
Representational State Transfer

REST methodologies explained.

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Definition

What is REST (REpresentational State Transfer)?

The REST architecture generally consists of clients, servers, resources, and a vocabulary of HTTP operations known as request methods. In simplest terms, clients send requests to servers and servers respond.

REST doesn't add any functionality to HTTP. It is a set of rules, that enable you to build an application that has a specific set of constraints.

Roles REST plays in modern web applications

REST has many roles that it contributes to modern web applications. Some of these include:

Resources - Sources of information referenced by a global identifier such as a URI

Representations of resources - Documents containing that information

Components that communicate with one another - Clients and servers

A standardized interface - An interface that identifies resources, allows for the manipulation of resources through representations, includes self-descriptive messages that describes how to process request dynamically identified hypermedia.

Roles REST plays in modern web applications

Other roles that REST plays in modern web applications:

A base URI for the REST

The Internet media type (such as XML or JSON) supported by the REST

The vocabulary of request operations such as GET, PUT, or DELETE

Hypertext driven components

The relationship between HTTP messages and REST.

RESTful Web Services use HTTP protocols as a medium of communication between client and server. A client sends a message in form of a HTTP Request and the server responds in the form of an HTTP Response. This is called Messaging.

The key features of REST

- **Stateless.** Which means it does not memorize data, which will allow greater scalability.
 - **It supports JSON and XML**
 - **It's easier to understand than SOAP**
 - **Documentation.** Which means any change in architecture will be updated in documents for developer.
 - **Error Messages.**
 - **Client and server model.**
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HTTP verbs

Also known as request methods. These verbs include:

POST - 201 (Created), 'Location' header with link to /customers/{id} containing new ID.

GET - 200 (OK), list of customers. Use pagination, sorting and filtering to navigate big lists.

PUT - 405 (Method Not Allowed), unless you want to update/replace every resource in the entire collection.

HTTP Verbs Continued

PATCH - 405 (Method Not Allowed), unless you want to modify the collection itself.

DELETE - 405 (Method Not Allowed), unless you want to delete the whole collection—not often desirable.

Stateless client/server protocol

It is the job of the client to pass its context to the server and then the server can store this context to process the client's further request. This is called statelessness and is apart of the RESTful Web Service architecture.

In the next couple of slides I've listed advantages and disadvantages of stateless client/server protocol.

Advantages of Statelessness

Web services can treat each method request independently.

Web services need not maintain the client's previous interactions. It simplifies the application design.

As HTTP is itself a statelessness protocol, RESTful Web Services work seamlessly with the HTTP protocols.

Disadvantages of Statelessness

Web services need to get extra information in each request and then interpret to get the client's state in case the client interactions are to be taken care of.

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