Futurex Enterprise PKI:
The Backbone of Secure IoT Manufacturing

Customer Overview

A leading global manufacturer in the electronics and IoT sector, known for producing hundreds of millions of devices annually, delivered fast, secure, and advanced technology value to its customers through consistent innovation and robust international operations.

Key Challenges

The manufacturer needed a scalable, high-availability enterprise certificate authority to secure IoT device firmware across multiple worldwide sites. They sought to enhance device authentication, meet international compliance standards, and ensure synchronization and reliability in digital signing, while maintaining zero downtime for their 24/7 production process.

The Goals

They aimed to digitally sign hundreds of millions of IoT devices annually while maintaining high availability with over 99.999% uptime. The project required a rapid design and deployment timeline with zero production downtime and scalable throughput to support future growth.

Additional solution requirements included the ability to:

- Enable signing by unique keys per device or device group
- Synchronize data automatically between manufacturing sites
- Obtain expert cryptographic guidance throughout the design, development, and deployment phases to ensure optimal security.

Up-time **on the manufacturing floor**

"Futurex's enterprise certificate authority was pivotal in securing our global IoT device ecosystem while ensuring continuous manufacturing at scale."

— Solutions Architect,
Global Electronics Manufacturer

The Solution

Futurex enabled the global manufacturer to integrate an enterprise certificate authority and high-availability cryptographic infrastructure for worldwide device authentication.

The solution benefited from Futurex HSMs, integrating IoT CA, and VirtuCrypt cloud for automated certificate provisioning, centralized PKI, and key management.

The solution included:

- Tamper-resistant, FIPS-validated hardware protection for cryptographic keys and digital signatures
- High throughput, masterless peering for active redundancy, and automatic key replication across global manufacturing sites
- Seamless integration with hybrid cloud and on-premises environments, ensuring continuous uptime and regulatory compliance.

The Results

The manufacturer deployed Futurex security platforms for centralized, high-speed device signing and integrated active-active redundancy and masterless peering, achieving 99.999% uptime. Devices were digitally signed directly on production lines across multiple countries without any downtime.

The solution also achieved FIPS validation and implemented highly automated certificate management, allowing seamless global scaling to additional facilities and cloud-based storage via VirtuCrypt. The deployment delivered significant operational and cost efficiencies, improved data protection, and established a future-ready foundation for continued growth.

Highlights

Global scalability, zero downtime, and rapid compliance for digital device security.

IoT CA

- Automates device certificate issuance and high-volume management
- Supports lifecycle tasks like provisioning and renewal with centralized PKI
- Delivers FIPS-validated tamper-resistant key protection.

VirtuCrypt Cloud

- Offers automated, scalable cloud-based certificate provisioning, key management, and lifecycle operations with FIPS-validated cryptography
- Includes advanced cloud HSM snapshot and backup features for fast recovery, migration, and on-demand scaling
- Provides centralized management via a user portal, supporting hybrid architectures and multi-site IoT deployments with secure remote key loading.

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For over 40 years, Futurex has been an award-winning leader and innovator in the encryption market, delivering uncompromising enterprise-grade data security solutions. Over 15,000 organizations worldwide trust Futurex to provide groundbreaking hardware security modules, key management servers, and cloud HSM solutions.

Futurex is headquartered outside of San Antonio, Texas, with regional offices worldwide and over a dozen data centers across five continents, Futurex delivers unmatched support for its clients' mission-critical data encryption and key management requirements.

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