



CyaSSL enables Sensity to easily secure communications from embedded systems over the Internet

Sensity Systems is the pioneer of Light Sensory Networks (LSNs) and is headquartered in Sunnyvale, California. Their customer base includes Fortune 500 businesses, municipal and regional agencies, universities, warehousing and distribution facilities, and hospitals. Embedding networking technology and sensors within LED luminaires increases energy efficiency and cost savings for users of Sensity LSN Solutions. This aids in achieving business goals including public safety, parking control, retail and location analytics.



Key Requirements

Sensity was looking for a way to secure communications between their onboard embedded device and their remote servers using TLS (Transport Layer Security).

As lighting array locations can be far removed from server locations, the solution required that communications take place over the Internet.

Sensity's servers use OpenSSL; therefore, they needed a solution that was RFC compliant yet small enough to run on a device containing only 128 Kilobytes of memory.

These embedded devices perform operations such as lighting control, energy metering, and energy sensing. They are used in commercial, industrial, and municipal outdoor lighting fixtures spread out across North America for now - eventually the world.

Solution

Working in an embedded environment is always challenging. Providing a secure connection from an embedded environment to the ever growing "connected" world is a challenge that CyaSSL has overcome. In addition to conquering this challenge, CyaSSL strives to provide readable and user-friendly code in an Open Source software package, allowing for familiarization prior to commitment.

"Our device must connect securely to our servers over the open Internet using TLS with a client private key and certificate. We use OpenSSL on the server side so RFC compliance is a must."

The small footprint and portability of CyaSSL have allowed Sensity to secure communications and even file transfers from their embedded systems to their servers. Sensity also used the CyaSSL software as a crypto library for WPA2-Enterprise authentication using EAP-TLS.

When searching for an SSL/TLS library, Sensity recognized the maturity of CyaSSL's embedded TLS stack in comparison to similar solutions.

CyaSSL's lightweight implementation helped Sensity to overcome constraints on embedded platforms.

"It will be used on all of our future embedded platforms that require the use of TLS or need a general purpose crypto library."

When asked about support and ease of use Sensity replied:

“For the few questions we had to ask, the response was quick.” and “Come to think of it... The product has really ‘just worked’ for us.”

wolfSSL prides itself on providing a GPLv2-licensed version of CyaSSL in addition to commercially-licensed versions, with the GPLv2 version available direct from wolfssl.com. With the GPLv2 download, companies like Sensity can test and prototype before making a license decision.

Results

Sensity was able to achieve a secure connection from their embedded platform to their remote servers over the Internet. They were able to further use CyaSSL as a crypto library and file transfer medium. The key features of CyaSSL that allowed for this success were the small footprint (between 20-100kB disk footprint), small run-time RAM usage (between 1-36kB), portability, and RFC compliance up to the current TLS 1.2 level.

For More Information

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