onesait
utilities

Solutions for Grid Operators & Utilities

minsait ACS

An Indra company

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Minsait ACS is a division of Indra, a $4B global service and solutions company based in Madrid, Spain. Indra has 46 subsidiaries, 21 branches and over 56,000 professional employees supporting projects in over 140 countries.

Minsait ACS, based in Atlanta, Georgia, is a leading provider of real-time power grid control software solutions & advanced automation technology that enhances operational performance of the electric power grid.

For 45+ years, Minsait ACS has been a trend setter in power grid control and has been at the forefront of virtually every industry advancement. As part of Indra, Minsait ACS offers the most complete end-to-end solution for utilities.

Onesait Grid and Utilities

Minsait ACS brands its solutions under the name Onesait (pronounced one-site), and adds a specialty section for new, emerging technologies not related to the power sector.

The Onesait solutions family is categorized as follows:

- Onesait Grid Hardware
- Onesait Grid Software
- Onesait Utilities Software

Onesait Grid solutions include our complete line of RTU Substation Automation hardware and transmission / distribution system software including:

- ADMS
- OMS
- EMS
- SCADA
- POWR™ Mobile Applications
- GridVu™ Applications
- Smart Grid

Onesait Grid Hardware

Onesait Grid hardware solutions include the NTX™ Series, which is our complete line of RTU substation controllers.

The NTX series of substation controllers is modular and scalable, supporting applications from the feeder level to large transmission substations. NTX also offers a unique solution for upgrading legacy RTUs to optimize total cost of ownership. New substations, and older substations undergoing modernization, demand more device integration capability and flexibility for widely varying I/O requirements.

The Minsait ACS NTX family of intelligent controllers provides the scalability and features required to meet these demands.

Spec Sheet Library

- Substation Automation Solutions
  - NTX Series Product Comparison
    - NTX-20 Intelligent Controller
    - NTX-200 Substation Controller
    - NTX-220 Substation Controller
    - NTX-240 Substation Controller
    - NTX-260 Substation Controller
  - Legacy RTU Upgrade Solutions
    - NTX-U20 Substation Controller
    - NTX-U57 Substation Controller

Onesait Grid Hardware

Substation Automation

Minsait ACS is a leading provider of smart grid solutions to the global electric power industry. Our automation product lines include a wide range of flexible and cost-effective distribution, transmission & power plant substation and feeder automation solutions. Our NTX™ series of intelligent automation controllers are available in pole-top and substation models.

Modernizing older substations or building new substations requires more device integration capability and less local I/O. We support all applications with highly reliable, technically advanced client/server, peer-to-peer distributed multiple 32-bit microprocessor technology. An embedded Linux® operating system that is fully secure (no user accessibility) provides a stable platform for all distributed microprocessor nodes in each model. Our integration of IEDs is completely vendor transparent. Anyone with Windows® experience will find NTX Explorer Configuration and Monitor tools very intuitive. It's as close to plug-and-play as you can get.

	NTX-20	NTX-200	NTX-220	NTX-240	NTX-260
Replaces previous ACS model	NTU-7575 base	Fully expanded NTU-7575; small Connex 30/Connex 60	Small Connex 30/ larger Connex 60 gateway; smaller I/O capacity for Connex 30	Connex 60 or Connex 30 data concentrator/ protocol translation applications & 2nd source RTU upgrade host	Fully loaded Connex 30 plus
Carrier/card file dimensions	200 x 108 x 70 mm (8" x 4.25" x 2.75")	42 HP wide, 3 U high (9"w x 5.25"h x 12"d) Optional 84 HP (19")	84 HP wide, 3 U high (19"w x 5.25"h x 12"d)	42 HP wide, 3 U high (9"w x 5.25"h x 12"d) Optional 84 HP (19")	84 HP wide, 3 U high (19"w x 5.25"h x 12"d)
Ethernet quad-serial gateway node: maximum installed	N/A	3	4; no I/O 1 slot (control output); 1 slot (optional expanded I/O)	4; no I/O 2 slots used for legacy I/O interfaces	7; no I/O 2 slots used for I/O interfaces
Virtual Ethernet ports	15	204	267	267	456
Total NTX ports supported: isolated serial ports	2	14	18; no control and DA050235 I/O controller used	18; no I/O; 2 node slots used for legacy I/O interfaces	30; no I/O; 2 node slots used for I/O interfaces
Local binary inputs supported	Base 16 + 4 expansion; groups of 8 inputs each (48 points max.); isolated 18-36 VDC contact wetting	32-point modules; card file mounted; max. of 3 slots (96 points max. with no analog inputs); isolated 24 VDC contact wetting	32-point modules, card file mounted; max. of 6 slots (192 points max. with no analog inputs); isolated 24 VDC contact wetting	For legacy ACS or 2nd source upgrades; can support max. of 512 points	32-point modules, card file mounted; max. of 8 slots (256 points max. with no analog inputs); isolated 24 VDC contact wetting; NTX-I/012 expansion card files with 12 slots each
Local DC analog inputs supported	6 (expansion) 35 mm DIN rail-mounted (groups of 6 inputs each); 36 points max.	16 DC analog input modules, card file mounted; max. of 3 slots (groups of 16 inputs each; 48 points max. with no binary inputs)	16 DC analog input modules, card file mounted; max. of 6 slots (groups of 16 inputs each; 96 points max. with no binary input points)	For legacy ACS and 2nd source upgrades with max. of 256 DIN rail or card file analog input points	16 DC analog input modules, card file mounted; max. of 8 slots (groups of 16 inputs each; 128 points max. with no binary input points) NTX-I/012 expansion card files with 12 modules each
Local DC analog outputs supported	2; 35 mm DIN rail-mounted	Up to 16; 35 mm DIN rail-mounted	Up to 16; 35 mm DIN rail-mounted	Up to 16; 35 mm DIN rail-mounted	Up to 16; 35 mm DIN rail-mounted
Local control relay outputs supported	24	24	256 relays (less one quad-gateway) and for legacy ACS and 2nd source RTU control interfaces	256 relays (less one quad-gateway) and for legacy ACS and 2nd source RTU control interfaces	256 relays (less one quad-gateway) and for legacy ACS and 2nd source RTU control interfaces

Onesait Grid Hardware

NTX™ Series

	NTX-20	NTX-200	NTX-220	NTX-240	NTX-260
FUNCTION					
Primary Design Application	Pole-top/pad-mount switch automation; small substation installations.	Small substation installations with medium serial and Ethernet port requirements. Some legacy Minsait ACS and 2nd source upgrade applications.	Medium to large substation installations, and installations with larger serial and Ethernet port requirements. Some legacy Minsait ACS and 2nd source upgrade applications.	Small to large substation installations, with large serial and Ethernet port requirements for data concentration / integration applications. No local I/O other than for legacy Minsait ACS and 2nd source upgrade applications to adapt to legacy I/O interfaces.	Very large substation or power plant installations, with very large serial and Ethernet port requirements. Heavy-duty data concentration/ protocol translator applications. Some legacy Minsait ACS and 2nd source upgrade applications
Replaces	NTU-7575 base	Fully-expanded NTU-7575 and small Connex 60/ Connex 30	Smaller Connex 30 and larger Connex 60 gateway, and smaller I/O capacity for Connex 30	Connex 60 or Connex 30 data concentrator/ protocol translation applications	Fully-loaded Connex 30 plus

NTX-20

The NTX-20 controller is an economical solution for feeder automation where Ethernet and/or serial communications connectivity is desired. Combining both Ethernet and serial connectivity, master gateway, IED gateway, router, internal GPS precision time reference interface, binary inputs, and power supply functions in a single-package module, the NTX-20 controller interfaces with distribution line switches, capacitor banks, transformers, distributed substation breaker bays, water pumps, valve control devices, etc., to provide low-cost automation with the highest reliability possible.

Applications

- Feeder automation
- SCADA for single/multiple circuit devices
- Water, wastewater, gas, and pipeline monitoring and control

Onesait Grid Hardware

NTX-200

The NTX-200 Substation Controller, smallest of our NTX-200 Series modular substation system designs, incorporates complete substation management functionality. It also adds the ability to interface to a large amount of data from IEDs and to a small to medium amount of locally wired data acquisition and control devices in the substation.

The NTX-200 utilizes a client/server design. Throughout the NTX-200, servers (such as NTX gateways to IEDs) produce data, and clients (such as the NTX gateway supplying the virtual databases to the master) receive data. It transmits many selected subsets of this data to one or more master stations in the master's native protocol. Local I/O can also be configured in the three motherboard slots available.

NTX-220

The NTX-220 Substation Controller, the mid-size version of the Minsait ACS NTX-200 series substation systems, provides complete substation management functionality. It also adds the ability to interface to a very large amount of data from integrated IEDs, and to a medium to large amount of data from hardwired local I/O devices in the substation.

The NTX-220 is designed with multiple 32-bit CPUs operating within a client/server architecture. NTX-220 clients (such as the NTX gateway to IEDs) provide data that is received and processed at the server level in the NTX master gateway supplying the virtual databases to the master. Multiple user-defined subsets of this data can also be transmitted to one or more master stations in the master's native protocol.

Onesait Grid Hardware

NTX-240

The NTX-240 Substation Controller, a mid-sized version of the Minsait ACS NTX-200 series substation systems, provides complete substation management functionality. It also adds the ability to interface to a large amount of data from IEDs and to upgrade legacy RTUs interfacing to a medium to large amount of locally wired I/O devices in the substation. It does not provide any local I/O slots and is primarily designed to upgrade existing legacy Minsait ACS and 2nd source RTUs.

Architecturally, the NTX-240 can be described in terms of a client/server relationship. A source produces data (a server) and a destination requires the data (a client). Throughout the NTX-240, clients (such as NTX gateways to IEDs) produce data, and servers (such as the NTX gateway supplying the virtual databases to the master) receive data. It can also transmit numerous selected subsets of this data to one or more master stations in the master's native protocol. A medium amount of local I/O can be configured in the NTX-240.

NTX-260

The NTX-260 Substation Controller is our top-of-the-line NTX-200 Series substation system designs. It incorporates complete substation management functionality for extra large data concentration and protocol translation, while supporting a very large amount of local I/O for full integration of old and new substation designs.

Architecturally, the NTX-260 can be described in terms of a client/server relationship. A source produces data (a server), and a destination requires the data (a client). Throughout the NTX-260, servers (e.g., NTX gateway to IEDs) produce data, and clients (e.g., NTX gateway supplying the virtual databases to the master) receive data. It can also transmit numerous selected subsets of this data to one or more master stations in that master's native protocol.

Onesait Grid Hardware

Legacy RTU Upgrade Solutions

With NTX™ series RTUs, you can configure the RTU master communications database, through Virtual RTU™ addressing, to duplicate the legacy RTU database in its original protocol envelope. This solution lets you:

- Greatly reduce wiring and test labor, and engineering costs associated with RTU replacement
- Eliminate substation wiring drawing revisions and master station database and display revisions
- Eliminate the most failure-prone or unsupported electronics with extremely reliable and fully-supported NTX series hardware and software

