Building IEC 62443-3-3 Certified Systems With Secure Industrial Computers

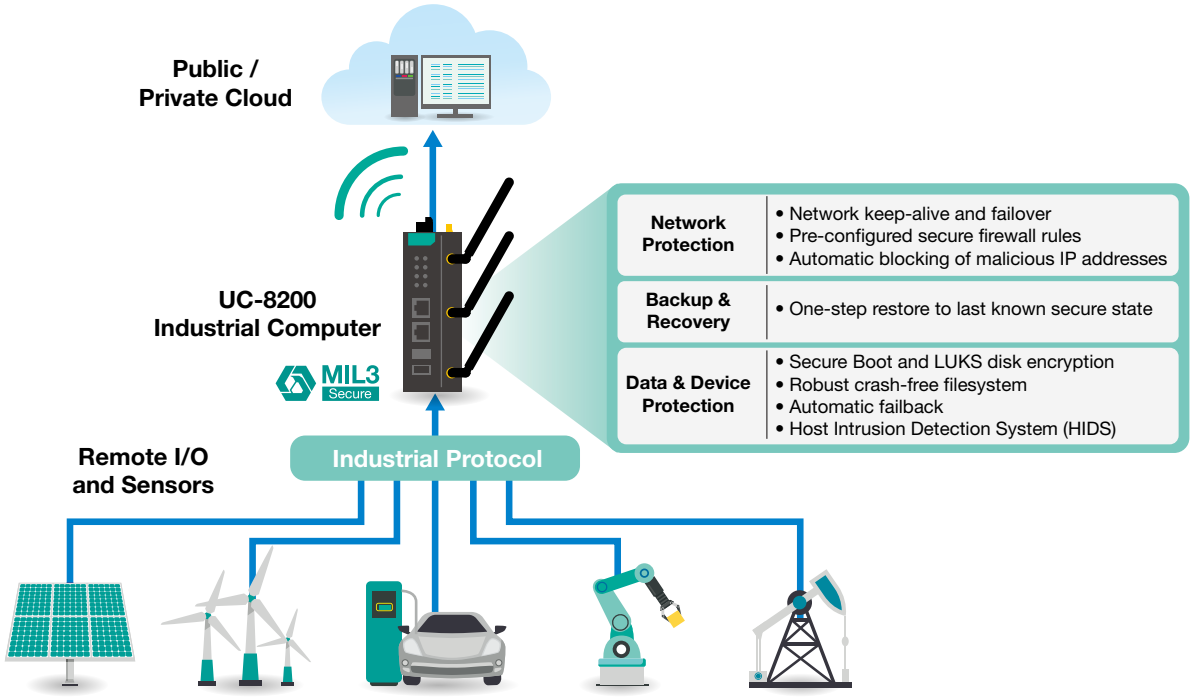
Background

In an IIoT environment, data is collected from a multitude of OT edge devices and transmitted to an enterprise IT cloud for analysis and storage. The insights gained from the processed data is then used by OT systems to implement appropriate actions. However, as cyberattacks are increasingly targeting cloud networks, more and more enterprises are looking for ways to secure the computing infrastructure that collects and processes data for their IIoT environments.

Industrial computers play a critical role in connecting industrial automation and control systems (IACS) to the cloud. Although this connectivity allows formerly private systems to be accessible from practically anywhere, transmitting confidential data over untrusted networks requires greater attention to network security and access to the edge devices. Consequently, more and more asset owners are becoming aware of the importance of cybersecurity and starting to adopt IEC 62443-3-3 system security practices to protect their IIoT applications from threats, such as unauthorized access, tampering, and data breaches.

Why Moxa

The Moxa UC-8200 Series computer running on the Moxa Industrial Linux 3.0 (MIL3) platform offers a highly secured edge computing solution for IIoT environments in energy, industrial automation, and oil & gas applications. Certified for ISASecure SDLA (IEC 62443-4-1) and CSA (IEC 62443-4-2) security level 2, the UC-8200 computers come with all the security functions and tools users need to easily redevelop and build a secure edge computing system, reduce unnecessary operational costs, and increase the usability and reliability of industrial assets to return higher profits. This bundled solution also provides a security diagnostic tool to help system integrators comply with IEC 62443-4-2 standards when any changes take place in the redevelopment process, as well as an accompanying hardening guide that instructs users on how to install, deploy, operate, and maintain their systems securely.



