The Zentri Secure IoT Platform

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Zentri's Secure IoT Platform empowers industrial, commercial, and consumer product companies to securely build, launch, manage, and scale cloud-connected products. With Zentri, connected products are successfully delivered to market in weeks or months, not years. The platform helps product companies maintain focus and valuable resources on their core business while extracting the most value from new sources of data.

Audience

This document is primarily intended for those looking to add wireless connectivity to transform their business from a 'product-only' business to a 'connected experience.'

Use Cases

A kitchen appliance that can receive recipes from a smartphone, allow remote updates for firmware and new features, and let the user save and store their settings in the cloud.

A drilling and construction equipment manufacturer uses wireless sensors to monitor the drilling status and equipment components. The equipment's firmware and software are upgraded from a central location and its data is securely transmitted to an off-premises cloud for trend analysis and auto-workorder generation.

An industrial lighting company that deploys hundreds of light fixtures in large commercial spaces. The company monitors the bulb's energy consumption and failure rates and provides preventive maintenance. The lighting fixtures are equipped with Wi-Fi connectivity, software on the product to collect and transmit sensor information to the customer's selected cloud provider, and a management system to enable the software's over the air updates. For battery powered emergency lights, automatic battery test results are reported to the cloud ensuring utmost care and accuracy in emergency preparedness.
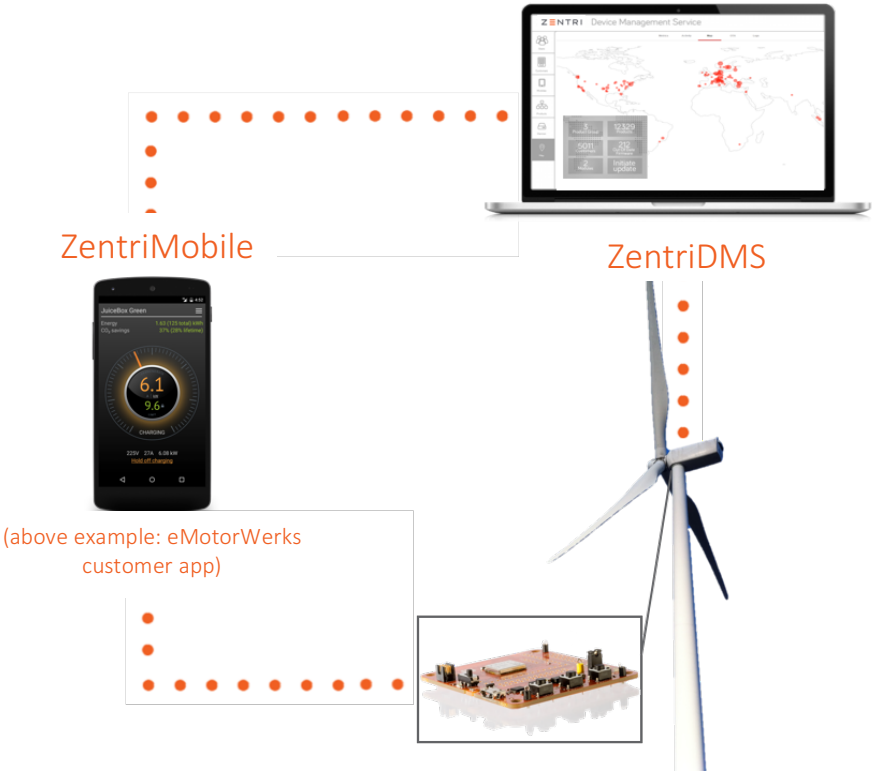
BUILD > LAUNCH > MANAGE > SCALE

The Zentri Secure IoT Platform

ZentriMobile

ZentriDMS

(above example: eMotorWerks customer app)

The Secure IoT Platform is a resource efficient software stack that spans:

ZentriMobile

Mobile app SDK (software development kit) that forms the foundation of a mobile app to wirelessly manage and control the product.

ZentriOS

The embedded software that runs on the product's wireless hardware.

ZentriDMS

A cloud based service for managing and monitoring deployed products; connects to other cloud services for analytics, machine learning, and more.

ZENTRI SECURE IOT PLATFORM

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ZentriOS

A key component of the platform is ZentriOS, a revolutionary operating system purpose-built for secure connectivity for commercial grade IoT products. ZentriOS runs on both Zentri Wi-Fi and Bluetooth LE modules and on the hardware from major silicon vendors such as Broadcom, Cypress, NXP, ST Micro, Atmel, and more. Secure, authenticated connectivity to the cloud and mobile app starts here.