**see Spec Sheet for all Legacy RTU Unit Compatibility*

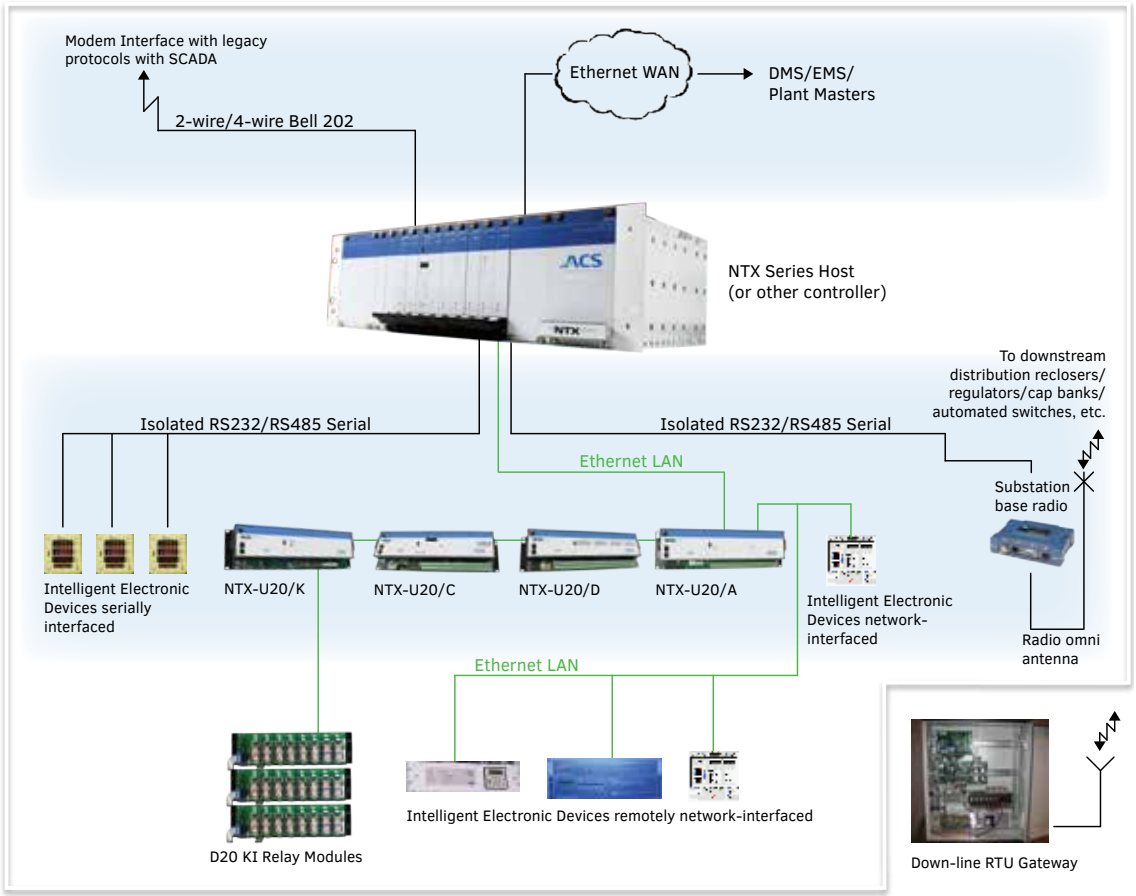
Onesait Grid Hardware

NTX-U20

Minsait ACS NTX-U20 is a cost-effective and feature-rich upgrade solution for GE D20 I/O peripheral panels. The NTX-U20 mounts directly to the existing WESTERM termination boards, eliminating the need to disturb or replace any of the existing field wiring. For the utility, this means up to 60% cost savings over a traditional RTU replacement, since the labor required to re-produce drawings, perform recabling, and do extensive point-to-point checkout is vastly reduced. Existing installations can also be expanded through the addition of Minsait ACS I/O panels to the NTX™ host, or the use of Minsait ACS designed replacements for the old WESTERM termination panels.

Features and Benefits

- Powerful, open-system architecture based on ARM 9E 32-bit RISC processor and Linux OS
- Can be integrated with the Minsait ACS NTX-200 series substation controllers as the master, or with another substation DNP/IP Ethernet control platform
- Plugs directly into existing WESTERM termination panel; no need to touch the existing wiring



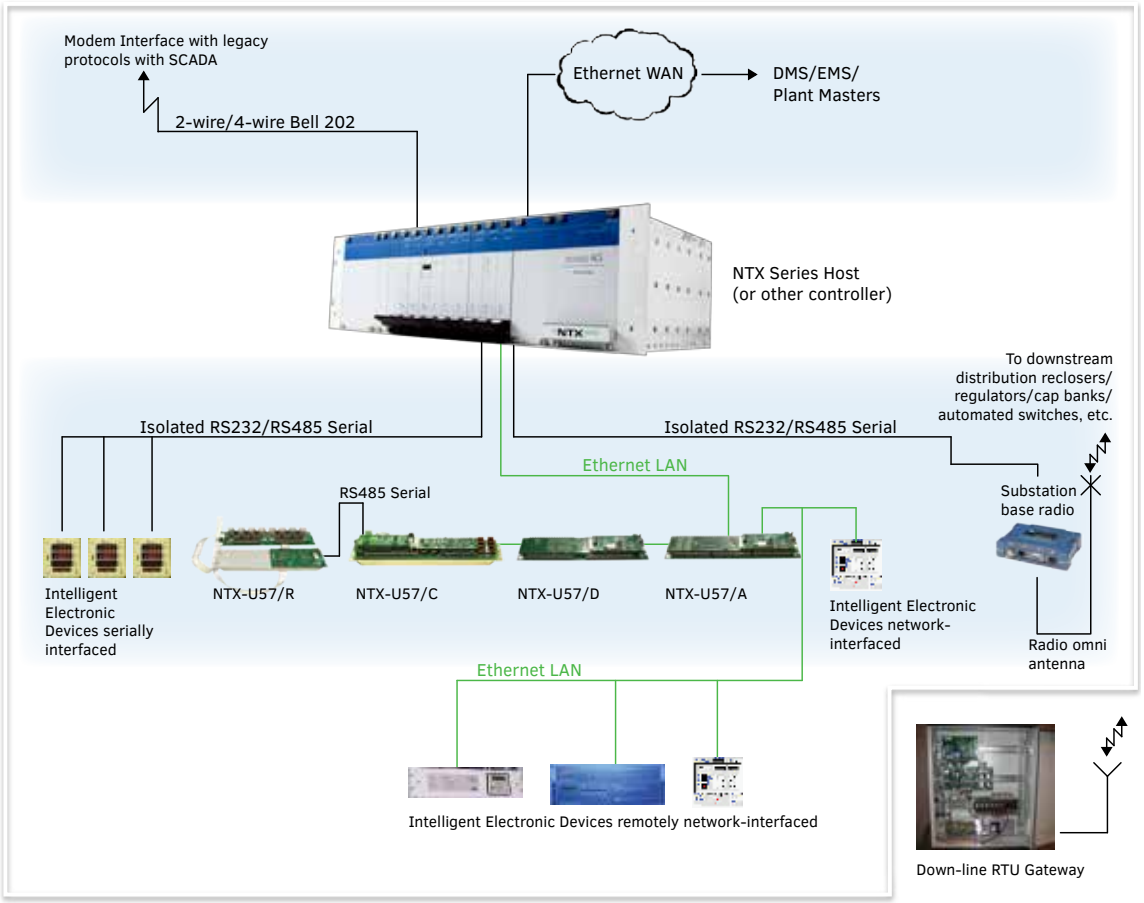
Onesait Grid Hardware

NTX-U57

The Minsait ACS NTX-U57 is a cost effective and feature-rich upgrade solution for L&G/ Siemens TG5700 RTU & I/O subsystems. The NTX-U57 replaces the original TG5700 Controller Card piggy-back mounted on the original Termination Card (for each I/O subsystem type other than SBO Control), eliminating the need to disturb or replace any of the existing field wiring. For the utility, this means up to 60% cost savings over a traditional RTU replacement, since the work required to reproduce drawings, re-cable, and do extensive point-to-point checkout is vastly reduced. The original TG5700 Station Manager or Supervisor Module host can be replaced with an NTX™ series Substation Controller, or any substation system that supports DNP/IP.

Features and Benefits

- Powerful, open-system architecture based on ARM 9E 32-bit RISC processor and Linux OS
- Can be integrated with the Minsait ACS NTX-200 series substation controllers as the Supervisor Module or Station Manager Controller host, or with another substation Ethernet control platform
- Plugs directly into existing termination cards - no need to touch the existing wiring



Onesait Grid Software

Onesait Grid software solutions include our complete line of transmission/distribution system software for controlling, managing, and optimizing power delivery.

Our suite of tools offers centralized control room and mobile field access to the distribution system controls.

Spec Sheet Library

- SCADA
- eAlarm
- Voltage Reduction
- Emergency Load Shedding
- ePRISM™
- ePRISM™ Web
- Designer
- Outage Management System (OMS)
- POWR™ Mobile
- GridVu™ Applications
- ADMS
- Smart Grid Applications
- IVVC
- DASmap™ Model Builder
- Centrix™ Advanced Feeder Automation

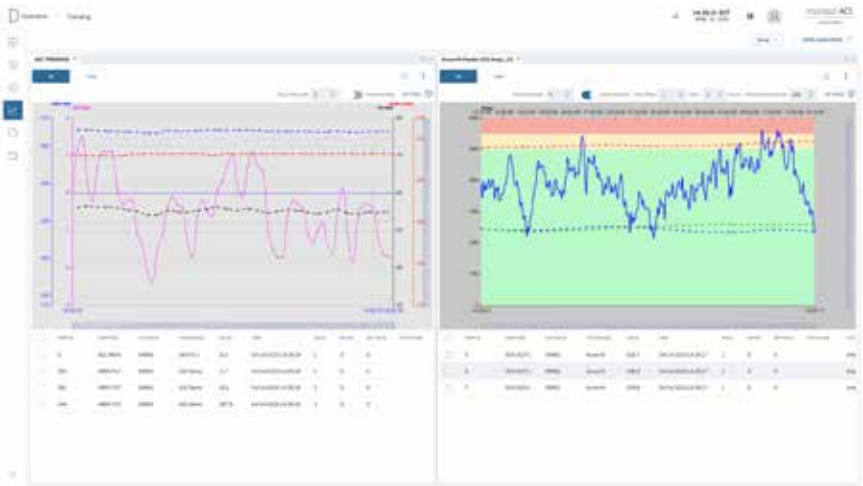
Onesait Grid Software

PRISM™ SCADA

The Precision Real-Time Information System Manager ™ (PRISM) is a proven and highly capable SCADA system solution that also serves as a common real-time automation platform, providing the foundation for integrated ADMS and EMS functionality. Worldwide, hundreds of utilities rely on PRISM as a critical operational platform. You need a system that is easy to deploy, offers flexibility in the communications infrastructure, and supports all the available industry protocols. PRISM offers all this and more.

The PRISM Communications Interface (PCI) supports many serial channels, and available DNPnet delivers efficient IP-based communication with virtually any RTU or IED in the field today.

Minsait ACS has the largest protocol library available in the industry and plays a key role in the advancement of the DNP protocol and development of the standards for DNP over IP.

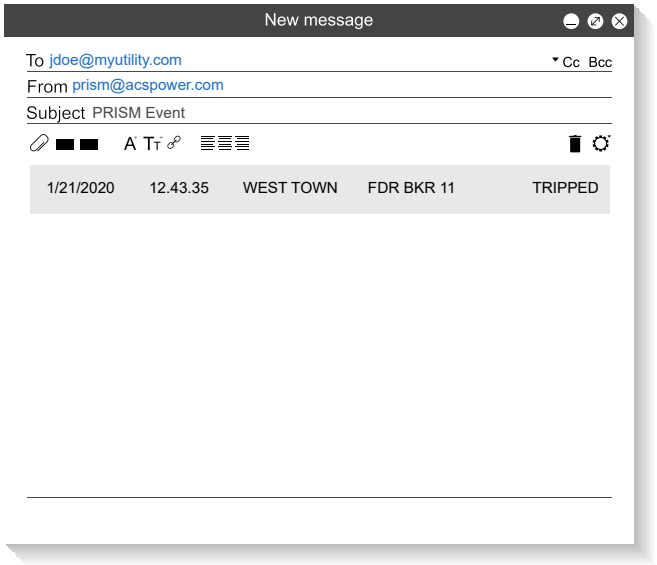


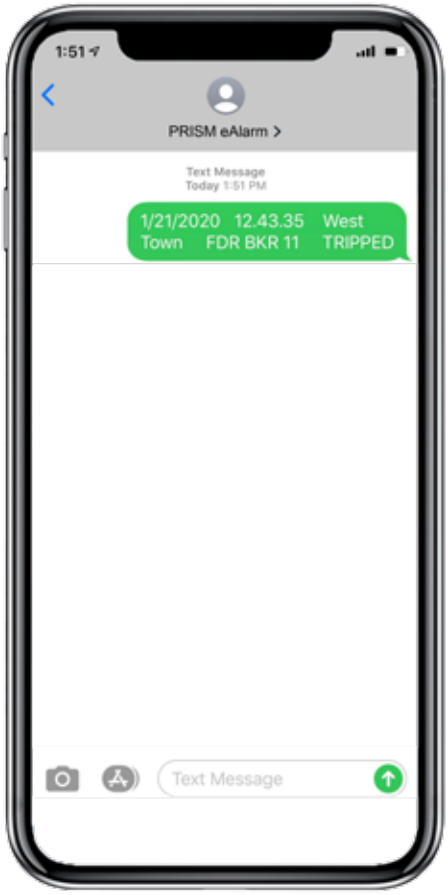
Onesait Grid Software

eAlarm

eAlarm provides the capability to send text message/email alerts for system events or critical alarms that require immediate attention. Notification may be provided for: a breaker lockout; a limit violation for an analog point; a control action by an operator; or any other system event or alarm condition within the PRISM™ database. You control the list of recipients for these alerts, configurable for each event type you define.

