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SOAP and REST offer different methods to invoke a	a web service. Learn the variations between the two approaches, including integration concerns and client choi	
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provide a web service-based interface. As the application does not have any server side component (the application is a fat client talking directly to the database), is it possible to consume these web services directly from my application database?"

Do similar questions trouble you? Ever wondered what could be the solution to such an issue?

For a different perspective, the databases can act as the service consumer in contrast to the norm of acting as a service provider. Here is how you can invoke a web service via database-stored procedures -- and in explaining so, I'll address the differences of REST vs. SOAP.

## ■ Web services overview

A Web service, in very broad terms, is a method of communication between two applications or electronic devices over the World Wide Web (WWW). Web services are of two kinds: Simple Object Access Protocol (SOAP) and Representational State Transfer (REST).

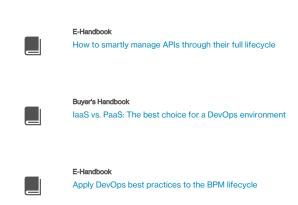
SOAP defines a standard communication protocol (set of rules) specification for XML-based message exchange. SOAP uses different transport protocols, such as HTTP and SMTP. The standard protocol HTTP makes it easier for SOAP model to tunnel across firewalls and proxies without any modifications to the SOAP protocol. SOAP can sometimes be slower than middleware technologies like CORBA or ICE due to its verbose XML format.

**REST** describes a set of architectural principles by which data can be transmitted over a standardized interface (such as HTTP). REST does not contain an additional messaging layer and focuses on design rules for creating stateless services. A client can access the resource using the unique URI and a representation of the resource is returned. With each new resource representation, the client is said to transfer state. While accessing RESTful resources with HTTP protocol, the URL of the resource serves as the resource identifier and GET, PUT, DELETE, POST and HEAD are the standard HTTP operations to be performed on that resource.

## REST vs. SOAP

There are significant differences between SOAP and RESTful web services. The bullets below break down the features of each web service based on personal experience.





#### REST

- RESTful web services are stateless. You can test this condition by restarting the server and checking if interactions survive.
- For most servers, RESTful web services provide a good caching infrastructure over an HTTP GET method. This can improve the performance if
  the information the service returns is not altered frequently and is not dynamic.
- Service producers and consumers must understand the context and content being passed along as there is no standard set of rules to describe
  the REST web services interface.
- · REST is useful for restricted-profile devices, such as mobile, for which the overhead of additional parameters are less (e.g., headers).
- REST services are easy to integrate with existing websites and are exposed with XML so the HTML pages can consume the same with ease.
   There is little need to refactor the existing site architecture. As such, developers are more productive because they don't need to rewrite everything from scratch; instead, they just need to add on the existing functionality.
- · A REST-based implementation is simple compared to SOAP.

### SOAP

- The Web Services Description Language (WSDL) describes a common set of rules to define the messages, bindings, operations and location of the service. WSDL is akin to a contract to define the interface that the service offers.
- SOAP requires less plumbing code than REST services design (e.g., transactions, security, coordination, addressing and trust). Most real-world
  applications are not simple and support complex operations, which require conversational state and contextual information to be maintained.
  With the SOAP approach, developers don't need to write plumbing code into the application layer.

- SOAP web services, such as JAX-WS, are useful for asynchronous processing and invocation.
- · SOAP supports several protocols and technologies, including WSDL, XSDs and WS-Addressing.

Consuming a web service via a database stored procedure allows users to straight away update a database with information from different sources. Users can also schedule a job at regular intervals to get data updated periodically in the database.

#### REST or SOAP: Which is best for me?

Proponents on both sides of the REST vs. SOAP discussion can be fervent in their advocacy for their web service architecture of choice. Both SOAP and RESTful architectures have proven themselves to be reliable, successful and capable of scaling infinitely, so the decision to use REST or SOAP has less to do with their efficacy and more to do with how either approach fits in with an organization's software development culture and project needs.

