PRISM™ Real-Time OMS

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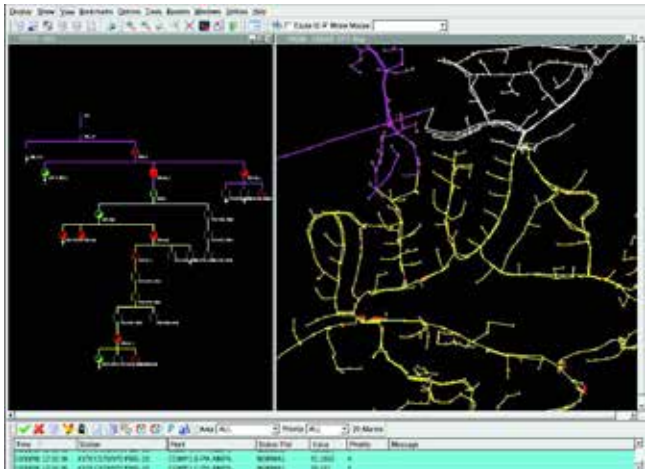
PRISM Real-Time OMS

An outage management system (OMS) should solve more problems than it creates. But from initialization to daily operation to management reporting, an ordinary OMS can make things harder: database maintenance and synchronization; ticket coordination; out-of-date schematics; and lagging performance at critical times. We have adopted a completely new approach to solving these problems. 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.

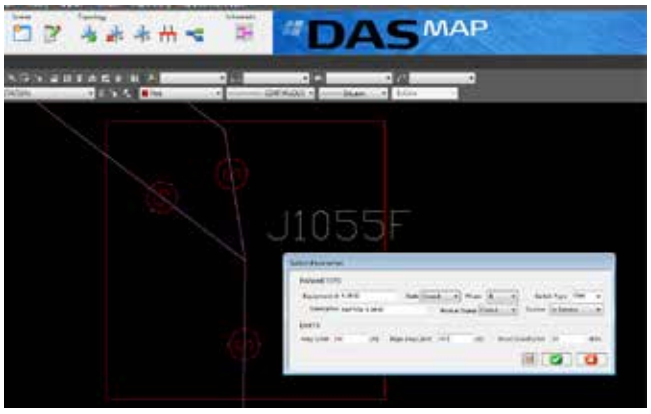
A typical OMS means a never-ending barrage of updates, reviews, and worries: how do you maintain the OMS database? How do you keep it synchronized with your real-time information? PRISM OMS solves this with a single database maintenance point and seamless real-time interface to your network–not just 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.

PRISM OMS software manages consumer utility service restoration information. It provides separate application modules for different utility service types, such as electric and water, that can be implemented individually or in combination. Information from consumers, crews, and SCADA systems is processed to locate and predict problem areas. PRISM OMS stores and tracks customer call information, integrates this information with network connectivity updates, and processes it through the prediction engine to provide a comprehensive tool for outage management. From managing simple customer outages and tracking routine service work to handling severe storm situations without drowning in a flood of real-time SCADA updates, PRISM OMS provides the support needed to restore consumer service, all in real time.

Dynamic map view



Dynamic Schematic View Generation



GIS map import with incremental update

Reporting

PRISM OMS includes PRISM Reporter, a robust enterprise tool for management, customer and employee information. You can work from pre-designed reports (Reporter allows full customization of sources, format, and clearances) or create ad-hoc queries. Results can be delivered over the Internet as HTML, DHTML, PDF or Microsoft® Excel documents, and are easily integrated with scheduling and web applications, with complete security. Charts (in 2-D and 3-D), columnar, cross tab and summary reports are supported. Although Reporter works easily with JDBC, ODBC, XML and Access sources, as well as object/array data, the Reporter interface is designed to simplify organization and publication.

Real-time reliability index calculations

PRISM OMS includes a module that summarizes the restoration effort, including how an outage affects your performance indices (e.g., SAIDI, CAIDI, SAIFI, MAIFI). These measures are displayed with each fault or restoration procedure, so you can optimize resources (field crews) and maximize performance ratings. This is invaluable when analyzing and comparing the impact of each individual outage before implementing a switch plan.

Moreover, outages are ranked and sorted into unique categories, so finding answers to pertinent questions is simple. For example: Are any medical alert customers affected? Which outage has the greatest affected load? Which outage will least affect performance indices, given a delay in committing resources to its restoration? What will the effect be?

You can analyze the effect of restoration choices on life support/health-related customers, opportunity cost and industrial power supply reliability concerns—all while optimizing monitored performance indices.

