



SNS COLLEGE OF ENGINEERING

An Autonomous Institution

Coimbatore-107



DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

19IT503-INTERNET OF THINGS

UNIT-3 EVOLVING IoT STANDARDS & PROTOCOLS

Topic:4 – REST

REPRESENTATIONAL STATE TRANSFER (REST)

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- As noted, CoAP uses REST techniques. Its like distributed computing.
- REST aims at supporting scalability of component interactions, generality of interfaces, and independent deployment of components.
- It defines a set of architectural principles by which one can design WS that focus on a system's resources, including how resource states are addressed and transferred over HTTP.
- REST is an architectural style of large-scale networked software that takes advantage of the technologies and protocols of the World Wide Web; it describes how distributed data objects, or resources, can be defined and addressed, stressing the easy exchange of information and scalability.

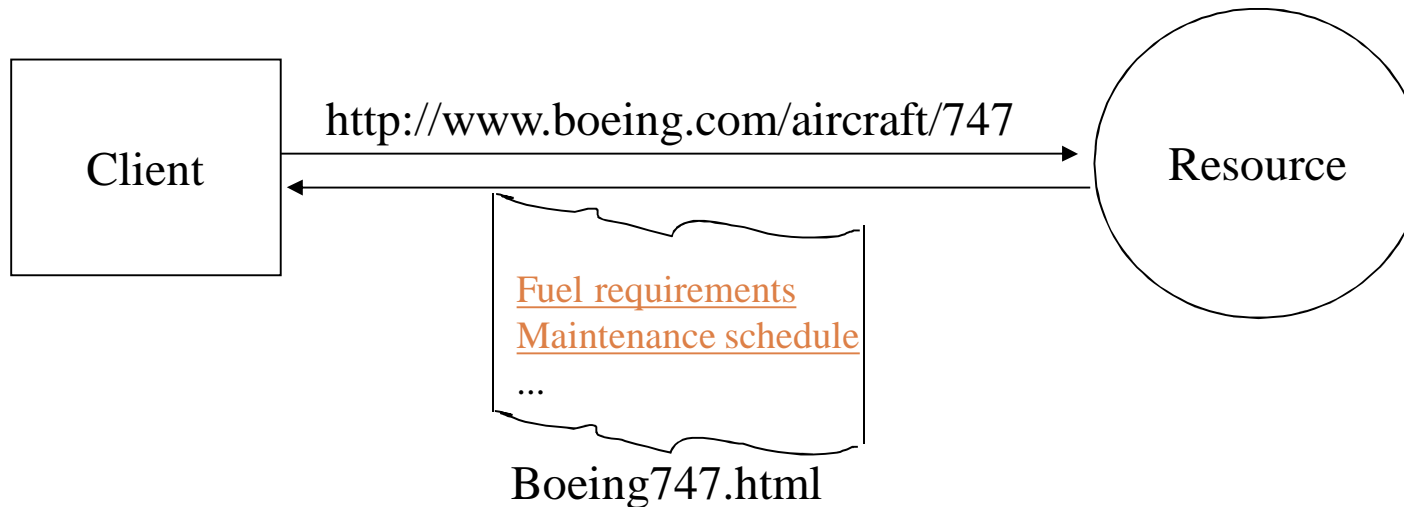
REPRESENTATIONAL STATE TRANSFER (REST)

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- A REST-based WS follows four basic design principles:
 - ▣ Use HTTP methods explicitly.
 - ▣ Be stateless.
 - ▣ Expose directory structure-like URIs.
 - ▣ Transfer XML, JavaScript Object Notation (JSON), or both.

Why is it called "Representational State Transfer"?

