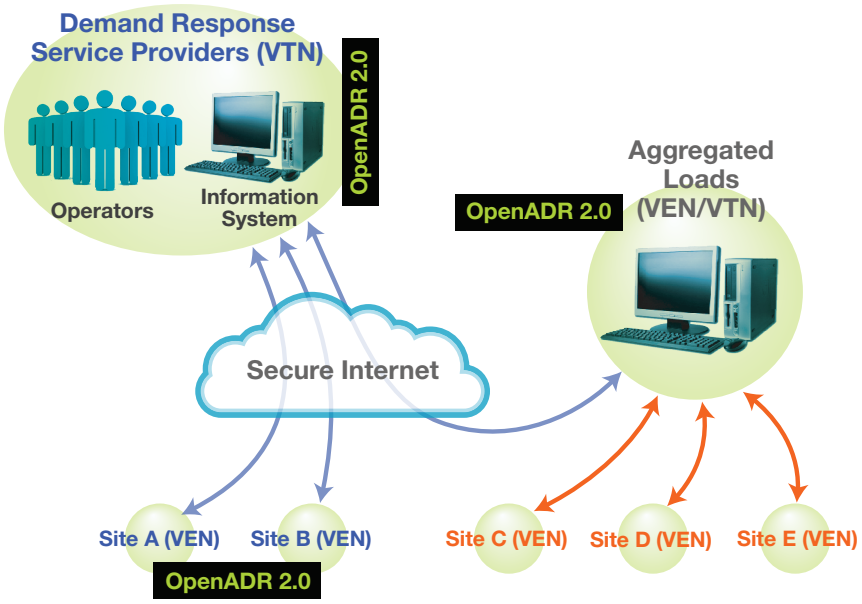
OpenADR: In a Nutshell

The OpenADR 2.0 Profile Specifications (Profiles A and B) are uniquely equipped to be used with most Demand Response programs used world-wide.

Open Automated Demand Response (OpenADR) provides a non-proprietary, open, standardized and secure demand response (DR) interface that allows electricity providers to communicate DR signals directly to existing customers using a common language and existing communications such as the Internet.



The OpenADR 2.0 Profile Specifications provides an implementable framework that describes all aspects of the OpenADR interfaces, including servers or Virtual Top Nodes (VTNs) and clients or Virtual End Nodes (VENs). It describes services, interactions, transport protocol and security combined with strict conformance statements which enable intra-vendor interoperability. Here are the key services included in the Profile Specification:

Event Service (EiEvent) - Used by OpenADR servers or VTNs to send demand response events to clients or VENs, and used by VENs to indicate whether resources are going to participate in the event. Events can contain one or many different segments (intervals) for different prices, curtailment levels, or other signals pertinent to the DR program.

Report Service (EiReport) - Used by VENs and VTNs to exchange historical, telemetry, and forecast reports. Resources can report their status, availability, and forecasts, but also real time energy and curtailment readings. The report service also has a placeholder for GreenButton data.

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Opt Service (EiOpt) - Used by VENs to communicate temporary availability schedule to VTNs or to qualify the resources participating in an event. This helps both the DR program operators and the participants to better plan their resources.

Registration Service (EiRegisterParty) - Initiated by the VEN, and used by both VEN and VTN to exchange information required to ensure interoperable exchange of payloads.

Poll Service (OadrPoll) - Used by VENs to poll the VTN for payloads from any of the other services. This is specifically important for simpler devices that cannot fully support additional messaging.

Transport Mechanisms and Security

In addition to the services mentioned above, OpenADR 2.0 also defines the following transport mechanisms and security.

Simple HTTP Transport – This transport mechanism is ideal for simple implementations that let the VENs (clients) pull information from the VTNs (servers). It essentially represents a scaled down REST implementation.

XMPP Transport (Extensible Messaging and Presence Protocol) – This transport protocol is used by many messaging applications that require close to real-time information exchange. It is very well suited for bidirectional exchanges of OpenADR messages and therefore ideal for fast DR and ancillary services.

TLS Security – OpenADR 2.0 uses TLS with Digital Certificates on both the server and client side. The OpenADR Alliance has established their own Certificate Authority management system with a third party vendor to ensure system-wide secure communication

Digital Signatures – If additional non-repudiation is needed, each message can also be encrypted with individual digital signatures

The OpenADR 2.0 Profile Specifications (Profiles A and B) are uniquely equipped to be used with most Demand Response programs used world-wide. Many trials and successful installations have taken place in the US, Asia and Europe.

Join the OpenADR Alliance

Industry stakeholders worldwide are working together to foster the development, adoption and compliance of the Open Automated Demand Response (OpenADR) standard through collaboration, education, training, testing and certification.

Anyone with an interest in facilitating and accelerating the use and adoption of the OpenADR standard for price- and reliabilty-based demand response are encouraged to join the OpenADR Alliance.

More information on the OpenADR Alliance is available at www.openadr.org

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