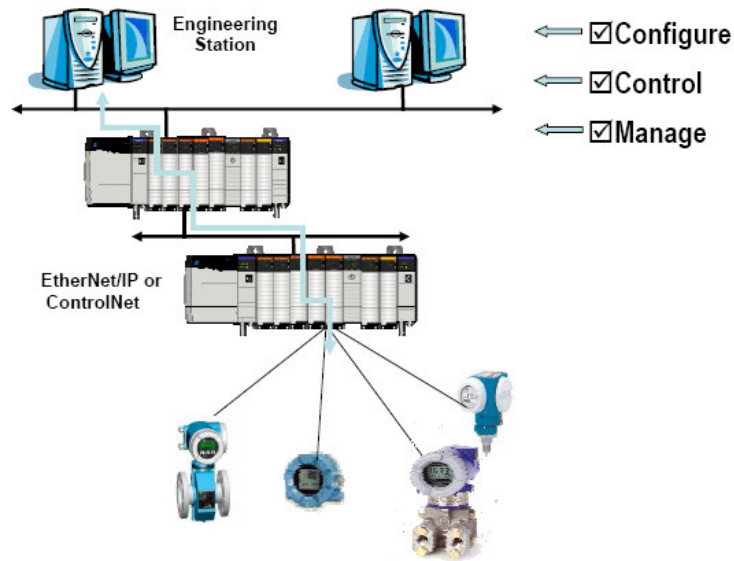


AdCept Software Solutions

Industrial Ethernet Based Process Control

Municipal Water Treatment and Industrial Water Treatment Systems



ADCEPT SOFTWARE SOLUTIONS

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AdCept Software Solutions – Implementing Ethernet based SCADA solutions

We specialize in high performance process control solutions that are based upon truly open standards. Using these Ethernet based micro-PLC modular, scalable controllers and I/O blocks with easy to use configuration tools, gives customers the benefits of a turnkey automation system without the big price tag. In addition, Ethernet connectivity overcomes distance limitations of older RS485/232 systems and is less expensive to implement.

