Kalkitech

Case Study

Migrating to Distribution Automation

Background

Customer:
Distribution Utility in Thailand

Region:
Asia Pacific

Industry:
Electric power distribution

Solutions

SYNC 2111 Remote Terminal Units with 2 DI cards and 1 DO card

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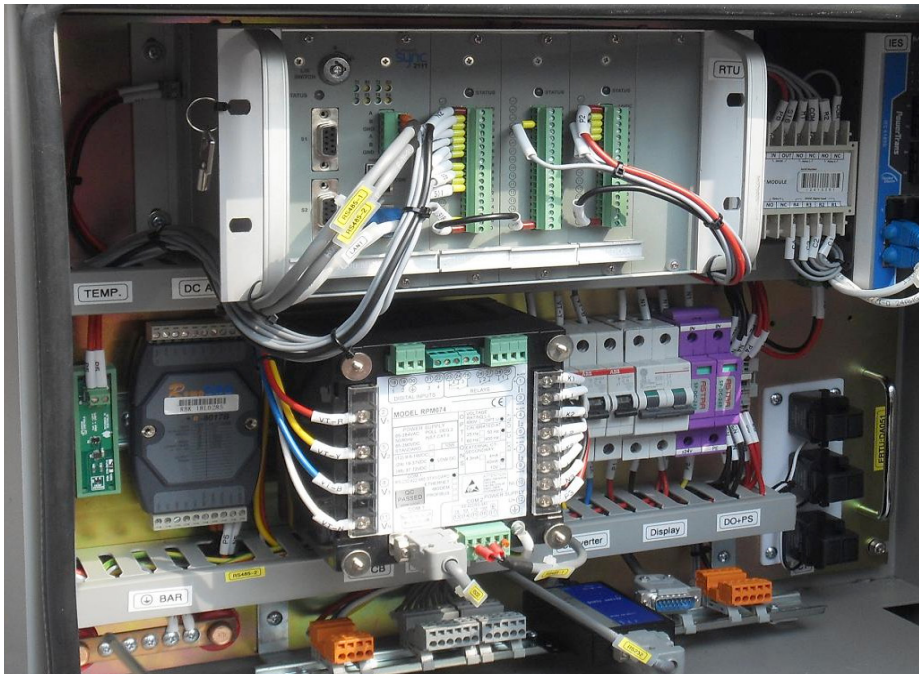
The utility was operating with an outdated DMS which was unable to provide near real-time, remote status about distribution lines and the devices monitoring them leading to operational inefficiencies and higher costs.



Business Need

One of the largest power distribution utilities in Thailand grappled with issues over several years related to operational efficiency, rising costs and timely restoration of power subsequent to outages. Using an outdated Distribution Management System (DMS) they were unable to deliver up-to-date information about the status of the distribution lines and the devices monitoring them due to lack of sufficient number of monitoring points. As a result, the utility lacked remote fault detection abilities necessitating a maintenance crews to go out to manually check faults. This led to delays in repair and restoration of power when outages occurred, as well as high maintenance costs. A smarter integrated distribution management system became an imperative to enable near remote real-time monitoring and control of the distribution grid.

Expectations were that with an updated DMS they could enhance the quality of service provided to power customers in addition to improving operational efficiencies, reliability and lowering costs. With distribution automation systems in place, they would have the ability to quickly identify faults, reduce duration of outages, initiate measures to prevent future outages and improve overall power reliability.

Solution

Kalkitech's solution involved the supply, installation and commissioning of 320 SYNC 2111 Remote Terminal Units (RTUs) with 2 DI cards and 1 DO card on distribution feeders. These smart grid ready RTUs include support for industry standard communication protocols including as Modbus, DNP 3.0 and advanced logic with IEC 61131.

One of the key components of the distribution lines is the Load Breaker Switch (LBS) which requires near real-time monitoring and control for remote management. The SYNC 2111 RTUs are installed at each LBS to provide status, including I/O monitoring, at sub-second intervals. The remote monitoring units communicate with external devices to acquire data related to switch status and record it in distribution transformers and feeders. The RTUs provide protocol conversion and support multiple communication channels including GPRS, ZigBee and CDMA. These capabilities enabled the SYNC 2111 to consolidate data from the distribution network and transmit it to the utility's DMS control center. As a result, the customer was able to obtain a consolidated comprehensive view of its distribution network spread across a wide geographical area through its distribution management system.

Results

With this solution, the utility realized multiple benefits:

- Improved uptimes
- Reduced problem resolution time
- Near real-time status of distribution lines and distribution grid devices
- Minimized delays in restoring power after an outage
- Reduced inventory and maintenance costs by utilizing a single device for I/O collection, data conversion and remote transmission