

The SOA Gateway: SOAP/REST versus SQL/ODBC Access to Data

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The SOA Gateway can deliver data from databases using a SOAP based protocol over HTTP and HTTPS or using REST (URL based) requests over HTTP or HTTPS. Many people question the concept of using SOAP or REST based services to deliver data from a database when they could potentially use SQL/ODBC. In general terms, if your requirement is for complex SQL/ODBC queries, SQL/ODBC is the way to go. However, when the requirement is less about complex queries and more about accessing and/or updating the data, SOAP and REST provides many advantages in today's networks.

Feature	SQL/ODBC	SOAP/REST
Standards	While an SQL standard exists, there are different flavors implemented by different databases.	Fully standards based using WSDL, SOAP, REST, XML, HTTP and TCP/IP
Compatibility	All 'client' products (such as Excel, Word, InfoPath etc.) will require a product specific driver installed locally to the client software to talk to a database using SQL/ODBC.	All 'client' products in the market today have built in capability to issue REST requests and most have the ability to call a SOAP based Web Service. This means that all such products can access data using REST and/or SOAP without any driver installed locally to them.
Encryption	Generally implemented using internal, product specific mechanisms that require knowledge on the client and server sides.	Uses SSL which is the de facto standard for encryption on the Internet today. Most if not all technologies can understand SSL communication out of the box.
Installation	Software must be installed on the platform where the database server runs <i>and</i> on each client system that must access the database.	Single installation on server platform where the database runs. No installation is required on the client systems.
Configuration	Required on both the client and server sides.	Only on the server side. URLs can then be published to standard UDDI Servers which can then be discovered by the client.
Firewall support	Firewalls must be reconfigured to enable SQL/ODBC Connectivity behind them. This makes it difficult to configure access to data across firewalls.	HTTP and HTTPS are protocols that firewalls are normally configured to allow through. This makes SOAP and REST ideal for queries that must cross organizational boundaries as occurs more frequently.
Coupling	SQL/ODBC applications are generally quite tightly coupled to the database servers they are using.	The SOAP And REST based protocols are very loosely coupled which leads to more options for load balancing, scalability and failover protection.

Security	Proprietary	SSL
Debugging	May require multiple, proprietary tools to debug queries.	Standard tools on the market can be used to debug issues such as 'sniffers' or proxy technologies available in products like Eclipse.
Licensing	Many adopt usage based models based on the number of clients using a database.	The database sees one individual client (i.e. the SOA Gateway) and the SOA Gateway has no limits on the number of clients that can connect to it.
Data Types	SQL/ODBC databases have specific types that don't always translate correctly across different systems.	The SOA Gateway uses UTF8 and UTF16 based XML which can handle any data type or code page.
Flexibility	Once the SQL/ODBC interface is opened up and made available to a programmer, they can create complex queries which are very flexible. This is as designed but has the potential to overload the database server.	The SOA Gateway enables the configuration of a service such that the results set will be totally limited based on the data being accessed. This means that very finely controlled services can be defined to ensure that queries cannot overload the system.
Data Integrity	Programmers need to understand the specific transactional semantic of the database(s) they are accessing.	The programmer tells the SOA Gateway what it wants through SOAP headers and the SOA Gateway deals with the semantic for each different database on behalf of the client.

In addition, the SOA Gateway has the following capabilities not available with SQL/ODBC implementations:

- XSLT delivery as standard. The SOA Gateway can optionally deliver an XSLT file with an XML file for specific rendering on the client side.
- Access to databases out of the box such as ADABAS, VSAM, DB2, Oracle etc. means that the SOA Gateway with its Business Data View technology can create views of data from multiple database technologies.
- Access to business logic out of the box such as Natural, PL1, CICS, C, Assembler etc. also enhances the Business Data View concept to combine data returned from an application with data from different databases and vice versa.

A more detailed comparative document is available from Risaris on request. Please send an email to <mailto:info@risaris.com>.