

## What is REST

**REST** stands for **Representational State Transfer**. It's an architectural style for designing networked applications.

### 👉 The Core Concepts of REST

#### 1. Resources: Data as Nouns, Not Verbs

When we build web applications, we primarily work with data - creating it, reading it, updating it, and deleting it (**CRUD** operations). In REST:

- Each type of data on the server is considered a **resource**
- Resources are identified using **nouns** in URLs, not verbs or actions
- Example resources in a Job Application: Jobs, Employees, Admin profiles

- **Traditional URL (verb-based):**

[/viewAllJobs](#)

[/addJob](#)

[/deleteJob](#)

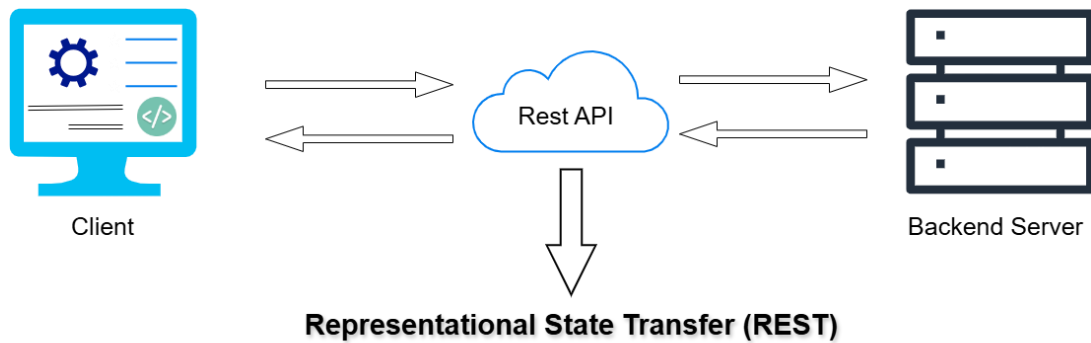
- **REST URL (noun-based):**

[/jobs](#) (to access all jobs)

[/jobs/42](#) (to access a specific job with ID 42)

#### 2. State and Representations

- **State:** The current values of a resource at a specific moment
  - Example: An employee's "CurrentEmployer" field might be "Microsoft" now, but "Telusko" a few months later
  - Each time you access the resource, you get its current state
- **Representation:** How this state is formatted and presented
  - The same resource can be represented in different formats (JSON, XML)
  - The server transfers these representations to the client



### 3. Statelessness

REST is stateless, which means:

- Each request from client to server must contain all information needed to understand and process the request
- The server doesn't store any client context between requests
- Each request is treated as a standalone interaction

Think of it like this: If a client makes a request today and the same request tomorrow, the server treats them as completely separate events, with no memory of the previous interaction.

### 4. HTTP Methods Instead of Different URLs

Instead of using different URLs for different actions, REST uses the same URL with different HTTP methods:

HTTP Method	Purpose	Example
GET	Retrieve data	GET /jobs (list all jobs) or GET /jobs/42 (get specific job)
POST	Create new data	POST /jobs (create a new job)
PUT	Update existing data	PUT /jobs/42 (update job with ID 42)
DELETE	Remove data	DELETE /jobs/42 (delete job with ID 42)

## Data Formats in REST

REST APIs typically return data in standardized formats:

### 1. JSON (JavaScript Object Notation)

- Modern, lightweight format
- Easier to read and write
- Better performance
- Native support in JavaScript

**Example:**

```
{  
  "id": 42,  
  "title": "Software Developer",  
  "company": "Telusko",  
  "location": "Bangalore"  
}
```

### 2. XML (eXtensible Markup Language)

- Older format, still used in some enterprise systems
- More verbose than JSON

**Example:**

```
<job>  
  <id>42</id>  
  <title>Software Developer</title>  
  <company>Telusko</company>  
  <location>Bangalore</location>  
</job>
```

## Summary

REST is an approach to building web services that:

- Treats data as resources with unique URLs
- Uses standard HTTP methods for different operations
- Returns the current state of resources in a standardized format
- Maintains no session state between requests