

# S P A Overview

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# SPA

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# *Traditional Web App Architecture*

## **Problem with traditional web app development:**

- Time consuming : Fetching dynamic view from server will require more time to respond to user interactions
- Supporting rich interactions with multiple components on a page means those components have many more intermediate states
  - menu open
  - menu item X selected
  - menu item Y selected
  - menu item clicked
- ***Server-side rendering is hard to implement*** for all the intermediate states
- small view states do not map well to URLs.
- Solution ..?

***rendering of dynamic view on client side...***

# *Dynamic view generation on client slide... How?*

HTML : great for declaring *static view*

*But to generate Dynamic views on client side?*

*JavaScript*

Java Script is good for adding dynamic effect to HTML.

However it muddles up due to:

- the usual boilerplate of updating the DOM,
- registering callbacks or watching model changes;
- spaghetti code (not testable & maintainable)

*Solution : Java Script Frameworks*

# WebApp :Quality Requirements

- Quality Requirements of today's web application development:  
How to achieve?

1. Enhanced user experience .....

SPA

2. Reusable

.....



Components

3. Improved testability

.....

4. Rapid development

.....

5. Less code

.....



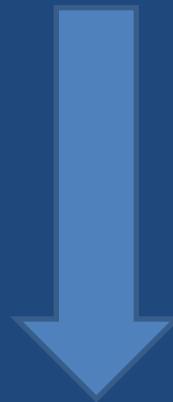
Some Framework

6. Simple

.....

# *React JS*

Java script framework to build Single Page Applications  
(following component architecture)



# React JS

# **S P A**

## *(A Modern Approach)*

- A Web Application that fits on a single web page.
- It's a modern approach for web application development.
- Goal of S P A approach :

to offer ***a more fluid user experience*** similar to a desktop application.( a more-native-app-like experience to user.)

# *S P A : What is a Single Page Application ?*

A Single Page Application (SPA):

- A web application or website that loads all of the resources required to navigate throughout the site on the *first page load*.
- As the user clicks links and interacts with the page, subsequent content is loaded dynamically.
- The application will often update the URL in the address bar to emulate traditional page navigation, but another full page request is *never* made.

## *What is a Single Page Application ?*

- Single page apps are distinguished by :
- Their ability to redraw any part of the UI without requiring a ***server roundtrip*** to retrieve HTML.

# *What is a Single Page Application ?*

- Traditional:

- In a traditional Web app, every time the app calls the server, the server renders **a new HTML page**.
- This triggers **a page refresh** in the browser.

- SPA:

- In an SPA, after the first page loads, all interaction with the server happens through AJAX calls.
- AJAX calls return data(not markup) :: usually in JSON format
- app uses JSON data to update the page dynamically, **without reloading the page**.

