Open Applications Group adopts REST Processing and Java Script Object Notation (JSON) for OAGIS based Mobile and Cloud API's

an OAGi Position Paper

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Open Standards that Open Markets™

Background

In 1996, when OAGi (www.oagi.org) first published the Open Application Groups Integration Specification (OAGIS), the expression form of the OAGIS data exchange data model was a proprietary meta data format invented by Open Applications Group (OAGi). The membership invented and refined this meta data to provide more flexibility in the expression of the OAGIS data exchange data model than traditional EDI data structures supported.

Messaging was also in its infancy and there were very few tools and techniques for asynchronous business messaging. ebXML was not formed yet and Web Services were a long way away. OAGi built their own messaging model that could support other frameworks or stand on its own. That is the reason for the Business Object Document (BOD) architecture and messaging model with the Noun and Verb concepts.

Since then, many improved forms of data expression have been developed and the OAGIS technology evolved to support XML Document Type Definitions (DTD) in 1987 and then XML Schema (XSD) in 2002. In 2005, OAGi elected to evolve OAGIS to support a stricter Schema expression as defined by the UN/CEFACT Naming and Design Rules (NDR) and Core Component Technical Specification (CCTS). This change improved the grammar expressions in OAGIS, reduced ambiguity, and improved both intra and inter supply chain interoperability.

During this evolution of the OAGIS Standard, the component model of OAGIS was built out significantly, with much more content added in the way of e-Commerce, Supply Chain, CRM, Financials, Manufacturing, and others. Because OAGi builds the BODs from these components, other standards organizations started using the base components and the BOD architecture and the messaging model for their standards. In 2009, OAGi decided to split the underlying component model of OAGIS into a Platform and the specific OAGIS content so other standards groups could more easily leverage the technology and architecture as well as the base content of OAGIS.

This evolution of the technology used to express the data exchange data model that is OAGIS has been important to our users of the standard in order to better support the business solutions they require both outside and inside their organizations.

Why REST and JSON?

With the move to Mobile devices, Cloud Computing, and many other platforms such as the automobile or even farm machines as mobile devices, a new class of solutions are being built and deployed by organizations of all kinds.

Many organizations are now adopting a bring your own device (BYOD) policy instead of issuing a single device to employees. This introduces many opportunities to leverage those devices in many ways through sales reporting and even to transactional apps such as receiving and purchase order lookup.

Also, almost all of the major cloud offerings such as Amazon, Google, Yahoo, Facebook, LinkedIn, etc. offer API's based on JavaScript Object Notation (JSON) with REST processing.

What is REST?

REST stands for Representational State Transfer. It relies on a stateless, client-server, cacheable communications protocol -- and in almost all cases, the HTTP protocol is used.

REST is an architecture style for designing networked applications. RESTful applications use HTTP requests to post data (create and/or update), read data (e.g., make queries), and delete data. Thus, REST uses HTTP for all four CRUD (Create/Read/Update/Delete) operations.

REST is not a "standard". And while there are REST programming frameworks, working with REST is so simple that you can often "roll your own" with standard library features in languages like Perl, Java, or C#.

Source: Wikipedia and various authors

What is JSON?

JavaScript Object Notation (JSON) is a lightweight text-based open standard designed for human-readable data interchange. It is derived from the JavaScript scripting language for representing simple data structures and associative arrays, called objects. Despite its relationship to JavaScript, it is language-independent, with parsers available for most languages.

The JSON format is described in IETF RFC 4627. The JSON format is often used for serializing and transmitting structured data over a network connection. It is primarily used to transmit data between a server and web application.

Although JSON was based on a subset of the JavaScript scripting language (specifically, Standard ECMA-262 3rd Edition—December 1999) and is commonly used with that language, it is a language-independent data format. Code for parsing and generating JSON data is readily available for a large variety of programming languages. The website www.json.org provides a comprehensive listing of existing JSON libraries, organized by language.

Source: Wikipedia

OAGi approach to OAGIS based REST API's using JSON

OAGi is going to use the 4 regular verbs for REST processing GET, PUT, DELETE, and POST. It may be necessary to augment them with some of the existing OAGIS Verbs also, but that decision has not been made.

The highest form of content will be the OAGIS Noun and the lowest can be at the Element level. The REST based processing using OAGIS content expressed with JSON will use the underlying components and data elements providing a very fine grain API that works for the new types of solutions used for mobile devices and the cloud while leveraging the rich content model from OAGIS that has been developed over the past 17 years.

OAGi is able to do this without breaking the OAGIS data model because the underlying architecture is already fully componentized.

