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TECHNOLOGY

REST API – Data as Resource

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Resources in Web Services

- Web Service has **resources** and its functionalities.
- **Resource is data** on which web services perform operation(s).
- Analogous to an object of OOP (Object Oriented Programming) or a database entity.
- Resources are recognized and determined using a standard format.
- The server can transmit the resource in the standard format.
- Referenced within a client-server system.
- Resource includes HTML Pages, Images, Text Files, Videos, etc.
- Access to resources is provided by the Web server where Web client is used for accessing as well as modification of resources.
- Example: Version any app or software, Weblog, Road map, Information, Connection between users, List of databases, User profile information etc.

Representational State Transfer (REST)

- *Representational State Transfer* (REST) was introduced and defined in 2000 by Roy Fielding in his doctoral dissertation.
- The REST principles: "HTTP Object Model" begin and design *Uniform Resource Identifiers* (URI) standards in 1994.
- Intended to invoke an image: it is a network of Web resources (a Virtual State Machine) where the user progresses through the application by selecting resource identifiers and resource operations such as GET or POST (application state transitions),
- Resulting in the next resource's representation (the next application state) being transferred to the end user for their use.

Representational State Transfer (REST)

- WWW: "Web resources" are documents or files at URLs.
- Web 2.0: "Web Resources" are generic and abstract entities, or actions that can be identified, named, addressed, handled, or performed in many way on the internet as URI or URL.
- requests to a resource's URI:
 - a response with a payload formatted in many ways
 - e.g., HTML, XML, JSON, or some other format.
- The response given alternate resource state,
 - provide hypertext links to alternate related resources.

Representational State Transfer (REST)

- REST is a software architectural style that defines a set of constraints to be used for creating Web services.
- Web services that conform to the REST architectural style, called RESTful Web services, provide interoperability between computer systems on the internet.
- RESTful Web services allow the requesting systems to access and manipulate textual representations of Web resources by using a uniform and predefined set of stateless operations.

Representational State Transfer (REST)

- Stateless protocol and standard operations,
- Rest API: The operations HTTP methods available are GET, HEAD, POST, PUT, PATCH, DELETE, CONNECT, OPTIONS and TRACE.
- Ability to grow by reusing components that can be managed and updated without affecting the system.
- Other kinds: SOAP Web services, expose their own arbitrary sets of operations.

Representational State Transfer (REST)

HTTP Method	Operations for resource management
GET	<i>Retrieve</i> the URIs and representation of resource in the response body.
POST	<i>Create</i> a resource using the instructions in the request body. The URI of the created resource is <i>automatically assigned</i> and returned in the response <i>Location</i> header field.
PUT	<i>Replace</i> all the representations of the resources with the representation in the request body, or <i>create</i> the resource if it does not exist.
PATCH	<i>Update</i> all the representations of the resources of the resource using the instructions in the request body, or <i>may create</i> the resource if it does not exist.
DELETE	<i>Delete</i> the representations of the resources.

Web Oriented Architecture (WOA)

- Software architecture: extends SOA to web-based applications and sites, such as social websites and personal websites.

$WOA = SOA + WWW + REST$

- A core set of Web protocols like HTTP, HTTPS and plain XML, the only real difference between traditional SOA and the concept of WOA
- WOA advocates REST a method for HTTP as a Web service
- Enterprise WOA is a sub-style of Enterprise SOA
- Resource Oriented Architecture (ROA) use design and develop an internetworked software with resources enabled by "RESTful" interfaces.

Web Oriented Architecture (WOA)

- WOA is substyle of SOA that integrates systems and users via a web of globally linked hypermedia based on Web architecture.
- Emphasize generality of User interfaces and APIs for global network effects through five fundamental:
 - Identification of resources
 - Manipulation of resources through representations (Web resource)
 - Self-descriptive messages
 - Hypermedia as the engine of application state
 - Application neutrality

תודה רבה

Hebrew

Ευχαριστώ

Greek

Спасибо

Russian

Danke

German

Merci

French

धन्यवादः

Sanskrit

நன்றி

Tamil

شكراً

Arabic

ಧನ್ಯವಾದಗಳು

Kannada

Thank You

English

നന്നി

Malayalam

Grazie

Italian

ధన్యవాదాలు

Telugu

આભાર

Gujarati

多謝

Traditional Chinese

Gracias

Spanish

ਧੰਨਵਾਦ

Punjabi

धन्यवाद

Hindi & Marathi

多谢

Simplified Chinese

<https://sites.google.com/site/animeshchaturvedi07>

Obrigado

Portuguese

ありがとうございました

Japanese

ขอบคุณ

Thai

감사합니다

Korean