Open Secure Automation

Observations for Improved ICS Reliability, Security and Performance

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ABSTRACT

Cybersecurity has been an increasingly important aspect of industrial automation. Many efforts have been taken to physically secure the facilities and the network, but when it comes to industrial control system (ICS) security, the cyber threat doesn't just stop at the network. This presentation will discuss how the reduction in the system attack surface can impart simplification, while hardening embedded systems from the inside out to cyber, electromagnetic pulse, and other forms of malicious nation state attacks resulting in improved reliability and mean time between failures.

There are four principle tenets of technology to be discussed including; The Backplane, The IO, The Power and The Controller.

The Backplane:

- electromagnetic interconnection as it relates to security, robustness, galvanic isolation and symmetrical interconnection
- asynchronous communication and power

The IO:

- advanced electronics for virtual marshalling
- cyber security starts at the screw terminal
- scalable redundancy

The Power:

- smart and coupled versus decoupled
- universal feed, extending UPS

The Controller:

- layered and embedded security
- advanced performance architecture

After reviewing these technology tenets, the presentation will discuss in more detail how software and application security becomes deeply embedded and transparent to the system owner and how all of these aspects lead to lower lifecycle cost.

ABOUT THE AUTHOR

Albert Rooyakkers *is the Founder, CTO, and VP of Engineering of Bedrock Automation. Albert's recent technical endeavors include developing parallel processors for video, hybrid propulsion systems for transportation and currently, as a Bedrock founder and CTO, designing and commercializing a revolutionary cyber secure automation platform for the global market. In the late 1990's Albert also lead a team at Invensys Schneider to build the field control and IO platform for IA Series™. His global management experience at Maxim Integrated and Invensys Schneider includes Canada, the Middle East, the Far East and more recently in the USA in both Boston and now in Silicon Valley. The ongoing work at Bedrock is rapidly realizing an entirely new and innovative cyber ICS architecture called Open Secure Automation, OSA. As a measure of the level of innovation in this OSA platform, 75 international patents have been filed and over 20 granted in just the past two years. It is an exciting time for automation! A user-centric revolution is under way...and this is the most rewarding aspect of his recent career.* Contact: albert.rooyakkers@bedrockautomation.com.