Reducing Risk, Boosting Efficiency

How ASSA ABLOY Automated IoT Certificate Management and Reduced Complexity

In the rapidly evolving world of IoT, where every connected device becomes a potential entry point, securing ecosystems at scale is essential. For ASSA ABLOY, a global leader in access and security solutions, this challenge was critical, as their IoT portfolio — including smart locks, lock management systems and connected readers — expanded exponentially.

These devices, central to both residential and commercial applications, are integral to secure entry and movement in homes, offices, industrial facilities, hospitals and hotels. Their growing connectivity also means increased exposure to cyber threats. Each device requires secure provisioning, authentication and management to ensure that access control remains secure, reliable and trusted. At the same time, ASSA ABLOY had to navigate a complex regulatory landscape, which mandate strict standards for IoT security, encryption and default password elimination.

Faced with these challenges, they sought HID's expertise with implementing HID PKI-as-a-Service to secure their door opening solutions worldwide. Through close collaboration, a phased rollout and innovative problem-solving, ASSA ABLOY turned a monumental challenge into a benchmark for IoT security in access solutions at scale — ensuring that every door opens securely, now and into the future.

CASE STUDY

THE CHALLENGES

ASSA ABLOY faced a critical challenge in securing its global operations and diverse IoT devices. Ensuring the integrity of its ecosystem was paramount. The growing complexity of IoT security threats required a robust system to protect millions of devices from potential vulnerabilities and attacks. Central to this effort was establishing trust in every device, eliminating default passwords and creating a secure framework to manage risks across its global operations.

Regulatory compliance pressure also added urgency. With stringent frameworks such as the EU Cybersecurity Act and the Cyber Resilience Act on the horizon, ASSA ABLOY needed to ensure its IoT ecosystem met evolving industry standards. Achieving this level of compliance across a complex network of devices was a significant undertaking.

In addition to security and compliance, scalability and integration presented major hurdles. Managing millions of certificates annually required a hierarchical key management system capable of isolating threats to a single device. Many devices also operated offline, necessitating secure provisioning and updates without constant connectivity. Finally, the company sought to build trust and interoperability within its IoT platform to support diverse business divisions, partners and third-party systems in order to maintain seamless integration across its global operations.

SOLUTION– GENUINE ASSA ABLOY DEVICES

Digital certificates enable ASSA ABLOY to authenticate its products, assuring customers they are purchasing a “Genuine ASSA ABLOY” product. This offers significant advantages: products meet stringent compliance and regulatory requirements, providing peace of mind; seamless lifecycle management ensures efficient maintenance, updates, and support. Built on open standards, products integrate smoothly with other systems, enhancing usability and functionality. These benefits both increase customer confidence and product value.

From ASSA ABLOY’s perspective, offering Genuine ASSA ABLOY products provides brand protection by upholding and reinforcing the brand promise; ecosystem control and participation by ensuring products work harmoniously within broader industry ecosystems; and recurring revenue and flexibility by enabling new revenue models and enhancing product flexibility post-deployment.

Why HID PKI-as-a-Service? The service offers a combination of authentication, data integrity, encryption, non-repudiation, and scalability. Root control and platform independence ensure business continuity and flexibility. PKI-as-a-Service meets global and regional requirements and supports both online and offline devices. It ensures only genuine ASSA ABLOY devices are authenticated and trusted within the ecosystem. For example, the inside of a lock can only pair with a matching outside component from ASSA ABLOY, ensuring the integrity and security of the entire system.

DEPLOYMENT

To ensure security at the highest level, HID deployed an offline Root Certificate Authority (CA), creating an unshakable “root of trust” for the entire PKI infrastructure. This foundational layer safeguarded the integrity of ASSA ABLOY’s supply chain by ensuring that trust could be maintained throughout every stage of the device life cycle. With this system in place, the company could confidently mitigate security risks across millions of connected devices.

