Enhanced Management Efficiency and Security of Oil Pipeline Project Introduction

2010-09-30

Location / Country :/Russia

Product Solutions:
EDS-510A Series

7+3G-port Gigabit managed Ethernet switches

ioLogik E2210

Ethernet Micro RTU Controller with 12 digital inputs and 8 digital outputs

Introduction

Project Introduction

Managing a 1600 kilometer long oil pipeline is no simple task, even for the leading oil pipeline company in Russia that owns the largest oil pipeline system in the world.

The company has built a fiber optic backbone based on SDH multiplexers to transmit standard E1 data streams over long distances. The backbone is connected with a variety of systems, such as the ventilation system, air conditioning system, and fire alarm system. In order to transmit such a large amount of data aggregated from numerous systems, the backbone must provide sustainable bandwidth for real-time delivery. Long-distance fiber optic ability is also a must for this cross-country pipeline.

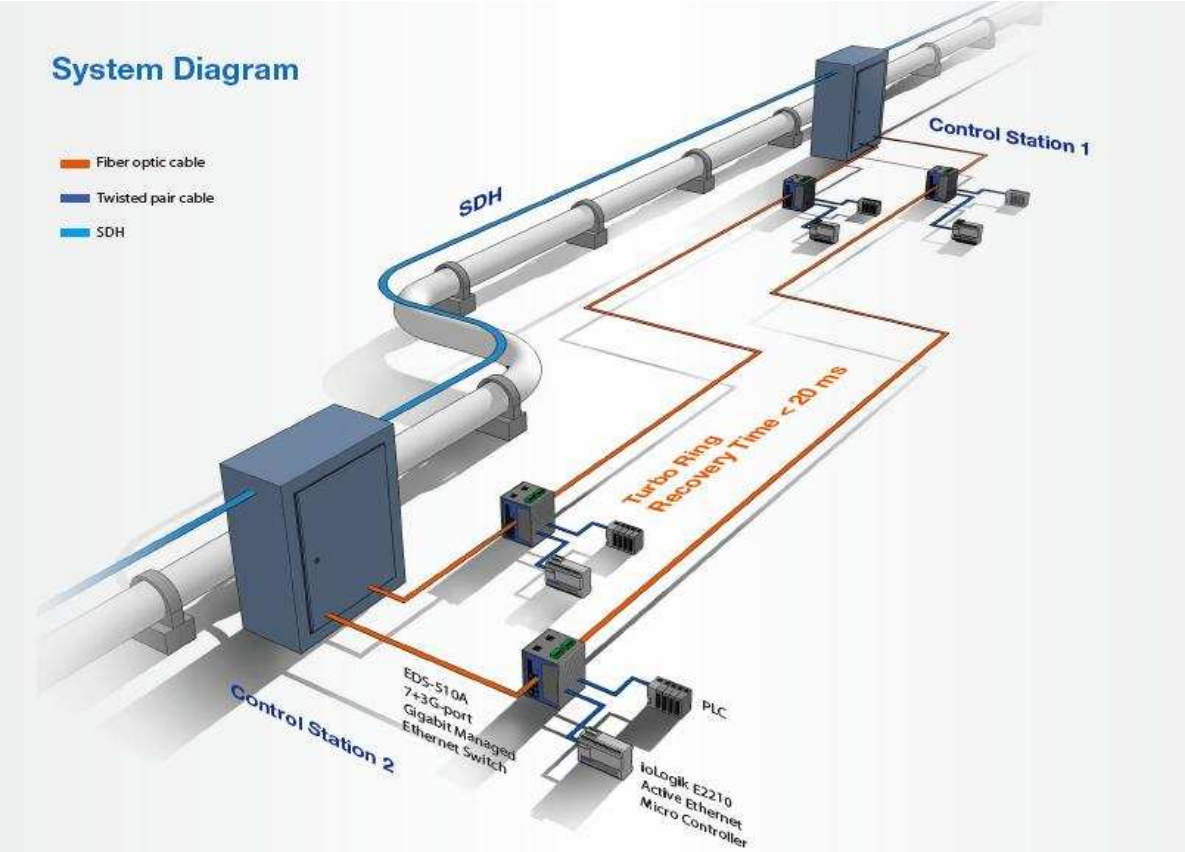
System Requirements

- Remote monitoring, control, and management of oil pipelines from the control center
- Uses fiber optics for long-distance transmission of data across the country
- Gigabit redundant ring for high data availability
- Rugged design capable of operating under harsh environmental

Moxa Solution

To make sure that all data is transmitted accurately and immediately, a Gigabit Ethernet network consisting of more than 1,000 Moxa EDS-510A industrial Ethernet switches was constructed. The EDS-510A provides up to three Gigabit Ethernet ports, making it ideal for building a Gigabit backbone with high bandwidth capability. In addition, the EDS-510A switches support fiber optic transmissions of up to 80 km, providing high cost-effectiveness by significantly reducing the number of installations required. With a -40 to 75˚C operating temperature range, the EDS-510A switches are able to operate reliably in harsh Russian industrial environments. At each node along the pipeline, a Moxa ioLogik E2210 Active Ethernet micro controller is installed to allow for communications between the sensors and the Ethernet network, so that actions can be taken automatically during unexpected events.

The Ethernet network was configured in a Turbo Ring topology to ensure data availability at all times with a fast recovery time of less than 20 ms. Overall, Moxa's ruggedized switches and I/O products were a perfect fit for the harsh environment..



Why Moxa

- EDS-510A provides fiber optic support for up to 80 km of long haul transmission
- EDS-510A offers a wide operating temperature of -40 to 75°C
- Gigabit backbone to ensure real-time data transmission
- Redundant Ethernet ring network integrated with SDH backbone to enhance reliability and security
- Active Ethernet micro controller delivers eventdriven reporting with time stamp, providing precise event information and I/O status for real-time alarm

Product

EDS-510A

- Turbo Ring and Turbo Chain (recovery time < 20 ms at full load), and RSTP/STP (IEEE 802.1w/D)
- 3 Gigabit ports (RJ45/SFP) to address high bandwidth demands
- -40 to 75˚C operating temperature range
- Advanced network management functions including IEEE 1588 PTP, IGMP Snooping and GMRP, Port-based VLAN, SNMPv1/v2c/v3, and Port mirroring

ioLogik E2210

- 12 digital inputs and 8 digital outputs
- Active Messaging with real-time stamp, including SMS, SNMP Trap with I/O status, TCP, and email
- Supports SNMPv1/v2c/v3 protocol
- I/O peer-to-peer