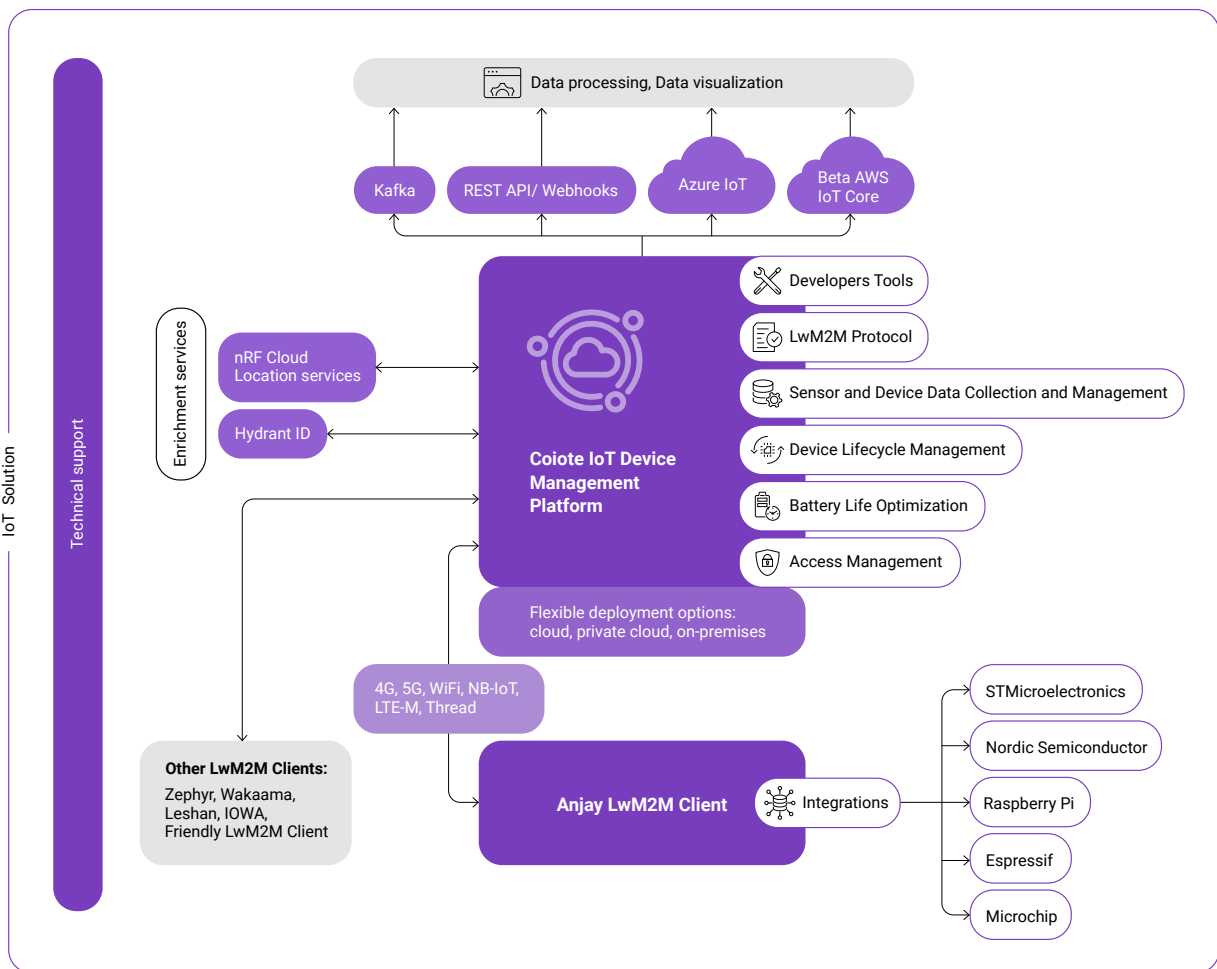




# Complete IoT Device Management Solution

All you need for prototyping, deployment, and remote management of connected IoT devices.