In eAlarm, you specify what your utility considers to be a critical alarm or event. Selected points can be digital status or numeric telemetry. The application has the capability to define up to 20 phone numbers/email addresses in the recipient list. The application supports grouping alarms/events on a pre-defined interval, schedules a script to prepare an email/text message, and uses PRISM system resources to send the message to your company mail server. The PRISM system AoA capability is used to retrieve the alarms/events. eAlarm can also be configured to support the use of cloud-based mail services such as Office 365. To securely send alarm/event emails to the cloud, a mail proxy server is deployed in the SCADA DMZ.





Onesait Grid Software

Voltage Reduction

PRISM™ Voltage Reduction (VR) is an application designed to decrease the total load during a system peak by reducing the voltage at the substation feeder breaker or at designated feeder zones outside the substation. This type of voltage reduction can be deployed with minimal costs using existing automation infrastructure and can often pay for itself in less than a year based on cost avoidance of associated demand charges. Many utilities have already shown that by installing voltage reduction applications at the feeder level, the peak demand can be reduced by as much as 4%, representing a significant savings on the wholesale power cost.

PRISM Voltage Reduction accomplishes this via direct set point control of tap settings for feeder regulators and transformer LTC controllers. Voltage Reduction is configured simply based on the following basic parameters:

- Start and end times for each demand period
- On-trigger load setting representing the beginning of the peak load low limit (to begin shaving)
- Off-trigger load setting to terminate peak load low limit control (the difference represents the dead band

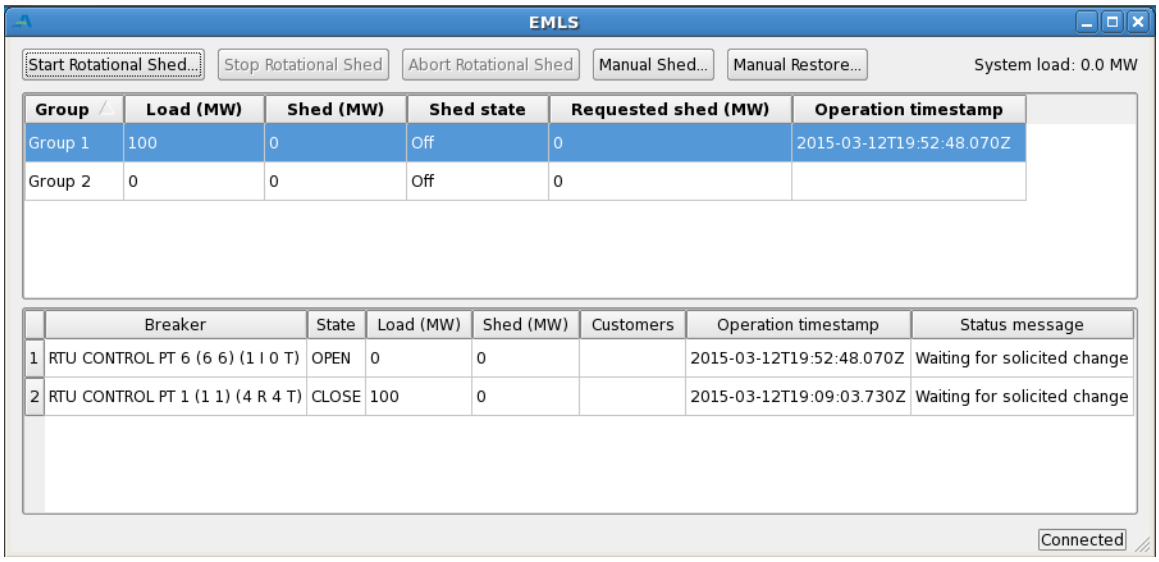
Key Benefits

- Reduce system peaks for immediate savings on demand charges
- Passive program requires no customer involvement or incentive
- Installed and operational rapidly and with minimal effort
- Defer capital costs to meet increased peak demand
- Supports closed loop control with EOL voltage readings for even better results

Onesait Grid Software

Emergency Load Shedding

PRISM™ ELS allows the utility to easily select and deselect breakers/switches within the network to be used to reduce load as entered by an operator. The program supports manual load shedding and restoration as well as block editing and management capabilities for rotational load shedding. ELS suggests a set of breakers (loads) of a block to open given a user-specified amount of load to shed. The user may select different witches to operate or choose to use those suggested by the program. The program utilizes logic that orders the suggested list of switches by magnitude of load served and by date of last operation. This helps the user/operator to effectively spread the burden across the available switches rather than always following a predetermined order.



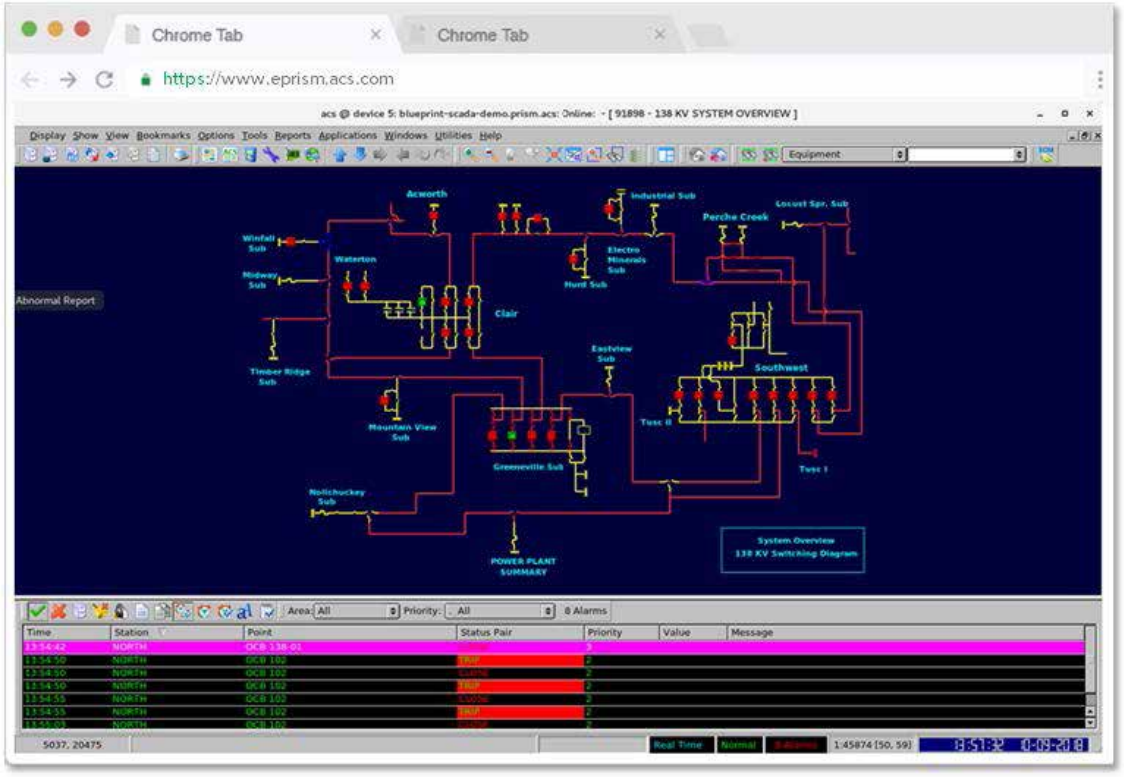
Onesait Grid Software

ePRISM™

ePRISM is a remote system access application that delivers secure access to your mission-critical SCADA applications, allowing you to be productive from any location. ePRISM may be deployed for use on Windows PC consoles within the SCADA network, as well as for system access from outside the network (requires Minsait ACS two-factor Customer Remote VPN solution). Regardless of the deployment use case, PRISM™ users access the node where the ePRISM server application is installed via a local desktop client or HTML client. They then authenticate through the application and are then securely connected to the PRISM System.

The ePRISM application may be configured to permit users full desktop access to the PRISM environment or may be restricted to the operator interface (GOI) only. User PRISM established with login groups and PRISM™ Areas of Assignment (AoA) are enforced.

- Enable seamless system access in the control room via Windows operator consoles
- Provide secure, configurable remote access to your PRISM system
- A valuable tool for utilities without 24x7 dispatch, enabling you to monitor the system events, alarms and perform switching
- Options available for desktop client access or web browser access



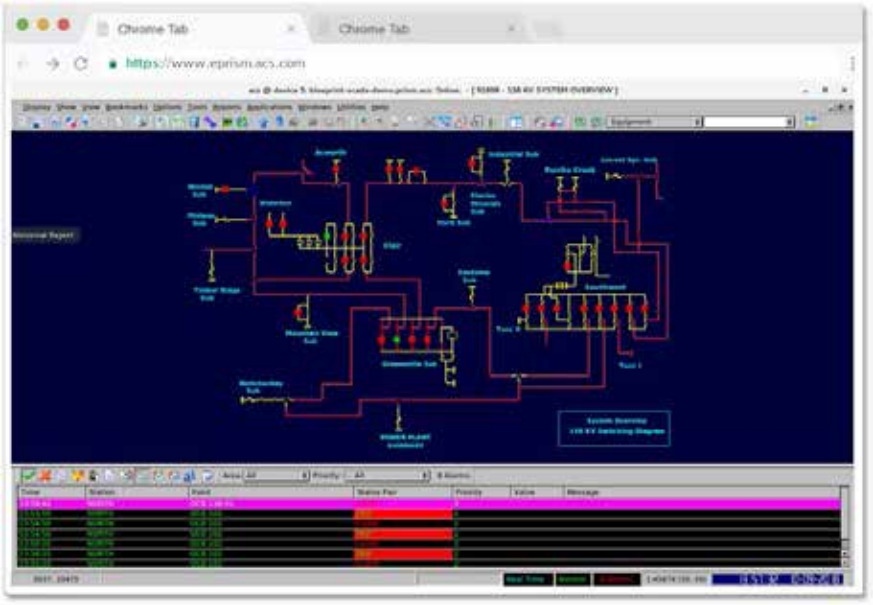
Onesait Grid Software

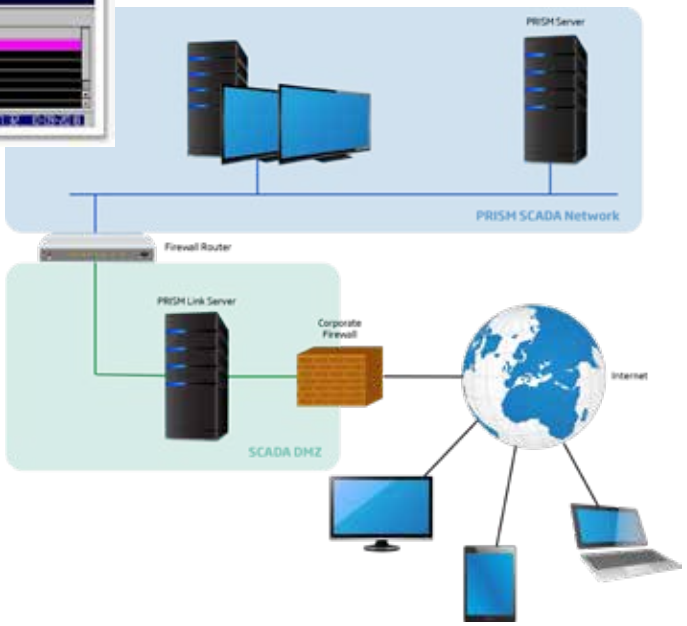
ePRISM™ Web

ePRISM Web provides PRISM™ users with easily configurable and secure read-only access to the system. Using a PRISM Link server deployed in a secure DMZ outside the SCADA network, users can access PRISM system displays, near real-time data, alarm/event information and GOI reports from any internet-connected device with a supported browser.

ePRISM Web enables secure, read-only access to the system through a dedicated PRISM Link server that is deployed in a SCADA DMZ. The PRISM Link server includes read-only binaries that only permit SCADA data to be received, with no mechanisms for data or control actions to be sent back to the production PRISM system.

ePRISM Web access authority can be configured on a per-user basis, permitting the viewing of only certain displays and or data, if desired.





