

# Utility Success Story – Integrated System Architecture

Biren Saparia<sup>1\*</sup> and Hassan Ajami<sup>2</sup>

<sup>1</sup>Great Lakes Water Authority (GLWA), Detroit, Michigan, USA

(\*Email: [Biren.Saparia@glwater.org](mailto:Biren.Saparia@glwater.org) and Phone: (313) 267-8977)

<sup>2</sup>Process Control & Instrumentation (PCI), Detroit, Michigan, USA

(Email: [hajami@pci-detroit.com](mailto:hajami@pci-detroit.com) and Phone: (313) 267-8977)

## **SUBMISSION TYPE**

30 minute presentation

## **KEYWORDS**

DCS, SCADA, Automation, Security, Domain, Architecture, Integrated

## **ABSTRACT**

The Great Lakes Water Authority (GLWA) is the new entity operating the system that used to be the Detroit Water and Sewerage Department (DWSD). As part of their transition, they set out to modernize their technological architecture, build it up to a baseline that could meet future security standards, and provide visualization of the process systems to those outside of the day to day operations.

GLWA's system is comprised of numerous facilities, each with its own control system. Prior to the recent changes, each system had its own security configuration, an open network with multiple devices using the same layer as the main controllers, and local data viewing limited to either the station, or a subset at the main control center. Management of the old system was a time consuming task with numerous steps required, which left many opportunities for mistakes that could have far reaching consequences. Security was also a tiresome approach, with users having to be manually coordinated between the separate systems. The current system utilizes a central security architecture that manages all users and rights for all facilities, a multi-layer network topology that segregates the support components from the main controllers, a physical architecture that uses routers to further isolate the 3<sup>rd</sup> party connections, and a data-diode security package that allows for data transfer to the outside world.

The goal of our presentation is to show how the modern architecture was established; the decision making process that went into forming the system as it is now; and issues and roadblocks encountered and their resolutions. We will also explore the tools used to provide visualization outside of the process network "bubble" and how they meet the toughest of security standards. The audience for this presentation would be anyone involved in the planning phase of a control system, those involved with the day-to-day maintenance of the system, and those managing and reviewing system performance and output. The goal is to give users and planners a real world application where an integrated architecture was established.

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## **ABOUT THE AUTHORS**

**Biren Saparia** is the Systems Control System Manager for the Great Lakes Water Authority (GLWA), the third largest municipal water and sewer utility in the United States. He leads the operation and maintenance group for water distribution and wastewater collection systems. He has been involved with the Water/Wastewater industry for 15 years, previously at a system integration firm before joining DWSD and GLWA. Biren Saparia holds a Bachelor of Science degree in Chemical Engineering from Wayne State University. He is a member of the AWWA, Engineering Society of Detroit and International Society of Automation (ISA). Contact: [Biren.Saparia@glwater.org](mailto:Biren.Saparia@glwater.org)

**Hassan Ajami, P.E., CAP** has been involved in the Water/Wastewater industry for 16 years. His roles have covered all aspects of control systems, ranging from design, integration, commissioning and planning. He is currently the General Manager at PCI. Hassan Ajami holds a Master of Science degree in Industrial System Engineering from the University of Michigan and a Bachelor of Science degree in Chemical Engineering from Wayne State University. He is a licensed Professional Engineer as well as a Certified Automation Professional. Contact: [hajami@pci-detroit.com](mailto:hajami@pci-detroit.com)