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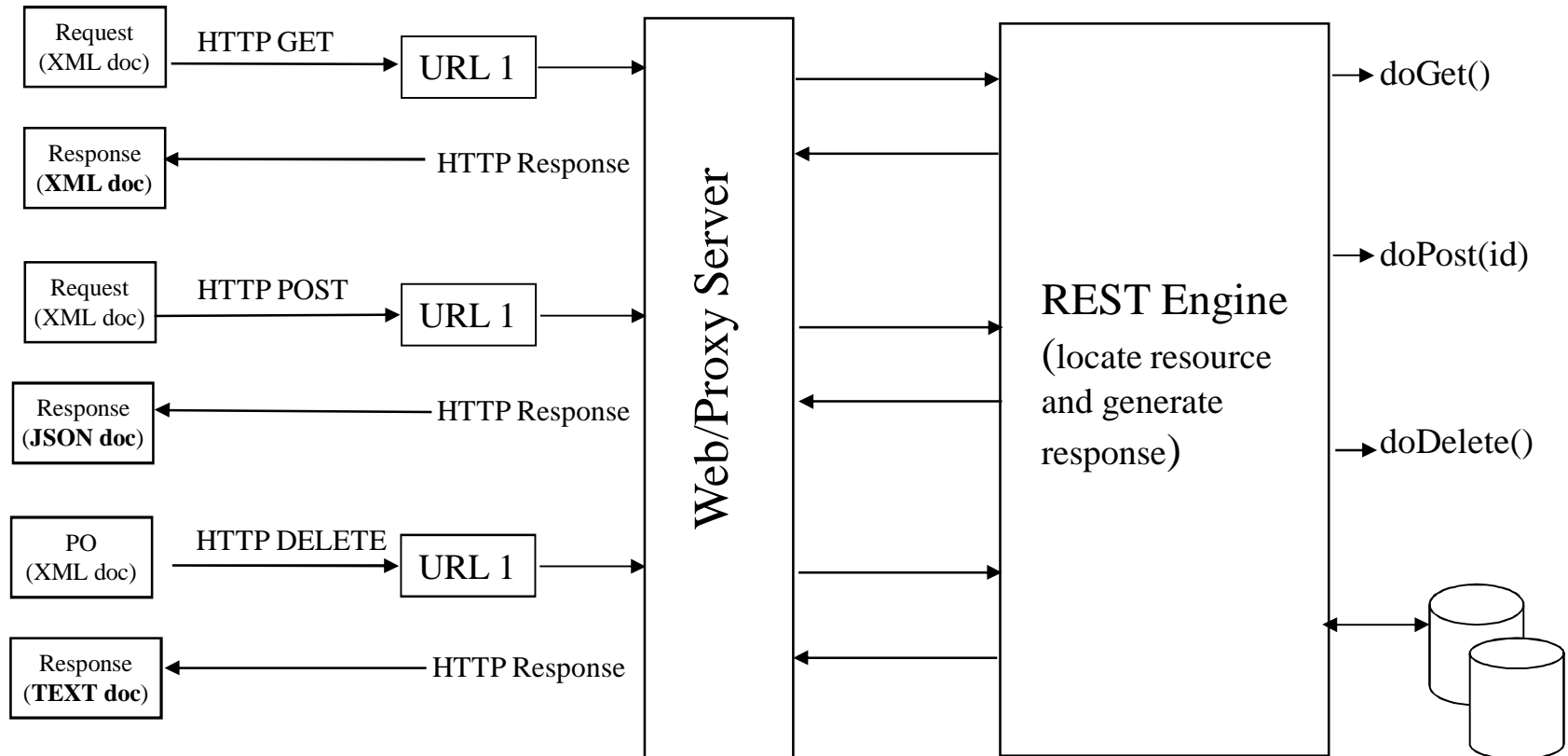


The Client references a Web resource using a URL. A **representation** of the resource is returned (in this case as an HTML document).

The representation (e.g., `Boeing747.html`) places the client application in a **state**. The result of the client traversing a hyperlink in `Boeing747.html` is another resource accessed. The new representation places the client application into yet another state. Thus, the client application changes (**transfers**) state with each resource representation --> Representation State Transfer!