- Anjay SDK to build an LwM2M Client
- LwM2M-based Coiote IoT Device Management Platform
- Cloud connections and 3<sup>rd</sup> party solutions enablement



## Why should you build a LwM2M-protocol based IoT application?

- The LwM2M protocol was created to **enable highly scalable IoT device management**
- **This standard enables efficient communication**, because it uses CoAP (Constrained Application Protocol) over UDP (User Datagram Protocol), which is a lightweight and highly efficient transport protocol.
- It ensures **interoperability** which simply means you can manage devices from different manufacturers using different communication technologies from a single system
- It was designed with **security in mind**, which is crucial for IoT devices
- LwM2M was **designed to reduce complexity and effort** related to IoT device management and overall IoT operations
- LwM2M was also optimized to work **for resource-constrained devices deployed in challenging network environments**
- LwM2M is an open standard which helps you **avoid vendor lock-in and make the adoption easier**
- The standard assumes **unified data format for different types of devices** enabling easy data transfer to the cloud and further data analytics

# Anjay IoT Software Development Kit

Make complex IoT development easier at each step



**Standardized security, telemetry data collection, firmware updates and device management operations with LwM2M protocol**



**Easy deployment of Anjay SDK to IoT projects with ready pre-integrations for hardware platforms**



**Plug-and-play connections with popular IoT data cloud services**



**Free testing of connected devices with Coiote IoT Device Management Platform**



**Excellent technical support during device configuration and after deployment**

## Anjay IoT SDK Overview

**Anjay IoT Software Development Kit** has been developed to help you build secure and efficient IoT solutions for low-power devices and networks easier. The LwM2M protocol enables you to make the development process much faster. You can simply use standardized solutions covering security aspects, data format, efficient communication, reduced power consumption that enable you to achieve interoperability and scalability.

With various integrations with popular hardware platforms, cloud providers, and 3<sup>rd</sup> party solutions, you can easily integrate it into your IoT projects. **You can develop a working IoT device within half an hour.**

All of that reduces the complexity of development and deployment and makes the project usable and scalable in the future. You avoid costly and time-consuming communication protocol development and its integration with underlying hardware by using out-of-the-box LwM2M components, and painful development processes of integrating chipset with radio modules and cellular connectivity components.

### **What can you do with Anjay IoT SDK?**

Once you build your LwM2M Client with Anjay IoT SDK you can develop an end-to-end IoT solution with the use of Coiote IoT Device Management Platform and manage key sensor and device operations:

- Send telemetry data to the cloud
- Push firmware and software updates easily and in a secure way
- Ensure secure device provisioning
- Monitor devices and their performance remotely
- Optimize power efficiency for low-power devices and networks

You can be also sure that all those actions can be performed smoothly when you scale up your projects. The LwM2M protocol makes it simple.

### **Implement Anjay IoT SDK easily with ready-made integrations**

Building an IoT device requires taking into account many aspects of the IoT solution layers. To make it easier, we partnered with various technological companies, to deliver full-blown integrations to easily build a secure LwM2M Client with our Anjay IoT SDK.

Integrations with:

- popular hardware platforms
- embedded platforms
- various connectivity technologies
- cloud services providers
- secure elements

## **Speed up your work with development tools**

Our embedded team understands your IoT development challenges and works also on useful features that speed up your work and make your daily work easier.

- Hardware in the loop testing platform with CI/CD integrations
- Rapid device prototyping framework for Linux & Raspberry Pi
- Factory device provisioning
- LwM2M testing shell

## **Get support from embedded developers**

During IoT device development, you may have many questions about device design decisions. Understanding that this phase is crucial for the success of the project, we offer you a variety of support options:

For everyone:

- Discord Support
- Documentation on Github
- Devzone
- Demos

For our commercial customers:

- Email Support
- Dedicated Support Team



## Receive technical maintenance support

Once you finish your device development, and deploy your solution, your IoT project will need further maintenance. Understanding that, we deliver technical support options:

SERVICES	SUPPORT PACKAGE		
	DEVELOPER	STANDARD	PREMIUM
Community Support	+	+	+
Software Fixes	+	+	+
Product Demo	+	+	+
Software Versions Updates	+	+	+
Commercial Features Updates		+	+
Build Config Added to CI Tests		+	+
Target Hardware Testing & CI			+
Solution Optimization Questions			+
Dedicated Embedded Engineer			+
Support Channel	Community (Discord)	Support Platform	Support Platform
Response Time	Best effort	3 Business Days	1 Business Day



## Try open source Anjay IoT SDK for free and add commercial add-ons when needed

Anjay IoT SDK is an open-source solution and you can apply it to your IoT projects for free when you have up to 100 000 devices. In addition, we offer a set of commercial add-ons that can reduce your device development time and shorten your PoC phase.

