

Current State of the IoT Marketplace for OEM Connected Products

Gain a competitive OEM market advantage by streamlining processes, enabling IoT applications, and pushing beyond the capabilities of core equipment.

IoT Connected Products for OEMs and Manufacturers

It's no secret that most manufacturers are looking to incorporate the Internet of Things (IoT) to make their products more competitive and profitable. For IoT Producers, or companies looking to add revenue from IoT services, the key to a successful digital transformation is a user-friendly application enablement platform (AEP) to build scalable IoT products, services, and applications.

According to McKinsey, IoT could enable \$5.5 trillion to \$12.6 trillion in potential economic value globally, including the value captured by consumers and customers of IoT products and services. More so, B2B applications are expected to account for the majority of IoT value creation with, manufacturing specifically creating up to \$2.5 trillion in added economic value.



OEM Market View

Manufacturers already recognize the potential of IoT to create added value and new revenue streams, but many are still struggling to fully capitalize on IoT strategies and initiatives. OEMs increasingly rely on the products, tools, and services within the current IoT marketplace that can help them best accomplish their goals. While the IoT landscape is fleshed out in terms of standard players, Harbor Research notes, "many OEMs have been re-structuring their portfolios to drive higher valuations, but as traditional growth strategies have matured, many OEMs are re-focusing on software as a growth opportunity."

OEM Challenges

As OEMs pursue the growth opportunity represented by IoT, many are coming to realize that they do not have the in-house human resources to develop monetizable IoT applications. Unlike traditional software companies, OEMs typically do not have engineering teams dedicated to cloud infrastructure and services. Consequently, this barrier often prevents them from fully realizing the value of their IoT-enabled products. Moreover, finding employees to build IoT solutions, especially in OEM companies where cloud technology is not the core business, can be tricky. Exacerbating this issue is that the current supply of software developers and coders is far below the current demand. The Harbor Research report referenced earlier notes there is “500K unfilled developing and coding job positions” and, at the time of the report, only, “50K computer science graduates.”

Opportunities

The situation demonstrates an emerging opportunity for simplified development tools that fill the gaps for OEMs struggling to build IoT applications with their available teams and resources. Application enablement platforms (AEPs) must offer OEMs flexibility and provide ways to re-use and automate processes. Providing OEMs with an uncomplicated development platform allows them to quickly and easily create monetizable IoT solutions. Likewise, IoT platforms must be customizable and user friendly to aid in productivity while also offering security and convenience. The right tools for IoT will also provide both the edge and cloud software foundations upon which the organization can build and scale its IoT applications.

Success Stories

The success of a global industrial OEM, and Losant customer, demonstrate effective implementation of embedding IoT at the manufacturing stage to provide an enhanced customer experience. The customer’s goal was to enable a proactive service model for its end users by building a remote monitoring solution that could identify potential problems with equipment before failures could result in costly downtime. A key requirement of the solution was the capability to simultaneously deliver remote monitoring data to the end user, service technicians, and customer operations management. While the customer made initial progress with their internal IT staff, they ultimately determined internal resources alone would be inadequate. With Losant’s application enablement platform and involvement, the customer’s industrial equipment embedded with IoT technology was able to deliver benefits far beyond the core operational value of the equipment, including increased operating efficiency and reliability, and reduced equipment downtime. These benefits and their expected value enabled the OEM to differentiate itself from competitors, lead progress in their industry, grow customer relationships, and pursue new revenue opportunities.

Examples like the one above reflect what the industry is seeing in many ways. ARC Advisory Group noted a strong interest in connected product design at its recent ARC Industry Forum in Orlando, Florida, where sessions on smart connected product design and manufacturing saw much traction. According to ARC officials, leading OEMs like Ingersoll Rand and GE Transportation are adopting and implementing IIoT solutions and technologies that support smart connected factories and products. These companies represent leaders and early adopters in IIoT. ARC also said that while the traditional requirements for good design were based on fit, form, and function, next-generation products must be designed to work within the IoT ecosystem. This will enable a digital transformation of production systems and supply chains.