Historical archiving and calculation

The system maintains all data pertinent to restored outages with removable-media backups made monthly. Data is kept online for a configurable amount of time, but not less than 2 years in an Oracle relational database. The data is archived to another database and kept for 7-10 years. Archived data is used to generate reports, including interruption-of-service report, weekly interruption report, monthly interruption report, and annual interruption report. In addition to printed reports, PRISM OMS can automatically generate standard summary displays, categorized by equipment, network segment, cause, customer, reliability, and outage duration. Reports can show information for the current month, the last twelve months, multiple years of archived data, a specific period, or for a comparison of two time periods. The system also produces detailed post-fault statistical reporting.

Installation

We make installation as painless as possible by using our DASmap™ tool to import your GIS-based drawings into dynamic, full-function SCADA map displays. Since much of the process is automated, you can get your PRISM OMS up and running in a fraction of the time a traditional system takes, with greater accuracy and less manpower.

PRISM Real-Time OMS

Improve dispatcher effectiveness with powerful graphics

PRISM OMS integrates all the outage management applications through a single data model. PRISM OMS shares the same database, the same network model, and the same graphics with the distribution management system (DMS). This data model is updated with all known network information, regardless of the source of the information. Different sources include: SCADA real-time telemetry, operator updates, load management systems, program calculations, IVR call information, and AMR/AMI data.

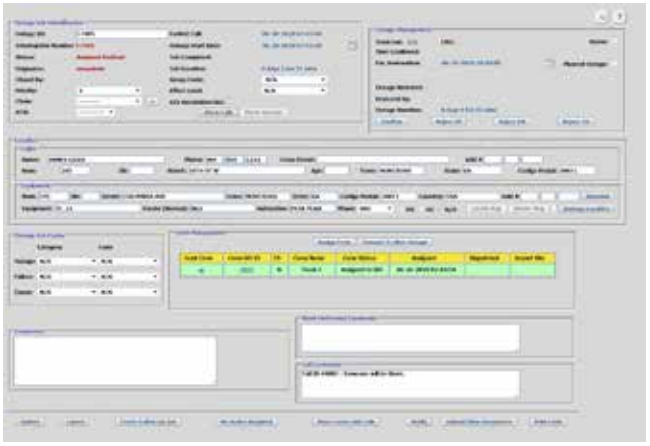
A single data model and common real-time database provides the same real-time network information, including distribution network modeling and analysis, to both PRISM OMS and SCADA. As changes occur to the database, the network topology is re-calculated in real-time to reflect an accurate, current state of the network. Tickets can be created and cleared based on all system information, including telemetry, instead of waiting for phone calls and troubleshooters. Behind the scenes, the PRISM OMS prediction engine automatically groups customer calls to create incident tickets and clears auto-tickets based on SCADA information–all without operator intervention.

PRISM distribution and outage management systems share common displays and a common GUI in both schematic and geographic views. Integrating data and graphics improves call center and dispatcher operations, such as:

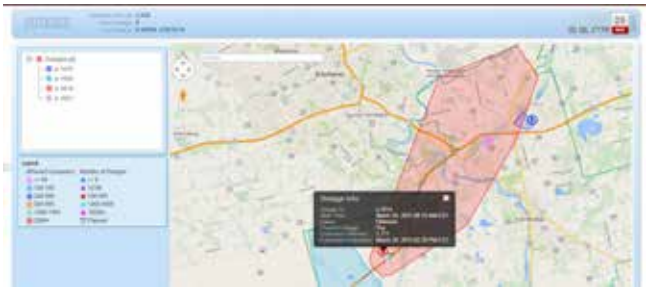
- Dynamic network colorization, including violations, loops and unassigned calls
- Predictions and customer calls are shown with SCADA data
- Schematic and geographic network views, featuring automatic device location

PRISM OMS is an extension of our ground-breaking work in distribution automation and distribution management. It coordinates specific outage management applications, PRISM distribution solutions and our comprehensive DASmap™ topology tool to bring you the most advanced OMS available today. This real-time connection also means that you can generate accurate, up-to-the minute reports, including reliability index predictions and calculations.

Outage call management



Outage ticket management



GridVu Public outage map

Reduce customer call volume and outage duration

PRISM OMS integrated with feeder automation automatically restores service to restorable sections of the feeder within seconds. This not only minimizes calls but benefits non-automated areas of the distribution network, since crews can be dispatched where they are most needed. It immediately recognizes topology changes that result from automatic reconfiguration, and operators know instantly that power has been restored. With accurate, up-to-date information, the system can make more accurate outage predictions, reducing restoration time for the entire network. Of course, PRISM OMS includes all the management tools and utilities needed to create a reliable, full-featured system.

IVR call-taking system

PRISM OMS gives you a choice of interactive voice response (IVR) solutions. It is a reliable, flexible, and scalable platform that fully supports W3C standards, so you can integrate a number of best-in-class products, such as Nuance, and add diverse telephony, data, Web services and back office environments easily.

PRISM IVR combines sophisticated call control with built-in web, email, fax, and data communications capabilities. It is tightly integrated with the rest of the system in real-time, for instantaneous feedback to call center functions. Powerful management tools minimize administrative costs, and a graphical programming environment supports rapid application development.

