There is no place where control and data acquisition are as important as in a Nuclear Power Plant. Traditional Instrumentation and Control systems had many weaknesses, among them:

- analog systems
- point-to-point wiring
- inherently fragile
- susceptible to noise
- slow due to analog to digital conversion times.

In the past there was reluctance to utilize Ethernet as a control network because commercial grade switches were too fragile and Ethernet was non-deterministic.

Today all this has changed. Switching technology makes the Ethernet deterministic. Fiber optic cable provides a medium that is immune to electrical noise. Ring topologies provide redundancy if a device fails or a cable is cut or damaged.
Case Study: Nuclear Plant

N-TRON Industrial Ethernet switches are ideally suited to the needs of a Nuclear Power Plant.

- Operating temperature ranges of up to -40°C to 85°C insure that N-TRON switches will be the “last man standing” in the network.
- ESD protection on copper ports and surge protection on power inputs contribute to 1 M hour + MTBF times.

- N-VIEW™ software makes it possible to monitor the status of the network and quickly identify the location of a problem, even with economical, unmanaged switches.
- N-RING™ assures that in the event of a failure the ring will be reconfigured into an RSTP network in about 30 milliseconds.
- Automatic IGMP snooping means that replacing a switch is simply a matter of unplugging the failed switch and plugging in a new one. No time consuming configuration is required.
- Gigabit Singlemode fiber ports assure that throughput and distance requirements are met.
Nuclear Power Plant Topology

From serial devices

Reactor

Gigabit ring

Valve

Water Treatment

From serial devices

Gigabit Fiber
100Base Fiber
Copper cat5e
Hardware installation at Nuclear Power plant