### Anjay LwM2M IoT SDK Features

#### Open-source Anjay

##### Features:

- Device Management:
  - Secure Firmware update for integrated hardware (single and group updates)
  - Multi-component firmware update for integrated hardware
  - Device Registration and Bootstrapping
  - Device Monitoring
- Sensor data collection and efficient telemetry data transport presented in unified data structure in line with IPSO Objects
- Support for CoAP over UDP & TCP
- Secure communication: Datagram Transport Layer Security (DTLS) and TLS
- Transport Security Modes: NoSec, PSK, Certificates
- DTLS ConnectionID - MbedTLS dependent
- Support for LwM2M v1.0, v1.1, v.1.2
- Open Source code on BSD-like licence available on Github
- Pre-implemented LwM2M Objects: Access Control, Security, Server,



Firmware Update, IPSO (Internet Protocol for Smart Objects) single and three-axis sensor objects

- Resource observation
- Client core (Registration and Observations) persistence
- Thread safety handlers
- Object Code generator to reduce development time
- Log data collection (server data)
- Automatic Attributes storage and management
- Compiler Agnostic - support for GCC/IAR/Keil/Clang
- Object State Persistence
- Transport Security Modes: NoSec, PSK, Certificates
- Log data collection (server data)
- Automatic Attributes storage and management
- Compiler Agnostic - support for GCC/IAR/Keil/Clang
- Object State Persistence

### **Integrations:**

- Hardware from Nordic Semiconductor, STMicroelectronics, Microchip, Espressif & RaspberryPi - over 100 boards and more to come
- Embedded platforms: [Zephyr](#), [FreeRTOS](#), AzureRTOS, [MbedOS](#), [Linux](#), Android, [I-CUBE-Anjay package for STM32, ESP32](#)
- Hardware Security Modules: Microchip ATECC608B TRUST
- Connectivity: NB-IoT, LTE-M, WiFi, Ethernet, 4G, 5G, Thread
- Cloud services integrations: AWS Cloud, Azure Cloud, nRF Cloud Connector

[Open Anjay LwM2M library>](#)

### **Commercial add-ons:**




- Custom Hardware Support

- Core Persistence
- Enrollment over Secure Transport (EST)
- File System Data Model (FSDM)
- Hardware Security Module: PKCS11 and PSA
- IoT SAFE
- Non-IP Data Delivery
- Transport Security Modes: OSCORE
- SMS Binding
- NIDD Binding
- Bootstrapper (smart card bootstrap)

[Read more about Commercial features>](#)

## Coiate IoT Device Management Platform

Deploy comprehensive IoT device management from the start and **scale it up easily**

 <p><b>LwM2M open standard platform that grows with the number of devices</b></p>	 <p><b>Business plans with features, excellent technical support and costs adjusted to the current stage of the project</b></p>	 <p><b>Technical experience in scaling up projects confirmed with smaller and larger deployments</b></p>
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### Coiate IoT Device Management Platform Overview

With Coiate IoT Device Management Platform, you can easily manage all your IoT devices and sensor data, and monitor device operations throughout

their entire lifecycle. It simplifies device management across various radio communication technologies (Cellular, WiFi, Thread) in a unified way and easily integrates with cloud services.