# S P A

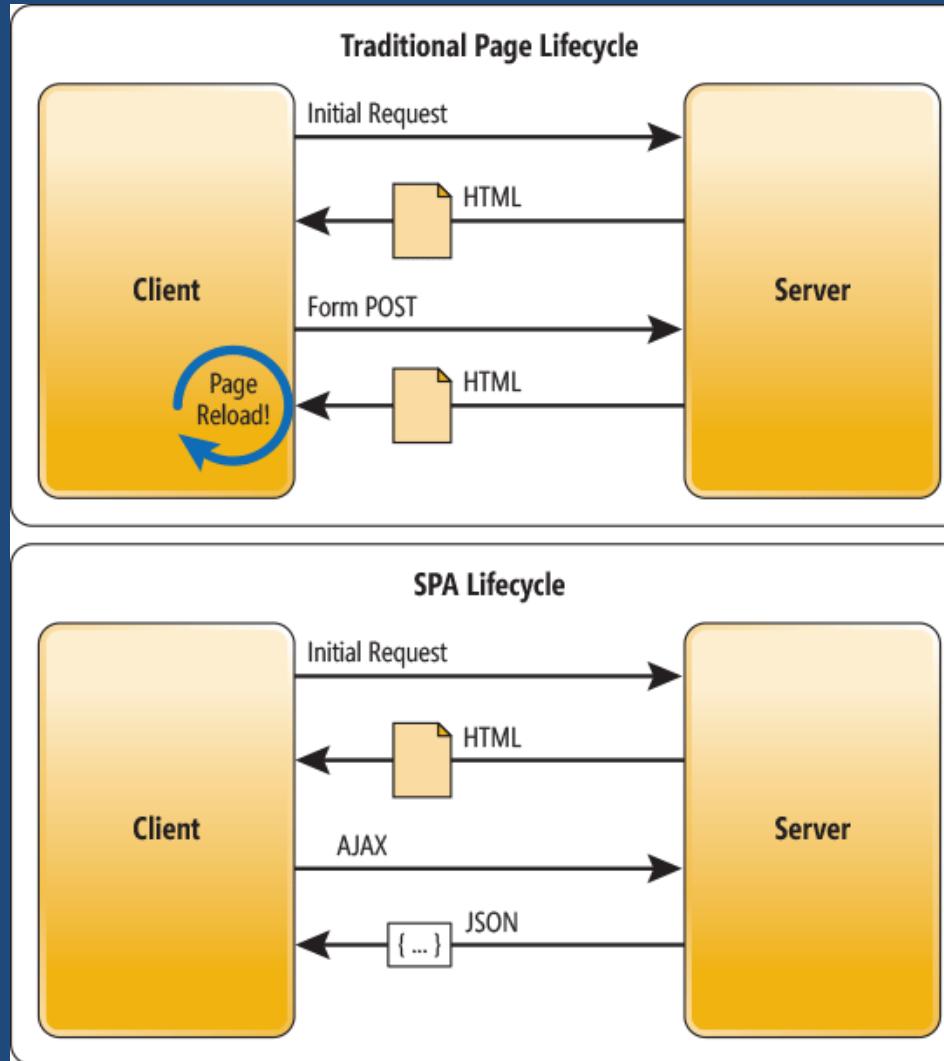


Image taken from previous Angular.io (official angular site)

# Thin Server Architecture

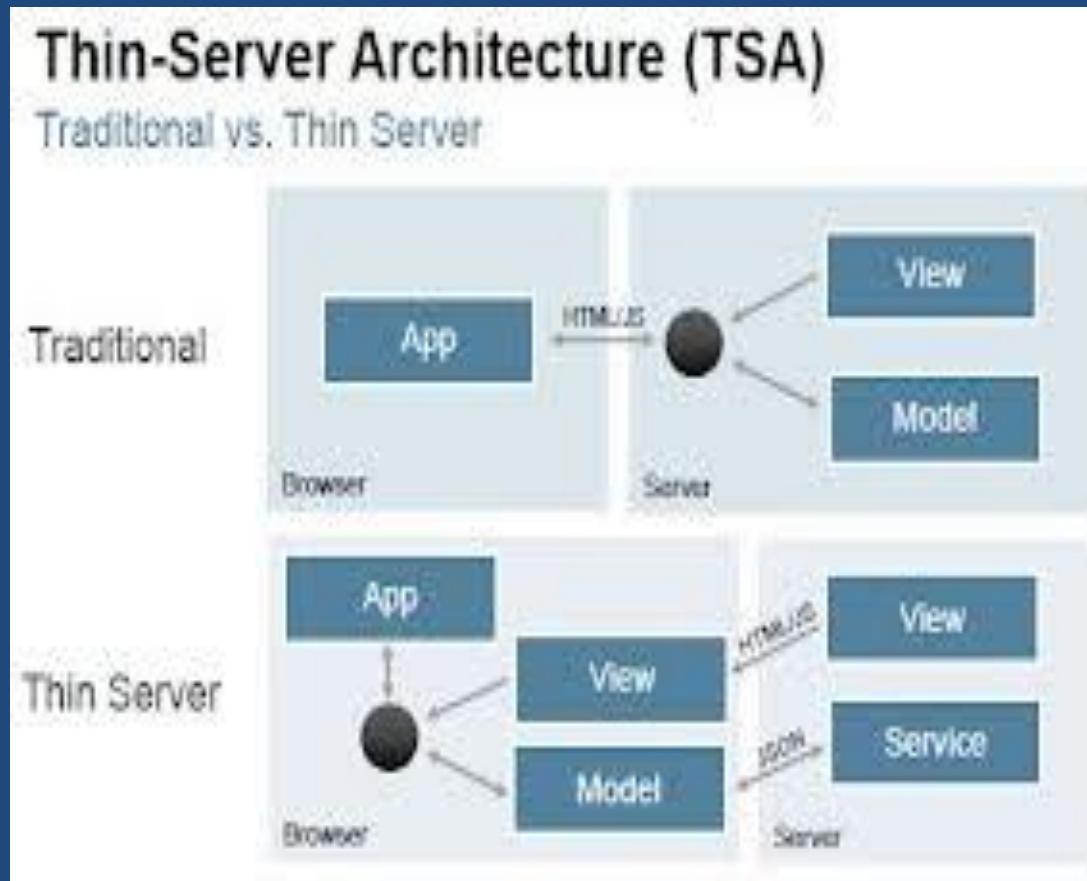


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