Silver Spring NETWORKS

SOLUTION OVERVIEW

METER-TO-TRANSFORMER CONNECTIVITY MAPPING

Silver Spring's Operations Optimizer solution harnesses powerful data analytics to automatically identify errors and suggest corrections to data in your connectivity model.

HIGHLIGHTS

- Employs powerful data analytics to automatically find errors in the meter-to-transformer connectivity model and suggest corrections
- Cuts down on the need for time-consuming and expensive field services
- Increases reliability of outage and maintenance information, allowing for more timely and accurate customer communication
- Native integration with any data repository, including the SilverLink Data Platform, reducing the time and cost of implementing new use cases
- A dynamic user interface generates reports, charts and maps, and can be taken into the field via tablet, laptop or truck mount

Are Errors In Your Connectivity Model Costing You?

The accuracy of a utility's meter-to-transformer connectivity model is crucial for maintenance planning, outage management and outage communications. Inaccurate meter-to-transformer data results in slower outage restorations and poor communication with your customers, both of which can quickly erode customer confidence. It is estimated that between 5% and 20% of meter-to-transformer data is incorrect in utilities' systems of record. Most utilities still rely on manual, trial-and-error methods to fix errors in their connectivity models, but these methods are time-consuming and expensive. The required field services alone can cost as much as $5 per meter, and with millions of endpoints and the potential for recurring errors, costs can quickly mount.

With Silver Spring Networks' **Operations Optimizer**, you can replace slow, manual methods with an automated system that continuously analyzes the connectivity model, identifies errors and suggests corrections. Drawing on a robust toolkit of data analytics, Operations Optimizer locates mapping errors and suggests the most likely meter-to-transformer connections. The proven accuracy of these analytic tools allows corrections to be automatically applied to the system of record.

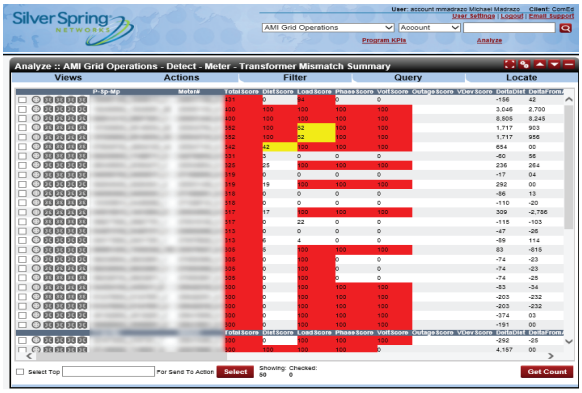
The strength of Operations Optimizer comes from its rich library of pre-built analytical tools, assembled and refined over more than a decade of utility-specific experience. This Big Data toolkit is further enhanced by machine-learning algorithms that allow Operations Optimizer to adapt and evolve to new data over time, solving new challenges as they emerge.

Perhaps most importantly, Operations Optimizer has been proven in the field, with successful deployments at more than 30 million endpoints across a broad customer base of electric, water and gas utilities, for both AMI and AMR.

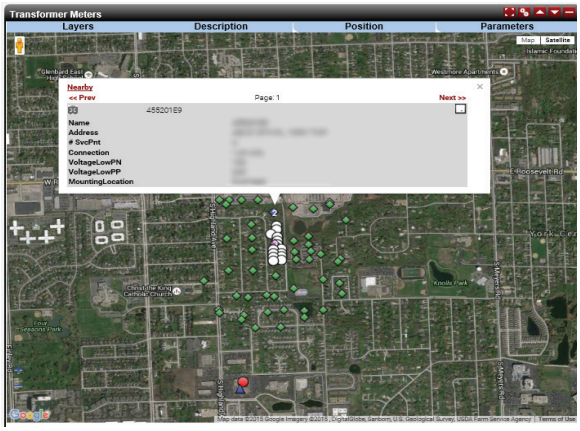
HOW OPERATIONS OPTIMIZER HELPS YOUR ORGANIZATION:

- Produces a more accurate meter-to-transformer connectivity model, and updates that model continuously and automatically
- Integrates seamlessly with the SilverLink Data Platform for out-of-the-box performance
- Provides personnel in the operations center with confidence in the connectivity model's accuracy when coordinating outage restoration activities and communicating with customers

Harnessing the Power of Data Analytics



Operations Optimizer integrates seamlessly into the SilverLink Data Platform, which uses smart grid technology to collect, store, and present real-time and historical data from multiple sources. In the case of connectivity mapping, for instance, Operations Optimizer will pull together GIS data for transformer-to-substation connectivity; CIS data for meter-to-transformer connectivity and customer information; OMS data for outage details; and AMI data for load and voltage profiles. Operations Optimizer collects all this data, "cleans" it, and then runs a series of analytical methods to find errors in the connectivity model and suggest corrections.



The Distance Method, for instance, measures average distances between meters and nearby transformers, while the Mismatch Method searches GIS and CIS data for places where meter and transformer configurations don't properly align. The Loading Method identifies potential mapping errors by finding locations where the load assigned to a given transformer is greater than the transformer's capacity rating. Another key method involves comparing the voltage patterns of individual meters to the average of other meters mapped to the same transformer. Operations Optimizer also can isolate meters that remain live during a transformer outage, as well as meters that go dead while their associated transformer is still online. Transformers that are missing in CIS or GIS data can be identified using geocodes.

The meter-to-transformer data analytics are performed in concert with one another, and are integrated with workflow tools that enable utility operators to prioritize the most relevant findings to produce a list of probable errors in the connectivity model. The system then performs similar data analytics to suggest likely corrections. In the field, Operations Optimizer has demonstrated a 90% success rate for locating errors and pinpointing the proper fixes.

An Array of Data Tools in a Single Application

Connectivity mapping is just one of many use cases for Grid Operations, one of several pre-built modules of the Operations Optimizer that are ready for out-of-the-box deployment. Other use cases include distribution asset monitoring, voltage analysis and load planning. Operations Optimizer is also highly configurable, so customized use cases can be added as new challenges arise. The combination of the SilverLink Data Platform and Operations Optimizer creates a powerful analytical solution so you can avoid the added workload and expense of integrating multiple single-use applications.

Operations Optimizer includes a dynamic user interface, which allows you to toggle between a variety of list and map views. Reports and charts can be produced quickly, and the interface's dashboard can be customized to fit your particular needs. Position tracking allows map views to be used remotely—from a tablet, a laptop or a truck mount—so utility crews can easily access data in the field.

Don't let errors in your meter-to-connectivity model lead to lost revenue and customer dissatisfaction. Operations Optimizer allows you to harness the power of Big Data to improve grid operations, protect your revenue and communicate more accurately and confidently with your customers.

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