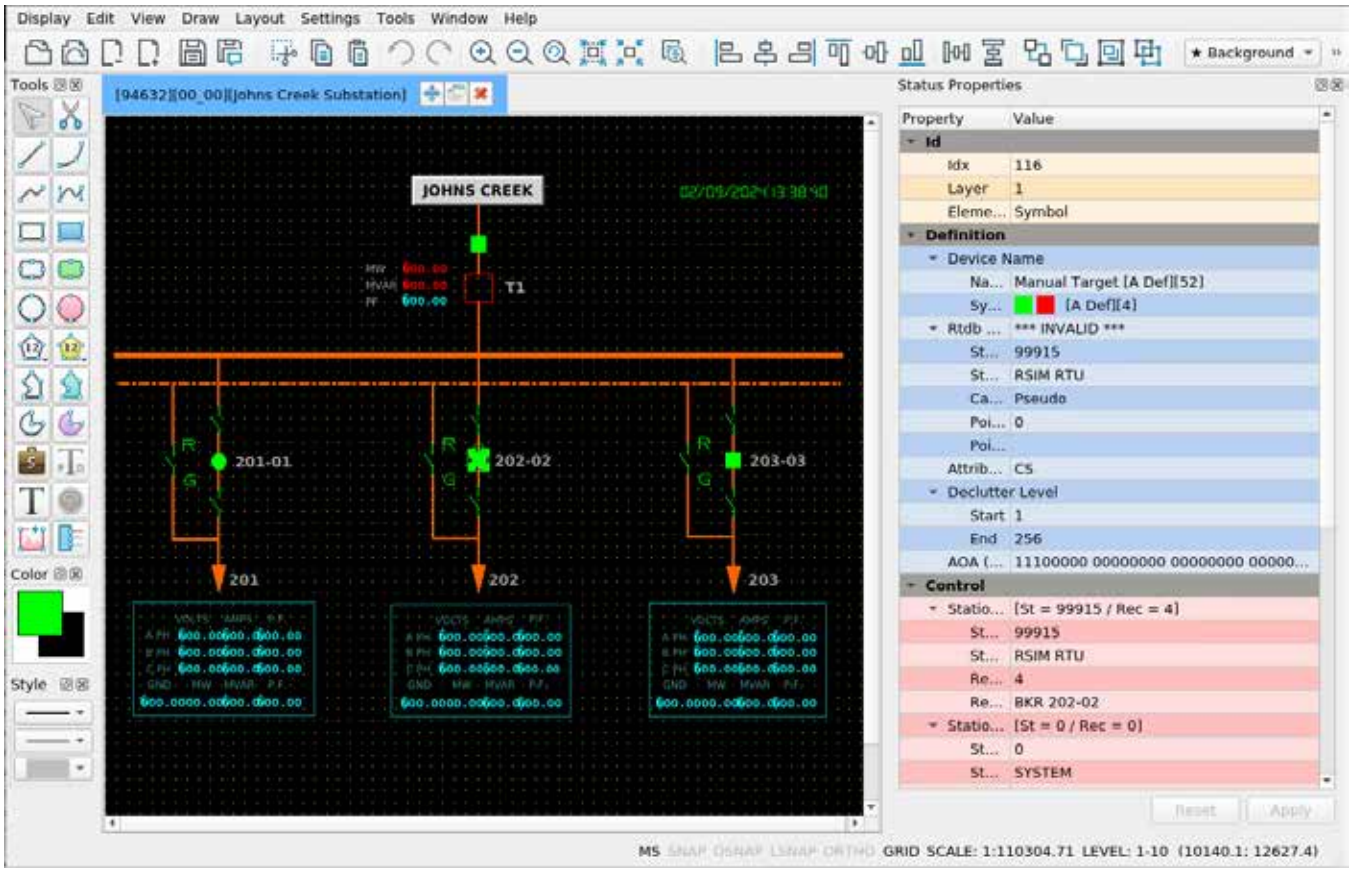
Onesait Grid Software

Designer

PRISM™ Designer is a powerful tool for composing and customizing your one-line displays and is the solution everyone has been eagerly waiting for. This innovative, cutting-edge application has been built from the ground up, and making beautiful one-line displays couldn't be easier.

Designer is very intuitive and flexible to work with and was developed with the user in mind. One-line displays are composed in a WYSIWYG environment, and the user can open multiple displays either in a workspace or in floating containers which can be placed on different monitors.

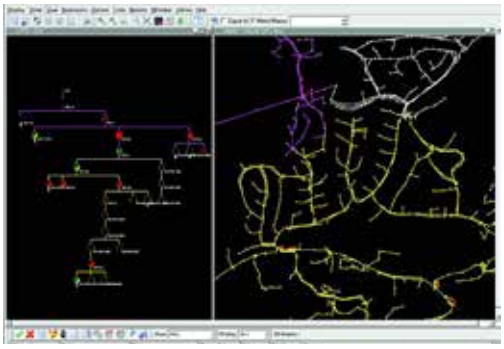
One of many exciting new features is the Property page, which enables the user to view all of the properties of a Dynamic Record on a single scrollable page, which is color coded and easy to read. The Property page displays in a dockable window, which can float when it is undocked. Other powerful editing features – such as the ability to easily rotate graphical objects and the ability to change text item font sizes directly in the drawing area – are also included.



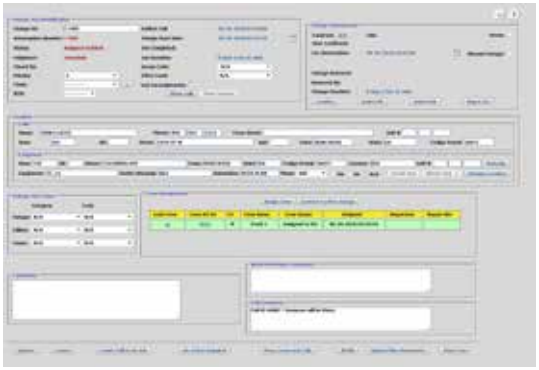
Onesait Grid Software

Outage Management

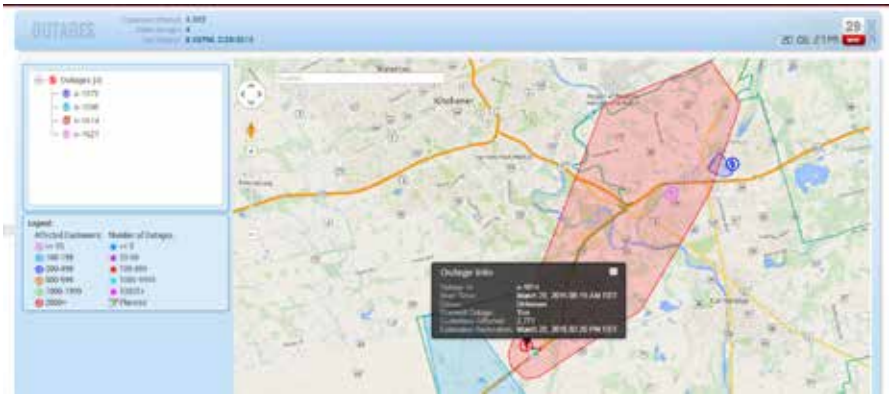
Our solution is PRISM Real-Time OMS (PRISM OMS), and it re-defines outage management. PRISM OMS combines up-to-the-millisecond outage management with state-of-the-art reporting. Now you can coordinate executive decision-making, public information, and field-level incidents with confidence and timeliness. Each entity gets the information it needs with appropriate security, in useful formats.



Outage statistics and performance indices are calculated in real time and delivered immediately. A typical OMS means a never-ending barrage of updates, reviews, and worries: how do you maintain the OMS database? How do you keep it synchronized with your real-time information? PRISM OMS solves this with a single database maintenance point and seamless real-time interface to your network - not just for OMS and SCADA, but for your DMS model and analysis applications, as well.

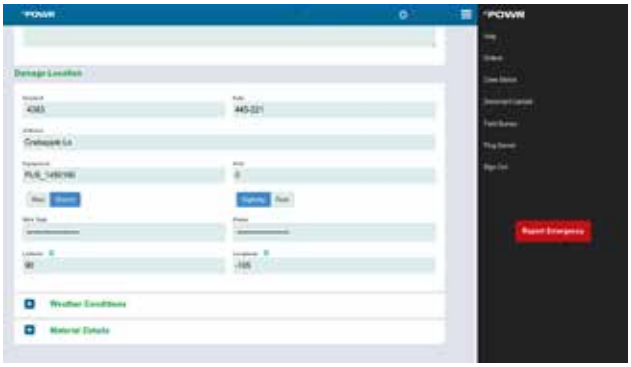


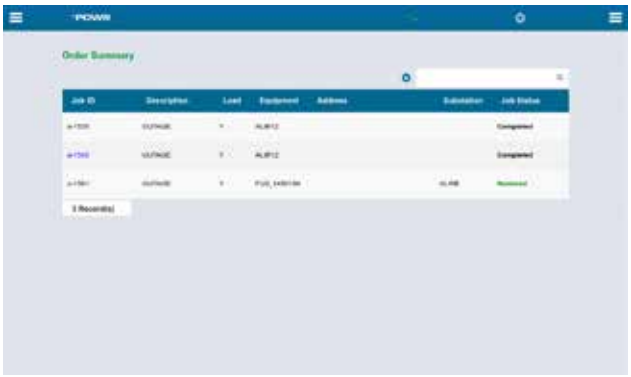
SCADA and OMS access the same up-to-the-minute information: it is a simple, effective concept that has far-reaching implications. Instead of waiting for phone calls and troubleshooters, a real-time OMS creates and clears tickets automatically, using a single map for tickets, switching and tagging. Confusion is minimized, errors are avoided, and your personnel are protected.



Onesait Grid Software

POWR™ Mobile





PRISM OMS Workforce Resource (POWR) is a suite of mobile-optimized applications from Minsait ACS, developed as an extension of our Outage Management System (OMS). POWR applications are designed to provide the utility crews with personalized tabular outage and non-outage work information, and with details related to network switching plan assignments. A key feature of all POWR applications is data persistence. POWR is a personalized task list of all work that is assigned to each crew. The primary POWR user interface runs in a browser.

The information and job types supported in POWR include:

- Outage (ticket) work
- Non-outage (planned) work
- Customer call information (view only)
- Switch steps assigned to the crew (view only)
- Interactive customized work forms
- Automated public outage updates
- Photo-handling for public and internal view

Onesait Grid Software

GridVu™ Applications

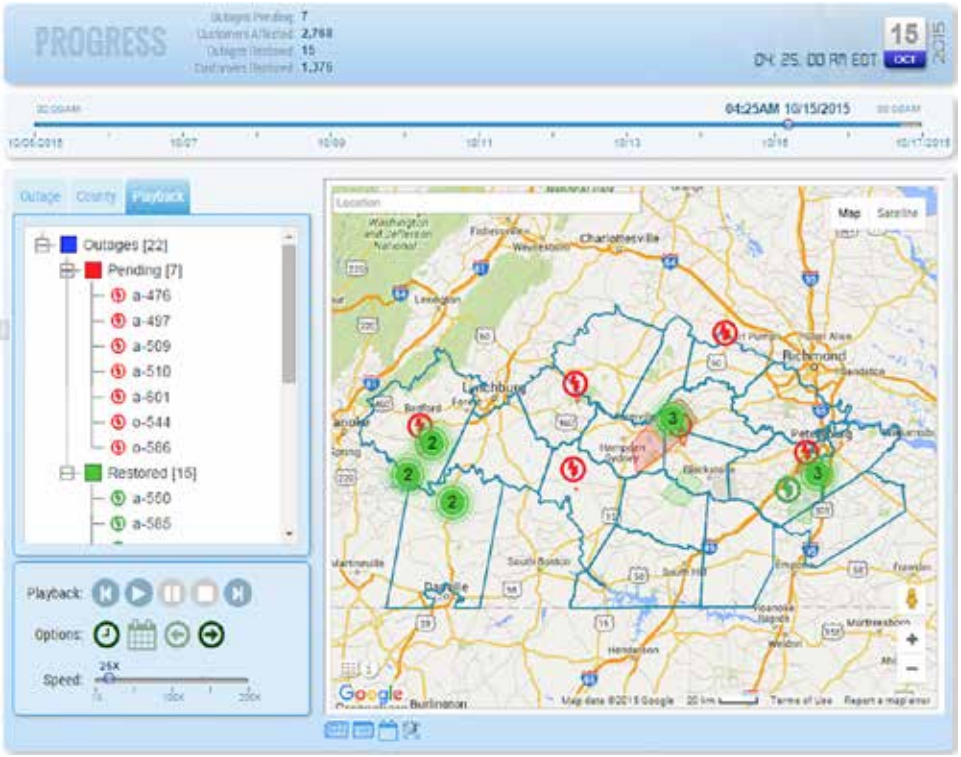
GridVu applications from Minsait ACS provides a DMS and OMS incident summary and location information via the internet to utility personnel and to the public. The presentation of information is optimized for mobile platforms and is presented as a land-based map overlaid with the electrical network topology to enable viewing of operational objects related to the map. GridVu displays network objects from DMS, OMS and SCADA systems with a geographic reference.

