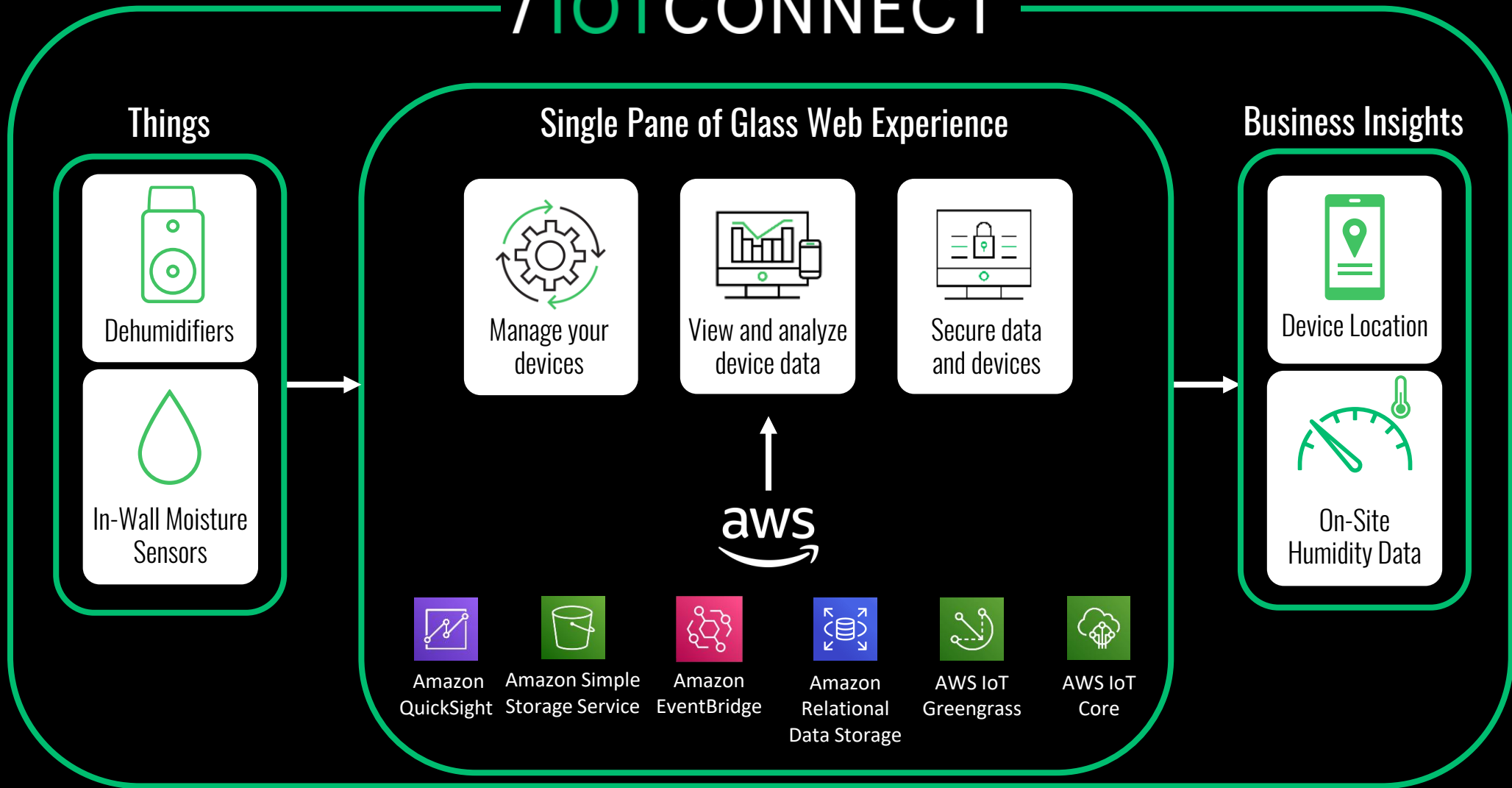
Device Location



On-Site
Humidity Data

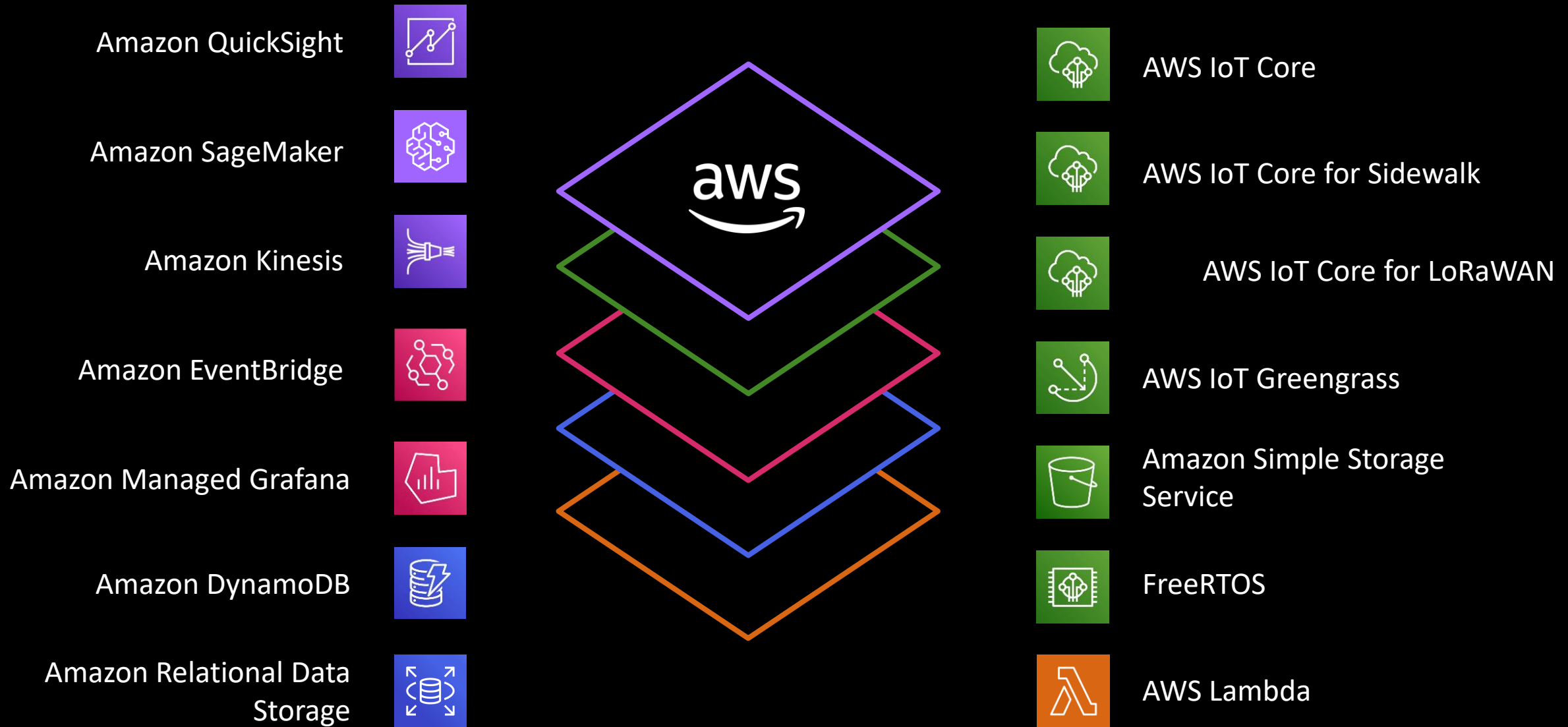
and **extracts valuable insights** to improve business intelligence

/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

Bringing the power of ML and AI to Smart City solutions

Challenges

Smart Cities require a complex supply chain of specialist suppliers

Smart city applications need to be easy to deploy, reliable, and adaptive. Bringing a solution to market involves multiple disciplines. It needs data scientists, hardware suppliers, and firmware developers, each a specialist in their field. These specialists operate in different hemispheres of the IoT.

A single application can require two types of intelligent solution. One sits at the edge; energy-efficient, always-on hardware running machine learning (ML) algorithms. These smart endpoints are the eyes, ears and brains of the solution.

