DEVICE AUTHORITY

Use Case: Certificate Lifecycle Management for Ultrasound Systems

Situation

A medical device manufacturer specializing in high-frequency ultrasound technology needs a solution to automate device certificate provisioning and lifecycle management. X.509 certificates are used to secure communications between the device and the IoT platform. The current manual process for configuring each ultrasound device with a unique certificate is time-consuming, error-prone, and inefficient at scale.

Solution

By implementing the KeyScaler platform, and partnering with PTC, Device Authority was able to provide the following:

- **Automated Device Provisioning:**
  - Securely register ultrasound devices to the PTC ThingWorx IoT platform automatically upon deployment, ensuring each device is properly authenticated and authorized without manual intervention.

- **Full Identity and Certificate Lifecycle Management:**
  - Manage the entire lifecycle of X.509 certificates for ultrasound devices, including issuance, renewal, revocation, and expiration reports, ensuring continuous device security and compliance with regulatory standards.

- **Dynamic Device Key Generation (DDKG):**
  - Implement DDKG to create a unique root of trust for each ultrasound device.

- **PKI Services for IoT:**
  - Utilize Public Key Infrastructure (PKI) services to issue and manage X.509 certificates for ultrasound devices, integrating seamlessly with enterprise security systems to maintain a unified and secure communication framework across the entire device network.

- **Enterprise Security Integration:**
  - Integrate certificate management and device security protocols with existing enterprise security systems, enabling centralized monitoring, policy enforcement, and incident response to ensure comprehensive protection of medical data transmitted by ultrasound devices.

Medical Device Manufacturer
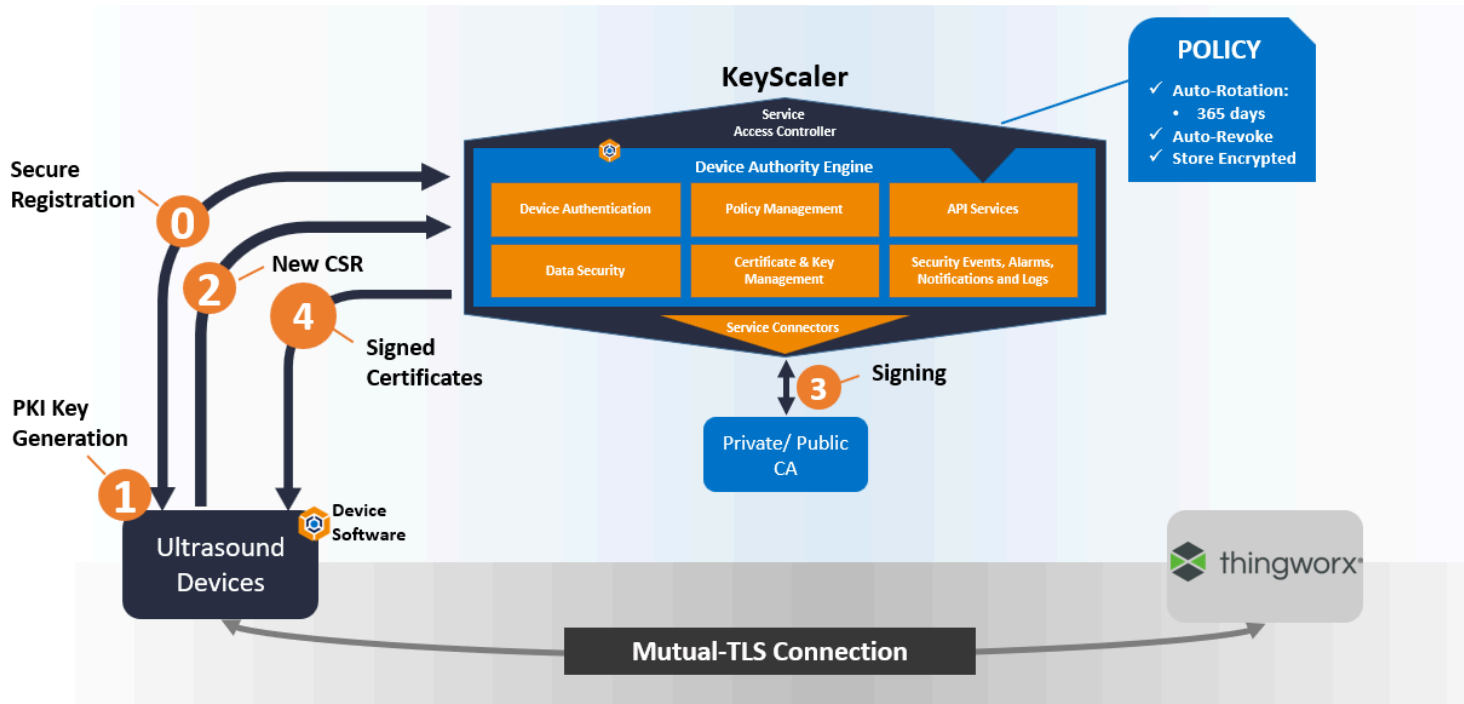
Conclusion

- Overall the pilot was very successful, starting with 5,000 assets, the project is set to expand to an additional 7,500 assets.

- The medical device manufacturer has obtained a simpler and faster way to manage their device certificates at scale with remote monitoring and remote software update capabilities.

- The combined technologies ensured the customer's compliance with asset security requirements in a highly regulated field.

- The initiative demonstrated that the collaboration between PTC and Device Authority can complete the project in just 16 weeks, significantly faster than the typical timeframe, resulting in a quicker time to market.