IEC 61850-3 / EN51055 24+4G-port Gigabit modular managed Ethernet switches

Introduction

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Power and other utilities are essential to the modern economic infrastructure, so their systems must have rock-solid reliability and be easy to maintain. A German energy provider was looking for a reliable network backbone to connect several large and small substations with the control center. As one of the largest power providers in Germany serving around 530,000 customers, they needed a solution that could help prevent failures by using intelligent monitoring and control. In the event of failure, the system should provide workarounds and immediate recovery options. The company sought a cost-effective solution that was easy to install and maintain.
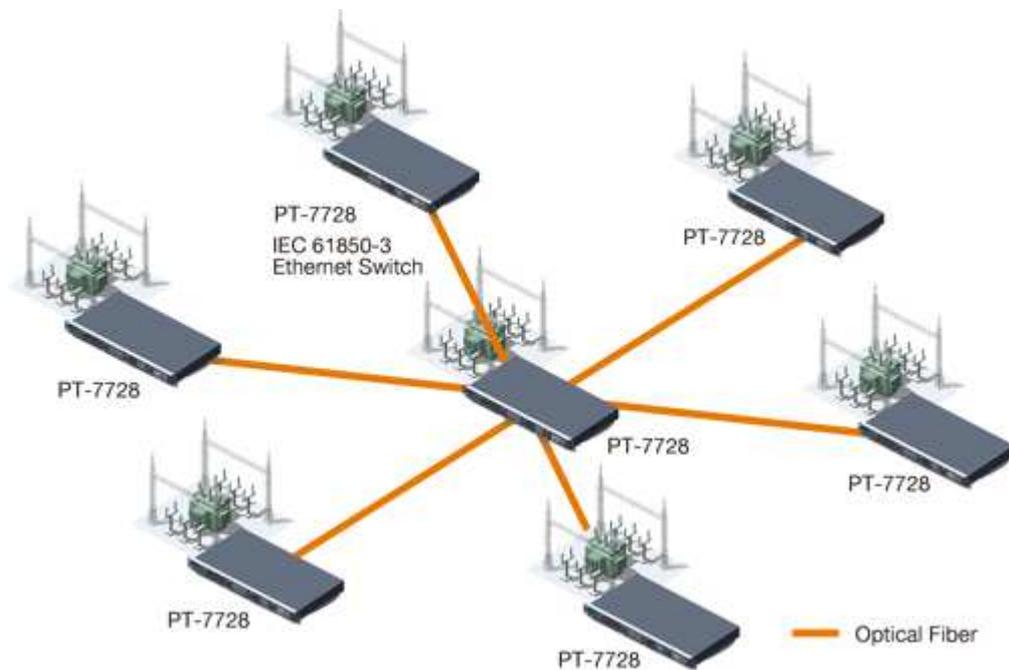
System Requirements

Build star network on top of the existing substation backbone to have direct connection to each substation in case of a blackout.

Moxa Solution

The power provider deployed 48 of Moxa's IEC 61860-3 PowerTrans switches. The Ethernet switch connects the substations with the control center in a star topology. This is a very resilient solution. If one or more substations fail, the control center still has a direct connection to all the other substations and can rely on them as a short-term replacement power supply. Another advantage of the star topology configuration is that it can be upgraded

to Moxa Turbo Chain at any time in the future, enhancing the network's reliability with added network redundancy. Moreover, the Moxa PT-7728 could, in just one product, fulfill each of the customer's three different configuration requirements:

1) A number of 24-Port modular managed Ethernet switches
2) A number of 48-Port modular managed Ethernet switches
3) Three central Ethernet switches for the control room

With the Moxa PT-7728, the power provider could use one product to meet all three requirements. This all-in-one solution streamlines maintenance and reduces the costs and labor required to stock backup equipment. In addition, the PT series uses an easy and straightforward firmware that facilitates programming and installation. To increase the reliability of the system even further, the customer acquired a 24/7 service contract with a Moxa partner. This ensures that the products are maintained by experts and always deliver 100 % operational reliability.

Why Moxa

Moxa was able to provide a versatile solution with just one product that offers multiple different configurations. Using just one model of Ethernet switches reduces maintenance complexity and costs. Moxa's software also offered key competitive advantages; simple and straightforward, it also unlocks future expansion with Turbo Chain upgrades in the future. Non-redundant stars can be reconfigured to redundant Turbo Chains.