



**DANOVO**

ENERGY SOLUTIONS

A QUANTA SERVICES COMPANY

# IMPLEMENTATION AND MIGRATION OF ASSET HEALTH CENTER (AHC) USE CASE

*Independent, objective, and practical expertise in electric power*





# USE CASE

*Monitoring an asset's health can help a business predict and prevent issues, improve productivity and reliability, and reduce costs. In this use case, Danovo Energy Solution's personnel assisted a customer both with its original implementation of a proprietary Asset Health Center (AHC) solution and then subsequently with its migration several years later to the Lumada Asset Performance Management (APM) platform to improve their visibility and system's operation.*



## KEY BENEFITS

1. **Integrates** data from various external sources and expands asset data types being monitored.
2. **Provides** a comprehensive view of the health of the power system's assets enabling a detailed forensic analysis of asset data and informed decision-making with data, which is able to be segmented and utilized in enhanced dashboards.
3. **Increases** efficiency and accuracy in condition assessment, reduces asset failures, and optimizes and strategizes maintenance planning.
4. **Improves** data-driven capital allocation.
5. **Transitions** technology to solution built on a micro-services orchestrated platform.

## CUSTOMER/ INDUSTRY CONTEXT

A large investor-owned (IOU) electric utility that covers multiple states serving more than six million customers has approximately 17 GW of generation capacity, 24,000 miles of transmission lines and 269,000 miles of distribution lines, and 2,400 substations.

## PROBLEM STATEMENT

The customer wanted more visibility into their assets' health to identify risks and prioritize replacements and repairs. Additionally, the existing solution was being retired. Current processes relied on slow, manual, and often inaccurate assessments due to lack of automation in the data collection and assessment processes. Also, the customer wanted to integrate data from online sensors and historical loading into the risk assessment as well as expand asset types being monitored to include items like capacitor banks and instrument transformers to the substation power transformers, circuit breakers, and batteries already being monitored.

## DETAILED USE CASE DESCRIPTION

*Specific scenarios:*

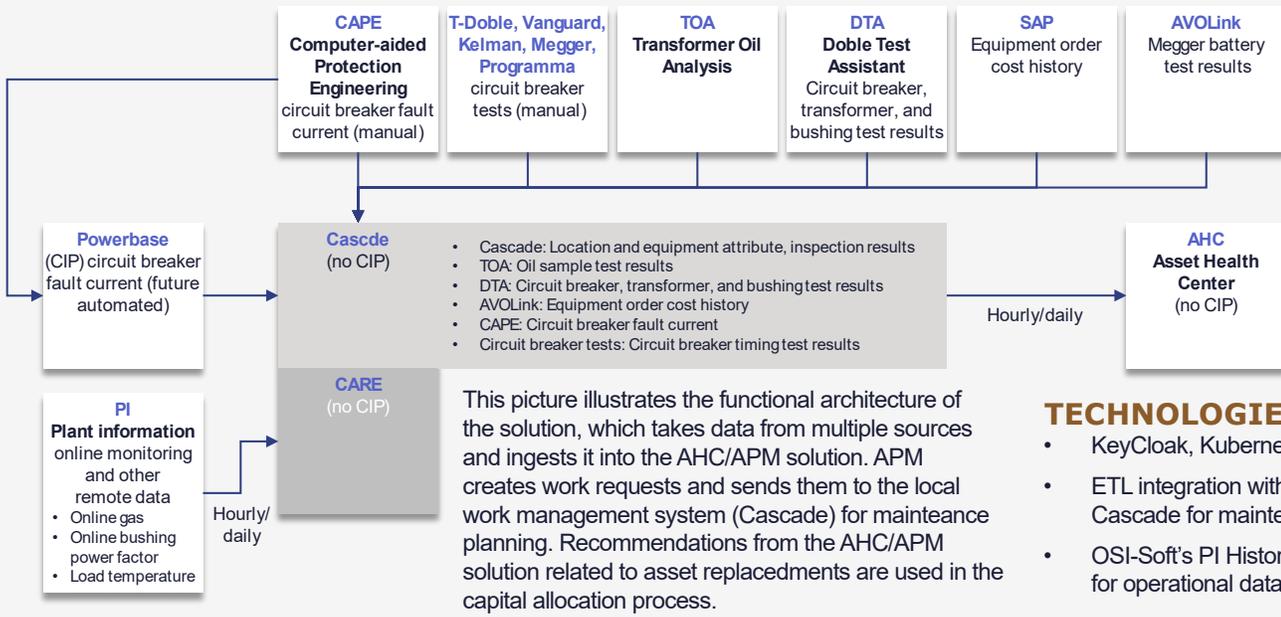
**Maintenance planning:** Provide a prioritized list of assets with an explanation of issues and remedial actions for maintenance planning.

