Outage Detection

Itron Analytics

Improve outage response with real-time intelligence. Delivering consistent and reliable energy to customers is priority one for utilities. When service is interrupted, the utility is expected to restore service as quickly and efficiently as possible. Smart metering technology has added a useful data stream to the outage management equation, but it is not a panacea in itself. In fact, the current state of outage detection via the smart metering network is still an inferential, data-intensive exercise relying on how many affected meters can successfully transmit "last gasp" outage alarms to utility back end systems.

ITRON APPROACH

Though these capabilities have enabled utilities to achieve operational improvements in their processes, smart meters have yet to live up to their promise of improving outage management. Itron Analytics is changing this by delivering timely and actionable intelligence in the context of the distribution network.

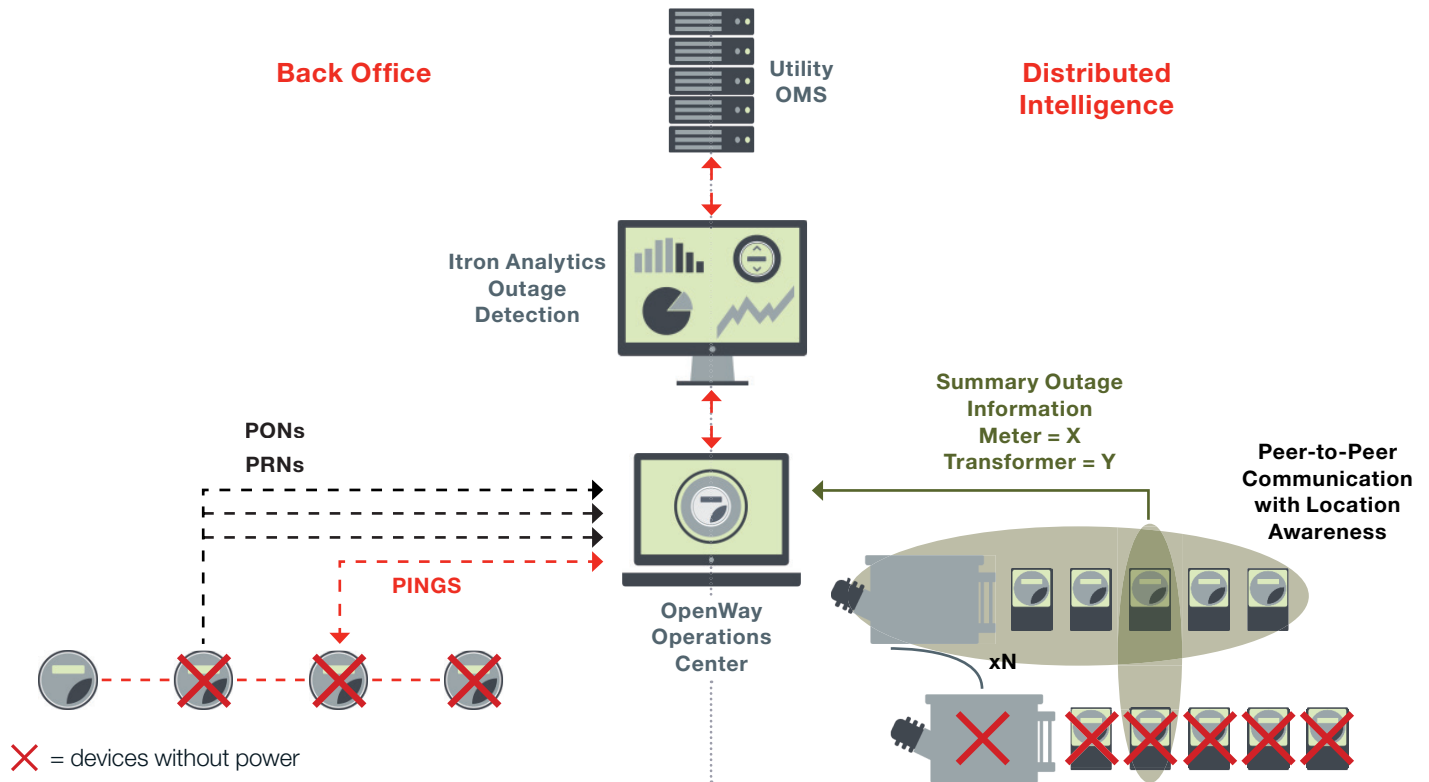### Converting the Tsunami of Raw Data into Actionable Information

The Itron Analytics Outage Detection outcome interprets the tsunami of raw power outage and restoration alarms to deliver an accurate, continuous feed of information to the utility on the state of their distribution grid. Ongoing, precise updates enable crews to quickly and efficiently target their response during all phases of outage operations.

