

Securing the Internet-of-Your-Things

They are your things. Whether they're perishable goods, pharmaceuticals, manufactured items, materials, medical devices, hazardous substances, or ordnance – their safety, security, integrity, and timely delivery are crucial.

From the first mile to the last mile of complex supply chains – across borders, through intermodal distribution, logistics, and warehousing – AKUA's secure, persistent environmental monitoring and tracking services provide in-transit visibility of goods and shipments across the globe enabling customers to:

- enhance operating effectiveness and efficiency
- minimize loss from theft, damage, or other spoilage
- optimize the value of goods through predictive analytics based decision-making

AKUA combines the industry's most advanced tracking devices, proprietary multi-layer security, in-transit analytics, and AKUA web services to deliver full, end-to-end supply chain tracking and monitoring that transforms sensor data into actionable information.

Devices and Sensors

AKUA'S SLM (**Secure Logistics Master**) is an ISO 17712 compliant electronic security seal (**e-Seal**) for real-time tracking and security tamper alerting of intermodal containers. SLM uses GPS technology for positioning and GSM/GPRS for real-time communication. It meets the C-TPAT

High Security standard for seal strength and barrier capacity, and provides both digital and mechanical tell-tale evidence of tampering.

SLx is a family of remote slave sensors that monitor and report environmental status (**tamper, shock, motion, temperature, humidity, and light**) and issue real-time alerts in the event of breach or threshold exceptions.

Web Services

AKUA web services provide in-transit visibility and control over sensors and devices to deliver end-to-end supply chain tracking and monitoring. Customers can choose from two types of service:

- SaaS (Software as a Service)
- DaaS (Data as a Service)

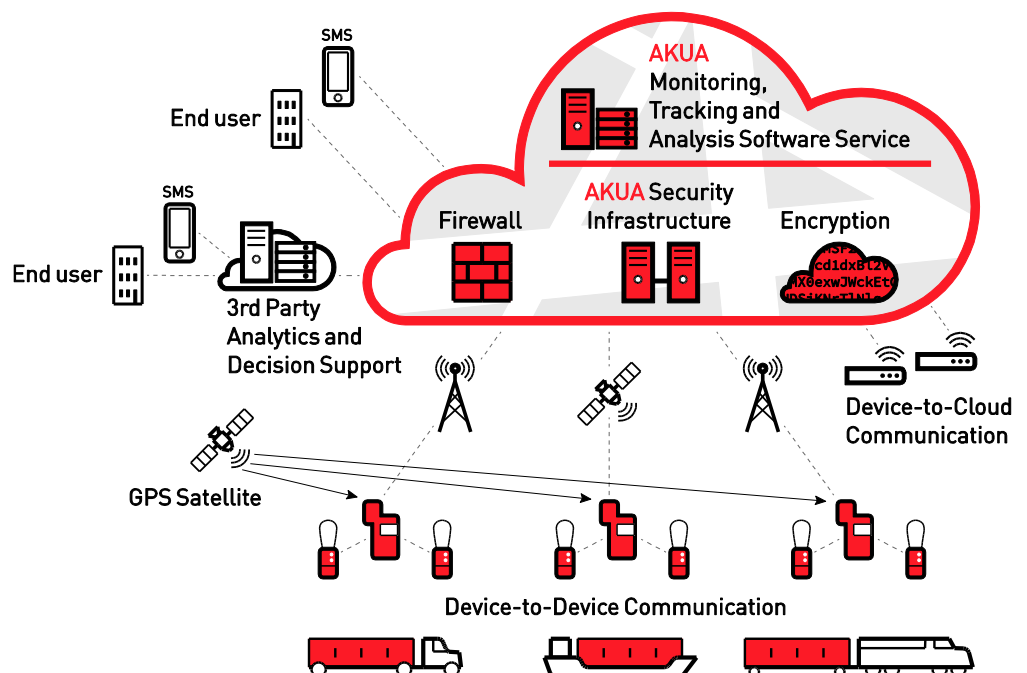
Software as a Service. AKUA's web application delivers 24x7 in-transit visibility and awareness. Its intuitive user interface provides location mapping and delivers security, environmental and cargo status information, as well as alerting, notification and reporting.

Sensing capabilities include: temperature, humidity, light, actionable information and alerts. When threshold violations or exception events occur, notifications are sent via email. Exceptions include:

- Seal break or door intrusion

The AKUA Solution

The AKUA solution GPS tracks and continuously monitors intermodal containers and their contents from first to last mile. SLx slaves and SLM masters provide real-time security and environmental sensing, transmitting data over GSM cellular to the AKUA security infrastructure. Using the AKUA Monitoring, Tracking and Alerting Software Service or a proprietary application, end users are aware of their shipments location and status, and are alerted in the event of incursion or threshold violation.



- Unplanned stops
- Geofence entrance or exit
- Device tampering
- Sensor threshold violation
- Route deviation
- Device mount and unmount
- Non-reporting device

Data as a Service. DaaS provides direct access to information on the status of containers and cargo for companies that require integration of tracking and monitoring data into a third-party or proprietary platform. AKUA can provide needed data feeds and custom integration.

AKUA Multi-Layer Security

Physical Security without Cyber Security is False Security.

Today's smart, secure supply chain depends on the event, status, and location data that originate with remote sensors and masters. But within the supply chain, sophisticated thieves are exploiting IoT and device vulnerabilities. GSM devices can be located and sniffed to reveal the whereabouts of valuable cargo. IoT devices can be spoofed or mimicked to report false location and status. Sensors can be removed, rendered inert, or their data obfuscated or blocked.

AKUA has created an infrastructure that provides both multi-layered and in-depth defenses to assure the safety, security, and integrity of your things. Data confidentiality and integrity are ensured through encryption, provisioning, and authentication. The information received is valid; it comes from the actual, authenticated source; and is accessible to only those who have been authorized. The reality in the control center and the reality at the container, wherever it may be, are one and the same.

In-Transit Analytics

AKUA's in-transit analytics will employ machine learning and anomaly detection to identify unusual patterns of events that may be indicative of malicious intent in the physical world, in cyber space, or in both. Beyond knowing what happened when, AKUA helps you understand what's happening now and whether it should be happening so you can prevent a developing problem from becoming a bigger problem.

Combining real-time sensor and GPS data, AKUA's predictive and prescriptive analytics identify trends toward irreparable damage of goods and violations of SOPs and SLAs. AKUA also analyzes logged data to identify cause, time, location, and responsibility of a loss of quality, integrity, or security, as well as SOP and SOA violations.

Benefits

Over half-a-billion cargo containers pass through ports and

terminals every year. Global cargo theft is approaching \$25 billion annually. Spoilage and damage account for additional losses. Uncertain delivery schedules and unpredictable cargo condition create costly inefficiencies. AKUA helps organizations build more effective supply chains and enables them to:

- Reduce risk of loss; increase likelihood of recovery
- Reduced insurance premiums
- Improve operating effectiveness, achieve efficiencies in use of assets, resources, people
- Enhance just-in-time logistics, guarantee time of arrival
- Safeguard product quality, improve process yields
- Fast-track customs clearance, cut clearing costs, accelerate availability
- Decrease cost of compliance
- Build an adaptive, more resilient supply chain

Why AKUA

AKUA brings together a strong heritage in cybersecurity, supply chain logistics, and big data analytics. Our principals and founders are recognized as leaders in creating smart supply chain technology and solutions, and bringing security to the Internet-of-Things for supply chain logistics. By combing our legacy in cyber security and supply chain logistics, AKUA has created the industry's first global, end-to-end physical and cyber secure logistics solution.



Learn more at akua.us.