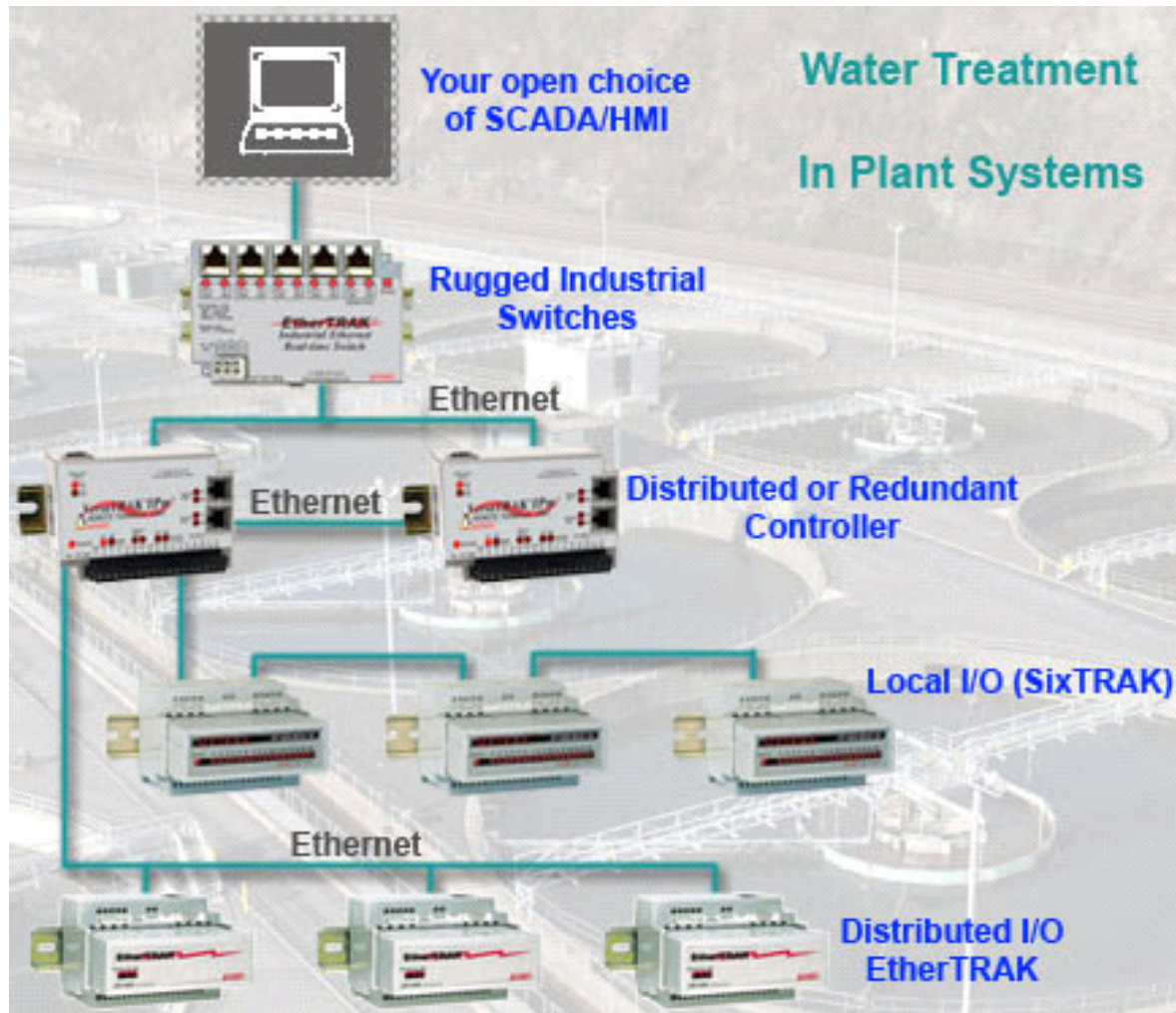


Figure 1 Water treatment plant showing “Ethernet-based Process Control” by a layered system

Process Control and Instrumentation selection

- The HART technology is chosen as the communication standard for the instruments.
- Usage of I/O modules that support both HART and non-HART based I/O.
- Field instruments and process control platform need to be managed from one central place. Transparent link to the device from the engineering stations over the automation LAN avoid usage of multiplexer in the field.
- Technology should be “open” to allow the use of other networks and instruments.
- Asset management should be open to allow integration with future asset management requirements.
 - Condition based monitoring
 - Link to ERP platform
 - Change Management