GridVu is an important tool for providing key utility information to three primary user types:

- General public and emergency management users
- Field-based crews and supervisors
- Control center operators and engineers

The two distinct GridVu applications are designed to meet different utility functions:

- GridVu Public™ is a public-facing general outage information map.
- GridVu Network™ is a system and map viewer for utility operational use.

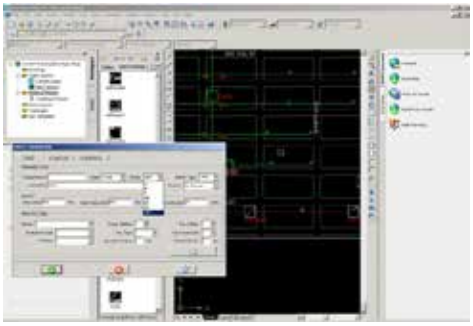


Onesait Grid Software

ADMS

Our PRISM™ ADMS, which is based on more than 40 years of experience delivering "mission critical" real-time systems with an open architecture design, features maximum reliability and availability, and offers several key advantages over competing solutions:

- Fully integrated single database and network model, using the GIS and available planning data as the source
- Full suite of advanced applications for visualization, optimization, analysis, and operation
- Completely integrated OMS suite that eliminates the need for costly and complex interfaces for data transfer between different SCADA/DMS/OMS platforms
- Unified and comprehensive user interface, providing safer and more efficient system control
- High-performance real-time engine for all Smart Grid functions, designed to deliver when you need it most
- Sophisticated simulator platform that enables training of operators and other personnel based on realistic operational scenarios and actual events captured from the operating system



Enhanced Visualization

- Integrated user interface
- GridVu™ with map/imagery overlays
- Dynamic colorization with tracing
- ReShape™ automatic schematic generator

Distribution Automation

- Data acquisition and control
- Fault Location Isolation and ServiceRestoration (FLISR)
- Integrated Volt/VAr Control

Distribution Analysis

- Topology Processor
- Distribution Power Flow
- Load Estimation
- Distribution State Estimator
- Short Circuit Analysis
- Optimal Capacitor Placement
- Optimal Switching
- Protection Coordination
- Switching Order Management
- Disturbance Analysis
- Load Forecasting / Management
- Real-time Red Line changes

Distribution Simulation / Training

- System Study mode
- Dynamic dispatcher training simulator

Enterprise Integration/ Business Intelligence

- GIS source database conversion with incremental update
- Work Management System integration
- CIS integration
- Historical archiving
- Enterprise reporting tools/ dashboard
- Performance indices calculation

DER Integration

- Emergency Load Transfer
- Maximum Injection Capability
- Feeder Injection Test / Forecast
- Storage Optimization

Onesait Grid Software

Smart Grid Applications

The Minsait ACS PRISM™ platform includes an extensive suite of applications to enable your transformation to the next generation grid. Minsait ACS applications have all been developed from the ground up to be deployed as a tightly integrated, high-performance solution to meet the needs of utilities both large and small.

PRISM SCADA

- SCADA
- Switching Order Management
- Load Management
- Short Term Load Forecasting
- Power Factor Control
- Voltage Reduction
- Historical Data Archiving

PRISM Distribution Management

Visualization Applications
- GUI supporting Very Large Dynamic Maps
- Topology Processor
  - Circuit tracing
  - Loop detection
  - Phase current flow direction
- Synchronized Visualization
  - Geographic view
  - Schematic view
  - Hybrid (GeoSchemaVu)
- Dynamic Network Colorization, by:
  - Outage
  - Fault zone
  - Phase
  - Load/amp violation
  - Planned/abnormal
- ReShape™ (automatic schematic generator)
- Real-time Redline™ (dispatcher temporary topology changes)
- PRISM PlayBack™

Analysis Applications
- Load Estimation
- Distribution State Estimator
- Three Phase Unbalanced Distribution Load Flow
- On-line Dispatcher Load Flow
- Short Circuit Analysis / Fault Location
- Protection Coordination
- Load Forecasting
- Real-time Study Mode

Automation Applications
- Loss Minimization (Capacitor Power Factor Control)
- Voltage Control/CVR
- Integrated Volt/VAr Control (IVVC)
- Fault Location Isolation and Service Restoration
- (FLISR), supporting:
  - Feeder faults
  - Substation faults
  - Auto return to pre-fault configuration
  - Storm mode
  - Intentional islanding with multi-source loops
- SwitchPlan
  - Switch order requests, creation, approval & execution

PRISM Distribution Management (cont.)

Optimization Applications
- Optimal Capacitor Placement
- Optimal Switching, for:
  - Loss minimization
  - Voltage minimization
  - Load balancing
- Optimal Feeder Reconfiguration
- Intelligent Switch Order Creation
  - Isolation/device outage
  - Unplanned/planned
  - Restoration
  - Return to normal

DER Applications
- Renewable Volt/VAr Control (IVVC/r)
- Feeder Injection Test (FIT)
- Maximum Injection Capability (MIC)
- Emergency Load Transfer (ELT)
- Synchronized Load Transfer
- Optimal Feeder Reconfiguration
- Energy Storage Optimization (ESOp)

PRISM Energy Management

- DASmap™ Unified T&D Model Editor
- State Estimator
- Dispatcher Power Flow
- Contingency Analysis
- Optimal Power Flow
- Training Simulator

PRISM Load Management & Control

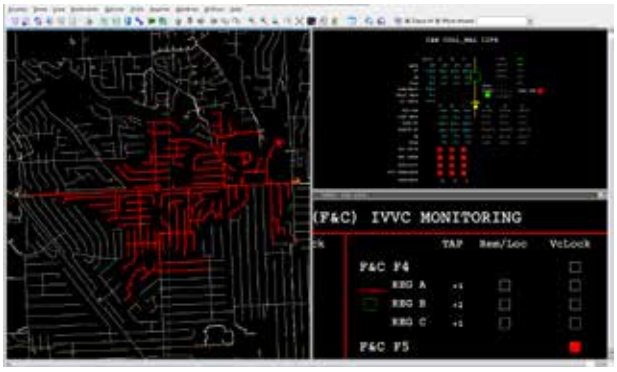
- Peak Shaving
- Emergency / Rotational Load Shed
- Scheduled Load Shed
- Rotational Planned Load Control
- Demand Response / Load Reduction
- Direct Load Control
- Transformer Load Survey

PRISM Network Simulation

- XpertSim™ Distribution Dispatcher Training Simulator
  - Control center model
  - Power system model
  - Event scheduler/simulation control (trainer interface)
- Distributed Generation & DER Modeling
  - Load and frequency generator control
  - Microgrid operation
  - Turbines, windmills, PVs, EVs

Onesait Grid Software

IVVC



Faced with tightened budgets and regulatory mandates for energy efficiency, today's electric utility is increasingly in need of ways to optimize power delivery and increase reliability while reducing peak demand and consumption.

Doing these things successfully can result in prolonged asset life, the deferral of capital investment in additional capacity, and significant savings from reduced energy losses. Carefully coordinated control of voltage and VAr resources on the network is the best way to accomplish these objectives. Unlike traditional methods that focus only on voltage reduction or on VAr compensation for power factor control, PRISM™ Integrated Volt/VAr Control (IVVC) delivers coordinated operation of feeder voltage and reactive power devices, enabling you to:

- Flatten the feeder voltage profile
- Reduce energy losses (improved power factor)
- Increase substation/feeder capacity
- Reduce peak demand and consumption

Onesait Grid Software

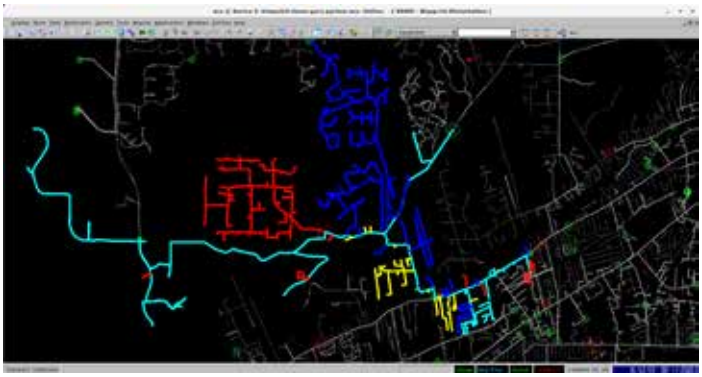
DASmap™ Model Builder

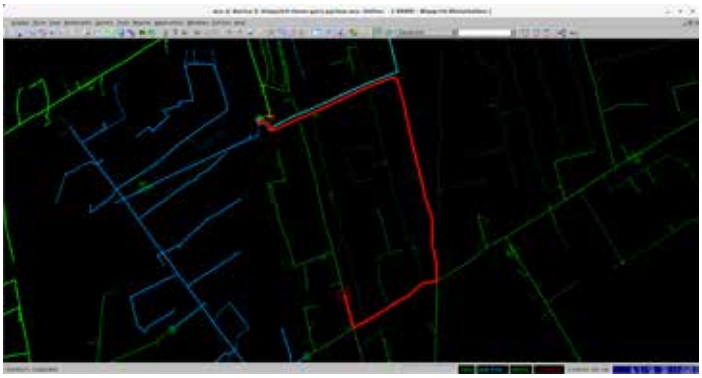
DASmap is an Autodesk Map™ Distribution System editing solution, which imports and creates the electrical feeder network, digitizes, and edits the network displays, performs network tracing and builds and colorizes the Network Topology Model. Because it was built specifically to interface with your PRISM™ SCADA system, DASmap supports automatic conversion of the network model into PRISM SCADA run time displays.

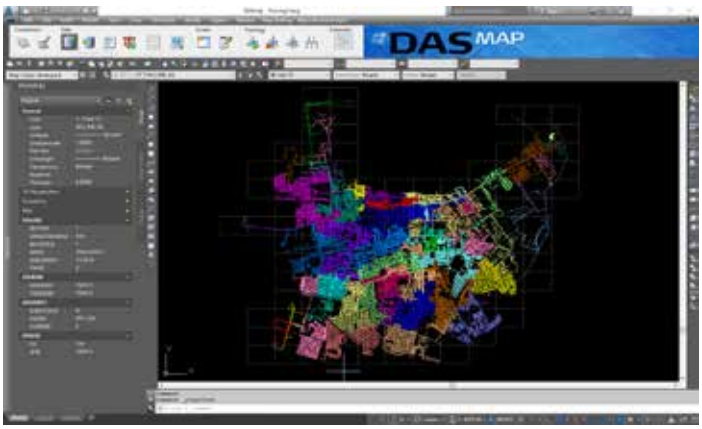
The DASmap package includes:

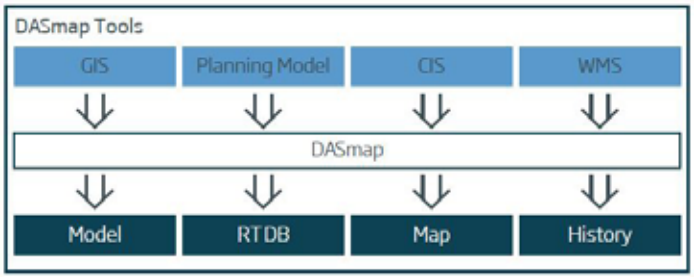
- DASmap Editor
- DASmap conversion tools
- Real-time PRISM Topology Processor (TP)

DASmap supplies a full set of GIS drawing tools that, in addition to network digitization, can automatically extract and create the topology model from the "drawing" process. This topology model will be used by the PRISM Topology Processor for colorization, etc.