“One of our biggest challenges was maintaining security across semi-offline devices while ensuring seamless operations. The automated certificate provisioning system has transformed how we manage device security, reducing complexity while significantly strengthening our security posture.”

Anders Wallbom

VP & Head of Technology Solutions, ASSA ABLOY

HID

Automation was another critical focus. APIs were implemented to enable automated bootstrapping and certificate provisioning, significantly reducing manual effort while improving efficiency. Custom enhancements, such as attest certificates and trusted keystores, were introduced to guarantee device security from the manufacturing phase to end-of-life. These tailored solutions ensured that every IoT device met ASSA ABLOY's exacting security standards.

In anticipation of future expansion, HID designed ASSA ABLOY's PKI deployment to manage the issuance load of annual certificates in excess of one million per year — providing the scalability required to keep pace with enterprise volume operations. Additionally, the system was built with future IoT protocols like Thread, CoAP, EDHOC and OSCORE in mind, ensuring adaptability as the industry evolves. By addressing these interconnected challenges, HID PKI-as-a-Service empowered ASSA ABLOY to secure its IoT ecosystem at scale while positioning the company for long-term success.

THE RESULT

- **Security –** The partnership significantly enhanced the security of ASSA ABLOY's IoT ecosystem. By integrating attestation and real-time certificate management, the solution instilled greater trust in IoT devices across the supply chain. A hierarchical key management system was implemented to isolate threats, ensuring that compromised devices could not affect the broader ecosystem. These measures prepared ASSA ABLOY to meet the EU Cybersecurity Act and other stringent global standards.
- **Operational Efficiency –** The automation of critical processes eliminated manual bottlenecks, resulting in considerable time and cost savings. Lightweight certificates reduced latency and operational lag, enabling faster device deployment and seamless updates. These advancements streamlined operations across ASSA ABLOY's global ecosystem, making it easier to manage millions of devices efficiently.
- **Innovation –** The collaboration fostered innovation through custom solutions tailored to ASSA ABLOY's IoT landscape. Attest certificates and other specialized tools addressed unique challenges in securing devices throughout their lifecycles. Additionally, the system is future-ready — aligned with emerging standards like Radio Equipment Directive (RED) and IoT-specific protocols such as CoAP and Thread, ensuring compatibility with ASSA ABLOY's next-generation platforms.
- **Collaborative Impact –** Anders Wallbom, ASSA ABLOY's Head of Technology Solutions, attributed the success of this deployment to their collaborative approach. A joint steering group ensured that global PKI policies and objectives were aligned, enabling strategic decision-making. The phased rollout minimized disruptions across operations, allowing for iterative improvements and a smooth transition to the new system. This partnership not only solved immediate challenges but also laid the foundation for continued innovation and growth in IoT security.

"The implementation of HID PKI-as-a-Service wasn't just about meeting current security requirements — it was about future-proofing our IoT ecosystem for security and scalability. With the ability to manage over a million certificates annually, we're now positioned to scale our security infrastructure alongside our business growth"

Anders Wallbom

VP & Head of Technology Solutions, ASSA ABLOY

SUMMARY:

- ASSA ABLOY needed robust security for their expanding IoT portfolio of smart locks and opening solutions systems worldwide
- The company faced challenges managing +1 million certificates while meeting the EU Cybersecurity Act requirements
- HID deployed PKI-as-a-Service with an offline Root Certificate Authority and automated provisioning
- Hierarchical key management enables isolation of security threats to individual devices
- Custom certificates and keystores secure devices from manufacturing through end-of-life
- Joint collaboration led to successful implementation and future-ready to accommodate future IoT protocols

hidglobal.com

North America: +1 512 776 9000 | Toll Free: 1 800 237 7769
Europe, Middle East, Africa: +353 91 506 900
Asia Pacific: +852 3160 9800 | Latin America: +52 55 9171 1108
For more global phone numbers click here

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