The other uses powerful processors running neural networks and artificial intelligence (AI) in the cloud, to train the machine learning models. The cloud solution must also manage the smart endpoints, providing security and OTA updates.

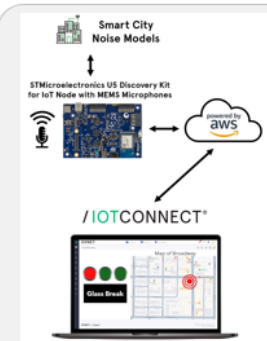
The AVNET Solution

Development and delivery as a seamless, end-to-end service model

Avnet provides the technology to successfully bring the two hemispheres of the IoT together. As a software technology provider, and world leader in electronic component distribution and supply chain management, Avnet delivers true end-to-end enablement to smart cities.

The success of smart city applications relies on the industry's leading semiconductor suppliers and the world's best IoT cloud platforms. Avnet's focus is on providing the technology and resources needed to connect smart city stakeholders with OEMs, semiconductor manufacturers and cloud providers.

Avnet is working with AWS to bring true end-to-end services to the smart city integrator.



Contact Avnet: [Here](#)

powered by aws

Benefits

Avnet's pre-defined and configurable smart city solution focuses on the system integrators' biggest challenges: complexity, security, and scalability.

Pre-integration

Avnet reduces complexity by providing IoT technology that is pre-integrated with the leading hardware solutions targeting smart city applications.

Security built-in

Avnet's IoTConnect software has security at its core. This security extends from the cloud to the edge of the network.

Designed to scale

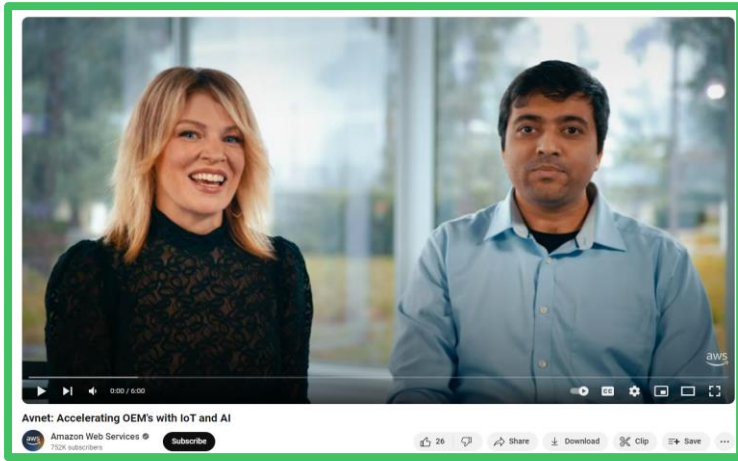
IoTConnect seamlessly scales from tens to millions of connected devices, with full lifecycle management for every endpoint, managed through the cloud.



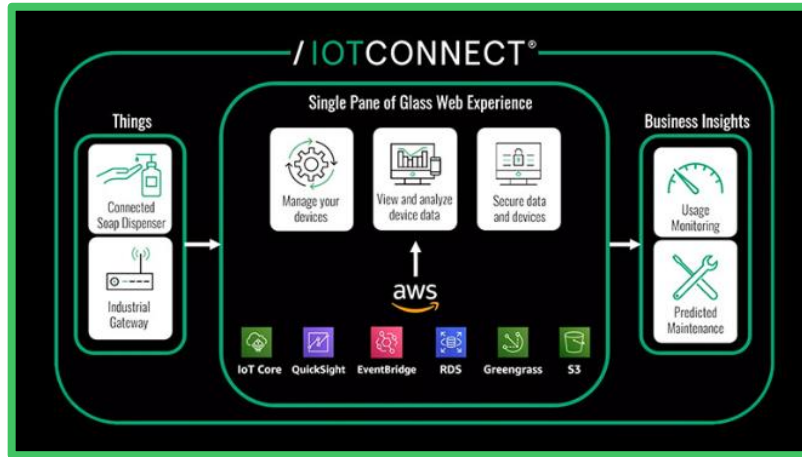
Contact us!