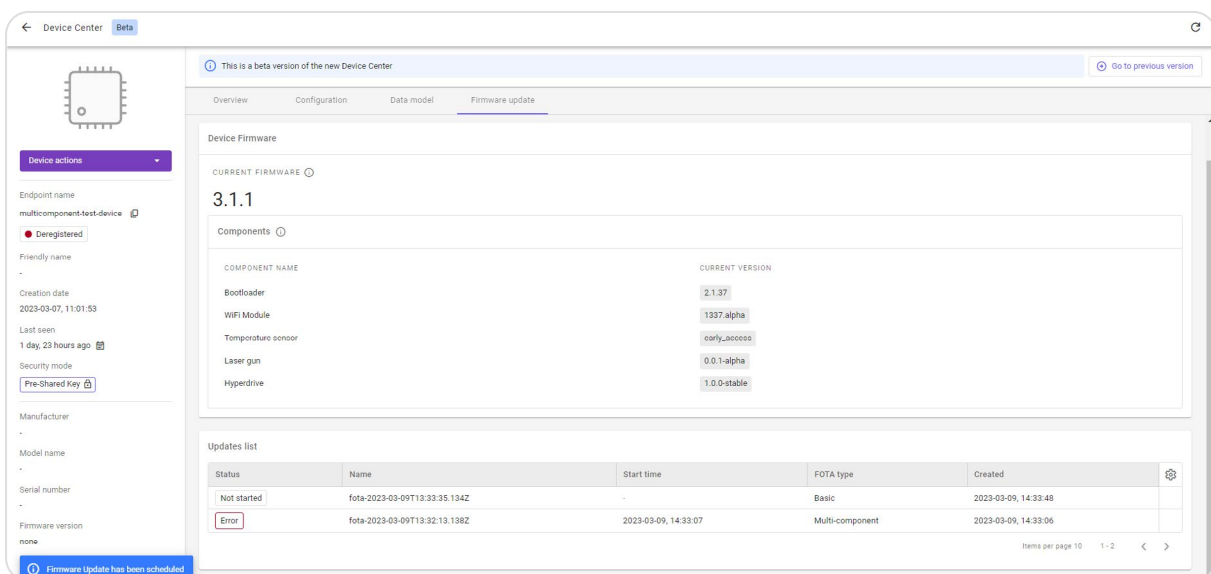
As a result, you can scale your IoT projects easily. You don't need to worry about interoperability, connectivity, security issues, or various data formats. Simply run comprehensive data analysis and manage devices efficiently. Choose LwM2M features from 1.2, 1.1, 1.0 protocol versions.

## Coiole IoT Device Management Platform features

### Push FOTA updates to IoT devices remotely

Maintain the functionality and security of IoT devices, and reduce human intervention with remote robust firmware update features:

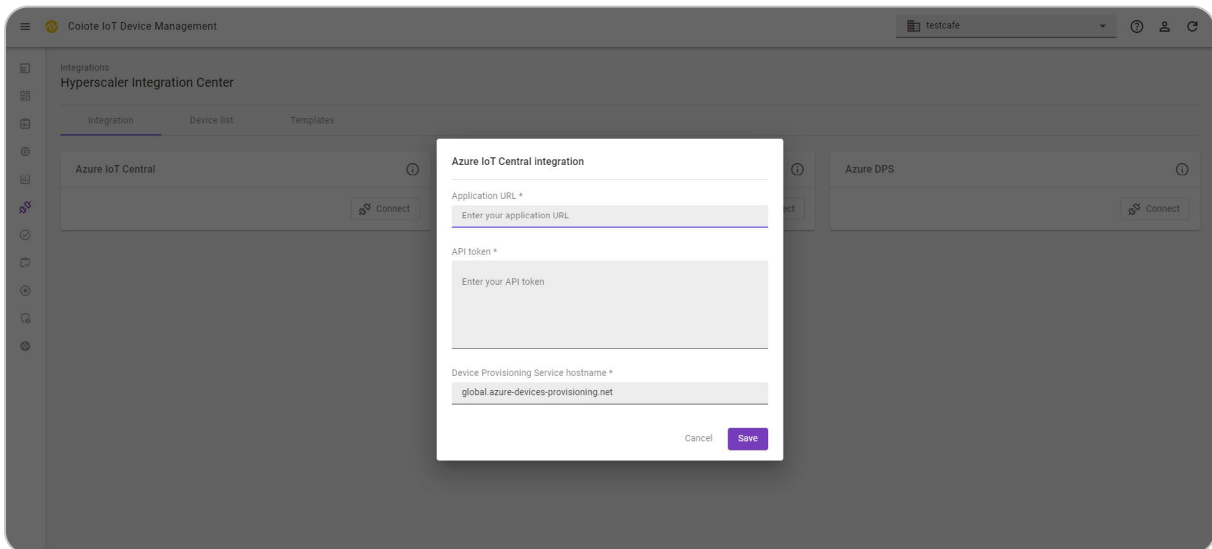
- Secure firmware update
- Multi-component update of only modem, application or bootloader
- Multi-processor device update
- Single device and device group updates