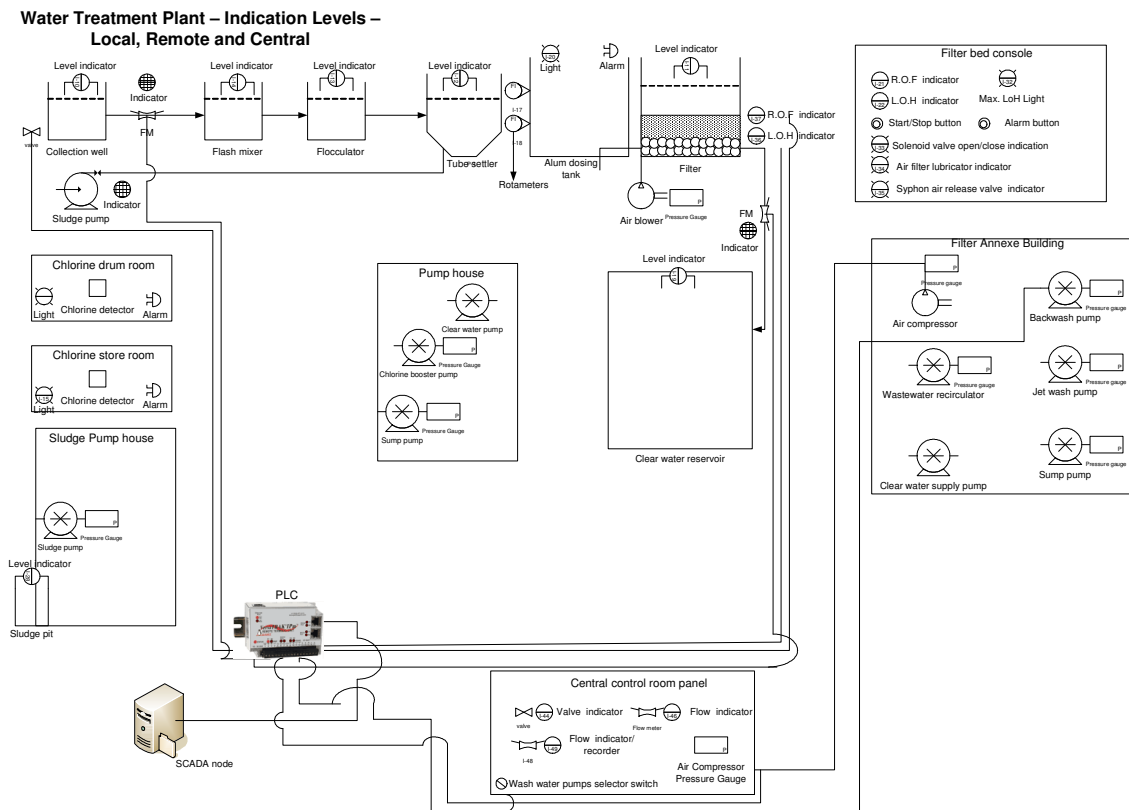


Figure 2 Typical P&I diagram for a Water Treatment Plant

Benefits of Ethernet based open systems micro-PLC are:

- o Scalable Systems that will grow with your requirements (up to 50,000 I/O)
- o Truly open standards gives the customer the freedom to choose products such as any SCADA package, Instrumentation and Motor control systems, without the need for a single vendors end-to-end proprietary system. That is expensive in the long run besides being tied to a single vendor.
- o Process Quality I/O - Precision I/O that hot swaps and is isolated for long-term reliability
- o Outstanding Environmental Ratings - Operation range of -40 to +75 °C, certified for offshore & Zone 2 use
- o Reliability Through Redundancy - Redundant processors, networks and I/O channels
- o Twenty Year OEM's Product Support Promise - Open systems and planned technology pay off in the long run
- o Best Value Solutions - Big system performance for the price of just the components



Figure 3 Industrial Water Treatment Application – with Ethernet based micro-controllers and I/Os

Open System for water treatment plants - A shift from single vendor proprietary system

Our Open systems interface with other manufacturers products like SCADA software, water quality instruments and Motor Control Centers giving you the freedom to make the best of class choice for any product without being locked into one manufacturer. The software tools offer a system wide approach to programming and configuration with a view of the entire network of controllers and RTU's.

Best in class scalability, redundancy, self healing, auto back-up

Enjoy the ability to start small and expand to thousands of "process quality" I/O modules. We have many levels of redundancy to guarantee reliable operation. The capability for redundant power supplies and communications pathways has been built into our hardware. Our self healing Ethernet ring topology provides a fast, deterministic and inexpensive method of keeping all devices on a network connected. Our software tools provide automatic mirroring of one controller in a backup.

Ease of Maintenance and Troubleshooting

Maintenance engineers or technicians love the status LEDs on serial ports, Ethernet ports, DIs, DOs, and now on AIs and AOs. A quick glance will usually tell you if everything is operating normally, all without the additional time and hassle of hooking up a laptop.

