wolfSSL Enables Gesytec to Easily Secure Communications Between Embedded Systems and the Cloud

Gesytec, a global leader in Local Operating Network interfaces, is a technology company based in Aachen, Germany, that focuses on software and hardware development solutions that improve the industrial automation of tasks for a vast array of businesses worldwide. One of Gesytec's products, the GesySense Receiver \LAN, incorporates embedded wolfSSL TLS technology to ensure the encryption and protection of it's data over a wireless network. Since this device is capable of wireless data acquisition and is used to monitor and record temperature statistics in industries such as restaurants, stores, hotels, and gas stations, it is imperative that the information is secured in order to ensure that it is accurate and reliable.

The GesySense Receiver \LAN Device

Key Requirements

Since the GesySense Receiver \LAN uses a web service to connect to the cloud, the encryption of the sensor data was an essential feature necessary for the protection against potential security risks and attacks. This meant that the device would need to integrate an embedded SSL/TLS library capable of providing dependable, effective, and up to date security.

Furthermore, because the device uses a low power Microchip PIC32MX board to process the data, resources such as RAM and CPU power are limited and resource intensive cryptographic libraries like OpenSSL would not suffice. It was therefore crucial that the SSL/TLS library to be integrated had to have low runtime memory usage, small footprint size, and efficiency in terms of processing power.

Solution

With superior security in mind, Gesytec found wolfSSL's progressive ciphers and methodologies to be the optimal solution in achieving their goals of high level security. Furthermore, after research and communication with wolfSSL's technical and support team at Microchip Masters 2014, Gesytec concluded that it would be an excellent decision to incorporate wolfSSL's SSL/TLS library into the PIC32MX boards and create an outstanding product.

Also, since the library fully met Gesytec's requirements of up to date encryption software, low runtime memory usage (1 - 36kB), small footprint size (20 - 100kB), and a diligent support team, it was easy to successfully integrate the software into the GesySense Receiver \Lan without any trouble. It was also advantageous that the wolfSSL library contained such a large range of cryptographic features as Gesytec needed ciphers that were

compatible with both the web servers of their customers and the limited resources of the PIC32MX microprocessor.

"After deciding to implement a web service client, our team at Gesytec was challenged with finding and integrating a high level and up to date TLS encryption to protect the data of our users in the embedded PIC32MX resource constrained environment. Choosing wolfSSL made the work easy. wolfSSL offered all of the features for encryption that we wanted while also being tailored to work in our particular environment. This made for a seamless integration into our product and everything was up and running very quickly."

- Matthias Luerkens, CTO of Gesytec

Results

Overall, designing the GesySense Receiver \LAN with the incorporation of wolfSSL's SSL/TLS library, allowed Gesytec to easily secure the communications between the device itself and the cloud. Together, Gesytec and wolfSSL were able to produce a solution that provided users with the information they required at the level of security they desired. Impressed with wolfSSL's team and product, Gesytec is also optimistic about using wolfSSL to integrate TLS in a future product that runs in the Windows CE 6.0 environment.

For More Information

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