The best system for the worst storm

Alstom Grid’s Network Outage Management is a Trouble Call and Outage Management System that forms an integral part of the e-terra suite of applications. It allows operators to manage unscheduled and planned network outages from within a unified operating environment that integrates Switching Operations, SCADA, Automated Metering data, Crew Monitoring and real-time Network Analysis.

From the initial notification of a fault through prediction, crew assignment and restoration switching to return-to-normal, the dispatcher is able to work from a single set of network views.

All the necessary information for each phase of the job is clearly presented in a way that allows the dispatcher to manage each outage efficiently while also staying aware of other network activity.

This application has been designed to handle major storm situations by providing high performance and effective tools that support large numbers of users combined with the ability to easily balance each dispatcher’s workload. A comprehensive and flexible recordkeeping function automatically provides all the necessary information for regulatory reporting requirements, reducing the amount of follow-up work required after major storm events.

Customer benefits

- A single consolidated interface for Outage Management, SCADA and other network activity
- Uses all available data (AMI, trouble calls, SCADA) for enhanced outage analysis
- Hurricane level performance
- Outages can be managed directly from the real-time network view
- Full-function simulator for user training and system validation
- Uses dynamic network operations connectivity model

Alstom Grid’s Network Outage Management provides a trouble call and outage management application that is part of the overall real-time management of the distribution network, not a stand-alone function that has to be separately coordinated by dispatchers.

Integrated user interface

Alstom Grid’s unified user interface provides a single, consistent operating environment. The complete outage life-cycle can be managed from a single set of displays.

The dispatcher is able to work directly from the real-time geographic network view to assign crews, adjust ETR, add notes, assign reasons and close out the incident.

Outage extent analysis

The prediction engine uses validated Trouble Orders, AMI observations and the real-time status of the network to determine the most likely protective device that has interrupted supply to customers. Both the Outage Management display and the real-time network view are updated to show the device and the predicted extent of the outage down to the customer level. The dispatcher can clearly visualize the outage in relation to other network activity. The incident management toolbar is available directly on the geographic network view to assign crews, perform restoration switching and update outage details without having to move back and forth between displays. Incidents can be split or merged as required.

The prediction engine uses all available information to identify outages, including SCADA data (breaker trips, fault detectors and alarms), manual switching, AMI and trouble calls.

Outages monitored by SCADA are automatically confirmed to reduce dispatcher workload.

The operation of the prediction engine can be controlled to meet the needs of normal or high activity situations.

Trouble Calls can be entered directly by the dispatcher based on a particular customer or a geographic location not associated with a customer.
Crew monitor/assign

The assignment of crews to incidents and the monitoring of their current status can be performed directly within the Outage Management displays.

Network performance indices

The full range of standardized performance index calculations are provided, i.e. SAIDI, SAIFI, CAIDI, CAIFI, MAIFI and MAIFIe, in accordance with IEEE 1366-2003. Outages may be defined by date ranges or geographic areas so that major storms can be excluded from the index calculations. After-the-event corrections to index calculations are supported. Momentary outage indices are calculated separately to minimize the non-critical information presented to the dispatcher.

Scalability

Network Outage Management uses the same real-time network model as the other functions of e-terradistribution and as such is capable of handling networks of any size. The application has been specifically designed to handle large numbers of outages, as may be expected in extreme storm conditions, with no significant loss of performance.

Coordination with switching operations

The close integration of the Fault Location and Network Optimization applications in the e-terradistribution suite allows for outages to be identified and then analyzed resulting in the automatic creation of switching procedures to isolate the faulted area and restore unaffected sections of the network.

Outage history

A Historical Reporting function ensures that complete records of all outages are available for future analysis. Information may be retrieved at all levels of the network from customers to Operating Divisions.

Configurability

Network Outage Management is highly configurable allowing Prediction Rules and Validation Rules for clearing trouble to be easily set-up or changed.

Interfaces to external systems

The secure SOA-based interface architecture used by e-terradistribution provides flexible, vendor-independent interfaces to external systems such as Automated Metering Infrastructure (AMI), Customer Information Systems, Mobile Work Management and Maintenance Planning.

Advantage

- Alstom Grid Energy Management and SCADA Systems are used by electricity utilities throughout the world. Alstom Grid employs industry experts to meet customer requirements.
- e-terradistribution Network Outage Management has been specifically designed to meet the needs of all sizes of distribution utilities.

Alstom Grid’s integrated solution for real-time management of distribution networks
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