Both SOAP web services and RESTful web services have proven their ability to meet the demands of the largest enterprise organizations in the world, while at the same time being able to service the smallest internet of things devices or embedded applications in production.

When choosing between REST and SOAP, two of the key topics to factor into the decision are:

- 1. The types of clients that will be supported. For example, REST services offer an effective way for interacting with lightweight clients, such as smartphones.
- 2. How varying degrees of flexibility and standardization will be either rebuffed or accepted by the organization's corporate culture.

Keeping these factors in mind will go a long way in helping organizations to choose between SOAP and RESTful web services.

## Common problems faced when invoking Web services and solutions

Sometimes, even after doing everything as expected in the stored procedure to call the Web service, the procedure doesn't get compiled. The following is a compilation of runtime errors faced during stored procedure execution to invoke a Web service and their solutions.



Join the Discussion

Problem 1: Getting "ORA-25293: HTTP request failed" error during procedure compilation.

Solution: Follow the steps below to rectify this.

- · Log in through sys user as sysdba.
- View the privileges to the selected schema to use the utl\_HTTP package by using the command as follows:
  - select grantee, table\_name, privilege from dba\_tab\_privs where table\_name = 'UTL\_HTTP';
- The grant will be provided to all the public users by default.
- · Revoke execute grant on utl http from public and provide it explicitly to the specific schema from which the Web service needs to be invoked.
  - revoke execute on utl\_http from public;
  - grant execute on utl http to BTFT2;
  - select grantee, table\_name, privilege from dba\_tab\_privs where table\_name = 'UTL\_HTTP';

Problem 2: If the stored procedure calling the Web service gives "Network access denied" during the call of Web service.

**Solution:** Add the Web service url to the access control list by following the steps below.

- · Login through sys as sysdba.
- Execute the following procedure to create ACL.

```
    BEGIN
    DBMS_NETWORK_ACL_ADMIN.CREATE_ACL (
    acl => '<name of the acl file>.xml',
    description => 'Permissions to access the web service url',
    principal => '<Schema name>',
    is_grant => TRUE,
    privilege => 'connect');
    COMMIT;
    END;
    /
```

- Create a role and then grant connect to this role on the ACL by using the steps below:
  - o create role role1:
  - BEGIN

```
DBMS_NETWORK_ACL_ADMIN.ADD_PRIVILEGE(

acl => '<name of the acl file>.xml',
principal => 'role1',
is_grant => TRUE,
privilege => 'connect',
position => null);

COMMIT;
END;
```

· Assign the host names to the ACL to open all the related links in the host.

```
DBMS_NETWORK_ACL_ADMIN.ASSIGN_ACL (
acl => '<name of the acl file>.xml',
host => '*.<host name of the webservice url>');
COMMIT;
END;
/
```

Or

• BEGIN

```
DBMS_NETWORK_ACL_ADMIN.ASSIGN_ACL (
    acl => '<name of the acl file>.xml',
host => '<ip>');
COMMIT;
END;
```

Confirm whether the domain has been added in the ACL using ACL\_UTILITY package.

```
    SELECT * FROM TABLE(DBMS_NETWORK_ACL_UTILITY.DOMAINS('www.ajax.googleapis.com'));
    selectacl, host, lower_port, upper_port from DBA_NETWORK_ACLS;
    selectacl, principal, privilege, is_grant from BA_NETWORK_ACL_PRIVILEGES;
```

