S P A Overview

Sangeeta Joshi
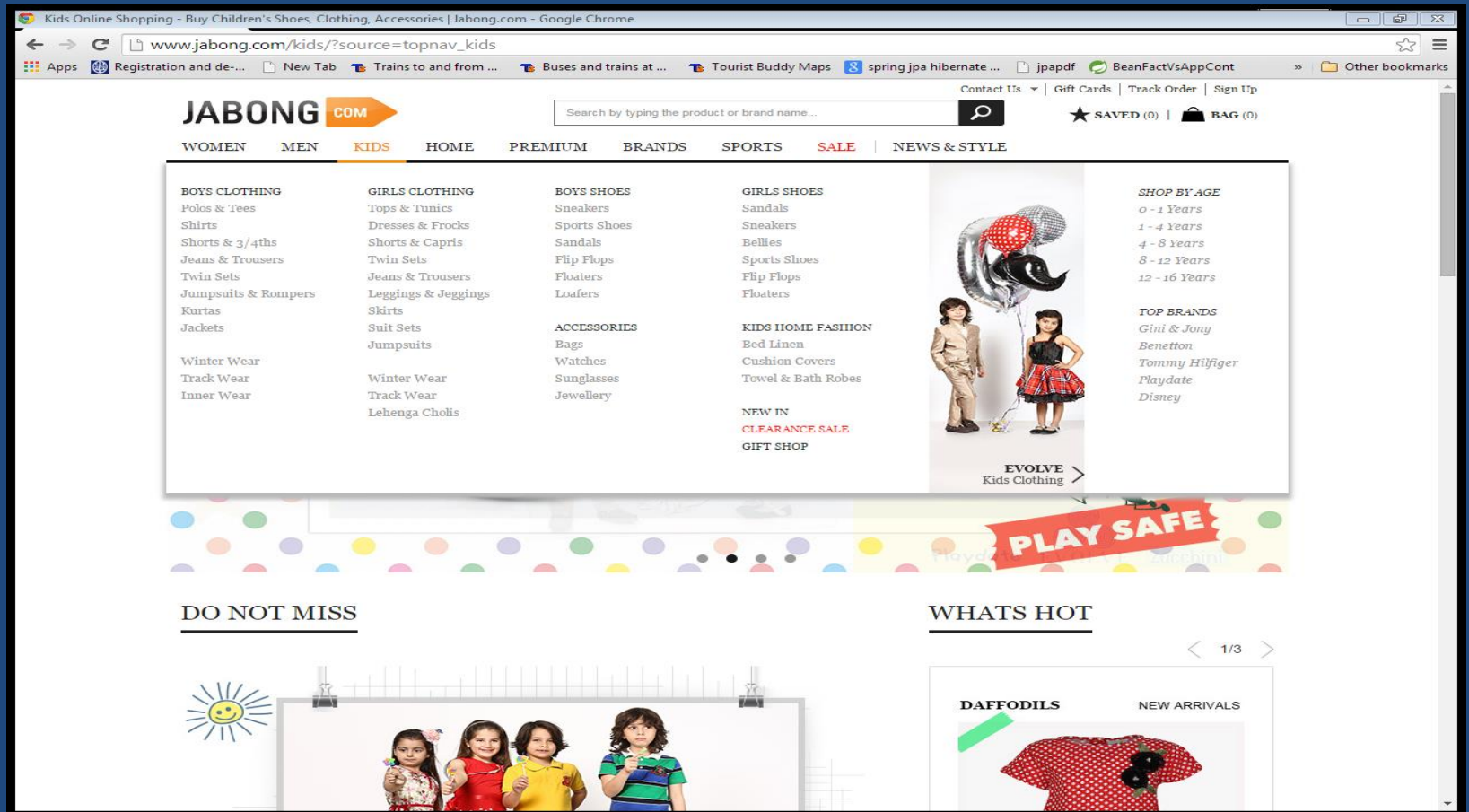
S P A

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 slide…

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   ………..
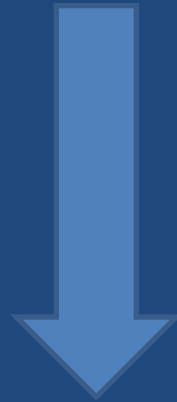
5. Less code   ………..   Some Framework

6. Simple   …………

React JS

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

React J S

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.
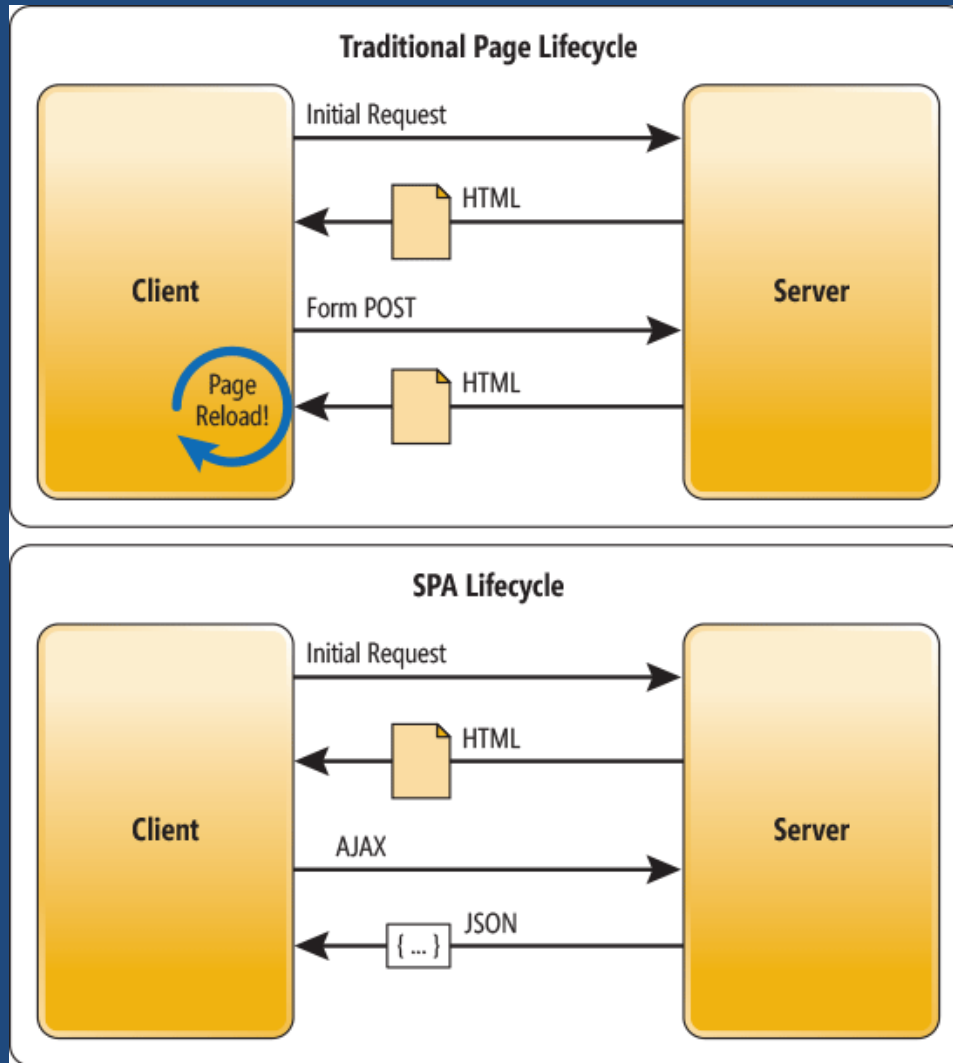
What is a Single Page Application ?

- *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