## Send Telemetry Data to the Cloud

Collect data from your sensors, and send them directly in the unified data format to the cloud thanks to various options of data integrations:

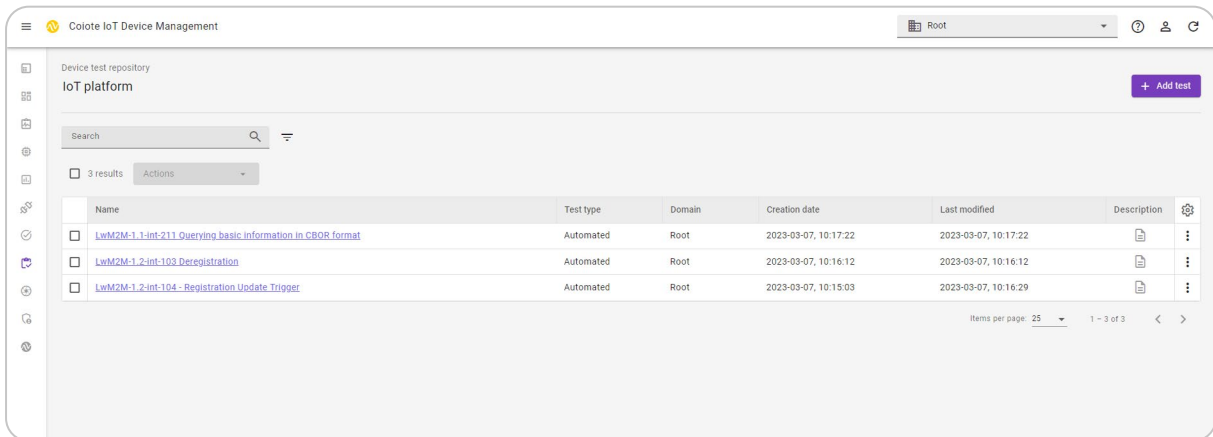
- Kafka
- Webhooks
- REST API
- Azure IoT Hub
- Beta AWS IoT Core



## Get developer tools to make prototyping easier

Take advantage of our expertise in embedded systems, cloud environments, IoT platforms, and developing custom solutions. Apply our tools for developers to rapidly prototype your solutions:

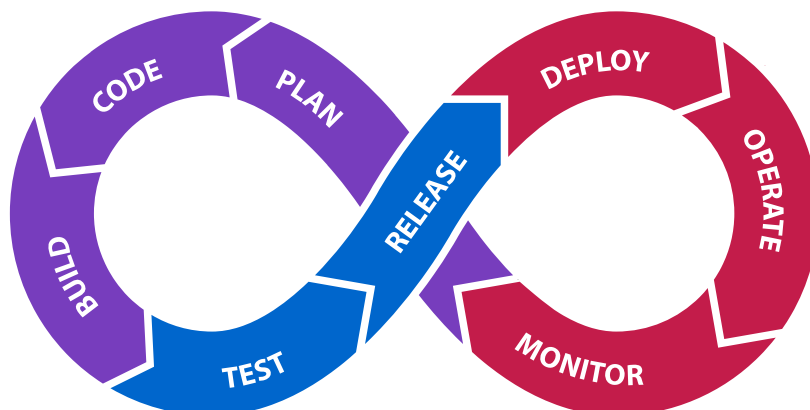
- Time series data visualization of device sensors
- Hardware in the loop testing
- Logs collection (server-side logs)
- Extensive platform REST API



## Implement complete IoT Device Lifecycle Management

Employ basic and advanced IoT device lifecycle management features depending on your project scale.

- Secure and Zero Touch Device Provisioning with factory provisioning tools, EST and IoT SAFE
- Extensive device bootstrapping functionalities
- Secure FOTA updates
- Multi-component OTA updates
- Device fleet management and device health Monitoring (SMS/ Email alerts)
- IoT Operation Center supporting End-to End Lifecycle Management (Commissioning, Provisioning, Proactive Maintenance, Deprovisioning, Decommissioning)
- Business Logic Automation

