



Product Data Sheet

## Catenis Enterprise™ by Blockchain of Things

### A Secure Open Communication Platform for IIoT Integration

Catenis Enterprise™ provides interface services for a new breed of solutions built on blockchain messaging and digital asset infrastructure. Catenis Enterprise™ supports cross-platform integration and the rapid enablement of secure messages, immutable storage, smart properties, smart contracts, and digital asset transmissions. It allows your enterprise to deploy valuable Industrial Internet of Things (IIoT) applications more securely, faster, and at a lower cost than existing technologies.

#### Executive Overview

Catenis Enterprise™ provides military grade secure messaging and simplifies blockchain integration for enterprise Industrial Internet of Things sensors, devices, systems, and business applications. Our technology allows decentralized systems and processes to communicate in a peer-to-peer way with each other with the assurance that the data can only be accessed by the intended receiver. Central command and control of all decentralized peer-to-peer devices across your global organization is easily achieved. Governance is inherently provided through blockchain inscription of messages that track perfect chain of custody across assets. No longer does blockchain integration require specialized developers and cryptographers to spend years learning how to leverage a patchwork of disjointed libraries and technologies to build a costly untested system.

Catenis Enterprise™ brings together systems, devices, and processes so that developers across your organization have the integrated tools to get the job done regardless of the development languages and platforms already in use. This block-

chain messaging unification technology bridges diverse protocols, incompatible sensor or system software, and even brings together device communications seamlessly whether they live on a small campus network or are located across the planet from each other.

Catenis Enterprise's™ ability to store information in an Immutable ledger enables provenance for digital and physical products, goods, and parts. Providing proof of life and origin, it enables every product to come with a digital traceable 'certificate' that proves authenticity (is this product what it claims to be?) and origin (where did this product come from?). These certificates are transferable, creating an auditable record of the journey behind all products. Via this capability, manufacturers, distributors and suppliers can allow their customers to verify authenticity, reducing fraud and counterfeiting across the supply chain.

Smart contracts run the way they should; autonomously at the speed of the end-points processor, with no latency, written and compiled in any language, with no visibility of your Intellectual Property.

Catenis Enterprise™ includes technologies to unify security through seamless data encryption and key management, advanced blockchain inscribing technologies, and a cutting-edge transaction assertion platform that cryptographically signs and verifies message delivery while providing read confirmation assurance. All data is cryptographically guaranteed with the support of smart properties and digital asset intelligence. Assembling and deploying secure Industrial Internet of Things solutions on a reliable blockchain infrastructure is now fast and cost efficient. There is never a need to buy, retain, or maintain any cryptocurrency with wallets or difficult to protect cryptographic keys.

The product delivers a pre-built administrative user interface, an open standard API to speed development, and unique performance technologies that allow your solutions to scale to tens of millions of devices. Catenis Enterprise™ is easy to use for both administrators and software engineers. Your technical team can develop, deploy, manage, and monitor solutions with ease. Your administrators will benefit from an intuitive, easy-to-access, web-based administrative dashboard that allows your team to view sensor and device messages, gather system information, and enable communications between devices to complete business processes that cross enterprise boundaries.

#### **Developing IIoT Solutions via Blockchain**

Application development on blockchains has historically been complicated and expensive. However, the security, enhanced communication, and asset control capabilities they provide for Industrial Internet of Things systems are uncanny. Newer development technologies being introduced fail to streamline the process and set the unrealistic expectation that IT departments will handle funds in the form of crypto-currency. Moreover, most IT departments cannot overcome the complexities of these cryptographic ledgers to provide meaningful business value for their organization. Divisions and facilities with IIoT devices across your enterprise need military grade

security to protect your sensors and devices with access to high-value systems.

The constant problem that exists for innumerable organizations is that with extensive IT resources already deployed, most solutions have to leverage new or existing unproven systems that don't make use of world class, proven cryptographic blockchains to secure endpoints and communication. In fact, many of the solutions needed for organizations can only be delivered by connecting and enhancing existing systems in order to streamline business processes, causing massive gaps in security.

With Catenis Enterprise's™ smart property technology, your organization can implement enhanced capabilities to reduce costs and increase revenue in many ways while gaining military grade security. This newest generation of blockchain integration and communication technology from Blockchains of Things, Inc. supports both rapid development and the integration of current systems and platforms. Key capabilities of this powerful new platform are:

**Web services integration technology**, which provides a consistent and easy way to integrate sensors and devices to provide secure enhanced functionality in your organizations existing systems. Enterprise industrial Internet vendors have adopted RESTful web services almost universally as the ideal way to integrate information and execute operations between systems over communication channels. Web services offer a consistent way for developers to integrate sensors, devices, and applications into Industrial Internet of Things solutions.