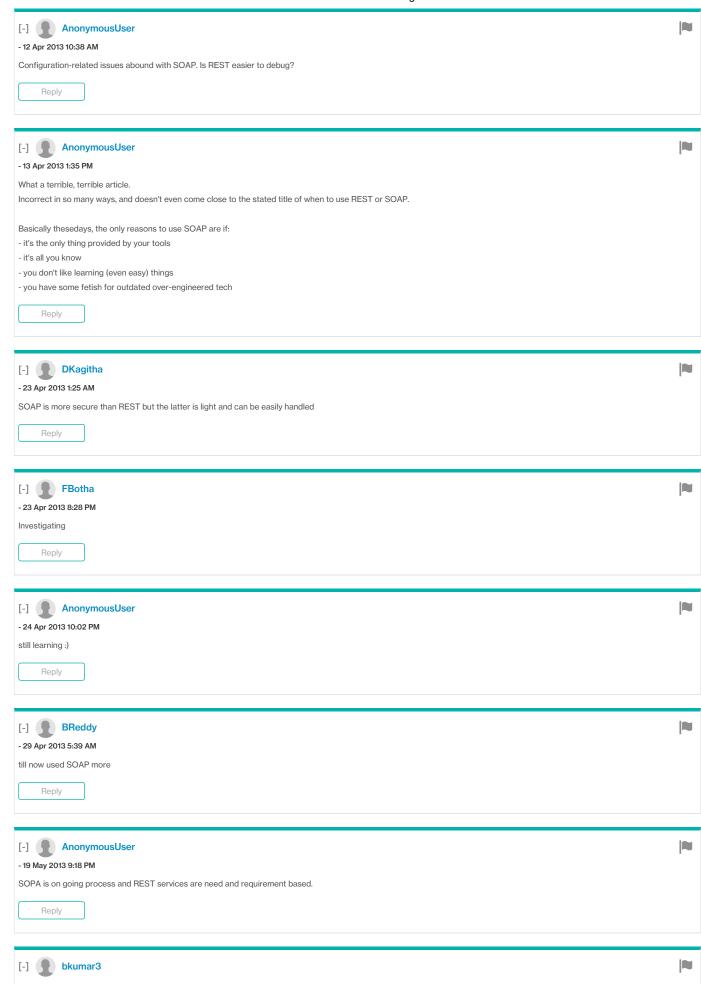
## Next Steps

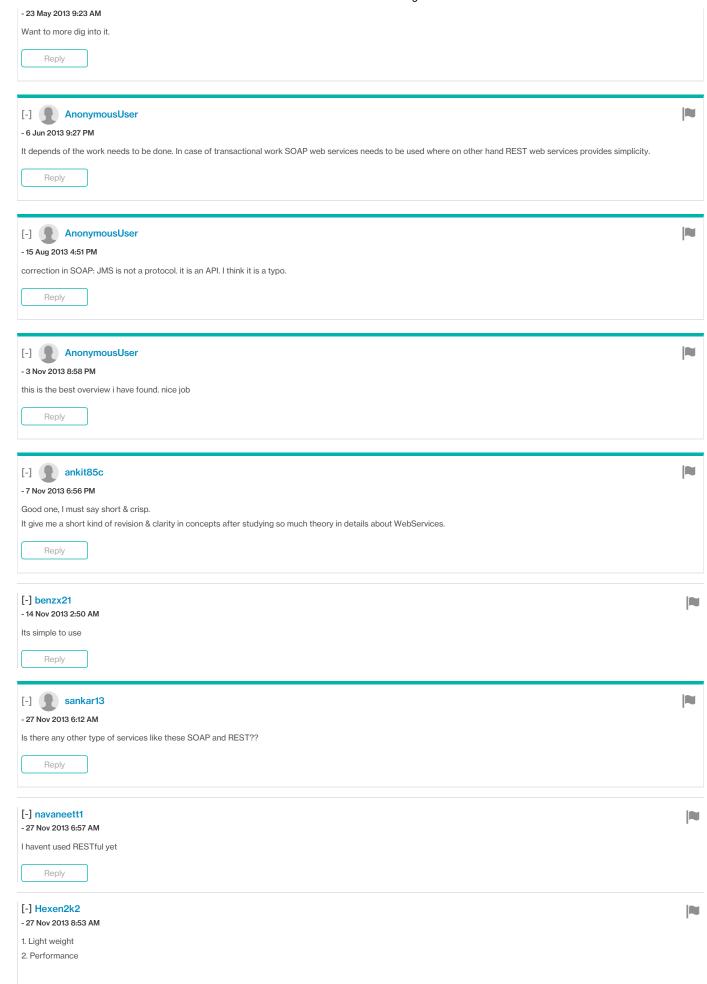
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