A good example of this is John Deere, which was spotlighted in Enterprise IoT Insights. “People don’t get how sophisticated farmers are,” says Lane Arthur, director of digital solutions at John Deere, the US maker of industrial equipment and machinery. “Connectivity has really changed the game for farmers,” he added. “We have continued to add layers and layers of information, so our customers better understand how their farms are doing.” The Harbor Research presentation referenced earlier notes, “If enabled with the right tools, OEMs and service providers can help disseminate these solutions to end customers due to their application expertise and existing relationships.”

Moving from planning to implementing, monitoring, and making sense of all that data is where companies either go it alone or rely on the IoT marketplace.



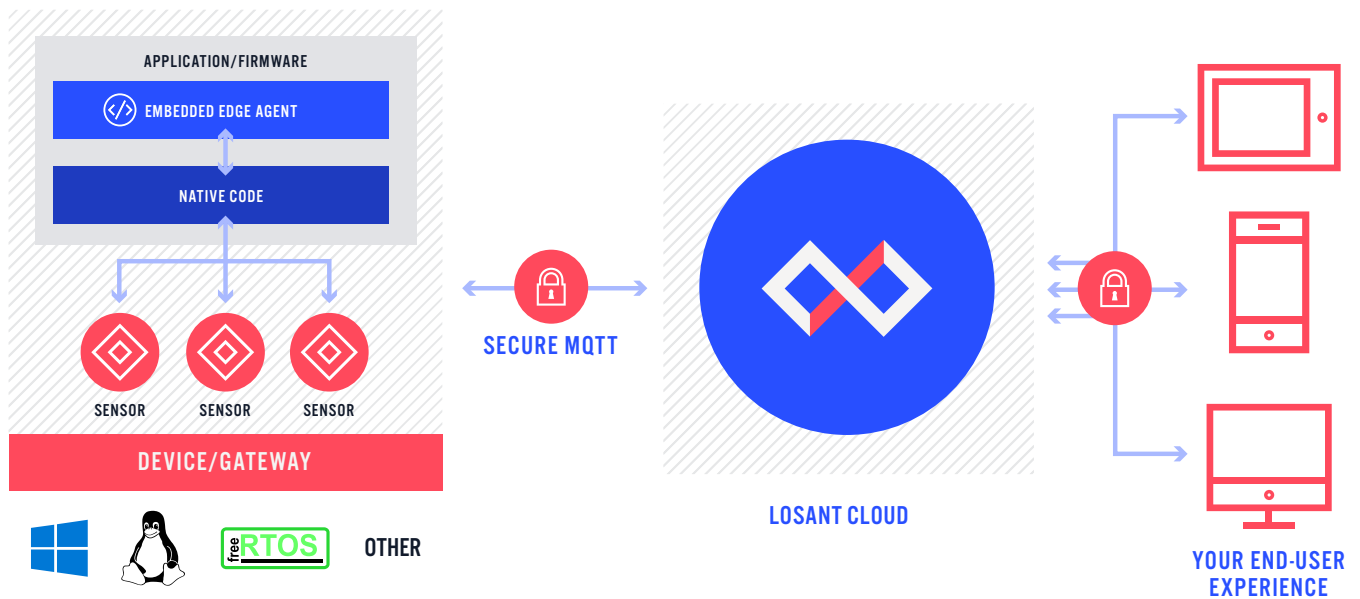
How OEMs Can Embed IoT To Create New Revenue Potential

As an inherently low-code platform, Losant’s initiative with our Embedded Edge Agent (EEA) was to find a way to bring the same low-code development to the firmware world and with that comes a lot of productivity gains. With this in mind, let’s dive into how Losant’s Embedded Edge Agent can help OEMs transition to a connected product offering by embedding IoT.

The OEM Use Case

We’ve already established that OEMs are eager to add intelligence to enhance their products and service offerings. The goal of the EEA for manufacturing specifically is to make it easy to connect to the controller in the manufacturing device or the actual piece of equipment, extract the information, and send it to the cloud. By incorporating the EEA into the controller or gateway that is shipped with the product, OEMs can now easily offer this data to their customers, extending new data-driven, packaged, or fee-based services. OEMs can build a customer-facing remote monitoring portal that allows their customers access to valuable equipment data and insights into how the product is functioning. This is particularly valuable for OEMs transitioning customers to condition-based maintenance plans. These capabilities are directly enabled by adding the EEA into products.

