SunSpec Webinar: Unlocking Modbus - Accelerate Adoption with SunSpec DevKit and Open-Source Tools

Date: July 31, 2025

Speakers:

- Vish Ganti, COO and President of DER Security Corp
- Niels Basjes, Cybersecurity Innovator at bol.com
- Peter Grace, DevOps Engineer at StackBlitz
- Dylan Tansy, Executive Director of SunSpec Alliance
- Arila Barnes, CEO of Energy IoT Open Source

Overview: The webinar focused on accelerating the adoption of the Modbus protocol within distributed energy resources (DER) through cutting-edge open-source tools and the newly introduced SunSpec DevKit. Discussions centered around simplifying Modbus data management, enhancing security protocols, and fostering collaborative community engagement.

Key Highlights:

1. Interoperability and Security Challenges – Vish Ganti:

- Highlighted the complexities in the DER landscape due to varied API integrations leading to compromised interoperability and overlooked security measures.
- Noted that although Modbus standards include security through TLS, it is rarely implemented, leaving vulnerabilities.
- Discussed the SunSpec Alliance initiative aimed at embedding security and interoperability directly into Modbus standards through trusted protocol stacks.

2. Modbus Schema Toolkit – Niels Basjes:

- Introduced an innovative open-source toolkit to standardize and simplify Modbus data interpretation and enable dynamic schema generation.
- Addressed challenges with diverse Modbus data mappings across solar devices, creating consistent and human-readable formats.

- Demonstrated toolkit functionalities including GraphQL interface for querying data, integration capabilities with platforms like InfluxDB and MQTT, and schema automation for SunSpec devices.
- Emphasized the toolkit's open-source nature (MIT license), inviting broader community adoption and enhancements.

3. Sunspec RS and Sunspec Gateway – Peter Grace:

- Detailed Sunspec RS, a Rust-based open-source library developed to simplify interactions with Sunspec Modbus TCP, efficiently managing data complexity.
- Explained Sunspec Gateway, a companion project bridging Modbus data to MQTT servers, enabling seamless integration with platforms like Home Assistant.
- Showcased ease of use, configurable security (Modbus TLS), and robust user customization through YAML-based configurations.
- Encouraged widespread adoption, highlighting the permissive MIT license promoting both commercial and community use.

4. SunSpec DevKit Announcement – Vish Ganti:

- Presented the SunSpec DevKit designed to integrate open-source tools for schema querying, model adjustments, and exporting in JSON formats.
- Mentioned key features including the Durim security simulator and the integration with SunSpec's product registry for product emulation.
- Issued an open call for early adopters and beta testers via an online registration form.

5. eIoT and Open-Source Lab Initiative – Arila Barnes:

- Announced the establishment of the first open-source energy lab hosted at Port Lab, funded by a grant from the Astera Institute.
- Outlined lab features offering practical exposure to solar converters, batteries, and electric vehicle charging infrastructure.
- Discussed goals to stimulate collaborative innovation, mentorship programs, and global knowledge-sharing in open-source energy technologies.
- Actively sought sponsorships, volunteer participation, and mentorship involvement.

Community Engagement – Dylan Tansy and Vish Ganti:

- Reiterated the importance of active community involvement to support and enhance open-source projects.
- Addressed current efforts to strengthen Modbus TLS security compliance and testing standards, making adoption simpler and improving interoperability across energy systems.

Key Takeaways:

- Open-source tools are significantly streamlining Modbus adoption, improving interoperability and security within DER systems.
- Community collaboration is essential to evolving energy technologies, addressing interoperability challenges, and enhancing cybersecurity.
- The SunSpec DevKit and open-source labs provide practical platforms for testing, innovation, and real-world application of open-source energy solutions.
- Embracing open-source initiatives and tools provides a robust pathway for scalable and secure integration of renewable energy resources into broader energy management systems.

Conclusion: The webinar successfully underscored significant advancements and community-driven solutions designed to streamline Modbus adoption, emphasizing interoperability, enhanced security measures, and the fostering of collaborative innovation within the DER ecosystem.