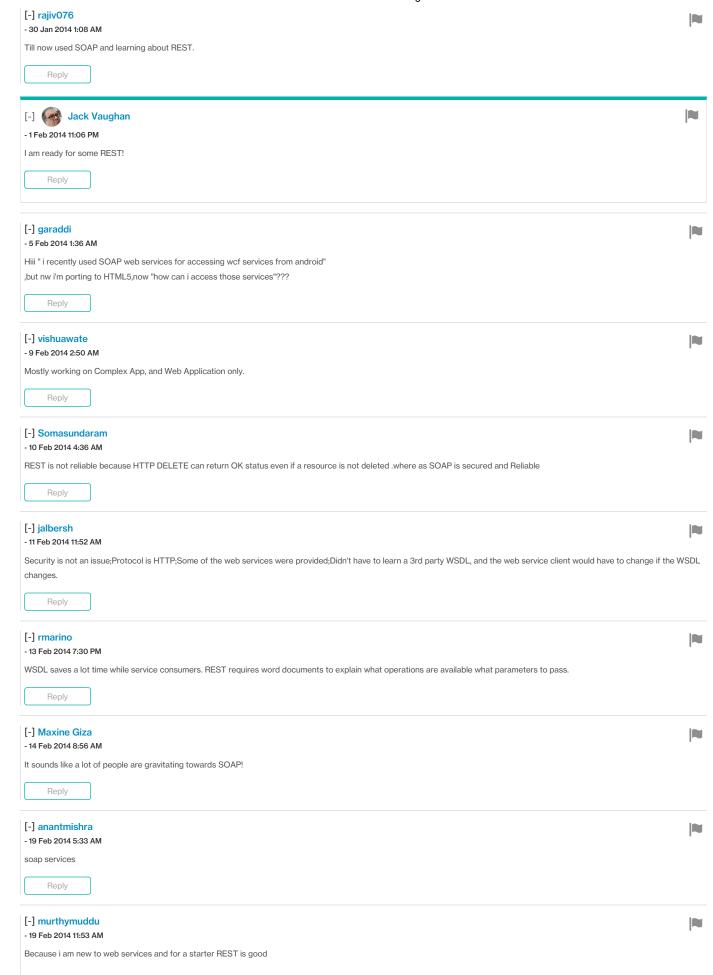
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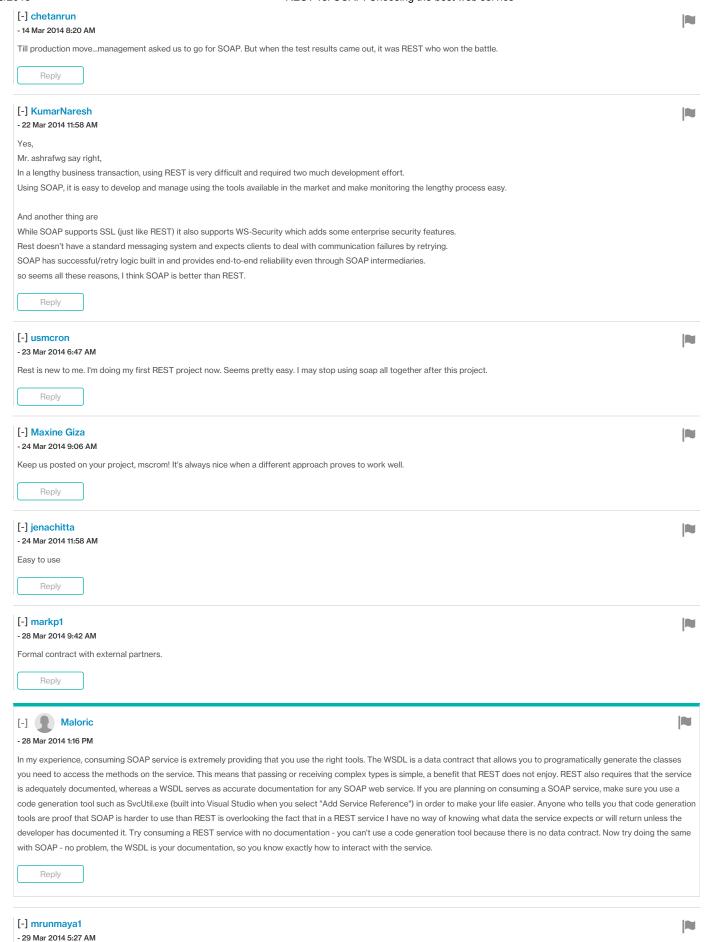


