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SCADA Write-Up

BLUF: Critical infrastructure systems face growing cyber and operational risks due to outdated technology, increased connectivity, and human factors. SCADA (Supervisory Control and Data Acquisition) systems play a very important role in mitigating these risks by enabling real-time monitoring, automation, and control of essential processes.

Critical infrastructure systems such as water treatment facilities, transportation networks, and communication systems. All of these systems are a part of our everyday community, but the lack of reliance on digital technologies has introduced many cybersecurity vulnerabilities. SCADA systems play a big role in managing and protecting these infrastructures, though they also could represent potential attack surfaces if they are not properly secured.

SCADA Systems Role

SCADA systems are industrial control systems used to monitor, control, and automate critical infrastructure processes in real-time. They collect data through sensors and then transmit that data to control centers, and that data allows operators to make adjustments.

How SCADA Helps Mitigate Risks

SCADA systems themselves can be vulnerable, securely designed and managed SCADA systems play a major role in mitigating risks. Some examples of mitigation include Centralized Monitoring and Control, Automated Safety and Response Mechanisms, Data Logging and Incident Analysis, Integration with Cybersecurity Tools and Role-Based Access Control (RBAC) and Authentication.

Conclusion

In conclusion, critical infrastructure systems are vulnerable to cyber and physical threats due to their complexity and connectivity. SCADA systems, when they are securely implemented, are valuable tools for monitoring, controlling, and protecting these

environments. However, they work better with a strong cybersecurity framework and continuous risk assessments.