

EPRI DATA ANALYTICS CASE

Leveraging AMI Meter Flags to Analyze Momentaries and Voltage Sags

The Data Challenge

Momentary outages, voltage sags, and other conditions on the distribution network related to power quality are an ongoing issue for utilities and their customers. Locating the root cause of these conditions can be challenging at times because the event data that would lead the operator to a cause is usually highly distributed throughout the distribution network in numerous intelligent devices such as advanced metering infrastructure (AMI) meters. In addition, there is not a defined method and system to analyze and present event flags/data to assist a distribution system operator or engineering to the location of the root cause.

Solution Overview

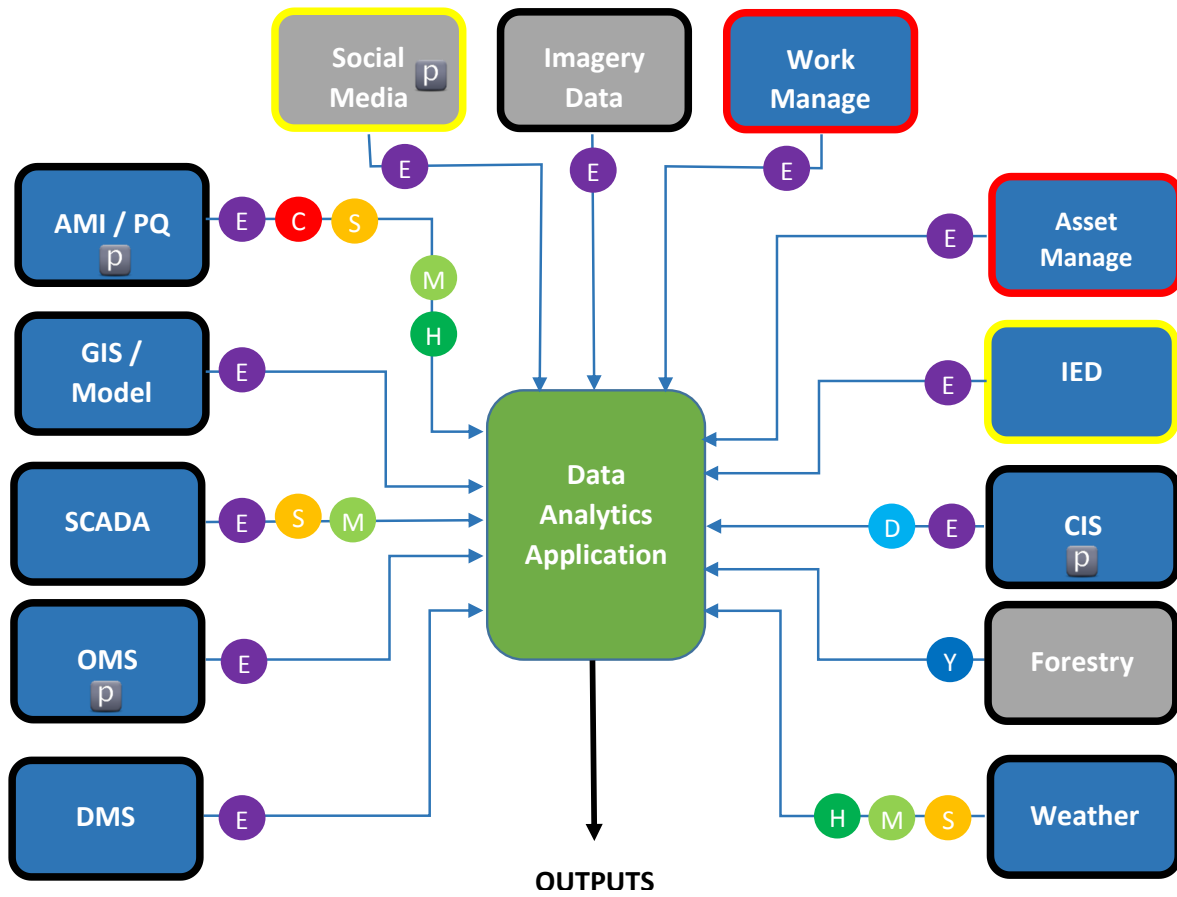
By aggregating momentary, voltage sag, and other distribution-related power quality flags from AMI meters and other potential sources for presentation in a visualization tool, system operators and engineers may be assisted in locating the root cause of these conditions, thereby enabling them to efficiently and effectively repair the cause in a timely manner. This data analytics case will present solutions that bring disparate power quality data sources and information together, primarily sourced from event flags of the AMI meter network, into a geospatial information system (GIS) interface for operators to better understand potential causes and locations for short-duration events. This will allow the operators and engineers to quickly pinpoint the cause within a branch circuit and hone in on a device such as a breaker, recloser, transformer, cutout, jumper, or meter as the culprit.

Potential Methods for Solving the Problem

The goal is to aggregate AMI meter event flags and/or register data with enrichment data from other distribution devices and systems whereby the aggregation of data is presented in the outage-management system (OMS), distribution-management system (DMS), or other appropriate system for operators to discern momentaries and voltage sags.

Available Data Sets

The data sets highlighted in the following figure are available in the EPRI Data Repository to solve this data analytics case.



Classifications of Data:

- Traditional Data Set
- New Data Set
- Structured Data
- Un-structured Data
- Format of Data Varies

p Denotes a primary data set used to solve this data analytics case.

Frequency of Measurement

- C Cycles
- S Seconds
- M Minutes
- H Hours
- D Days
- Y Months to Years
- E Event Driven