



Solution Overview



**Turbo-charging Demand Response
Programs with Operational
Intelligence from Vitria**

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Executive Overview

It is critical that Demand Response programs become more effective, more responsive and more flexible so that Utilities can manage costs and deliver optimized customer service. This requires the ability to monitor, analyze, and act to improve the Demand Response programs and to evaluate the curtailment effectiveness. Today, Vitria Technology is helping Utilities build and deploy the key technologies necessary to deliver and manage Demand Response (DR) programs in order to improve their effectiveness.

Utilities are relying more and more on DR programs as a central component of their overall resource planning activities. Thus DR program managers and participants now require a set of tools to ensure that the DR programs deliver as expected. Operational Intelligence is a new approach for decision-making that allows the optimal response to be taken at the right time. By deploying Operational Intelligence, Utilities gain the ability to deliver exceptional DR programs. Three key features of Operational Intelligence for Demand Response are:

- Visibility into program impact based on consumption, pricing, and customer information
- Insight into expected performance, incentives impact, and other key metrics leveraging real-time analytics
- Action in the form of alerts to participants, notification of required responses, and updates to post-event clearing and settlement systems

The technologies delivering these capabilities under the banner of Vitria Operational Intelligence include integration, complex event processing, Web 2.0 dashboarding, and business process management. Vitria has taken a number of steps to simplify the development and deployment of these capabilities through pre-integration, visual design environments, and a set of best practices for scalability and reliability. The result is an integrated, proven Operational Intelligence solution that empowers Utilities to deploy and manage effective, flexible Demand Response programs.

Value of Operational Intelligence for Demand Response Program Management

Demand Response programs strive toward the curtailment of energy usage at or for specific time periods, thus lowering peak demand and the corresponding capital and plant costs. The ability to execute and manage the DR programs is critical for many Utilities to keep their grid in balance and avoid disruptions. Additionally, the Utility's customers can also benefit from effective DR programs to control usage and likewise their costs over time.

Operational Intelligence is a new type of business analytics, targeted at solving the issues businesses face today. Operational Intelligence empowers Utilities to see and manage DR programs as they are running, by providing visibility into program

details, insight into performance and real-time analysis of key performance indicators, and action in the form of alerts, notifications, and updates.

With smart metering and smart grid technologies being deployed throughout the utility and consumer infrastructure, there is the opportunity to take current DR programs to the next level and make them more responsive to minute by minute updates in demand characteristics and economic impact. This will allow DR program managers to take smart, real-time action, such as notifications or incentive adjustments, to ensure program success.

In order to support this transition to more flexible and responsive programs, Utilities will need to increase customer participation and interaction during events to get the performance they need. Figure 1 details the transition from one-way static program management to two-way dynamic program management where actions are more tightly orchestrated.