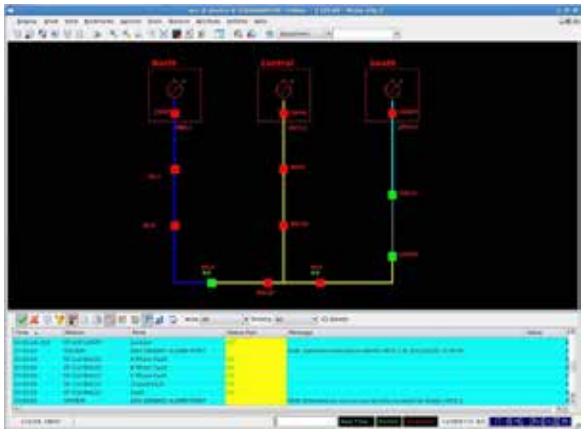
Onesait Grid Software

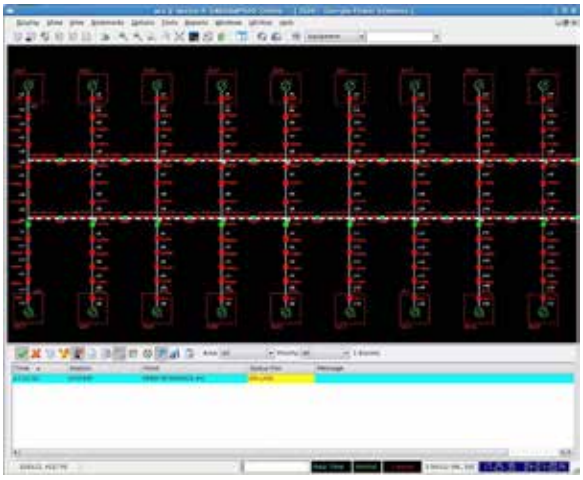
Centrix™

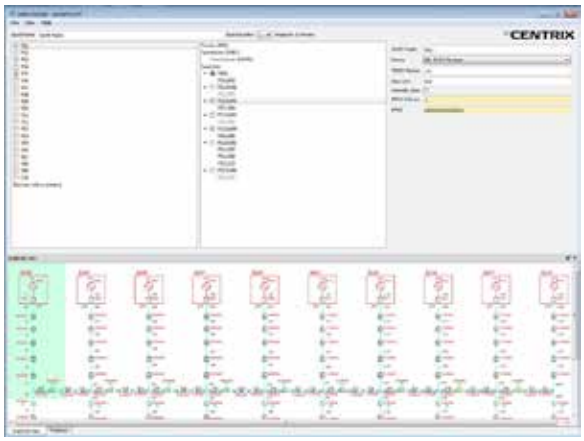
Centrix is configured to autonomously isolate faults and restore service to un-faulted sections without operator intervention. It quickly isolates faults and restores power both upstream and downstream, analyzing switching options and choosing the one that maximizes the restored load without violations. The system adapts immediately to changes in the network topology, even if the network is in an abnormal state. This means that optimum restoration solutions are always within reach. Moreover, Centrix easily accommodates the switches and protection schemes you already have in place.

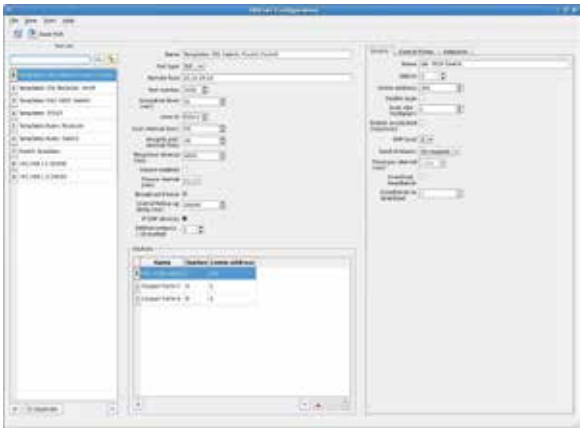
Other features include:

- Disables automation following a loss of communications, but only to the affected device or feeder
- Six definable device-level flags for disabling automation on active islands
- Restoration on loss-of voltage
- Two-way SCADA/DMS interface via DNP3 – no expensive or custom interfaces necessary
- Sequence-of-events logging
- Secure remote access









Onesait Grid Software

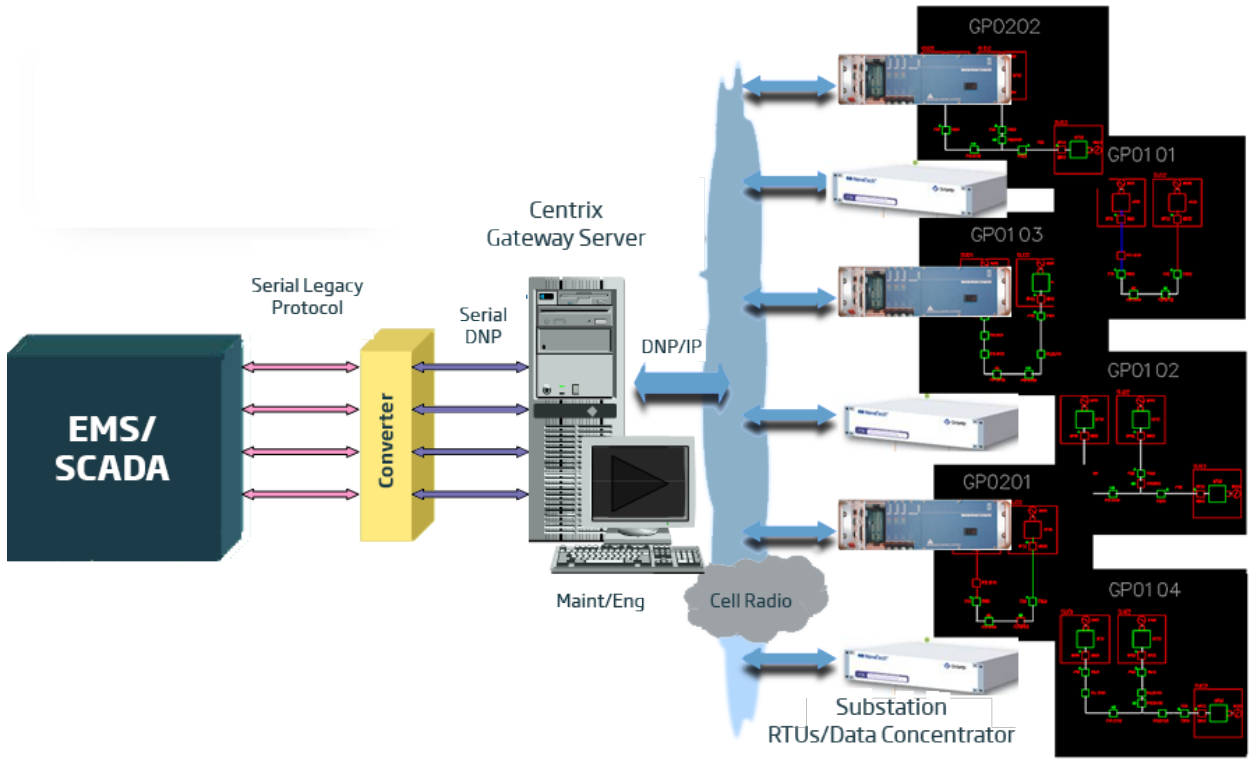
Centrix™ vs DMS

Centrix is a powerful solution for utilities that require a feeder automation solution, where implementing it within the SCADA or DMS is not practical either because the existing system cannot support this level of automation, or the client desires to deploy a solution that does not have to rely on a GIS source.

The advantages of the Centrix Feeder Automation solution provide the immediate benefits of an advanced automation solution without some of the additional modeling effort and/or complex interfaces that can be associated with a DMS deployment, and unlike some competing feeder automation solutions, Centrix supports other automation applications such as integrated Volt/VAr Control (IVVC).

While Centrix provides the advantages of a simplified configuration and deployment, as well as the ability to install automation only partially or in an incremental fashion, there are also times when a full DMS will be the preferable solution. When a utility has tie points that create a fully interconnected distribution network or has the desire to implement both automation and OMS from a common source model, DMS will likely be the solution of choice.

Centrix vs DMS - Determining the Right Fit



Onesait Utilities Software

Onesait Utilities software solutions includes our complete line of advanced software applications offering:

- **Vertical software for your business**
  - Integrating the business experience natively is key to anticipating the changes that your company needs
- **Reliability and Robustness**
  - Critical operations are no longer a liability for achieving top performance in the most hostile sectors
- **A single view of the physical and virtual world**
  - Cover all your business needs, from operational technologies (OT) to information technologies (IT)

Spec Sheet Library

Customer Interaction

Customers (CIS)

Metering (MDM)

Flexibility & Demand Management

Data Analytics

Intelligence

Meter Data Analytics (MDA)

New Service Points - Engineering

Smart Engineering Center (SmartEC)

Integration of Renewables

DERMS

Edge+

Asset Data & Condition Analysis

Asset Engine

Asset Performance Management (APM)

Safety & Environment Protection

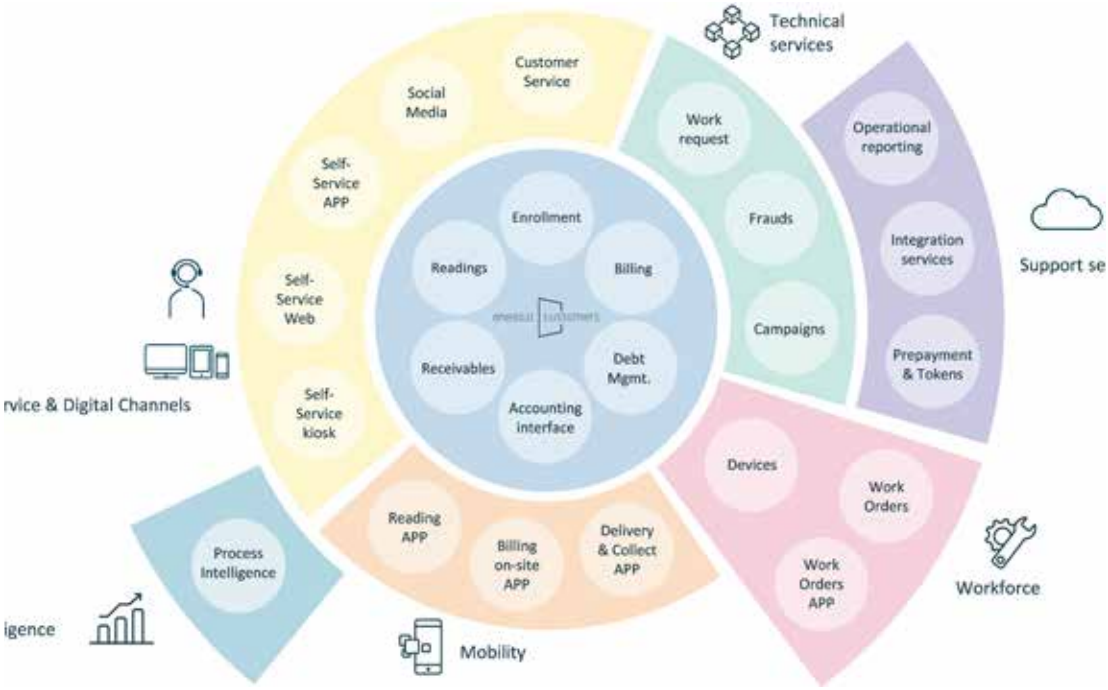
Smart Wildfire Detection(SWfD)

Onesait Utilities Software

Customers (CIS)

Onesait Customers is an integrated solution for prepaid and postpaid customers providing the necessary customer channels, functionality, technology and protocols required to interact with prepaid meters.

Onesait Customers provides multiple functional components to choose from according to the needs: customer service with highly configurable workflows; powerful apps for field personnel and customers, behind-the-meter services and customizable dashboards. The underlying modular architecture is a key differentiator that allows it to quickly adapt to the fast-changing industry with a solution that can be deployed on premise or in the cloud. A rich set of APIs complete the capabilities and allows easy integration with third-party vendors solutions.



Increase customer satisfaction by 30%
Digital transformation and technology-savvy consumers are forcing utilities to find innovative technologies. Onesait Customers shows consumers and prosumers relevant and timely information 24x7, delivering a unique and personalized CX.

