

Case study



Greenwave Systems use neXus and Utimaco products to offer secure solutions for smart homes

There has been a lot of buzz about smart homes, and now – with the latest developments in the Internet of Things (IoT) – Greenwave Systems think that we are facing a revolution. The demand is high for Greenwave’s new Gateway that allows users to remotely control a variety of functions in their homes. A certificate solution from nexus and Utimaco ensures that the communication between the servers in the cloud and the Greenwave Gateways is secure.

When the global IoT Company Greenwave Systems launched their smart Gateway that monitors and regulates indoor temperature, hot water and lighting in the user’s home through servers in the cloud, security was on the top of the priority list.

“With our solution for smart homes it is possible to lower and raise the indoor temperature with the help of an app for mobile phones or tablets, or through a web browser. This process must be risk-free so that no one else can find a way to take over and control the devices in the homes”, says Peter Brandt, Program Manager Director at Greenwave Systems.

Greenwave Systems chose neXus for providing the security layer between the Gateway, the home and the cloud with 2-way certificate-based authentication. The cloud-based certificate solution, neXus Certificate Service, is based on neXus Certificate Manager and combined with Utimaco high end Hardware Security Module and neXus Protocol Gateway. By using Utimaco's HSMs as the root of trust for secure key storage combined with neXus Certificate Manager Greenwave established a Certificate Service to safely deploy security certificates to all Greenwave Gateways. The certificate is downloaded and installed when a Gateway is installed in the home.

When Greenwave's servers communicate with the smart devices, the certificates ensure that no unauthorized persons can communicate with the devices. The Gateway is also validated by the servers to ensure that only the correct Gateway can communicate with the servers. Each Gateway has its unique certificate and there is only one certificate for each Gateway.

"We chose neXus partly because they were quick to respond and flexible in discussing the solution we were interested in. The neXus team held good workshops that supported our challenges and was able to deliver the solution quickly", says Peter Brandt.

Greenwave's smart Gateway and platform is used to automate and control the house's energy consumption through solutions such as Smart Lighting, Solar Management and Demand Response. The indoor temperature can be turned off or lowered automatically when no one is at home, when the inhabitants are at work, or during the night. But Peter Brandt believes that this is just the beginning. We already have a lot of devices in our homes that we control and monitor remotely. Peter Brandt emphasizes that the security issue will become more and more prevalent as the number of externally controllable devices increases. "The neXus solution is safer and more secure than what customers would normally expect, which of course means a competitive advantage for us, especially for future launches", he says.

The security solution is built for millions of certificates/users and so far, everyone who uses the Greenwave Systems energy management services has got it installed. "We are looking at a stable system, and the solution has met all our expectations. When it has been necessary neXus has helped us to develop tools so that we could resolve issues that arose. If we ever need more certificate-based security solutions for future products in other parts of the organization, we will surely work together with neXus again", says Peter Brandt.

Facts about the solution

Greenwave uses the neXus cloud-based Certificate Service to create, deploy and administer certificates, which is the foundation of the security solution. NeXus Certificate Service is based on neXus Certificate Manager in combination with Utimaco's Hardware Security Modules and neXus Protocol Gateway. The distribution of certificates to the units is based on the SCEP Protocol (Simple Certificate Enrollment Protocol). All units eligible to receive a certificate are registered and these registration requests are signed. Each unit initiates its own certificate request to the service. The Certificate Service checks the identity of the unit and ensures that the device is preregistered. The distribution of the certificates is made over an encrypted connection. These certificates are then used for a two-way authentication between the device and Greenwave's web servers, which is the only way to reach the devices. This way, no unauthorized persons can take over the units.

Products used

- neXus Certificate Manager
- neXus Protocol Gateway
- Utimaco CryptoServer Se-Series

About Utimaco

Utimaco is a leading manufacturer of hardware based security solutions that provide the root of trust to keep cryptographic keys safe, secure critical digital infrastructures and protect high value data assets. Only Utimaco delivers a general-purpose hardware security module (HSM) as a customizable platform to easily integrate into existing software solutions, embed business logic and build secure applications. With German precision engineering, tamperproof Utimaco HSM offers scalable performance with the highest level of physical security and self-defense for hostile environments.

Visit <https://hsm.utimaco.com/> for further information.

About Greenwave Systems

Greenwave Systems is a global software and service provider within the Internet of Things (IoT). The scalable software platform Greenwave360° enables leading brands to profitably deploy managed services. Greenwave's mission is to drive mass adoption of IoT by making it easier for leading brands to use the technology in a way that promotes deeper client relationships. Learn more about Greenwave on www.greenwavesystems.com or follow the company on Twitter [@GreenwaveSys](https://twitter.com/GreenwaveSys).

About neXus

neXus is a leading and fast-growing international provider of IT security solutions. Our key competence is Identity and Access Management (IAM): we offer solutions, products and services for securing the identity of persons, objects or transactions both in the digital and the physical world. Today, neXus has offices in Germany, Sweden, Norway, Denmark, Finland, France, India, Luxembourg, the UK and the US.

Visit <https://www.nexusgroup.com/en/> for further information.