

SurvalentONE

Distribution Management System

Analyze & Optimize Critical Grid Functions for Advanced System Monitoring & Control

Survalent.

Utiliverse™ ecosystem

SurvalentONE ADMS

The SurvalentONE ADMS platform is a fully integrated SCADA, OMS, and DMS solution that allows you to effectively operate, monitor, analyze, restore, and optimize critical network operations. By integrating data from across your network, the solution delivers real-time operational intelligence and control which empowers users to proactively respond and take corrective action when necessary.

It provides a common user interface for all roles for ease of operations, a shared as-operated network model and real-time database for increased performance, and a single hardware platform to simplify IT & OT maintenance and security. Easy to deploy, manage, scale and use, the SurvalentONE platform provides a low total cost of ownership.

Utilities from around the globe have benefited from greater operational efficiencies, enhanced customer satisfaction through reduced outages, and improved network reliability.

SurvalentONE ADMS

SCADA

**Monitor
& Control**

OMS

**Track
& Restore**

DMS

**Analyze
& Optimize**

SurvalentONE DMS applications allow utilities to make informed, dynamic decisions to efficiently manage load and improve network reliability

SurvalentONE DMS is a collection of integrated, feature-rich distribution management system applications that enable you to implement smart grid technology at your own pace to increase the reliability and efficiency of your network.

With SurvalentONE DMS, utilities can analyze and optimize critical grid functions, automate processes for significant efficiency gains, improve demand response capabilities, achieve substantial peak reductions, and accurately predict network conditions via a single, intuitive user interface.

Improve Network Reliability

SurvalentONE DMS empowers you to substantially reduce the duration of power outages and the number of sustained outages, resulting in increased revenue, better performance metrics, higher customer satisfaction, and the ability to offer performance guarantees that will attract large commercial and industrial (C&I) customers into your service area.

The Distribution Power Flow (DPF) application can continuously monitor for overload conditions and issue warnings before minor problems develop into full-blown service interruptions.

The FLISR application has the capacity to turn sustained outages into momentary ones by automatically locating faults, isolating them, and then rerouting power to customers in the non-isolated area, all within seconds.

Protection Settings Manager can maintain the correct protection settings for any given network configuration, while our Short-Term Load Forecasting application is able to predict future load conditions based on analysis of historical data and weather, further mitigating risk.

With SurvalentONE DMS, you can implement smart grid technology at your own pace, incrementally increasing the reliability and efficiency of your network.

Optimize Power Quality

SurvalentONE DMS can help you save money by significantly increasing the proportion of electricity that actually reaches your customers. Using our Volt/VAR Optimization application, you can efficiently manage voltage and reactive power throughout the network, minimizing losses.

Our DMS applications provide data analysis and insight that you can leverage to help your operators make more informed energy decisions. If integrating and managing DERs - such as rooftop solar panels - into your network is proving to be a challenge, our Distribution State Estimation application can more accurately predict the state of your network grid based on detailed connectivity modelling and telemetry from field devices.

Benefits

- Greater network reliability
- Increased operational efficiency
- Increased revenue due to more network uptime
- Improved performance indices (e.g., SAIDI, SAIFI, CMI, etc.)
- Enhanced situational awareness allows for informed decision-making
- Higher customer satisfaction
- Ability to offer performance guarantees to large C&I customers

Analysis & Forecasting Applications

Our analysis and forecasting applications give your team greater visibility into the network, empowering control-room personnel, managers, and other employees to make better, more informed decisions.

In particular, these applications can improve how you manage DERs by monitoring the direction of flow into your network in real-time.

▪ Distribution Power Flow (DPF)

By using feeder measurements and the network model, DPF can calculate measurements such as phase voltages, currents, and losses across the distribution network, and display the results in SmartVU in a variety of reports that help users detect problems such as impending overloads and poor voltage conditions.

After performing each calculation, DPF automatically analyzes all line sections to check for security violations, and raises an alarm if any are found.

When a security alarm is triggered, users can assess alternative network configurations using four built-in studies that separately examine switching, load transfer, restoration, and short circuit analysis.

DPF can be set to run on a fixed schedule or whenever a significant change in feeder load occurs. The application includes pre-switch validation which shows the impact of an intended operation before the switch is actually opened or closed.

▪ Distribution State Estimation (DSE)

DSE delivers a more accurate estimate of your network in any given switching configuration – while taking into account smart-grid technologies – to maintain optimal voltage and load. It extends the functionality of the Distribution Power Flow application by using SCADA measurements outside substations, performing consistency checks eliminating time skews on all measurements, and incorporating micro-grids and distributed generation into the power flow calculation.

