

## OpenADR Version 2 Potential Transport Mechanisms

The protocols listed below have been designed based on a range of requirements. There is no best or good or bad protocol. They all have their strengths relative to specific applications. The OpenADR Alliance will evaluate these protocols based on their ability to satisfy the requirements of current and future demand response applications.

- SOAP Web services (Simple Object Access Protocol)
  - <http://www.w3.org/TR/ws-arch/>
  - Supported on many software platforms
  - Widely used in enterprise SOA and ESBs and for accessing web resources
  - Supported by W3C, OASIS and others
- REST web services (Representational State Transfer)
  - [http://en.wikipedia.org/wiki/Representational\\_State\\_Transfer](http://en.wikipedia.org/wiki/Representational_State_Transfer)
  - Supported on many software platforms
  - Widely used for accessing web resources
  - Based on HTTP
- AtomPub (Atom Publishing Protocol)
  - <http://tools.ietf.org/html/rfc5023>
  - The AtomPub is an application-level protocol for publishing and editing Web resources. The protocol is based on HTTP transfer of Atom-formatted representations.
  - Supported on many software platforms
  - Widely used for accessing web resources from browsers
  - Uses the Atom Syndication Format metadata container
- XMPP (Extensible Messaging and Presence Protocol)
  - <http://www.ietf.org/rfc/rfc3920.txt>, <http://xmpp.org/>
  - XMPP is a set of open technologies for instant messaging, presence, multi-party chat, voice and video calls, collaboration, lightweight middleware, content syndication, sensor data acquisition, device control and generalized routing of XML data including point-to-point and publish-subscribe message exchanges.
  - An IETF standard
  - Widely used in a variety of messaging applications
  - Supported on many software platforms
- AMQP (Advanced Message Queuing Protocol) (also RabbitMQ)
  - <http://www.amqp.org/confluence/display/AMQP/Advanced+Message+Queuing+Protocol>
  - The Advanced Message Queuing Protocol is an open Internet Protocol for Business Messaging. AMQP is divided up into separate layers. At the lowest level is an efficient binary peer-to-peer protocol for transporting messages between two processes over a

network. At the higher levels, abstract message format is defined, with concrete standard encoding.

- PubSubHubub
  - <http://code.google.com/p/pubsubhubbub/>
  - A simple, open, server-to-server web-hook-based pubsub (publish/subscribe) protocol as an extension to Atom and RSS.
  - Uses the Atom Syndication Format metadata container
  - Aimed at improving efficiency and performance of AtomPub
- SIP (Session Initiation Protocol)
  - [http://en.wikipedia.org/wiki/Session\\_Initiation\\_Protocol](http://en.wikipedia.org/wiki/Session_Initiation_Protocol)
  - The Session Initiation Protocol (SIP) is an IETF-defined **signaling protocol**, widely used for controlling **multimedia communication sessions** such as **voice** and **video** calls over **Internet Protocol (IP)**. Used in conjunction with an application-specific wire-protocol.
  - White paper:  
<http://robotics.tmcnet.com/librarydownload.aspx?id=2684&title=Realizing+the+OpenADR+Demand+and+Response+specification+using+SIP&type=white%20papers>
- Comet
  - [http://en.wikipedia.org/wiki/Comet\\_\(programming\)](http://en.wikipedia.org/wiki/Comet_(programming))
  - Comet is an umbrella term that refers to a variety of Http techniques specifically designed for pushing data in a way that is compatible with existing browsers. Sometimes referred to as HTTP push and long polling.
- Web Socket
  - <http://dev.w3.org/html5/websockets/>
  - **WebSocket** is a technology providing for bi-directional, **full-duplex** communications channels, over a single **Transmission Control Protocol (TCP) socket**. It is designed to be implemented in **web browsers** and **web servers**, but it can be used by any client or server application.
- IMS (IP Multimedia Subsystem)
  - [http://en.wikipedia.org/wiki/IP\\_Multimedia\\_Subsystem](http://en.wikipedia.org/wiki/IP_Multimedia_Subsystem)
  - An architectural framework for delivering **Internet Protocol (IP) multimedia** services.
- OPC-Unified Architecture
  - [http://www.opcfoundation.org/Default.aspx/01\\_about/UA.asp?MID=AboutOPC](http://www.opcfoundation.org/Default.aspx/01_about/UA.asp?MID=AboutOPC)
  - An advanced high-speed point-to-point industrial protocol for both wide-area and local-area networking.
  - Incorporates integrated security, data telemetry, event messaging, historical data access, information browsing.
- BACnet Web Services
  - May be using AtomPub and CSML?
- Constrained Application Protocol (CoAP)

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- Constrained Application Protocol (CoAP), is an emerging IETF standard (<https://datatracker.ietf.org/doc/draft-ietf-core-coap/>) and is a specialized RESTful (Representational State Transfer) protocol for use with constrained networks and nodes for machine-to-machine applications such as smart energy and building automation.