3. Now as the world is moving from Heavy weight applications to apps and multiple devices support (Smart Phone, Tablet etc). REST opens up lot more client for the exposed WebService than SOAP.  Reply	
[-] Hexen2k2 -27 Nov 2013 8:55 AM  1 Light weight 2 Performance 3 Now as the world is moving from Heavy weight applications to apps and multiple devices support that is Smart Phone Tablet etc REST opens up lot more client for the exposed WebService than SOAP  Reply	<b> ≈</b>
[-] Hexen2k2 -27 Nov 2013 8:56 AM  1. Light weight 2. Performance 3. Now as the world is moving from Heavy weight applications to apps and multiple devices support, i.e. Smart Phone Tablet etc. REST opens up lot more	re cl
4 Reply	•
[-] vindvg -1Dec 2013 7:43 AM  Because the data we are handling is not very complex and we are using the JSON for data transferring. JSON is more efficient than XML as it will be parsed faster than XML(JSOI already in the form of Javascript and all the browsers will understand).  Ans also some of the browsers have inbuilt support for JSON  Reply	DN is
[-] jimmykong - 2 Dec 2013 10:37 PM unfamiliar with REST Reply	<b> ≈</b>
[-] RahulArbatPatil - 5 Dec 2013 3:59 AM  yes, it is easy to use and also doesn't have any restriction on using xml you can use json,csv and many more.  Reply	<b> ≈</b>
[-] rsaddal - 9 Dec 2013 5:27 AM easy to code and Rapid application development, management is also very easy. security and other related stuff is no big deal.  Reply	<b> ≈</b>
[-] noel123 -13 Dec 2013 2:55 AM  REST is flexible in terms of usage, can be used in mobile apps. fast execution.	<b> ≈</b>
[-] eswaranarumugam -17 Dec 2013 7:42 AM	

Rest	
Reply	
[-] ashrafwg - 20 Dec 2013 11:02 AM	<b> </b>
In a lengthy business transaction, using REST is very difficult and required two much development effort.  Using SOAP, it is easy to develop and manage using the tools available in the market and make monitoring the lengthy process easy	
Reply	
[-] satish4ru	<b> </b>
- 3 Jan 2014 10:41 PM  I didn't get chance to use rest services. Thats why i want to learn difference between these two.	
Reply	
[-] santoshghadge007 - 8 Jan 2014 8:10 AM	<b> </b>
Soap is a standard structured web service.	
Reply	
[-] JetCityBeau - 10 Jan 2014 4:06 PM	
speed	
Reply	
[-] vgbiru -12 Jan 2014 12:29 PM	<b> </b>
learning	
Reply	
[-] toohoo	<b> </b>
- 21 Jan 2014 7:34 AM	
Because the most of our partners use SOAP. We are a service company in insurance field.	
Reply	
[-] webservicelover - 22 Jan 2014 8:25 AM	<b> </b>
While SOAP supports SSL (just like REST) it also supports WS-Security which adds some enterprise security features	
Rest doesn't have a standard messaging system and expects clients to deal with communication failures by retrying. SOAP has successful/retry logic built in and provides end-to-	-end
reliability even through SOAP intermediaries	
Reply	
[-] msg2raghav - 26 Jan 2014 10:34 AM	<b> ~</b>
It is easy to use. Support xml as well as json, lightweight. Also, REST is well documented which makes development easy.	
Reply	
[-] matthew7hayes - 28 Jan 2014 5:30 PM	
It's includes a well-defined self-documenting contract which reduces the need for external documentation and in many cases, depending on the soap server, provides automatic echecking with soap faults.	error
Reply	