▪ Short-Term Load Forecasting

Correlates historical loads with weather data such as temperature, relative humidity, wind speed, and cloud cover to predict likely network conditions.

Users can define parameters such as annual load growth, weighting factors for different variables, and equivalent temperature tables for humidity and wind chill in multiple independent load areas, each with its own weather pattern.

▪ Load Estimation

Continuously estimates the present value of the load point using the scheduled load forecast from the Short-Term Load Forecasting application.

Users can monitor how the estimated load compares with the actual measured load, and include either value in calculations or output them to other programs.

The application can be configured to substitute the estimated value for the actual value whenever the load cannot be measured directly, such as when there is a telemetry failure.

Demand Response Applications

SurvalentONE demand response applications can help you manage loads, especially during peak demand periods, thus ensuring optimal power quality and preventing overload conditions that can lead to costly brownouts and blackouts.

By monitoring the network and — when necessary — issuing commands to field devices, demand response applications will keep your grid operating within preferred parameters.

▪ Dynamic Voltage Regulation (DVR)

Automatically maintains end-of-line voltages at a preset level that ensures proper grid operation and conforms to guidelines laid out by regulatory agencies and upstream providers.

The application can help achieve conventional conservation voltage reduction (CVR), reduce peak demand, and manage optimal feeder voltage limits, while taking into account end-of-line measurements.

▪ Load Curtailment

Monitors an electrical network and, in response to an event, sheds load according to predefined supervisory command sequences.

The application assigns each load to either a control set containing breakers/switches or a control set containing addresses of load control receivers installed in customers' homes.

Control sets are shed or restored through controls issued to the appropriate breakers/switches, or through load shed commands issued to the load control receivers via load management RTUs.

- **Rotational Load Shedding (RLS)**

Automatically shuts down power to predefined network sections for consecutive, non-overlapping periods of time, producing a controlled rolling blackout on demand.

Users can plan each operation by setting parameters such as shed targets, priorities, schedule start/stop, duration, and intervals.

Key metrics such as shed capacity, current shed amount, operational status, controlled schedule, number of controls, and date/time are presented in an easy-to-read table or report to help users manage the process more efficiently.

- **Voltage Reduction (VR)**

Monitors voltage regulators and — when necessary — instructs them to bring network voltages down to preset levels as per command sequencing, calculations, or any other supervisory logic specified by the user.

The application makes all voltage reduction decisions based on user-defined groups of voltage regulators rather than individual devices.

Each voltage regulator is represented in the ADMS database by a collection of points that can be used to set its mode of operation (automatic or manual), raise/lower the voltage step-by-step, track its current tap position number, and record the measured voltage controlling it.

Distribution Automation Applications

SurvalentONE distribution automation applications are designed to improve network reliability and provide real-time insight into how the system is operating at any given moment.

These applications keep electricity flowing to as many customers as possible by automatically reconfiguring the network.

- **Fault Location, Isolation, and Service Restoration (FLISR)**

Uses telemetry from field devices to automatically reroute power around faults within seconds, thus minimizing the duration and extent of power outages. The application's sophisticated fault location algorithm narrows down the potential search area, enabling field crews to resolve the problem quickly and efficiently.

SurvalentONE FLISR is vendor agnostic for field devices so utilities can continue to source their equipment from preferred vendors. The application can be operated in automatic or semi-automatic mode.

- **Power Factor Control (PFC)**

Monitors and corrects the power factor at several specified 'billing points' which represents the locations where power is supplied to the network. The power factor at individual feeders can also be corrected if suitable telemetry is available.

To correct the power factor, the application switches capacitors in or out using either load control relays or conventional RTU controls.

• Protection Settings Manager (PSM)