THE LOSANT EMBEDDED EDGE AGENT



The EEA helps OEMs easily transition from a product line to connected product line by eliminating development difficulties, like writing firmware code. The EEA is a high productivity tool that doesn't require an OEM to go out and find IoT engineering expertise in order to successfully create and launch connected products.

The initial setup of the EEA does require moderate developer expertise. However, once the primary implementation with the hardware is complete, internal engineering teams at the OEM can use Losant's drag-and-drop environment to easily bring connected products to market much quicker than traditional firmware development. Backed by Losant's low-code, drag-and-drop workflow engine, the EEA, allows for adjusting embedded hardware behavior without physical access to the device – or having to recompile and flash the firmware. The EEA then executes those workflows via direct integrations with the native code on your device.

The EEA uses standard WebAssembly with no external dependencies, meaning it can be embedded into any language, with or without an OS, as long as the language supports a WebAssembly runtime. This unique approach brings the usability of Losant's workflow editor to low-power hardware and embedded systems in what we are dubbing the world's first low-code WebAssembly development environment.

The OEM Opportunity

The Embedded Edge Agent allows OEMs to bring connected products to market faster. Once the OEM has incorporated the EEA into their sensors or devices firmware, the OEMs are able to collect and deliver embedded device data to their customers. The EEA allows OEMs to quickly and easily deploy low-code IoT solutions that create added-value by making their products more competitive and profitable. It also creates an opportunity for OEMs to generate new sources of revenue by monetizing data and services.



In part 3 of this series, we will look at how constrained gateway and controller manufacturers can integrate Losant's EEA to enhance their products, gain a competitive advantage, and reach a larger market by offering OEMs an off-the-shelf connected product solution. Connect with us if you'd like to learn more about how Losant can help your organization meet its IoT application development needs.

How To Delight Customers With Off-the-Shelf Connected Products

Earlier in this document, we explored how Losant’s Embedded Edge Agent (EEA) allows OEMs to quickly and easily deploy IoT solutions that create added value by making their products more competitive and profitable. Integrating the EEA also creates an opportunity for OEMs to generate new sources of revenue through the monetization of data and services.

The applications of the EEA, however, extend beyond OEMs that manufacture their own controllers. The EEA creates an opportunity for IoT gateway, controller, sensor, and device manufacturers to deliver a more compelling product offering to their customers.