**Asset renewal:** Provide a prioritized list of assets that includes company's prioritization criteria for asset renewal (replacement).

**Process automation:** Offer integration of data collected from various sources – inspections, historical operations (from the EMS), online monitoring – to be processed automatically for purposes of fleetwide risk assessment.

## OVERVIEW:

The AHC solution ingests data from various sources, provides executive dashboards and several segmenting capabilities for engineering personnel to conduct detailed forensics on asset data. The solution covers substation assets, including transformers, circuit breakers, and station batteries. The newer platform, APM, will include more asset types and data from external sources.



### TECHNOLOGIES USED:

- KeyCloak, Kubernetes, Grafana
- ETL integration with DNV's Cascade for maintenance data
- OSI-Soft's PI Historian for operational data.

### IMPLEMENTATION PROCESS:

- Conducted a kickoff meeting to identify appropriate resources within both the vendor and customer organizations.
- Appointed a Project Manager and several Subject-Matter Experts (one per asset class) to oversee specific areas.
- Assigned an Executive Sponsor committed to the project's success to monitor progress.
- Implemented the project in phases and began by implementing a limited number of assets from each of the three asset types (transformers, breakers, and batteries).
- Tested all aspects of the solution during each phase to ensure functionality.
- Proceeded to full-scale onboarding of assets for the entire operating company.
- Applied the same methodology of starting small and then expanding to achieve full coverage of all assets across all operating companies.
- Migrated all assets onboarded in the old AHC solution to the new platform as part of the migration process and onboarded new asset types (capacitors and instrument transformers) in a methodical manner, organized by region and by operating company.
- Marked Go-Live by successfully completing end-to-end integration and user acceptance tests.

### LESSONS LEARNED

1. Work with the vendor to identify early what minimum data is required for risk assessment.
2. Determine system(s) of record for source data.
3. Spend quality time during the mapping phase of the project as this is most critical for the success of the project.
4. Understand the inputs to algorithms and work closely with the vendor(s) to focus on what is a "must-have" and what is a "nice-to-have".
5. Review data quality to ensure results obtained are of high quality as well.
6. Modify practices/data acquisition points where it makes sense to so.
7. Start small and expand with validation at each stage using full-time, dedicated resources from IT and the business.

### RESULTS AND BENEFITS

#### Quantitative results:

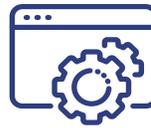
- Prevented catastrophic failures in several transformers by identifying excessively gassing that prompted remediation.
- Identified multiple circuit breakers needing timely maintenance before their potential failures.

#### Qualitative benefits:

- Improved accuracy of risk assessments and tracking ability of an asset's health through their lifecycle.
- Data-driven maintenance and replacement decisions.
- Better regulatory justification for capital projects.

### CUSTOMER TESTIMONIAL:

"...APM's trending and visualizations bring asset risk to life and enable us to track an asset throughout its lifecycle"



Several of the customers' executives prominently display the new APM dashboards in their offices to track the risk of failure of assets in the power system.



Visit our website at <https://www.danovoenergy.com/offering/asset-and-risk-management/asset-performance-management/> to explore our Asset Management offering and see more project references.



For more information, connect with our Asset Performance Management experts via [info@danovoenergy.com](mailto:info@danovoenergy.com).

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## Who:

Trusted advisors and solution providers with global utility experience.

Industry-recognized thought leaders.

Engineers and MBAs with the ability to address business and technology strategy, as well as the most specialized issues.

Experience spanning the entire lifecycle, from planning to EPC implementation with Quanta companies, to asset management and renewal.

## Why:

Independent, objective, and practical advice and solutions.

Unique business, regulatory, and technical expertise and best practice know-how.

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