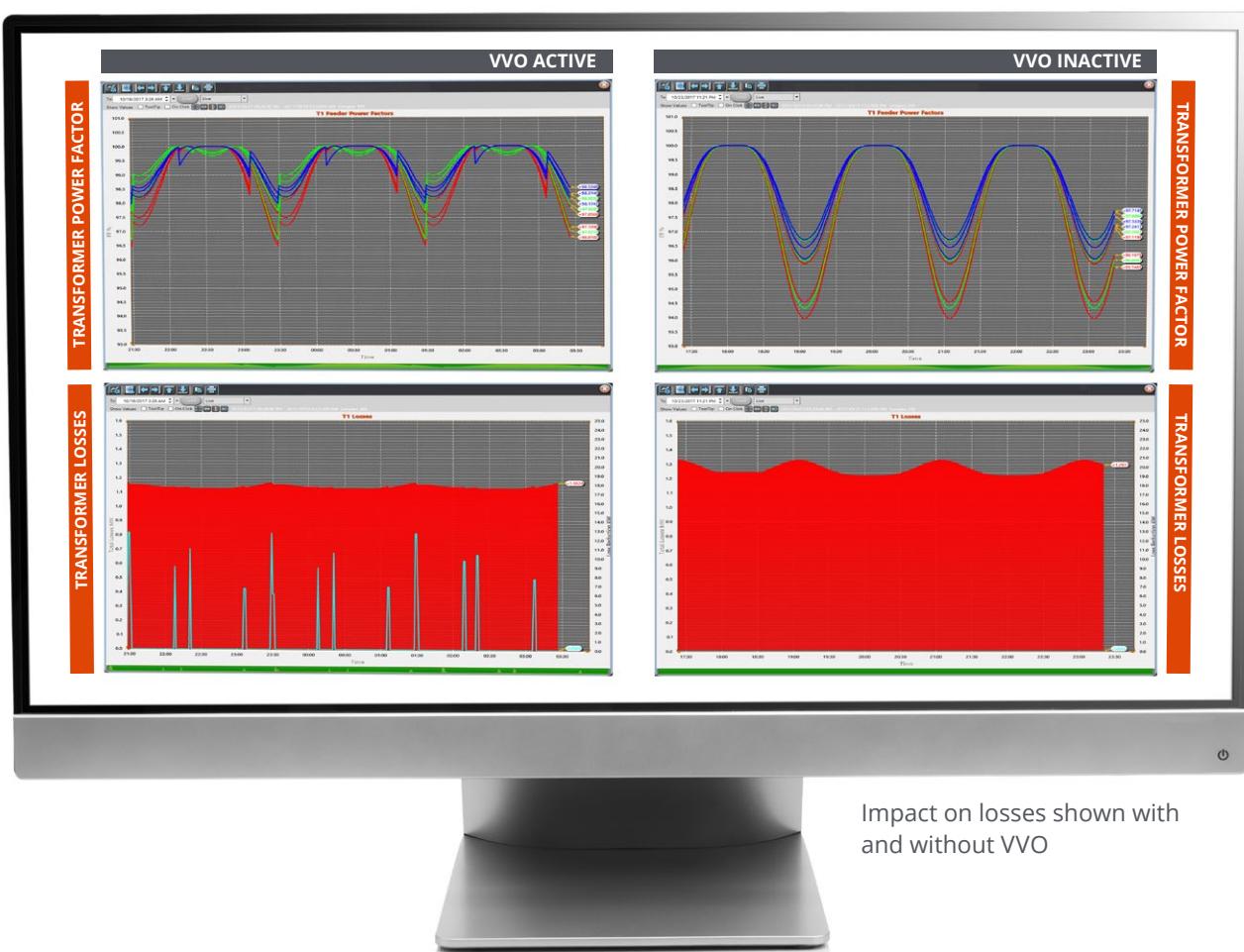
Analyzes the network configuration and determines which protection settings should be applied to relays according to a comprehensive set of user-defined rules. The application responds to any network event by automatically re-evaluating the protection settings and, if necessary, switching the relays over to a more appropriate protection settings group.

PSM can be configured to suspend operation whenever a protection relay is tagged or the station is in maintenance mode. Both digital and analog output controls are supported.

• Volt/VAR Optimization (VVO)

Coordinates control of reactive power and voltage to improve energy efficiency throughout the distribution network.

The application features three user-selectable functions: loss minimization, voltage reduction, and energy conservation. Users are able to impose constraints on the optimization process by defining acceptable feeder voltage profiles, feeder load limits, and power factor limits. VVO can be operated in automatic or semi-automatic mode.



Impact on losses shown with and without VVO

Better Software. Better Decisions.

With Survalent, you can control your critical network operations with confidence. We're the most trusted provider of advanced distribution management systems (ADMS) and substation automation for electric, water/wastewater, oil & gas, renewable energy, and transit utilities across the globe.

Over 800 utilities in 40 countries rely on the SurvalentONE platform to effectively operate, monitor, analyze, restore, and optimize operations. By supporting critical utility operations with a fully integrated solution, our customers have significantly improved operational efficiencies, customer satisfaction and network reliability. Our comprehensive substation automation solution, Survalent StationCentral, delivers advanced control and monitoring for enhanced network performance and protection.

Our unwavering commitment to excellence and to our customers has been the key to our success for over 60 years.

100% Project Delivery. We Guarantee It. Ask Us How.

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