

SCADA Systems and the Mitigation of Risk in Infrastructure

Charles Ray

Introduction

Infrastructure critical to our way of life faces serious cybersecurity risks due to reliance on outdated technologies and limited network connectivity. SCADA applications can and often do mitigate a large chunk of risk by providing real-time monitoring, centralized control, threat detection, and enhanced capabilities for rapid response that enhance operational resilience and security.

Infrastructure at risk

Critical infrastructure systems include power grids, water treatment facilities, transportation, and communication systems. Critical infrastructure systems face cybersecurity challenges because of the reliance on digital technologies. Organizations still largely rely on legacy hardware and software, which can often have various challenges such as exploitation of known vulnerabilities, poor password policy and weak communication protocol among other issues. Moreover, the combination of operational technology and information technology networks makes infrastructure vulnerable to cybersecurity challenges like ransomware and network intrusions. (MSA Professional Services, 2025).

Risk Management

SCADA systems can help reduce those risks by ensuring smooth centralized control of critical infrastructure processes. SCADA applications will monitor the work of numerous sensors and devices and enable quick reaction to abnormal conditions if need be. MSA Professional Services (2025) argues, "cybersecurity is no longer a nice-to-have – it's a fundamental

requirement of system design and operation." a statement that is becoming increasingly true, especially in regards to use of SCADA.

Conclusion

In conclusion, organizations need to build cybersecurity measures into the SCADA systems from the ground up. This will help enhance cybersecurity measures and lead to less severe issues for the organization as a whole.

References

SCADA systems article from perusall assignment (2025?)

MSA Professional Services. (2025, April 29). SCADA design & cybersecurity: A strategic approach to modern infrastructure protection. MSA Professional Services.

<https://www.msa-ps.com/scada-design-cybersecurity-a-strategic-approach-to-modern-infrastructure-protection/>