Customer service representative manual call-taking/call management

Customer service representatives use a browser-based tabbed interface to log and manage customer calls, from the initial contact to a callback after outage resolution. Between these events, calls are tracked by user-definable customer service areas, which can be grouped by geography, customer type, priority, or other criteria. Calls can be associated with existing tickets, flagged for callback, and sub-categorized within their larger classification. Status is continually updated. Links to maps, equipment and feeder identification, and crew status give your customer service group ample information to provide customers with a clear picture of the situation. The browser interface not only simplifies training, it gives representatives broad access via intranet or Internet. Password and Smart Card user authentication ensures that the system remains secure.

PRISM Real-Time OMS

Automatic prediction analysis

PRISM OMS predicts which devices on the network have caused outages, using all available information, including:

- Customer calls via CSR, IVR, web or text and/or AMI
- Relevant, timely database information
- Information from fault locator devices and other automatic reporting inputs

When a logged call cannot be associated with a current incident or outage ticket, the prediction engine makes a prediction of failure, identifying the device common to related customer calls. You can force a prediction on the entire system or on an individual circuit. This is helpful when you want to consider potential downstream causes by controlling the direction of prediction analysis.

Incident and outage ticket generation

Ticket Management assists you in analyzing the effect, status, and disposition of a single ticket, and lets you monitor the repair progress. Tickets can be generated in several ways:

- System generates tickets automatically, based on predictions resulting from customer calls; AMI; police reports; fire alarms
- The SCADA system can generate a ticket automatically, then close it, based on breaker or switch position telemetry

Once entered, a ticket is categorized according to its status: incident (unconfirmed outage), confirmed outage, or completed. Within these groupings, tickets are further subdivided according to location, infrastructure dependency and medical significance. You can sort tickets based on any field for a quick overview of emergencies and response capabilities.

Restoration switching plans

You can generate manual switching plans (the OMS displays the restoration steps along with the number of customers restored), or automatic switching plans (you select a device to be isolated and the Switch Order Application automatically develops the switching sequences required to implement the operation). Regardless of the method, the system accounts for available circuit tie points, restrictions (from SCADA), voltages, conductor type and capacity, service classes involved, and loads at various locations on the circuit(s). OMS displays the switch plan and the restoration step with the number of customers restored.

The Switch Order Application contains a library of contingencies, so you can create new plans by selecting steps or a block of steps from other switching plans– including those stored in the historical database. In study mode, the system will validate switching plans and run a load flow analysis to determine the effects of switching before implementing the plan.

Crew assignment/crew management

Crew management operates in conjunction with ticket management for a clear picture of incidents and outages– how they are being addressed and how quickly they are likely to be resolved. You can create, monitor, and assign crews to tickets, as well as monitor crew workload. If labor resources need to be balanced, or if changes are required to accomplish timely restoration, you can modify these in a summary display.

In fact, the overall progress of the restoration mission is consolidated in the summary display: total resource availability and allocation (including which crews are assigned to which tickets, which crews are off duty, and which crews are awaiting assignment), ticket backlog, time-on-job and estimated time of completion.

Interactive crew callout voice response system

PRISM OMS features integrated voice response-based crew callout, which automatically alerts on-call emergency crews to report for duty. The crew callout is initiated from the Crew Management module. The crew personnel can call back into an active callout, if they have missed the call, to accept the position–if still available.

Maintenance

The network model is a core element in automatic restoration and reconfiguration, SCADA, displays, load flow analysis and real-time reliability index calculations. Most importantly, out-of-sync topology means that OMS fault predictions will be inaccurate, and that means crews get dispatched to the wrong locations, expenses rise, and outages linger. Surprises abound, many of them unpleasant. PRISM OMS ensures real-time accuracy. It uses the same model and the same data as your SCADA and integrated DMS applications, so PRISM OMS is updated immediately when changes occur. Synchronization is intrinsically guaranteed and adding outage management hardly increases display maintenance at all.

Performance

Most outage management systems are based on GIS platforms whose graphics and relational database are not designed for real-time performance. The link that transfers SCADA data to the OMS is often based on ICCP (or a similar technology), rather than a performance-oriented design. As a result, these systems often suffer serious performance problems in storm situations–when the volume of reported points can overwhelm GIS-based systems. PRISM OMS meets the performance demands of a SCADA/EMS/DMS system–both in its graphics and its real-time data processing capability. Since it is built from the ground up as a real-time system, it can handle your most severe storm situations without drowning in a flood of real-time SCADA updates.

PRISM Real-Time OMS is a fully-realized application suite that capitalizes on the philosophy we pioneered in 1979, and have been refining and expanding ever since: a single, synchronized database of consolidated network information should be the hub of utility operations. If you want efficiency, accuracy and assured performance, you need real time.

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