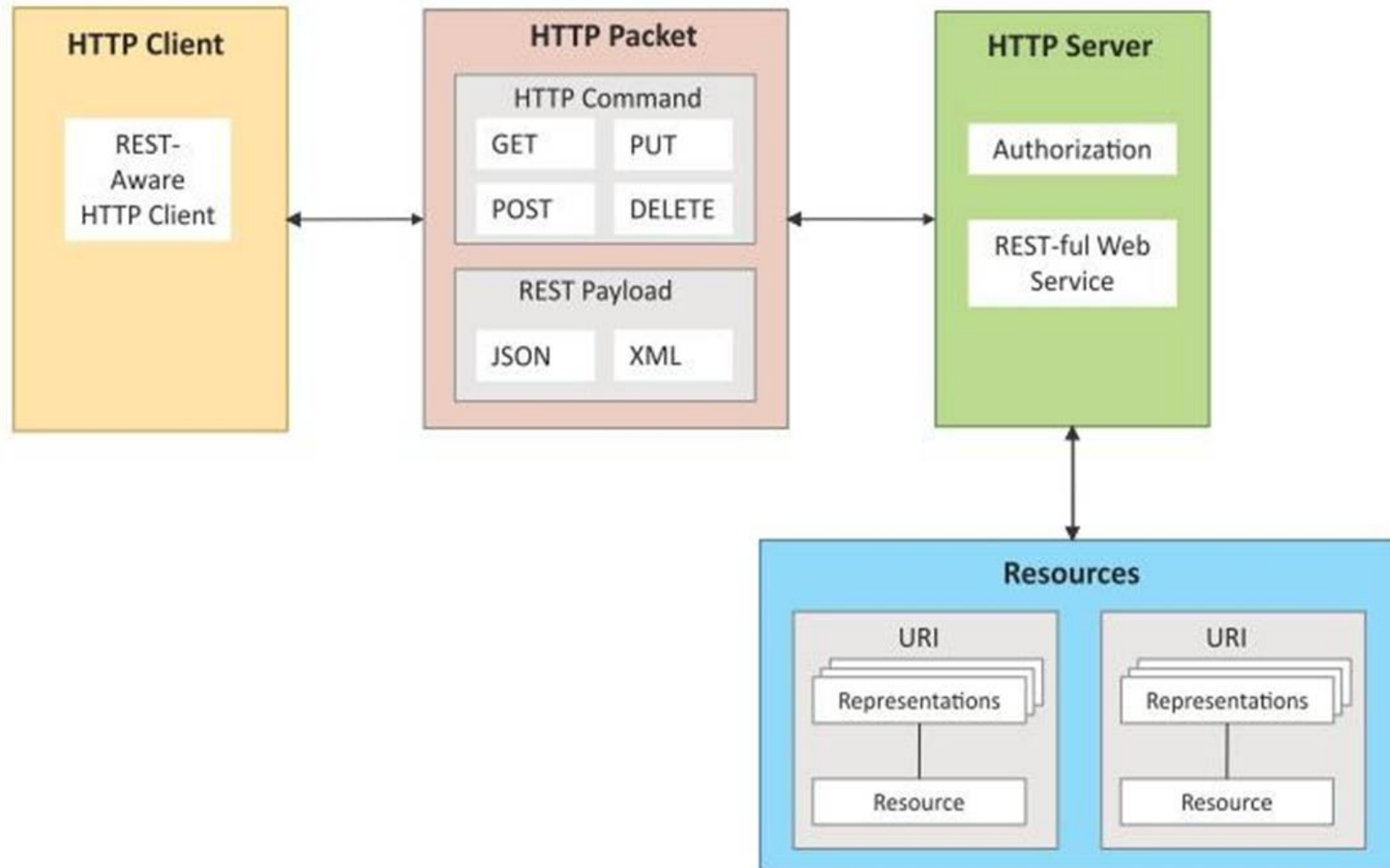
Architecture Style

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REST-based Communication APIs

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ETSI M2M

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- ETSI recently created a dedicated Technical Committee, to develop standard M2M communications.
 - ▣ The group seeks to provide an end-to-end view of M2M standardization and is expected to co-operate closely with ETSI's ongoing activities on next-generation networks (NGNs), radio communications, fiber optics and powerline, as well as collaboration with 3GPP standards group on mobile communication technologies.
- M2M model developed by this group, as defined in various evolving standards, including
 - ▣ the ETSI M2M Release 1 standards described in ETSI TS 102 689 (requirements),
 - ▣ ETSI TS 102 690 (functional architecture),
 - ▣ ETSI TS 102 921 (interface descriptions).

ETSI M2M

- Key elements in the M2M environment include the following :
 - ▣ M2M device: A device capable of replying to request for data contained within those device or capable of transmitting data contained within those devices autonomously;
 - ▣ M2M area network (device domain): A network that provides connectivity between M2M devices and M2M gateways, for example, a PAN;
 - ▣ M2M gateway: A gateway (say a router or higher layer network element) that uses M2M capabilities to ensure M2M devices interworking and interconnection to the communication network;
 - ▣ M2M communication networks (network domain): A wider-range network that supports communications between the M2M gateway(s) and M2M application; examples include xDSL, LTE, WiMAX, and WLAN; and
 - ▣ M2M applications: Systems that contain the middleware layer where data goes through various application services and is used by the specific business processing engines.



THANK YOU