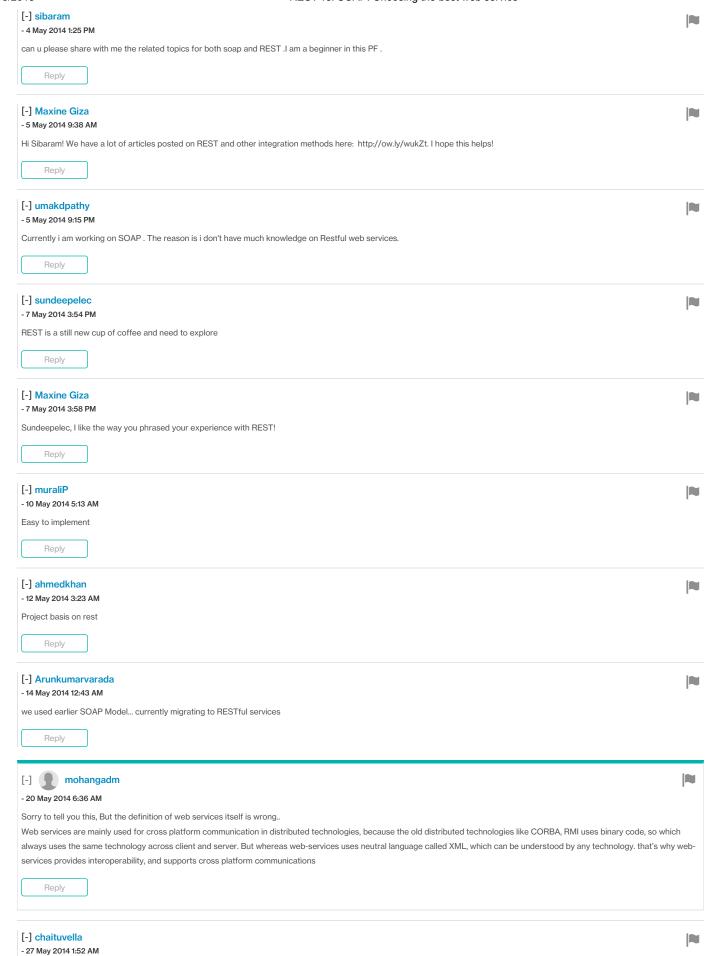


Reply [-] tjmickol - 23 Feb 2014 4:19 PM legacy services were all developed as SOAP/HTTPS. All new services are being developed as REST/HTTPS - many legacy SOAP/HTTPS services are being reimplemented as REST/HTTPS Reply [-] srinivasreddy - 25 Feb 2014 11:26 PM While using REST my application performence is very good compare to SOAP. Reply [-] kamprk - 27 Feb 2014 12:45 AM know less on REST. Reply [-] Maxine Giza - 27 Feb 2014 8:12 AM Hi kamprk, Here is a link to some recent articles we published on REST. I hope it helps! http://ow.ly/u3Bio Reply [-] RajibGanguly - 27 Feb 2014 11:27 AM Speed will better than SOAP Reply [-] amirmb - 1 Mar 2014 8:09 AM its simple structure and simple to learn. and it's caching abilities Reply [-] geofganot - 11 Mar 2014 1:49 AM Rest is faster, lightweight and easy to implement. Reply [-] lihy70 - 12 Mar 2014 6:50 PM because i don't think SOAP is difficult to learn or use if you're not trying to learn what you may not needed. Reply [-] raygao - 13 Mar 2014 5:25 AM SOA is a like tortoise, lots of shell and slow to develop. REST is like a rabbit, bounce around a lot and you have to catch it 1st. I prefer REST hands-down over SOA. Reply