Increase collection rate by 60%
Manual processes and lack of system agility and flexibility hinder revenue management tasks. State-of-the-art features and capabilities in Onesait Customers automates the debt-management process, speeding up cash recovering efforts.

Improve corporate image by 11%
Many interactions with utilities lead to disappointment due to outdated or inadequate self-service options. The customer-centric approach in Onesait Customers improves customer experience on a continuous basis.

Onesait Utilities Software

Metering (MDM)

Meter Data Management is a flexible and secure platform for validation, estimation, edition (VEE) and management of data with advanced functions for analysis and forecasting.

- **Data Acquisition:** Obtain your data from multiple sources through different system interfaces.
- **Data Management:** Certify your data quality and completeness to guarantee reliable services.
- **Data Exportation:** Provide your data to third-party systems for commercial and fraud detection purposes.

Functionalities

Certification
MDM chooses among all available measures from different data sources in order to certify which is the best value available and discern whether it is valid or not, by means of different user defined business rules that certify measurement quality.

Completeness
MDM ensures the availability of gap-free load profiles, through different gap estimation methods, calculation procedures and forecasting processes, so inferring future business needs to be covered.

VEE
MDM provides a robust VEE engine based on source and optimal validations, different calculation, estimation and edition methods and Best Time Value calculation measures.

Assets Tracking
MDM allows Utilities to group different points geographically, by interest groups, companies, etc., in order to automate operations within the system, e.g., forecast demand of aggregated consumers.

Tampering
MDM allows Utilities to comprehensively control energy flows across all the distribution network, supporting energy balancing as main mechanism to search for losses and abnormal usages, analyzing customer behavior based on historical data and other external variables.

Main Features

Flexibility
MDM meets any business needs, being able to perform a wide variety of calculation algorithms, as well as managing different market billing models. MDM supports and manages different measurement interval data.

Reliability
MDM is a proven high reliability platform with implementations in different geographies, evolving over time, based on customer experience and business needs. Its architecture allows access from any location.

Scalability
Great scalability that allows Utilities to store, manage and export data with both proprietary and external platforms. MDM offers a non-intrusive configuration as the only requirement is users must have a web browser (Chrome, Firefox, Edge or Explorer) on the computer.

Auditability
MDM saves all data in a central repository, allowing Utilities to monitor and audit the information, which enables status and documentation monitoring of every asset in the system. MDM ensures traceability of any user or system action, to achieve the quickest resolution of potential incidents and carry out best market practices.

Automation
Every action executed on MDM can be scheduled in order to minimize users' intervention.

Relevant KPIs

% Valid vs Invalid Measures

% Estimated measures per billing period

% Closed vs Open incidents

Incident average resolution time

$ Real source vs calculated BTV measures

Positive Irregular consumption candidates

Monthly consumption increase

Average Technical Losses by facility

Onesait Utilities Software

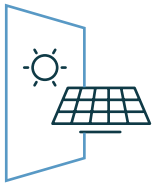
Flexibility & Demand Management

Customers with storage, generation and controllable loads and utilities can leverage the existing flexible demand assets to flatten the demand curve, avoiding unexpected peaks and going above the target demand limits. Flexibility monitors all registered assets and provides ways to aggregate the available flexible demand at any point of the grid so that operations can perform the load management required. Flexibility is particularly suitable for Utilities, Retail Energy Providers and Energy Service Companies

An energy services platform for multiple stakeholders across the whole electricity delivery value chain, with a set of energy services delivered by means of a flexible subscription model or perpetual license.

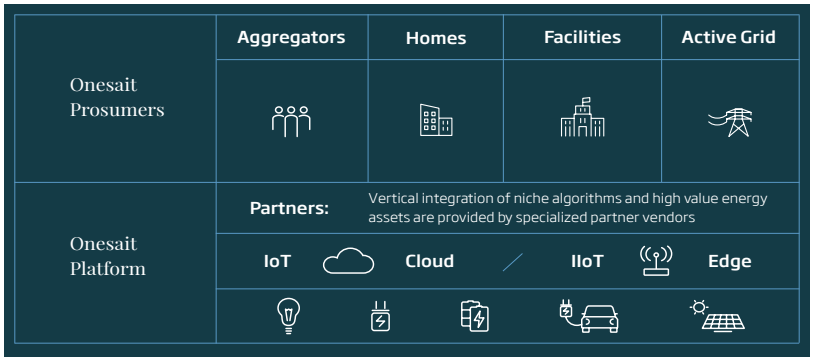
	Energy Management	Demand Flexibility
Asset characterization	Characterize BTM DERs by setting equipment, address and custom labels	Characterize DERs flexibility by setting time availability and usage constraints
Consumption tracking	Track building and home consumption to find potential savings	Track aggregated consumptions to define portfolio flexibility base line
Specific intelligence	Define intelligence to orchestrate DER consumption, generation and storage	Define intelligence to determine which DERs better fit into a flexibility event
Alert notifications	Receive alerts when consumption or demand exceeds set thresholds	Get actionable warnings at each stage of the operation process
Asset control & programming	Act in real time or program time-scheduled routines	Settle multiple aggregated programs under an operation event
Customized visualizations	Create custom dashboards and analytical panels	Have updated visualization of your flexibility portfolios

BEMS
Businesses receive valuable operational information that drives energy-efficient solutions.



Self - consumption
Accurate determination of the optimal photo voltaic installation for businesses & homes.

HEMS
Homes can manage their energy assets, contributing to a sustainable use of energy.



Onesait Utilities Software

Intelligence

Onesait Intelligence analyzes the business processes of utilities holistically. Intelligence blends Data Discovery techniques, Machine Learning, Artificial Intelligence and IoT technology to provide relevant and updated information about the key business processes of a Utility.

Data Intelligence Layer: Onesait Intelligence provides data models specifically defined for utilities and their key business processes.

Business Intelligence: With 30+ information areas and 200+ predefined KPIs, Onesait Intelligence brings value to customers, analyzing billing distributions and anomalies, reducing non-technical losses and energy theft, reducing grid operation costs, decreasing demand uncertainty, increasing sustainability - just to name a few major gains for the utility.

Analytics Intelligence: Through the application of Artificial Intelligence and Machine Learning, Onesait Intelligence performs:

- Forecast
- Detection of Anomalies
- Clustering
- Measurement Analysis
- Energy Theft
- Debt Management

Onesait Intelligence connects to transactional systems or other external sources through dynamic integration, adding business value to raw data.

Reduction of costs and implementation time
Increased agility and flexibility thanks to the predefined and easily integrated information model, KPIs and dashboards.

Holistic view of the business
Integration, standardization and improvement of information through a single platform that simultaneously facilitates the exchange, exploitation and reporting of data.

Risk reduction
Onesait Intelligence is an accelerator for data analytics projects that keeps the company focused using the existing data models and their customization according to the needs of the business, reducing the risks of project failure.

Our analytics platform provides our customers with...

-80% in implementation time leveraging the information

-30% in operating costs

-60% risk of over spending for implementation or exceeding expected implementation time

+70% of business insights

Onesait Utilities Software

Meter Data Analytics (MDA)

Meter Data Analytics, a platform oriented to treatment of metering data, with powerful analytics functions such as demand forecasting, characterization of customers demand profiles, demand management, and load analysis of distribution assets.

Data Acquisition: Analyze metering data with data from other sources in the same platform, for more thorough understanding.

Data Analysis: From streaming to processing data, from storage to visualization, this platform helps any utility to increase the reach of data analytics through the application of machine learning.

Capture Opportunities: Turn data into knowledge to improve network operations, identify overloaded assets, detect feeder hosting capacity, increase revenues, reduce losses and spot exceptions in customer load profiles.

Relevant KPIs

- % deviation on typical consumer's consumption pattern
- Positive irregular consumption candidates
- Monthly consumption increase
- % gaps in readings and in demand
- Average consumption
- % error on consumption patterns
- Maximum consumption / demand
- Overloaded and underused network assets
- Energy delivered by asset

Onesait Utilities Software

Smart Engineering Center (SmartEC)

Smart Engineering Center oversees the automation of the electrical solution of connecting a new service point to the most suitable points of the existing network. SmartEC takes traditional operations of new service installations and automates up to 90% of the engineering, design, and budgeting required to develop the solution.

Geometrical Solutions Automation: SmartEC analyzes all the possible geolocated solutions, including restrictions due to regulations, right-of-way and physical obstacles, to connect a new point to the existing network using GIS information.

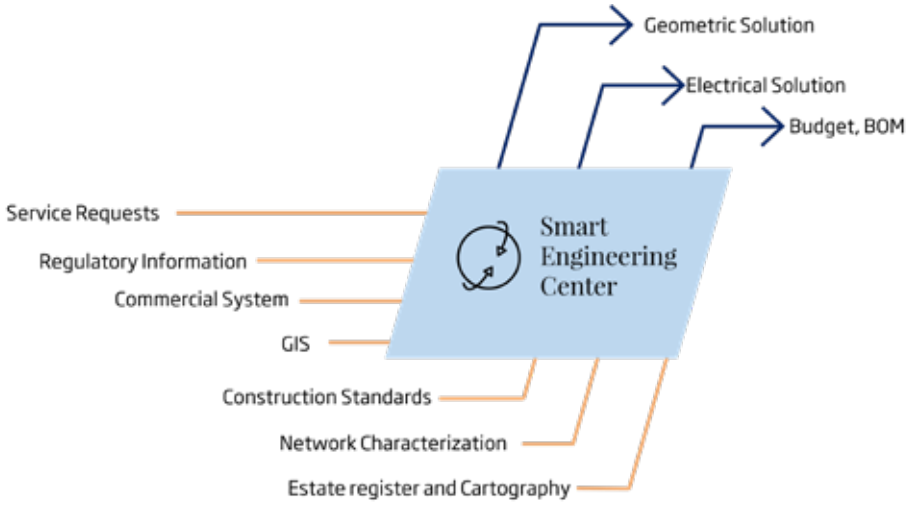
Electrical / Mechanical Solution Automation: The information obtained is used by a second engine to generate the associated electrical and mechanical design of each section of the circuit. This Engine also benchmarks the five most effective solutions and selects the most effective option.

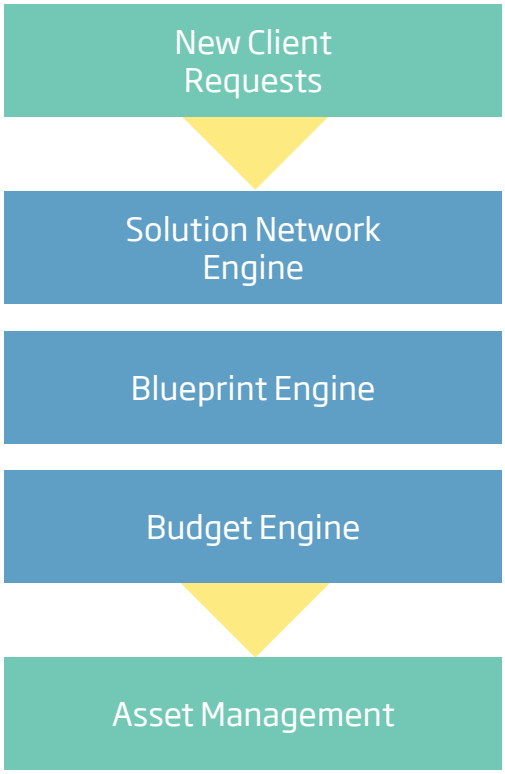
Budget Automation: The selected best solution is processed by this engine, which automates the budget of the work by preparing a bill of materials and construction units included in the final design.

The new network extension is then passed on to Asset Management for its representation in the GIS.