This capability with OAGIS will enable organizations to offer OAGIS based applications for mobile and using cloud brokers to enable order entry and lookup, inventory balance lookup, bar code scanning and transmission of results, sales reports, CRM, and many others. These can be offered to business partners as well as employees.

This capability will be offered in addition to our enterprise messaging architecture with the Business Object Documents, but not instead of them. We will support both messaging architectures moving forward.

Remember it is the data model that is important and the more ways we can use that content the more useful that data model will be for users of OAGIS.

EDI, XML, and JSON as Complimentary Technologies

When XML first started to appear in technical solutions in 1997, there were some who predicted that EDI was "dead." Yet 14 years later, EDI is still going strong.

XML did became very successful for B2B use in industries such as Chemical, High Tech, and Automotive Retail and also for use in Enterprise Integration, where there was not a clear solution and therefore it filled in the gaps where EDI had not penetrated or was not the right solution.

This same adoption pattern is also taking place with JSON complementing XML based solutions. JSON is now the default data expression technology for the next wave of web applications and solutions and the Web 2.0 world.

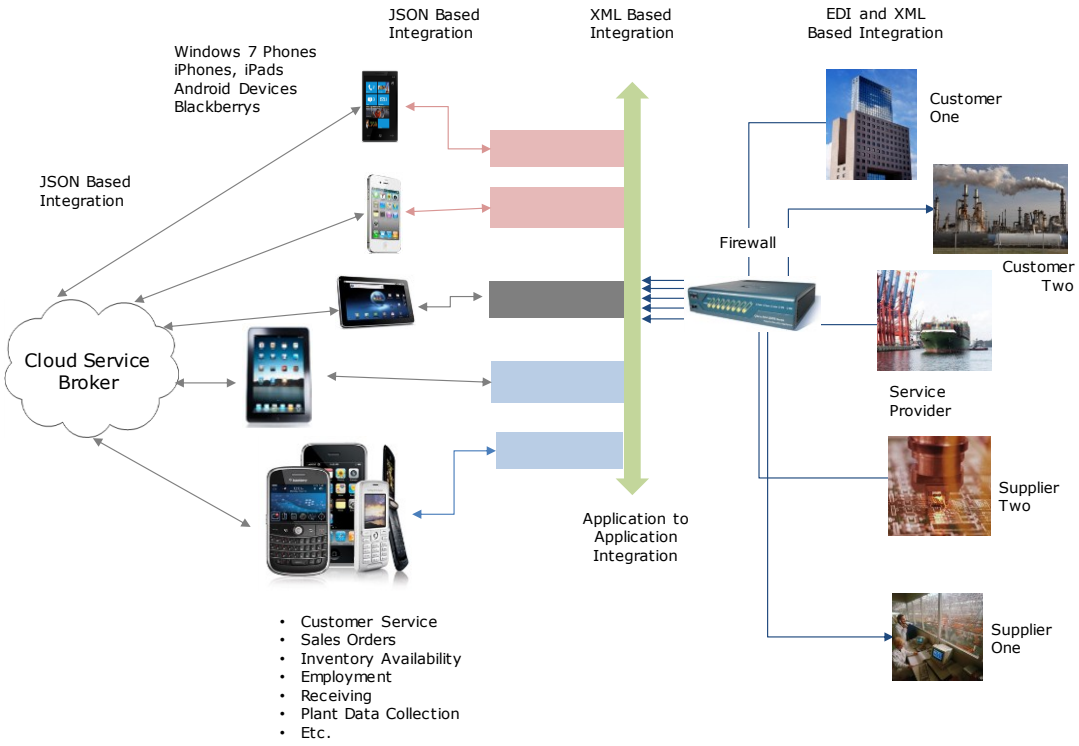

Figure One –OAGIS used for End to End connectivity on any platform

OAGi Embraces Mobile, Cloud, JSON, REST, Big Data, and NoSQL

As part of our ongoing evolution of the OAGIS Standard, OAGi has embraced many new technologies and found innovative ways to leverage the OAGIS Standard in each of these.

This initiative is doing the same by embracing these new technologies and platforms and introducing new OAGIS solutions for our members and users.

XSD will remain the normative form for the OAGIS Standard and the OAGIS data model will still be delivered in the XML Schema Form.

Learn More

The OAGIS® Standard is used by thousands of organizations worldwide for Mobile business, Cloud applications, Business to Business (B2B), Web Services, Service Oriented Architecture (SOA), Master Data Management (MDM), and Application to Application (A2A) interoperability.

Membership in the OAGi community provides many benefits to solution providers and end-users alike through teaching, sharing of best practices, and leading the way in building open standards based solutions. It provides a community for all to solve problems together. To download oagis for free or inquire about membership please write to us at inquiry@oagi.org or visit our website at www.oagi.org.