

Alarms Management in Utility-wide SCADA Systems

Achieving Effectiveness, High Availability, Subsystem Autonomy, and Centralized Administration

Alan Hudson*

Trihedral, Suite 400, 1160 Bedford Hwy, Bedford, NS B4A1C1

(*Email: alan.hudson@trihedral.com Phone: 902-832-6166)

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ABSTRACT

Notifying operations personnel of alarm conditions remains the single most important function of a water and/or wastewater SCADA system; more specifically, SCADA's primary purpose is to facilitate an understanding of alarm condition such that operations personnel can respond efficiently and effectively. In small SCADA implementations with few assets, few alarm conditions and few operations personnel, alarms management is relatively straightforward. Today's SCADA systems, however, are evolving beyond the monitoring of standalone process, plant or remote asset network. The utility-wide SCADA system has emerged as a central administration hub with distributed sub-systems, each responsible for their own assets.

Utility-wide SCADA provides numerous benefits, ranging from centralized security management and configuration, to operational standardization and large-scale decision-making. However, the importance of alarm management remains paramount. Indeed, the creation of a centralized architecture allows alarms at the sub-systems to be managed from a utility perspective, in regards prioritization, responsibility allocation, consistency and data analysis. Key industry standards provide important direction in the establishment of alarm policy, and these standard can be applied at a utility-wide level.

While standards help implement best practice, a reliable, scalable and fail-safe SCADA architecture provides the structure required to make utility-wide SCADA systems successful. A solid, client/server architecture and well-designed redundancy scheme allows the alarm system to support real-time alarm synchronization throughout the network, with seamless fail-over and recovery of autonomous sub-system operations.

This paper explores the SCADA functionality required to support large-scale alarms management by applying industry standards and good network architecture techniques in utility-wide SCADA buildouts.

ABOUT THE AUTHORS

Alan Hudson is US Sales Manager for Trihedral Engineering. Alan holds degrees in Mathematics from Samford University and Electrical Engineering from Auburn University and has been in the water wastewater segment for 26 years with experience in engineering, consultative design, programming, and system integration. Contact: alan.hudson@trihedral.com