Key Benefits:

- Reduce Engineering Activities and Cost by 30%
- Reduce Solution Development Cost by 50%
- Improve Customer Response Time by 90%
- Optimize New Service Requests and Lower Risk
- Improve Customer Satisfaction





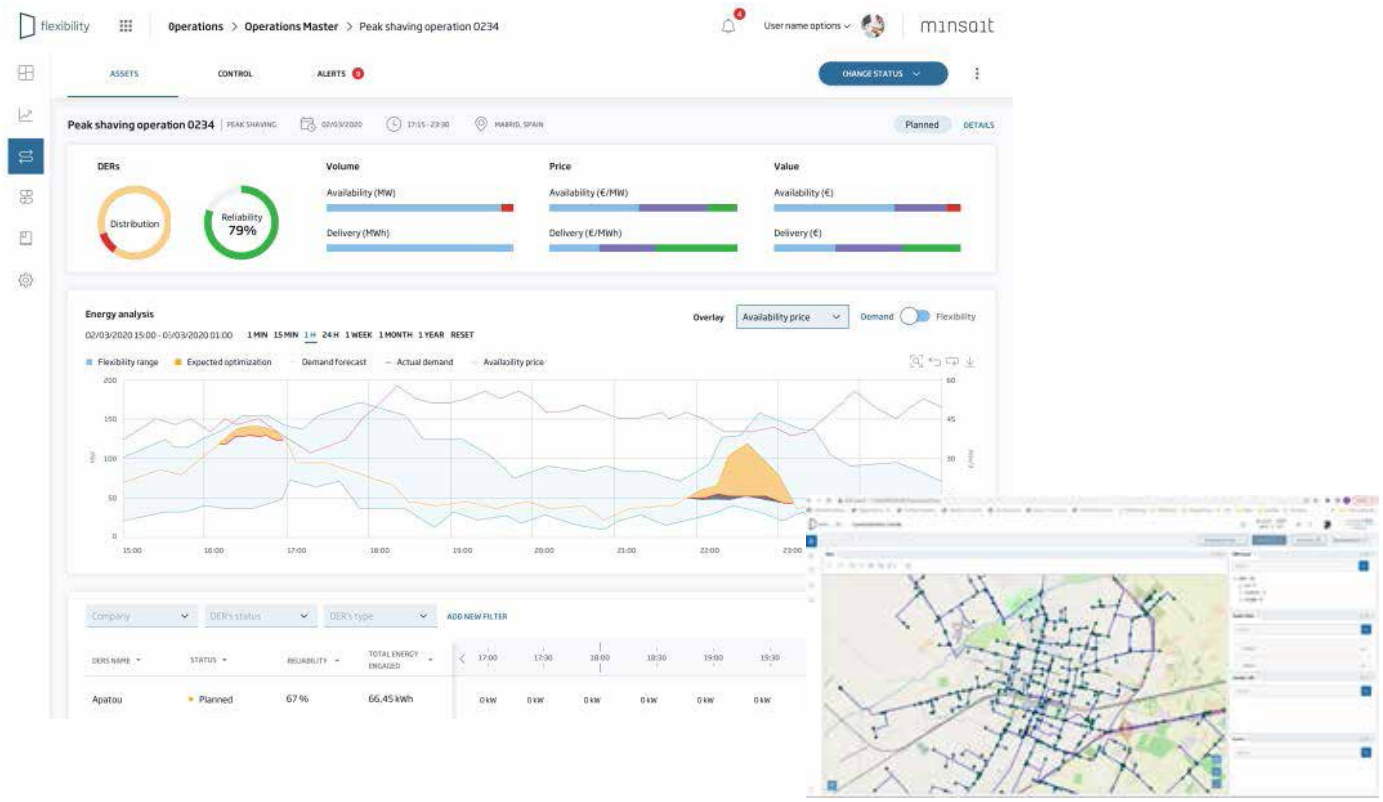
Onesait Utilities Software

DERMS

Onesait DERMS offers a real-time overview of resource availability for holistic and reliable grid operations.

Modules Include:

- Grid Optimization: Detect grid criticalities with a system-wide Optimal Power Flow
- Hosting Capacity: Include probability in your hosting capacity for non-firm contracts
- Baseline & Forecast: Create accurate generation and load forecast scenarios
- Monitoring & Performance: Connect with SCADA and asset interfaces for full interoperability
- Grid Planning Assistant: Assess DER long-term rating for more informed grid planning decisions
- Edge Control: Distribute DER control coordinating IoT devices in the grid nodes
- Flexibility Dispatch: Select flexible resources to be activated for each criticality period
- Dual Services Coordination: Avoid conflicts with assets participating in different services
- Market Connectivity: Interact with local and ancillary markets to purchase flexibility services



Onesait Utilities Software

Edge+

Edge+ is the new generation solution for substation management and control that offers modern edge computing features and performs reliable and fast computational functions directly at the substation. It features connectors to OT field devices to collect and process data and to send control commands.

Edge+ provides a solid and highly secured environment, to host customer-developed applications or any other third-party application, to perform Protection and Control, manage grid constraints and treat DER-related contingencies. The applications deployed on Edge+ are remotely manageable (Over-The-Air) for diagnostics, configuration and software updates. Field visits become less frequent with significant saving in cost and time. Edge+ is specifically designed to reliably perform substation automation functions and to support the digital transformation of utilities.

The Edge+ family of solutions offers multiple expansion modules to quickly adapt specific business requirements such as:

- IO Expander with digital and analog interfaces for multiple field signals
- Real-time high speed data acquisition to monitor Power Quality
- Additional cybersecurity edge module for threat and break-in detection and to spot anomalies

Power management and monitoring:

- MV Protection, Power Quality
- HV Power Quality
- Phasor Measurement Unit (PMU)
- Recloser Controller
- Partial Discharge Measurement
- Substation-to-Substation Automation

Facility supervision and environmental conditions monitoring:

- Sensors for Temperature, Humidity, Flooding, Break-In, etc.
- Ozone, SF6 gas quality analysis
- Triggers for air extractor based on temperature/humidity
- Triggers for water extractor pump
- Analysis of structural health and monitoring
- Fire and smoke detection

Predictive maintenance for:

- Legacy Equipment
- Electromechanical Devices
- Digital Devices

Onesait Utilities Software

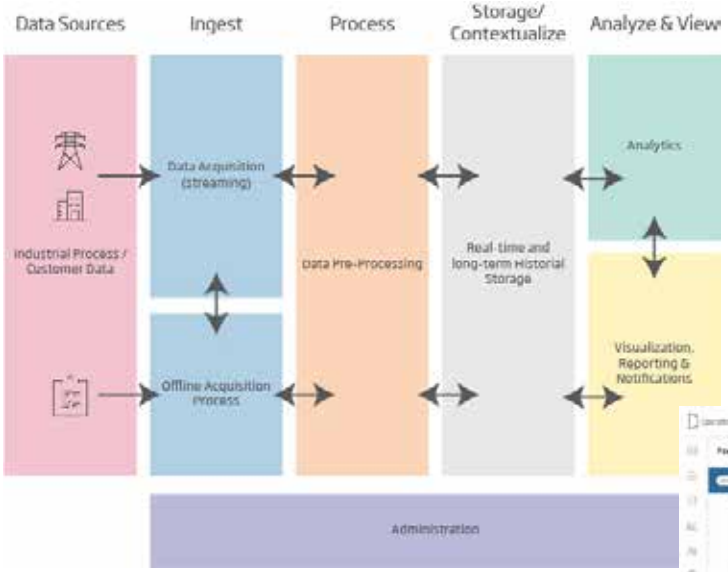
Asset Engine

Onesait Asset Engine simplifies and enables the IT/OT convergence occurring in the utility industry in a single platform that ingests, processes, contextualizes, analyzes, and visualizes technical data from any source.

Utilities looking for solutions to analyze technical data from many different sources and share the findings throughout the organization will find Asset Engine a powerful tool. The data managed by technical systems is stored and integrated so that its analysis can be fast and thorough to extend the knowledge of the operations of assets. Engineering planners can access years of historical SCADA data and have specialized AI algorithms finding trends or searching for the root-cause of outages or reviewing the historical patterns of feeder loads.

On-premise or cloud deployment, with the most common IaaS (MS-Azure, AWS, Google CP).

Example of data sources - collection of time series data from real-time OT systems (e.g., SCADA or ADMS), from other IT systems (EAM, GIS, WFM, etc.) or from batch files. Leveraging several standard protocols (Modbus, OPC, IEC102, IEC104, ICCP, DNP3.0, OPC, DDS iSPEED Pub/Sub, ZIGBEE) as well as others commonly used in IoT (MQTT, KAFKA, RESTData, etc.) to collect data from field devices and from Behind-the-Meter assets.

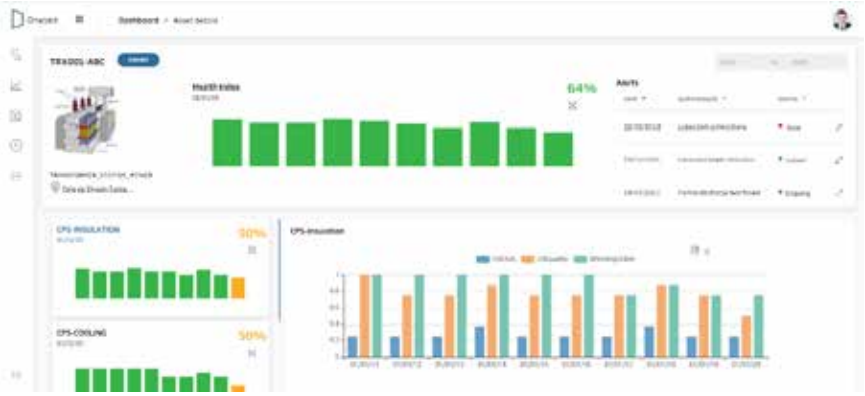


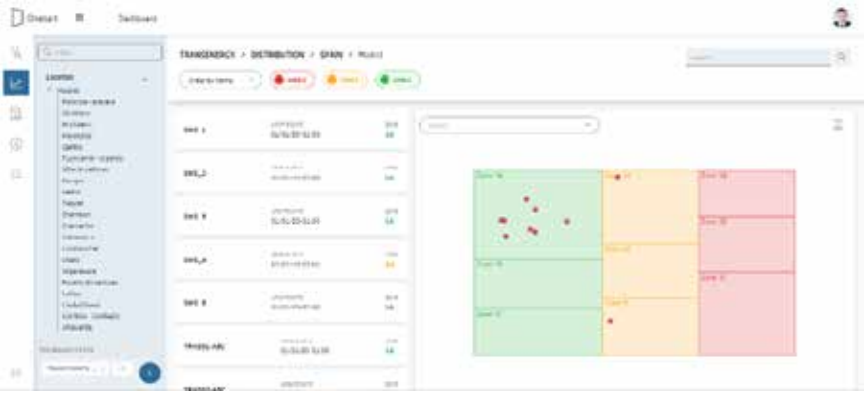
Onesait Utilities Software

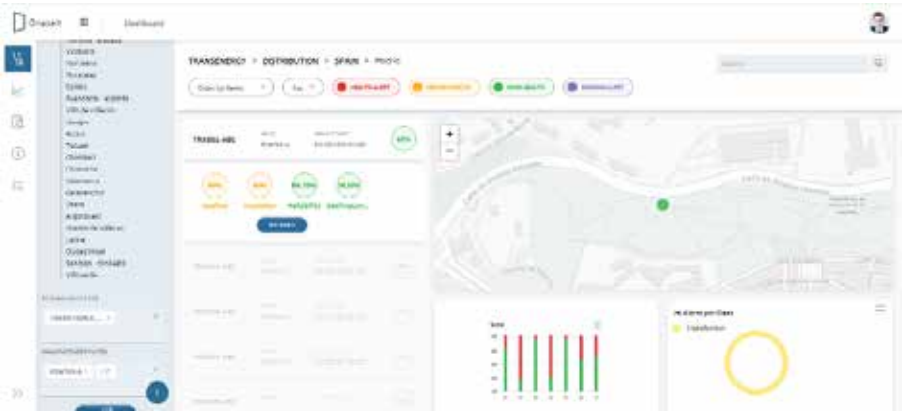
Asset Performance Management (APM)

Monitor and supervise T&D assets, to maximize business outcomes through improved reliability and greater availability with less O&M costs.

APM is a comprehensive and modular solution to monitor assets and facilities, in utilities and other industrial companies. It integrates the whole performance of the installation on a common and unified vision, from asset to fleet level, covering both health and performance perspectives. Onesait APM for T&D is made up of two modules - Predictive Monitoring and Asset Health.







Onesait Utilities Software

Smart Wildfire Detection (SWfD)

Smart Wildfire Detection helps to:

- Anticipate and detect wildfires
- Collect and analyze visual evidence in real time
- Detect vegetation encroachment and general conditions of clearways
- Operates 24 hours a day / 7 days a week
- Self-sustained solution powered by solar energy
- IoT designed for low energy consumption
- ON-OFF control synchronization during idle periods to increase battery charge life
- Artificial Vision processing and dedicated supported process hardware
- Image processing through graphical filters and CNN (Convolutional Neural Networks) in charge of early detection of wildfires

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