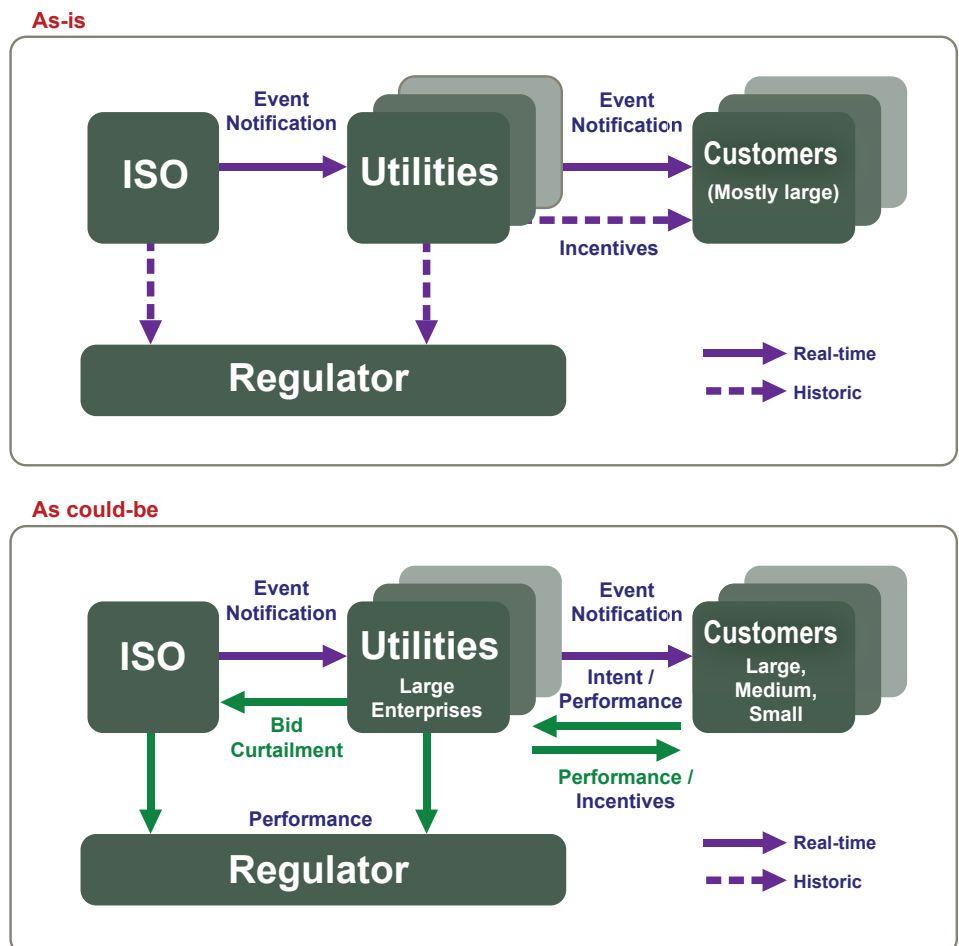


Figure 1: Transition to a More Dynamic Demand Response Event Execution Model

Once these capabilities are in place, Utilities will also benefit from better program management through operational statistics that provide program performance reporting and impact analysis. With this insight, Utilities will be able to experiment with and identify the combination of customer attributes, incentives, and actions that lead to the best programs.

An Operational Intelligence solution allows the DR program manager to set program thresholds around participation levels, alerts, and expected performance. Once an event is called, Vitria M3O Feed Server pulls meter readings from a Meter Data Management System for the customers that are participating in the event. Vitria M3O Analytic Server correlates these feeds with data about performance thresholds and other customer information then creates summary and detailed outputs. The outputs are displayed in Vitria M3O Operations Book dashboards that answer questions about overall event performance and economic impact in aggregate with the ability to drill down to meter-specific information. If the Utility chooses, end-user customers can view dashboards with their own data to help them understand their event performance.

Using M3O Analytic Server, the Utility can also set action triggers based on conditions and rules for taking action; such as escalations, notifications, and other more complex responses.

Finally, at the conclusion of an event, the performance history can be saved to a database for historical analysis, billing clearing and settlement, and other tasks.

Figure 2 displays a pictorial representation of the interplay between Vitria's Operational Intelligence solution and DR stakeholders.