Results are achieved by combining traditional outage exception alarms with "location awareness" via the Itron Grid Connectivity offering, which provides an accurate and updated model of utility distribution phase and transformer connectivity. Analytics identify duplicate alarms and momentary interruptions, and apply results to this grid topology to accurately determine outage extents, even in cases when a subset of outage and restoration notifications are received.

Furthermore, Outage Detection determines strategic meters in and around the outage area and automatically initiates ping requests through the OpenWay® Operations Center Collection Manager. Results are used to validate the initial assessment and continually update outage models during restoration. This continual, active examination of dynamically selected meters minimizes network traffic and effectively identifies problematic nested outages. Processes continue until all endpoints are confirmed as restored.

OVERVIEW

Scenario 1 | Scenario 2

Back Office | Distributed Intelligence

Utility OMS

Itron Analytics Outage Detection

PONs
PRNs

PINGS

Summary Outage Information
Meter = X
Transformer = Y

Peer-to-Peer Communication with Location Awareness

OpenWay Operations Center

xN

✕ = devices without power

Itron Analytics Outage Detection Enhanced with Distributed Intelligence

Effective Integration with Other Enterprise Systems

The Outage Detection outcome is not a comprehensive outage management system (OMS), but it can be an efficient and intelligent tier between the AMI network and an enterprise OMS. A grid topology model is used and optimizes communication methods with the collection system to quickly and accurately determine outage extents and communicate results to the OMS. Depending on the utility goals and OMS capabilities, Application Program Interfaces (APIs) deliver outages at any equipment level from individual endpoints to summary results at transformer, sectionalizing devices, or entire feeders and substations.

In cases where a utility OMS is not required, or desired, Outage Detection provides the tools for effective outage response. Near real-time outage notifications may be configured to alert response personnel via email, text and mobile displays. Back office personnel are kept in the know via web-based desktop geospatial views and tabular displays, continuously updated in near real-time. APIs expose real-time outage status to other enterprise systems such as customer-facing GIS or emergency response agencies.

WITH OUTAGE DETECTION, UTILITIES BENEFIT BY:

» Quickly and effectively targeting outage response

» Determining accurate outage extents, even with a subset of alarms

» Eliminating duplicate alarms and momentary interruptions from OMS

» Validating and continuously updating outage extents with automated, strategic meter pings