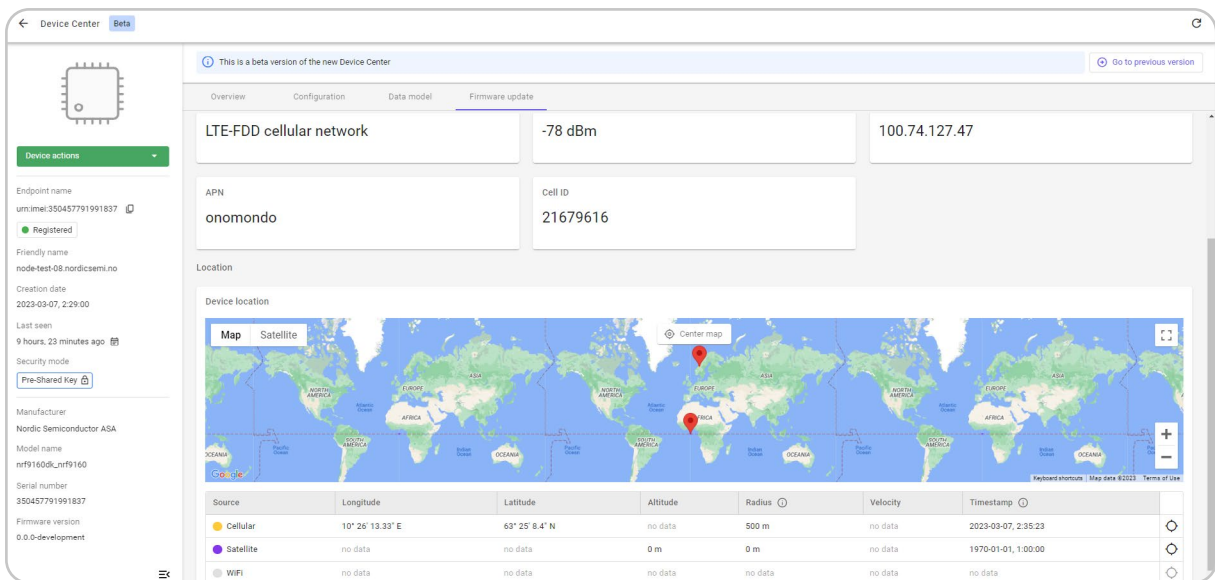




## Integrate other IoT platforms for better device management

Enrich your solutions with integrated data and device services coming from other IoT Platforms.

- nRF Cloud Location services
- Hydrant ID
- WiseKey INeS



## Optimize battery life

Extend the life of the IoT device and avoid unnecessary and costly device replacements. Minimize the energy consumption by the device and improve the battery capacity with LPWAN-optimized solutions:

- Minimization of costly TLS handshakes and session resumptions
- Highly efficient data encoding based on CBOR
- Release assistance indication (RAI) support
- Discontinuous communication support with LwM2M queue mode

## Get outstanding technical support

Experience outstanding support from our team of highly skilled engineers, acknowledged by our clients for their responsiveness and technical expertise.

- Dedicated Customer Success Engineer and/or Technical Account Manager for Enterprise Customers
- Help Center and email communication to support all types of issues for Business and Enterprise Customers
- Community support via the Discord channels for all Customers



## Get a scalable offer

To ensure that the offer is aligned with the size and stage of your IoT project, we enable you with a scalable offer that allows your project to grow with us.

- **Different business plans** - Developer, Business and Enterprise plans with platform features adjusted to the scale
- **Predictable costs** based on the number of devices
- **Different technical support options** from excellent engineering professionals

## **We will help you to build your IoT solution**

With our experienced engineers, you will integrate our platform much easier with your existing technology stack. Our solution architects and embedded engineers, thanks to their vast experience, will provide you with suggestions on the best solution design and recommendations for further optimizations.

Thanks to our ready-made integrations with cloud providers and 3rd party services via REST API and Kafka, you can expect that the service delivery process will be really smooth.

## **Need something special? We want to support different projects.**

If you need to implement the solution with other than SaaS installation, our technical team can prepare a customized offer for your specific project.





## Why is AVSystem the best choice?

We are the technological company and as developers we build solutions for developers.

We understand that IoT projects need stable, reliable partners to continue your project over the long run. How do we ensure that?

AVSystem's products are market-proven. We have cooperated with companies from various verticals, supporting both small and large deployments. We reached 200 employees and constantly grew with bootstrapping.

We have a clear vision for our product development which is focused on building solutions for now and for the future, and making them easy to deploy. We also provide long-term, responsive support that you need to make your projects successful.

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