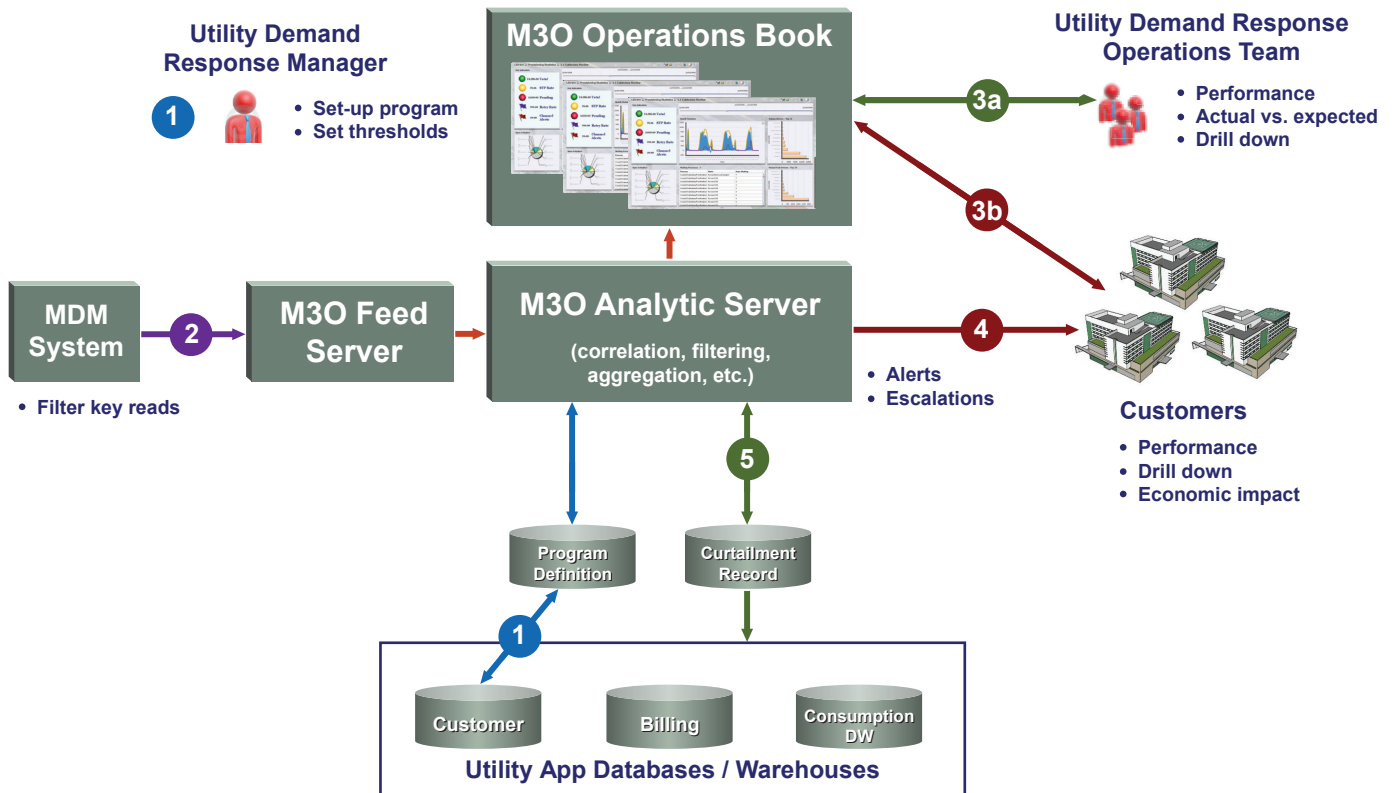


Figure 2: Vitria's Operational Intelligence Solution as Applied to Demand Response

Vitria Operational Intelligence Software Components

Vitria delivers Operational Intelligence through a unified software package which provides the following benefits:

- Access to a wide variety of data sources in real time, including business transactional systems, operational systems, and external sources such as web feeds
- Continuous monitoring and analysis of information in real time
- Ability to access and correlate related information
- Rich visualization of the raw and analytical data organized easily from the business user's perspective
- Ability to respond using a variety of automated and human workflow processes

Vitria's Operational Intelligence suite fosters development productivity and collaboration by delivering model-driven, fully integrated products including a CEP engine, dashboarding and visualization tools, as well as policy and process management. The Operational Intelligence components can be deployed in traditional enterprise computing environments or in the Cloud.

The Vitria M3O Operational Intelligence product components are as follows:

M3O Analytic Server

The M3O Analytic Server provides advanced, continuous analytics of real-time information and historical data, via a sophisticated CEP engine to deliver the in-time analysis, as required by today's business environment. M3O Analytic Server provides multi-dimensional analysis, pattern detection, trend analysis, in context correlation of real-time information and operational and historical sources, all visualized with M3O Operations Book dashboards.

M3O Business Process Server

M3O Business Process Server is the runtime environment where you can perform model-driven execution of policies and processes defined as BPMN models with the M3O Modeler. The M3O Business Process Server also provides the capability to define and manage policies across the enterprise, apply the policies to events, and then take action according to the defined policies.

M3O Feed Server

M3O Feed Server provides seamless connectivity to traditional and non-traditional information sources, including JMS, RSS, web services, and databases, enabling what-if analysis, event archive, and recovering of feed histories. M3O Feed Server also allows you to manage and balance large volumes of real-time events across multiple M3O Analytic Servers as necessary.

M3O Modeler

M3O Modeler provides a unified modeling environment that supports automated processes and rich human-oriented workflows via a business-friendly, easy-to-use interface empowering business analysts with a workspace tailored specifically for them. Likewise, IT users have IT views and capabilities that support necessary IT functions, presented within the same unified environment.

M3O Operations Book

M3O Operations Book is a powerful Web 2.0 Rich Internet Application that allows you to easily define dashboards to monitor Key Performance Indicators and Service Level Agreements. M3O Operations Book has an extensive library of widgets providing rich visualization of data in a variety of ways. You can mash up and display analytics that visually model the relationship between information and events, leveraging the CEP engine in M3O Analytic Server. With easy-to-use dashboards that combine real-time information sources with historical data, M3O Operations Book delivers in-time information, reducing time-to-visibility when it matters.

Partnering with Vitria for Successful Demand Response Program Management

Vitria's Operational Intelligence solution provides the building blocks and development environment to deploy the optimal Demand Response program management solution. Founded over 15 years ago, Vitria Technology is the leading provider of Operational Intelligence and has supplied technology to a number of Utilities including:

- Australian Gas Light Company
- Enbridge
- Origin Energy
- Southern Company
- Southern California Edison Company
- United Energy

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About Vitria

Vitria Technology, Inc. is the industry's leading privately-held BPM and integration technology company. The company has a rich heritage as a pioneer of BPM that spans more than a decade. Vitria's award winning process integration solutions provide the backbone for many Global 2000 companies' mission-critical business processes. Vitria has customers in North America, South America, Europe, Asia, and Australia.



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