» Discovering nested outages during restoration

» Supporting full-AMI or bellwether meter deployments

» Enabling effective outage response, with or without an OMS
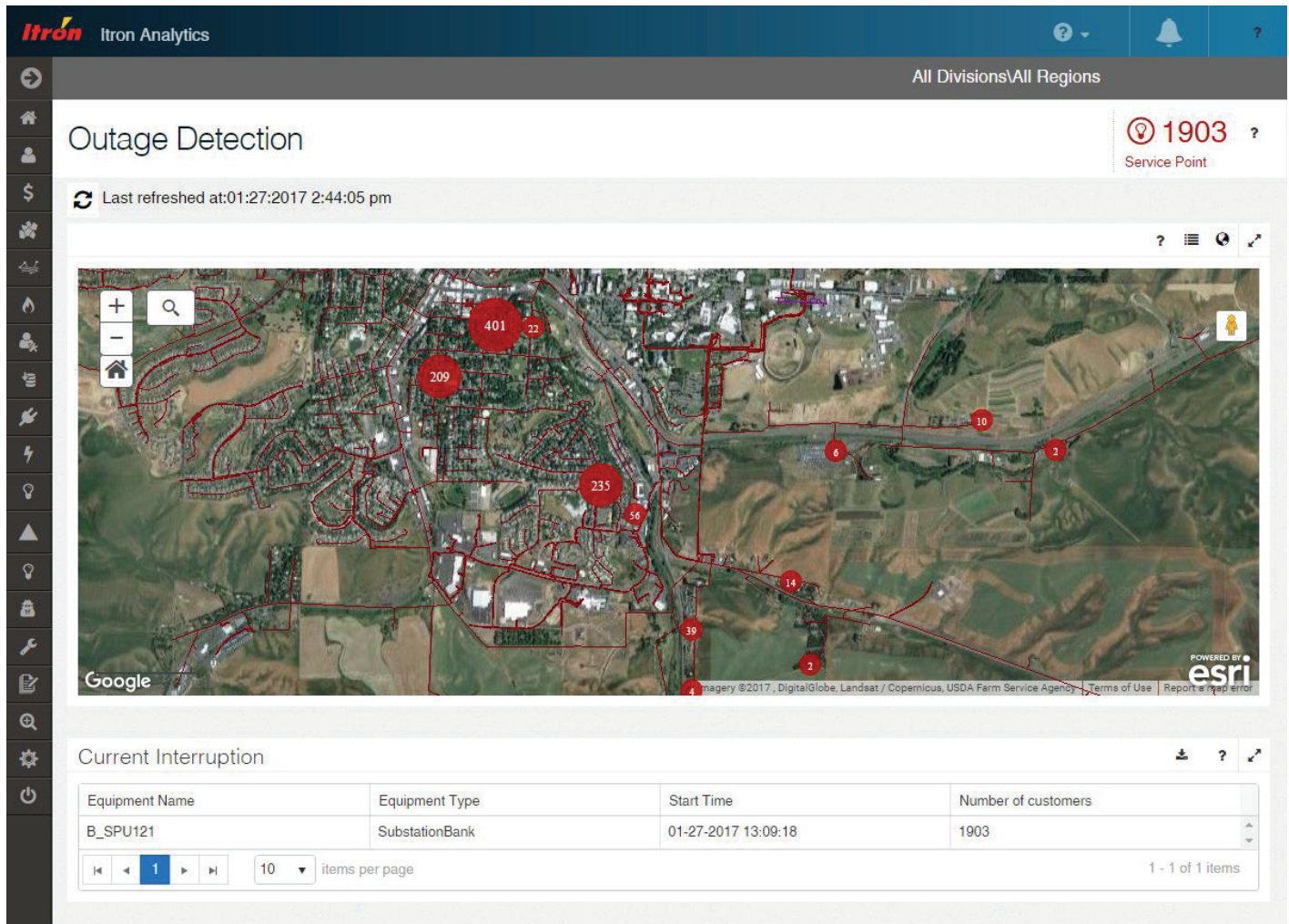
Itron Analytics Outage Detection Dashboard Showing Current Interruption Activity

FEATURES

Itron Analytics introduces a modern and intuitive web-based user interface that enables analysts to see current and recently restored power interruptions in their area.

Dashboard View

Outage Detection includes a dashboard that offers:

» Map view of current and recently restored interruptions by service territory or geographic area

» Tabular view of active and recently restored outage activity

» Precise start and end times of all equipment interruptions, including customers affected

» Total service points currently affected

» Automated and manual updates of latest AMI results

Real-time Notifications

Analysts and response personnel can subscribe to notifications generated immediately when outages are detected in their area of interest.

» Receive email or text formats including affected equipment, start time, phase, location and number of customers

» Subscribe to specific service centers, substations, feeders or key customers

» Limit notifications to total customers affected or minimum interruption duration
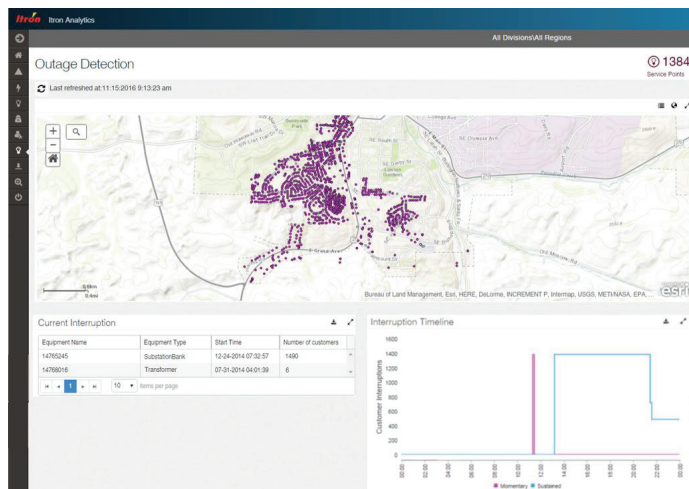
Near Real-time Display of Ongoing and Recently Restored Interruptions

Application Programming Interface

Outage Detection provides a web service interface for third-party applications to access currently active or historical outage details such as equipment type, location, start/end times and number of customers affected. Interruption status is continually updated throughout restoration to provide up-to-date information for GIS or other utility systems.

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