Learn more

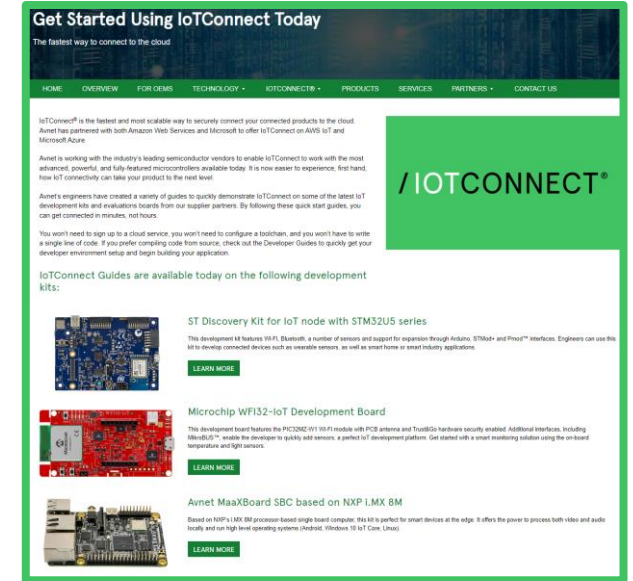
/Resources



[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 Prox™ 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

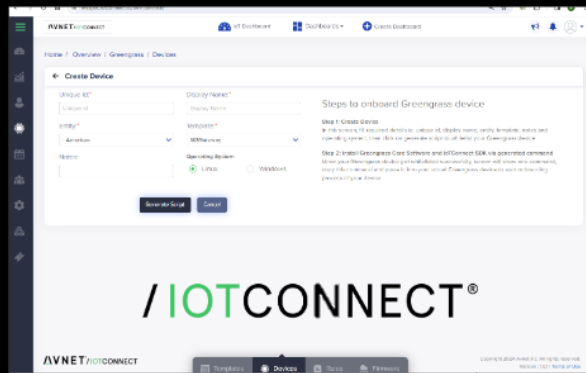


Amazon Sidewalk Device



Edge Server or Gateway

Device Enablement

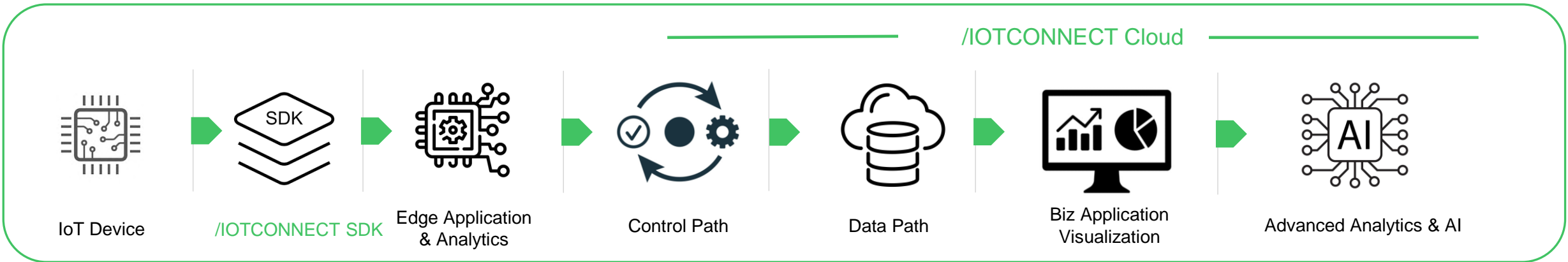


AWS IoT Greengrass



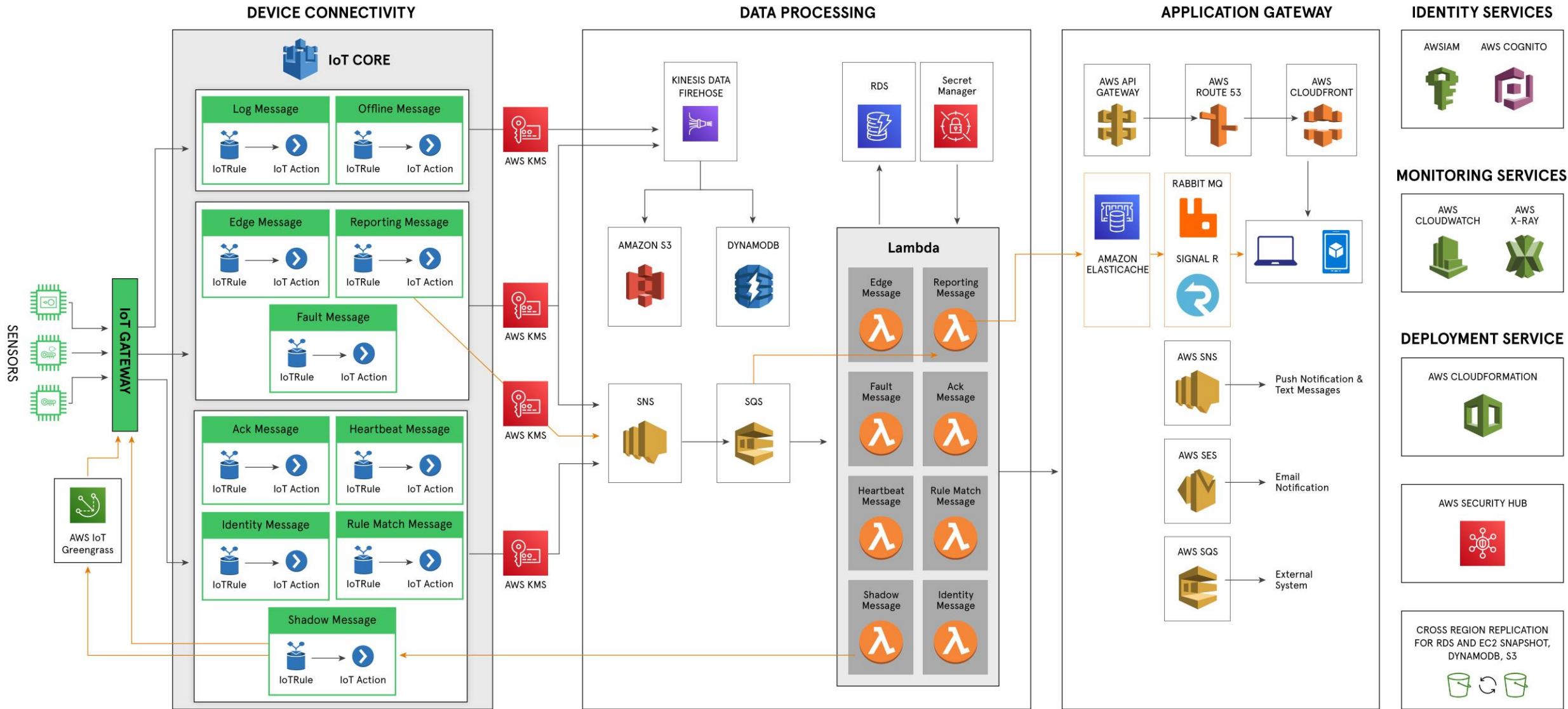
/IOTCONNECT enables ALL devices types through a single pane of glass.

/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



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)

NO ACTIVITY

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

AI/ML Audio Classification

McI-RASYN

RENESAS EDGE IMPULSE SYNTIANT

Commands: UP, DOWN, BACK, NEXT

MESSAGE COUNT: 0

Attribute	Time	Value
MessageCount	2024-01-12 01:23:15	1
msgCount	2024-01-12 01:23:15	1
MessageID	2024-01-12 01:23:15	1

Edge ML Voice and Motion Detection

NINJA

Grill State: ON

Grill Temp (F): 425

DEMO OVERVIEW

Command	Executed On (UTC)	Status	Executed Count
set temp 500	Jan 12, 2024 07:16:36	Success	2
grill_on/off on	Jan 12, 2024 07:16:27	Success	1
grill_on/off on	Jan 10, 2024 12:22:00	Success	1
grill_on/off on	Jan 10, 2024 10:16:19	Success	2

Consumer Indoor Grill