**Unified security**, with end-to-end transaction message cryptographic signing and verification, which ensures that existing devices, systems, and resources only accept and respond to the right message of origin. Additionally, every single message also generates a cryptographically signed read confirmation to the sender(s).

**Cross-platform interoperability** that ensures effective solutions can be built from sensors, devices, and systems running on many platforms and in many programming languages.

**Autonomous programs (smart contracts)** that run on blockchain end-points. These smart contract programs can be written in any language and compiled to protect your intellectual property while executing at the speed of the end-points' processor(s). These smart robust applications can pass messages to each other or transfer digital asset representation of real world goods, contracts or items.

**Smart properties** that allow for a new breed and class of functionality to be provided to industrial equipment, devices, and systems, providing your organization with decreased costs and increased revenue opportunities. Hardware-as-a-Service capabilities are now possible and easy to implement.

**Flexibility** to support changes to business solutions as both end-point technologies and the needs of your business change over time.

#### Product Features

Blockchain of Things' Catenis Enterprise™ provides all of the capabilities you need to create and deploy blockchain enhanced solutions for the Industrial Internet of Things inside and outside of your enterprise. Key product capabilities include:

**Administrative web portal** that delivers a unified view of all peer enabled Industrial Internet of Things devices, with capabilities to centrally enable and disable any globally decentralized device. Automatically decrypt and view any message sent to your devices in real-time or historically which was inscribed in the immutable ledger. Track chain of custody of digital representations of physical equipment, goods and documents. Control which devices can send messages to other peers and create device grouping for intelligent message delivery and much more.

**Smart Properties and assets** which provide for the ability to generate: metering units for devices, keys that enable time based usage, remittable documents (contracts, invoices, etc.) for end-points, inscribe immutable registration of parts, goods, and items for any governance controlled and trackable solutions.

**Unified security** that allows you to build integrated Industrial Internet of Things solutions without having to understand or worry about terse cryptographic primitives or blockchain nuances. Any developer with standard skills can integrate their sensors or devices with military grade security at the end-point. All messages are automatically cryptographically signed from the sending device and verified upon delivery. Engineers are abstracted from all of the difficulties with no need to manage or maintain public/private keys.

**Performance and stability**, which are provided by an advanced blockchain integration engine supporting calls to globally remote end-points allowing you to deploy and manage tens of millions of devices.

**Security permission layer:** Advanced permissioning technologies ensure that only the right device endpoint will accept messages from permissioned peer senders. Device permissions can even be enabled across organizations allowing devices in your organization to speak to peer devices owned and managed by downstream partners.

**Web services integration:** Support deep integration with embedded systems through standards-based data, content, and identity services. APIs allow easy integration of external sensors, devices, and applications.

**Cross-platform support:** Build by using any language on any platform; embedded low-level languages like C, Java, .NET or even JavaScript platforms such as node.js.

### Product Benefits:

#### Improve productivity

- Get fast access to blockchain capabilities without the need to hire cryptographic engineers or over-priced scientist.
- Eliminate the need to purchase, handle or maintain any cryptographic currency and wallets.
- Run autonomous smart contracts on end-points allowing real-time business agility.
- Eliminate the need to maintain Public Key Infrastructure artifacts such as keys and certs.
- Integrate all Industrial Internet of Things systems, bridging heterogeneous platforms and languages.
- Reduce cost of the Industrial Internet of Things device development and improve developer productivity.
- Intuitive, integrated standards-based API layer reduces developers training costs.

#### Increase security

- Leverage the world most robust, tried and tested infrastructure that protects billions of dollars in assets.
- Encrypt message no matter how large or small with no effort providing military grade security.
- Ensure every message is automatically cryptographically signed by the device of origin and eliminate attack vectors.

- Rest assured with automatic signed read confirmation once targets receive a message
- Provide governance and traceability of every message date and time stamped on an immutable ledger.

#### Improve processes

- Bring together cross-platform engineering team working on a common goal to integrate industrial internet of things devices.
- Deliver secure command and control messages and target device or device group-lists with specific event or command messages.
- Permit only designated sensors, devices or system to receive message content and act on functionality.
- Flexible standards-based integration allows you to respond to changing business needs.
- Smart property functionality delivers greater return from existing IIoT systems.

#### About Blockchain of Things

Formed in 2014, Blockchain of Things Inc. has become the leader in creating enterprise-class security infrastructure software leveraging the capabilities of a cryptographic blockchain for the Industrial Internet of Things (IIoT) using the Catenis Enterprise™ platform. The company is located in New York City in the United States.

Catenis Enterprise thwarts hacking attacks by always ensuring that every single communication sent to and from all devices uses cryptographic signature verification. This ensures that devices only accept commands and signals that are verified by military grade cryptography. Creating peace of mind for your security team and your company.



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