ZentriOS for Wi-Fi or Bluetooth Low Energy (BLE) is designed to substantially reduce design effort and aid time-to-market. ZentriOS provides a command-driven and scripting interface to communications, sensor peripheral, file system and OTA wireless upgrade functions.

ZentriOS can run applications in an external, serially connected microcontroller or embedded directly in an encrypted sandbox within ZentriOS.

With a host MCU, ZentriOS communicates via a UART or SPI serial interface while a mobile or browser app communicates with ZentriOS via the HTTP web server RESTful API / Websockets or by a local or remote terminal interface. The local or remote host sends commands to control the operation of the application and to exchange data with other devices on the network. ZentriOS provides a powerful set of commands to enable host control, as well as a large number of variables to enable host configuration. ZentriOS provides a rich feature set for wireless beyond commands and variables, network, peripheral and file system command and control.

Running ZentriOS as the core operating system in a primary microcontroller reduces overall development, manufacturing, product launch, and product maintenance costs, while preserving pivotal product security. With this environment, simply write your application on ZentriOS and your product is connected.

ZentriOS is the secure connectivity OS for hundreds of thousands of products today. The range of products it powers includes low power applications and high response/low latency applications at the highest level of security trusted by financial institutions.

Zentri Device Management Service

The Zentri Device Management Service (ZentriDMS) is part of the Zentri cloud service portfolio. Product companies primarily use ZentriDMS to manage entire product lifecycles. When the product is manufactured, ZentriOS provides a secure identity allowing it to securely connect to ZentriDMS.

ZentriDMS provides robust, reliable, and secure, OTA feature rollouts and bug fixes to all active products. The updates can include firmware, files, media, records, and configuration information. ZentriDMS provides a cloud hosted file system that mirrors the device data which becomes useful for backup, recovery, and compliance reporting. The service also has deep product inventory capabilities that include product specification, modules used, location, and software version and can easily ping active devices to check real-time status.

ZentriDMS's APIs enable the platform's openness, making it easy to connect into other platforms and extend functionality.

DMS Dashboard API: Allows customers to compose a single pane of glass view that can incorporate device management service functionality and operational data supplied by corporate systems.

Device API: Allows ZentriOS powered devices to connect to ZentriDMS.

ZentriDMS avoids vendor lock-in and is not required for use in production. It can easily be tested for free up to 49 devices.

Zentri Cloud Connector Service

The Cloud Connector is part of Zentri's cloud service portfolio that allows customers to leverage their existing cloud services, such as Amazon Web Services, IBM Watson, etc. The Cloud Connector securely mediates data delivery such as analytics from the product via ZentriDMS to other cloud services using REST or Websockets. This service allows product companies to avoid vendor lock-in, unlike with an agent, and ensures product data remains under the product company's control.

For product companies needing to fast-track a connected service without having selected a cloud service provider, Zentri offers an optional managed service for cloud based monitoring and control.

Cloud Connector Dashboard API: Allows customers to compose a single pane of glass view that can incorporate functionality from the control and monitoring of products as well as from operational data supplied by corporate systems using REST APIs.

Cloud Connector API: Used by ZentriOS powered devices to connect to the Cloud Connector using REST or Websockets.

Zentri Mobile App Libraries and SDK

The third component of the Secure IoT Platform is a mobile app SDK that allows customers to build iOS and Android apps that can connect, control, and manage products. These apps are usually built for end user interaction with the product and as such, the developer focus is rightly on user experience, interaction design, and product features.

The SDK offers a set of core capabilities that are provided as a library for the app developer. The ability to provision devices on a wireless network with a familiar and simple user experience akin to Apple devices or Google Chromecast is a core capability. The SDK also activates devices with Zentri's cloud services. In addition, the SDK simplifies the discovery of products in a wireless network. A key part of the app and product experience is the latency impact when apps go through the cloud to connect to the product. The mobile app SDK determines automatically when to connect directly to the product versus the cloud.

Connect with Zentri to schedule a demonstration of the platform
zentri.sales@zentri.com

Conclusion

The three major components of the Secure IoT Platform enable product companies to add Wi-Fi or Bluetooth LE connectivity to a product, manage, monitor and control the product using a cloud service, and build mobile apps for a great user experience. With Zentri, product companies can launch connected products and services in weeks to months instead of years.

Connect with Zentri to schedule a customized demonstration and start a secure IoT journey.

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