

KMIDam's Enterprise-Class Middleware

Data Acquisition and Dissemination for Multi-Dam Systems



CASE STUDY



KMIDam, short for Kinematics Management of Infrastructure Platform for Dams has enterprise-class middleware to acquire data and datalogger state of health, and disseminate relevant information to dam operators. With centralized command-and-control functionality, operational costs are reduced by minimizing required personnel and improving maintenance task scheduling. This is critical to ensure safe and efficient operation of implementations involving multiple distributed dam installations.

KMIDam employs the Antelope Environmental Monitoring Software, which has a proven record for data availability in the 99% range. The platform is scalable to hundreds of seismic and other sensors together with their metadata organized in a built-in relational database management system. Well-documented APIs allow processing results to be incorporated into other dam-specific operational platforms or digital twins.

An early adaptor of such middleware infrastructure was the Electricity Generating Authority of Thailand (EGAT), Thailand's largest power producer with a total installed capacity of 15,757.13 MW (as of March 2018). It instrumented 7 hydropower plants, which would normally provide extremely challenging implementation and operational conditions. The KMIDam platform simplified the solution, and provided for simple, reliable operations.

The data center located at EGAT's headquarters north of Bangkok acquires all data in real-time and supplies state-of-health monitoring for each element of the system. This system is tuned to carry out the automatic location of small local seismic events near each dam as well as regional earthquakes. The system automatically calculates peak ground acceleration (PGA), velocity (PGV), and displacement (PGD). The information is disseminated to the dam operators and need-to-know departments within the organization.

Kinematics KMIDam Solution utilizes the Antelope middleware infrastructure wherever dispersed dams need to be centrally monitored and whenever uninterrupted real-time feeds are essential for the safety and operation. The proven reliability of KMIDam remove the guess work for operators, and provides all of the information required to make informed decisions before, during and after events.