Remote Terminal Units (RTUs) for remote or multi-site connectivity and monitoring

RTUs combine the functionality of a PLC, datalogger, industrial computer and communications gateway into an intelligent automation solution. These feature-rich Remote Terminal Units are also flexible, expandable, and designed for tough industrial environments. Rugged enough to withstand the worlds' deserts and frozen tundra, the temperature ratings are second to none.

All products have several RS232 ports to interface with a variety of modems and other devices. In addition, the software includes special support for phone and radio monitored equipment including delays and queuing that make communications more robust.

Upgrade obsolete hardware

Replace your obsolete RTU's one at a time without the expense of a completely new SCADA system. The flexibility of our Open Linux OS allows us to emulate many protocols in older RTU's while remaining completely transparent to the rest of the system.

Ultra-reliable Datalogging

Never lose data again. Our solution offers a wide range of advanced dataloggers designed for capturing your important data in real-time, time-stamping it and saving it to battery-backed memory. Our hardware comes with powerful logging software that makes it easy to transfer your data from your field installed

dataloggers to your supervisory system. This includes client initiated transfers to a secure datalog server, redundant datalog transfers, and more.

Vendor managed inventory

Place a RTU at multiple sites to provide the value added services. Control and increase the effectiveness of product delivery. Monitor and datalog product usage and system performance -- with a web browser you prefer. Automatically send product reorder requests. Report back to your central facility over secure communications lines, including firewall protected Internet connections. This system has been the leader in Vendor Managed Inventory systems for the water chemical industry for more than a decade.



Figure 5 Typical Ethernet-based controller panel

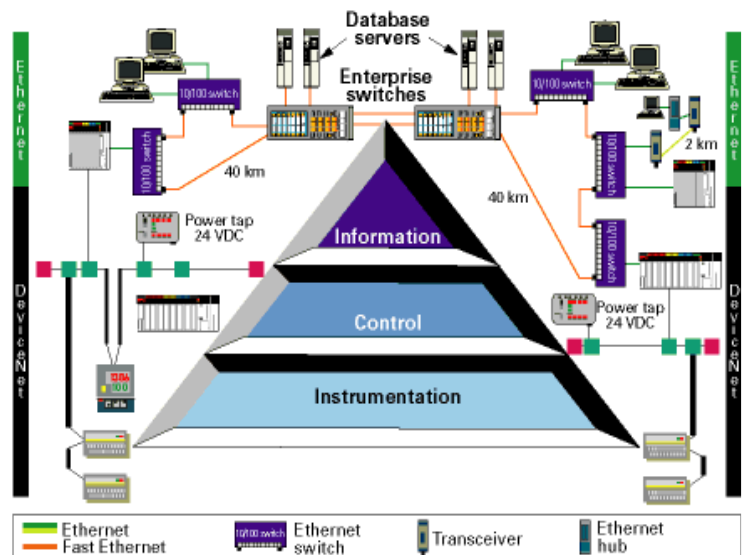


Figure 4 Scalability and Integration of Ethernet based Process Control

Conclusion - Industrial Ethernet based SCADA: Results to gain

Some of these results are easy to quantify in the ROI calculation and some are more intangible. Here are some of both kinds of results achievable by users of industrial Ethernet based SCADA systems:

- ◆ Leveraging IT standards, know-how, and tools lowers costs;
- ◆ Wireless connectivity simplifies device connections;
- ◆ Using devices with integrated switches continues the advantages of “bus” wiring;
- ◆ Open standards allow a broad choice of devices and vendors
- ◆ The greater bandwidth and the larger address space of Industrial Ethernet permit larger projects;
- ◆ A single network simplifies engineering and maintenance plus reduces training requirements;
- ◆ Complete projects faster with the configurable peer-to-peer capabilities
- ◆ Peer-to-peer capabilities allow easy and flexible reconfiguration of production line equipment;
- ◆ Having motion control on the same network means consistency of tools and knowledge for all types of applications; and
- ◆ Integrating safety circuitry onto Industrial Ethernet and into PLCs saves on wiring, hardware, and software. It speeds troubleshooting, too.