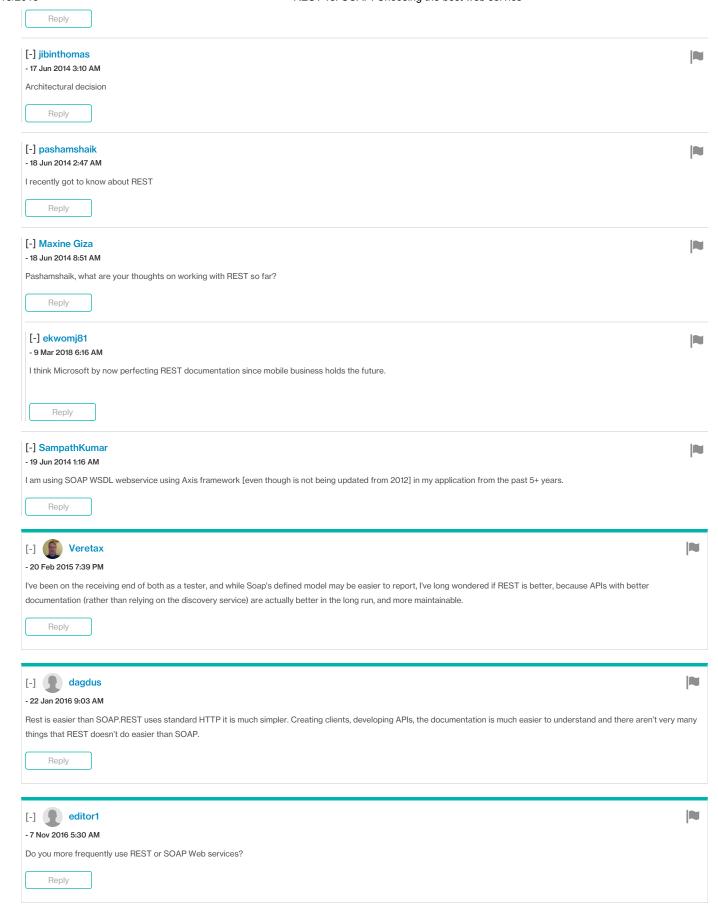
easy to learn and start development

Reply [-] NarayanaSwamy - 2 Apr 2014 9:03 AM A dedicated adapter is required to consume REST services and less secure than SOAP. Reply [-] i2097i - 5 Apr 2014 3:06 PM Keep it simple. If RESTful web services are designed and documented well, they simply work. Reply [-] amitclavax - 8 Apr 2014 6:24 AM Json format Reply [-] shailymittal - 8 Apr 2014 4:44 PM It is more easy to use. Reply [-] shdrjones - 10 Apr 2014 8:58 AM My applications require more context to be maintained to facilitate collaberation. I would use REST if pushing my apps onto mobile architectures though. Reply [-] tonyeray - 16 Apr 2014 10:55 PM Several reasons, main reason easier to maintain. Change the back end anytime, easy to version. No WSDL worries. Reply [-] Maxine Giza - 17 Apr 2014 8:32 AM It sounds like whether REST or SOAP should be used depends on the project at hand. Reply [-] prafullakumarp - 28 Apr 2014 1:35 PM It is light weight, easy to maintain and easily scalable. Reply [-] com450 - 29 Apr 2014 9:21 AM DON'T HAVE THE CHOICE IN our current SAP version!? Reply [-] johnlaw - 30 Apr 2014 2:44 AM Fast & Flexible & Time-efficient development Reply



https://searchmicroservices.techtarget.com/tip/REST-vs-SOAP-Choosing-the-best-web-service

REST - lightweight, use this for all communication between Mobile apps and Server.



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