

# Central America Utility Uses Phone, SCADA & Video

## Case Study

### Situation

A Power Utility in Central America that currently operates two hydroelectric facilities is scheduled to bring a new hydroelectric facility on line in about one year. As a result, it was looking to expand and upgrade its fiber optic communications network to include all three dam sites.

It was currently using a point-to-point fiber optic multiplexer solution that multiplexed four RS232 channels, one telephone channel and one Ethernet channel between the two existing dam sites.

The Power Utility's goal was to add reliability, redundancy and build in cost effective future expansion as it continues to add services in the coming years. Current applications included SCADA (RS232), Telephone (FXO/FXS) and IP Video.

It also wanted to add private network telephone service for security and reliability because of quality issues with satellite phone service.

### Solution

The Power Utility first looked at using standard Industrial Grade Ethernet Switches to link the three dam sites. It determined that standard switches would do the job, but would require separate converter modules for RS232 over Ethernet and telephone over Ethernet applications. Its network planners much preferred a "one box" solution over a "piece meal" solution.

After further product evaluations, and making expandability and scalability of services top priorities, the Power Utility decided to go with the JumboSwitch Industrial Gigabit Ethernet Modular Switch. More than just a standard Ethernet Switch, the substation hardened JumboSwitch was chosen for its ability to integrate Ethernet/IP, VoIP and TDM over IP on a single network.

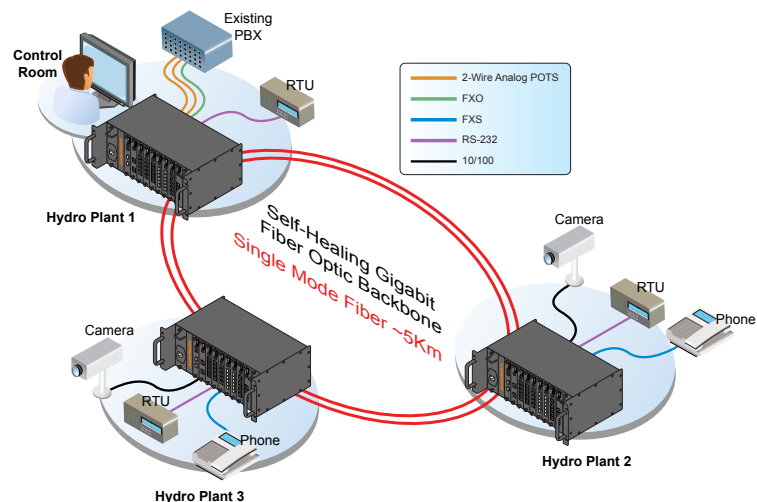
The JumboSwitch provided the Power Utility with a private network telephone solution and its self-healing ring topology enhanced overall system and network reliability. It also liked the JumboSwitches' hot-swappable, modular interface cards, four different chassis options and selection of 12 interfaces including several Power-Utility-specific interfaces.

Another factor was TC Communications "Value-Added Support Program." As part of this program, the Power Utility opted to have TC Communications commission train its technical personnel and commission the new system on site.

To this end, a two-person team from TC Communications, a product trainer and a JumboSwitch Network Engineer, spent three days at the dam sites conducting extensive training sessions and installing/testing the new network. The CCIE and CCNP certified TC Communication's engineer tested all inter-connecting equipment and ensured that the JumboSwitch network complied with the Utility's system requirements and design goals.

To link IP cameras, RS232 Remote Terminal Units (RTUs) and 2-wire analog telephones, the Power Utility installed three "4U" JumboSwitch units, one at each dam site (see diagram below). Units were initially configured with 4 interface cards: two 6-port Ethernet cards, one 4-port RS232 card and one VoIP card. All telephones are connected to a PBX at the main Control Center at one of the dam sites.

The JumboSwitch 4U chassis has seven expansion card slots and the Utility can easily add more cards as services dictate in the future.



Telephone, SCADA & Video Solution for Central American Power Utility Company