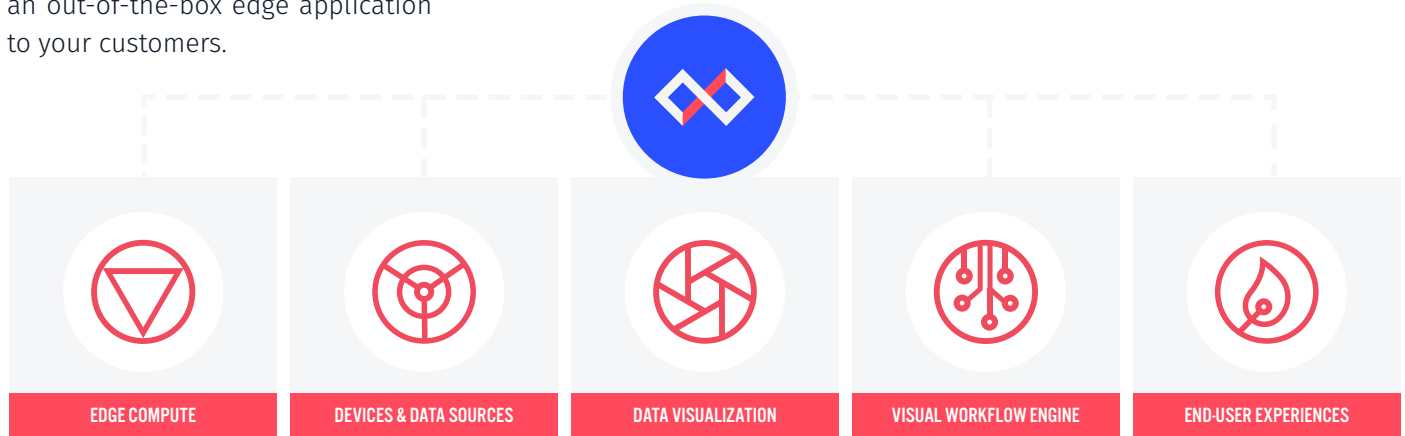
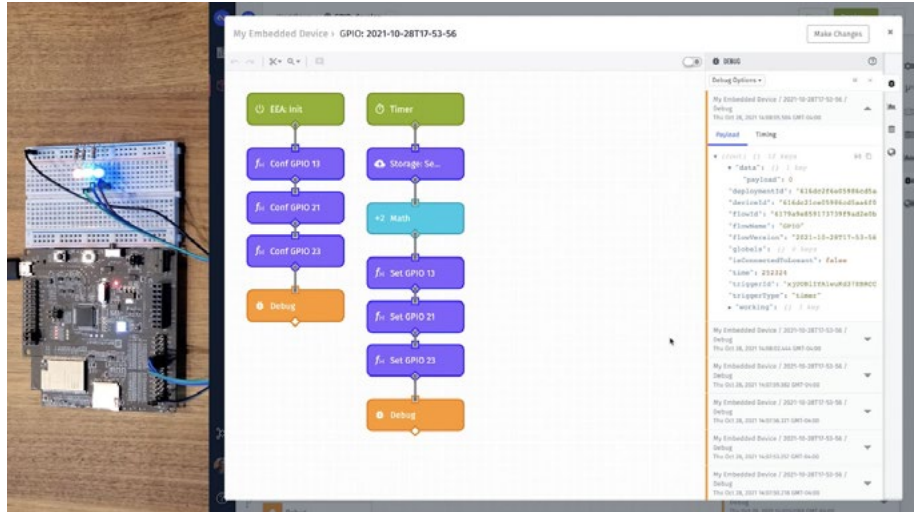
IoT Gateway and Controller Manufacturers

The EEA enables IoT gateway and controller manufacturers to enhance their own products, gain a competitive advantage, and reach a larger target market by offering OEMs a ready-made connected product solution. Integrating the EEA into an IoT gateway or controller allows manufacturers to offer an out-of-the-box edge application that greatly improves the product’s value by allowing customers to remotely control and orchestrate the gateway’s features using Losant’s low-code workflow editor. This unparalleled control and agility over the device’s functionality allow the gateway or controller user to dynamically change the behavior of custom applications without changing code. The addition of the EEA further allows IoT gateway and controller manufacturers to future-proof their products by providing the ability to extend and augment their functionality after it’s delivered to customers without difficult and time-consuming firmware updates for their customers.

IoT Sensors and Devices

The fact that the EEA does not require an operating system makes it an ideal fit for IoT sensor and device manufacturers. In addition, the ability to embed the EEA directly into a device’s firmware greatly extends the flexibility of IoT sensors and devices by facilitating remote updates without requiring code changes or over-the-air (OTA) firmware updates. The EEA also adds the speed and agility of Losant’s low-code drag-and-drop environment, allowing device developers to control and customize their devices in entirely new ways.

Losant's Embedded Edge Agent brings our Visual Workflow Engine to much smaller resource-constrained devices and gateways. The speed and agility of the EEA low-code environment can help you to enhance your product for broader market appeal. Whether you are an OEM or an IoT gateway, controller, sensor, or device manufacturer, the EEA delivers the capabilities needed to expand and enhance your product portfolio. Connect with us if you would like to discuss how you can easily add Losant's Embedded Edge Agent to your product line to offer an out-of-the-box edge application to your customers.



Losant Provides the Tools You Need To Succeed

Losant is an easy-to-use and powerful enterprise IoT platform designed to help teams quickly and securely build real-time connected IoT products and services for their customers. Losant uses open communication standards to provide connectivity from one to millions of devices and provides powerful data collection, aggregation, and visualization features to empower enterprise teams with new data insights. Edge features are integrated directly into the Losant IoT platform for seamless integration of connected and non-connected devices. Start independently or work with Losant's experienced solution engineers.

If you'd like to learn more about how Losant can help your organization meet its IoT application development needs, connect with us at:

www.losant.com/talk-to-an-expert-about-iot-connected-products

WWW.LOSANT.COM

