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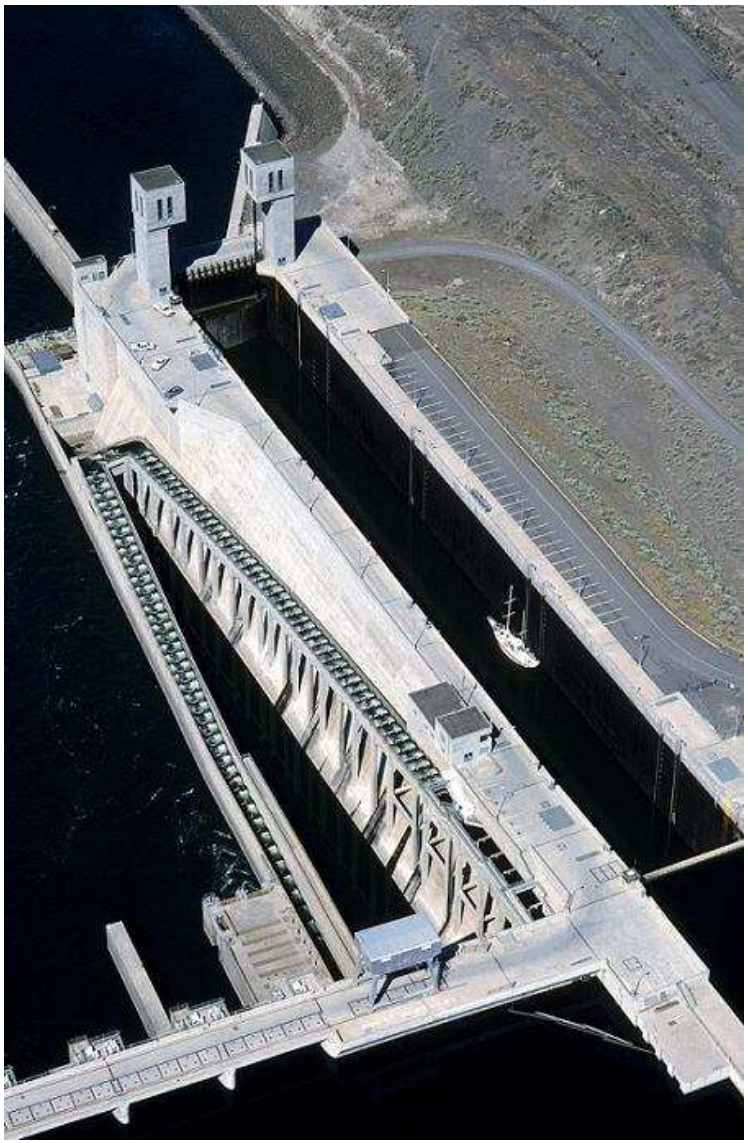
THE INDUSTRIAL NETWORK COMPANY

Case Study: Waterway Lock and Drawbridge Application



A 47 year old control system that controls both lock and drawbridge operations on a highly utilized highway and commercial shipping waterway was well overdue for replacement. The old system was entirely manual. It utilized hard wired controls without redundancy. Access to information regarding critical aspects of this 24 hour 7 day per week operation was only available by manually going to the individual components to collect it, which could involve a quarter mile bicycle ride. The replacement of this outdated system required trending and tracking on water levels, camera systems for real time monitoring of operations, over pressure protection, and over-stress detection. The modernization proposal included a Rockwell Control Logixs PLC system, RS View front end for monitoring. The entire system would be run over an Ethernet backbone. I/O, HMI, and data collection were designed with reliability of data integrity critical to the success of the proposed control system.

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Since the reliability of the Ethernet switch is critical in this application, N-TRON switches were chosen due to the 1-2 million hours MTBF and the ability to manage a high speed ring topology. Keeping the lighting system up and on is critical to this application. HID lighting requires 5-10 minutes to come back on once power is interrupted to the lighting system, and 5-10 minutes can be a long time with a vessel navigating the chamber in the dark.