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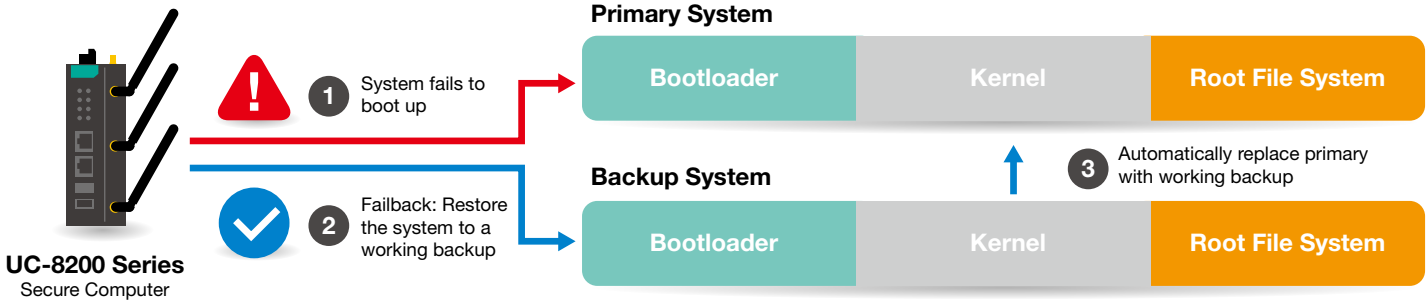
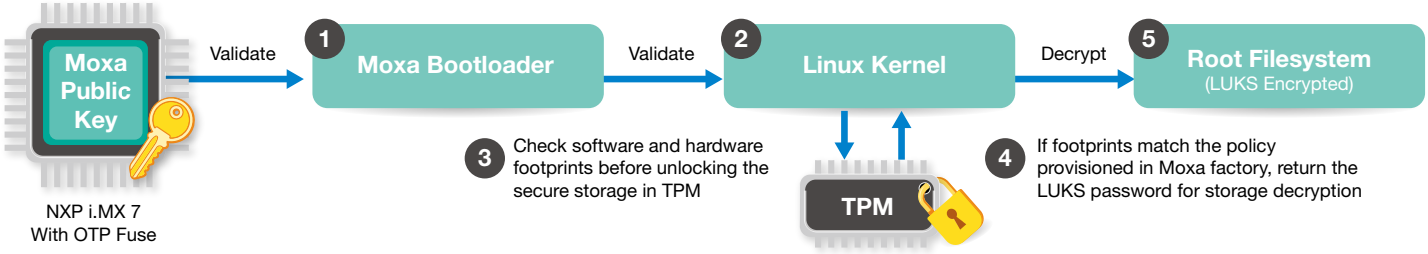
Device availability is often the most critical aspect in any IACS. MIL3 provides the UC-8200 computers with a system failback function, enabling automatic system recovery in case of a failure to ensure system data integrity. MIL3 also offers system snapshot and backup functions, ensuring that the UC-8200 can roll back to a designated secured backup when the system fails to boot due to a power outage during critical updates or under other circumstances, such as a security breach.



For comprehensive protection of system data from cyberthreats, the UC-8200 computers come with an NXP i.MX7 processor and OTP (one-time programmable) fuse, which acts as the Root of Trust and initiates a chain of validation sequences during bootup to ensure the authenticity and integrity of the bootloader and kernel before allowing them to decrypt the root file system with sensitive data using the password stored in the Trusted Platform Module (TPM) 2.0. System integrators can further extend the chain of trust to validate the integrity and authenticity of their deployed applications on the UC-8200.



Moxa Solutions

UC-8200 Series Secure Industrial Computer

- Compact Arm-based computer for distributed IIoT applications
- ISASecure SDLA (IEC 62443-4-1) and CSA (IEC 62443-4-2) SL2 certified host device
- Wi-Fi and LTE communication redundancy
- Robust LTE Cat. 4 connectivity with RF and carrier approvals (Verizon, AT&T)
- Rich set of communication interfaces including 2 serial, 2 Giga LAN, 1 USB, and 1 CAN ports and 4 DIs, 4 DOs

MIL3 Secure

Debian-based Industrial-grade Linux Distribution

- 10-year life cycle and long-term support
- Secure-by-default design
- Hardware Secure Boot and disk encryption
- Crash-free robust file system
- Automatic failback during boot failure
- Automatic network connection failover to reduce downtime from network failure or cyberattacks
- One-step backup and restore utility

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