The decision to control the entire lock and drawbridge system over an Ethernet backbone was a first for this district. The Ethernet network alone saved truckloads of wiring over the old hardwired system. Control elements of the new system include gates, valves, drawbridge, and hydraulics as well as power quality monitoring. RS View displays gate and valve position, water levels and alarming. This is a vast improvement over the days when an employee had to ride a bicycle to check on critical aspects of the operation. In addition to maximizing uptime of the network, the system enhances the safety of the motoring public, vessel operators, and lock and drawbridge employees.

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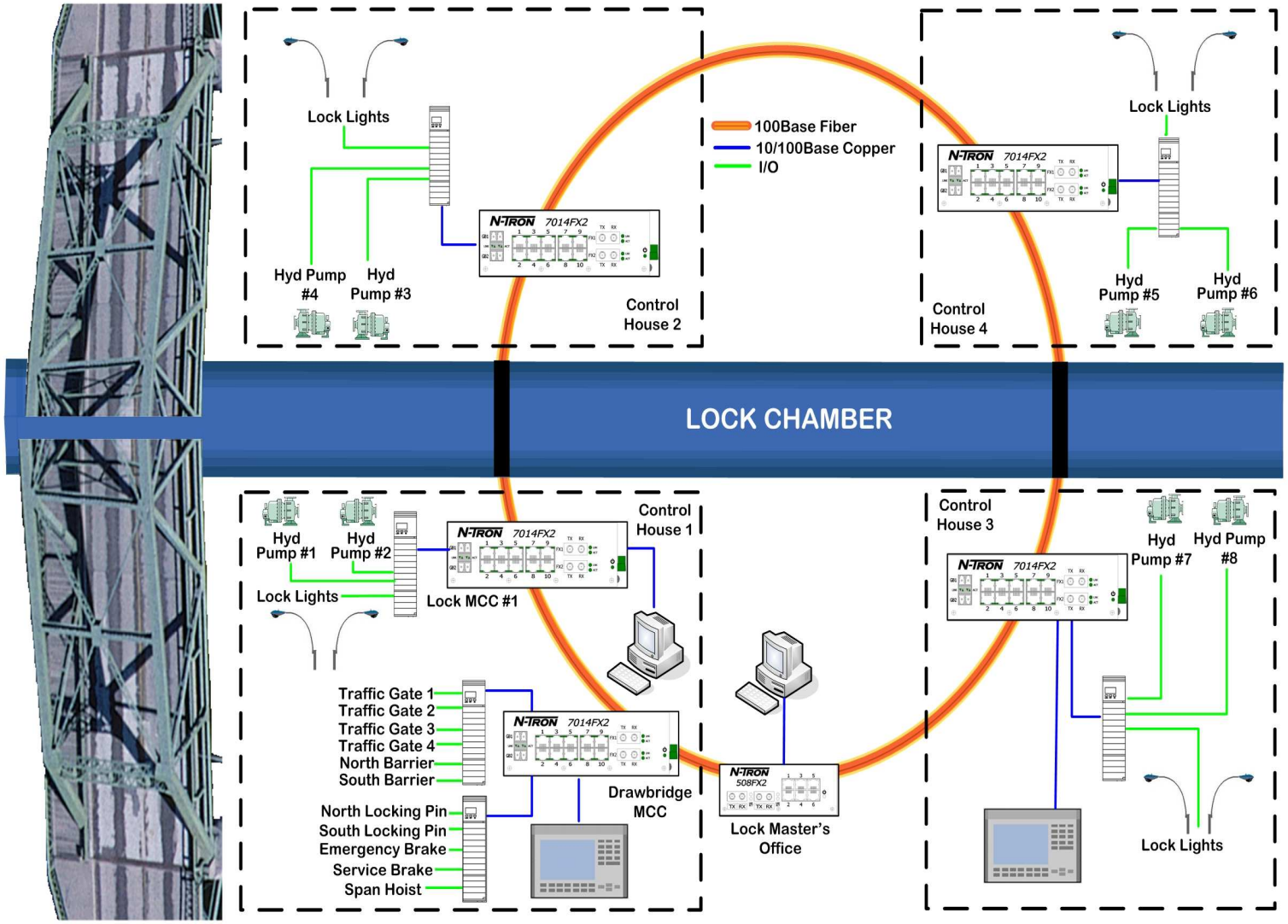
Topology for Waterway Lock and Drawbridge Application



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