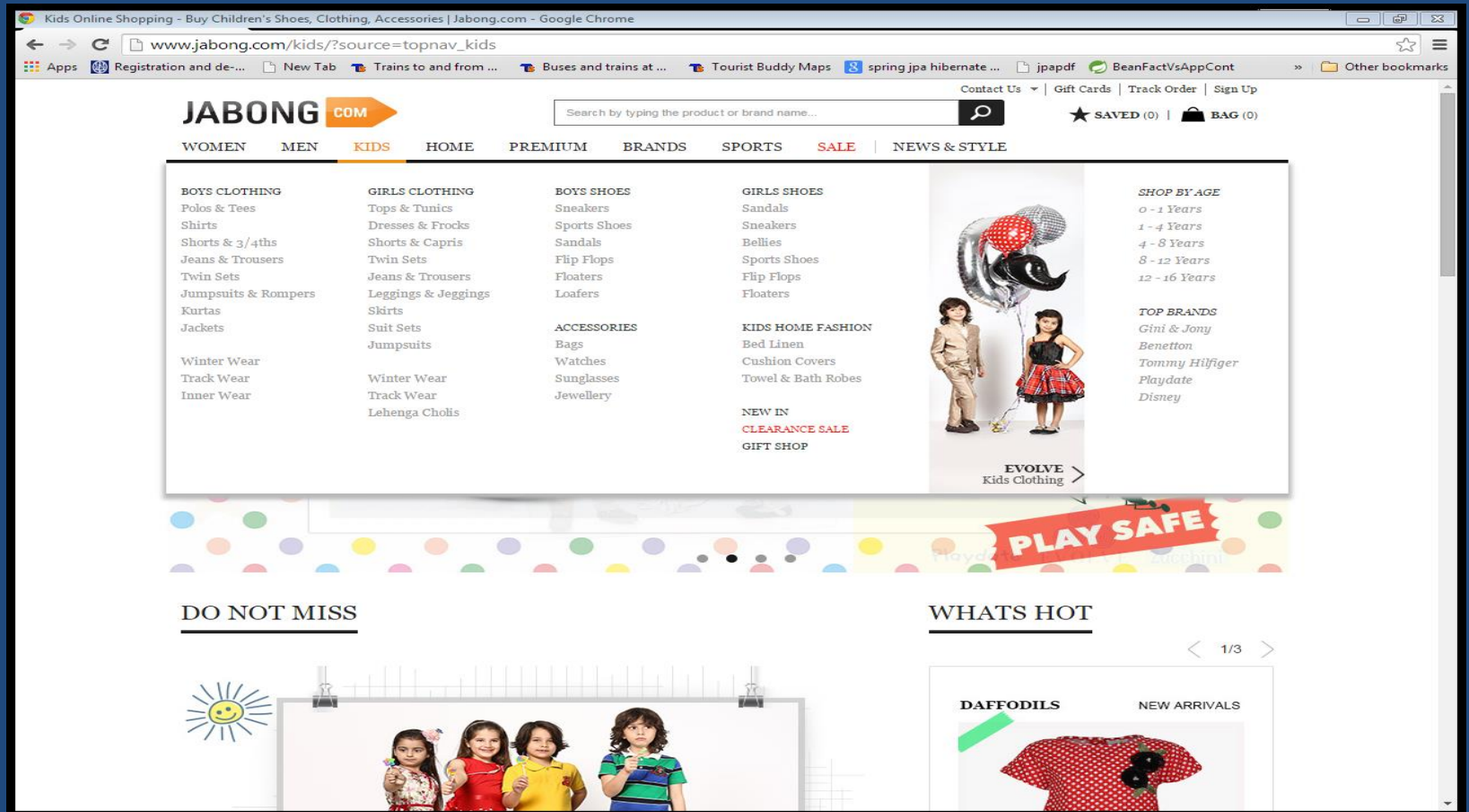# S P A Overview

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
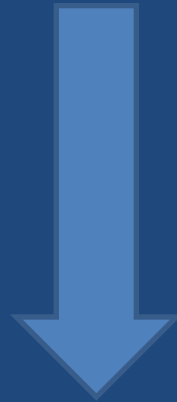
6.  Simple                            …………

# *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.
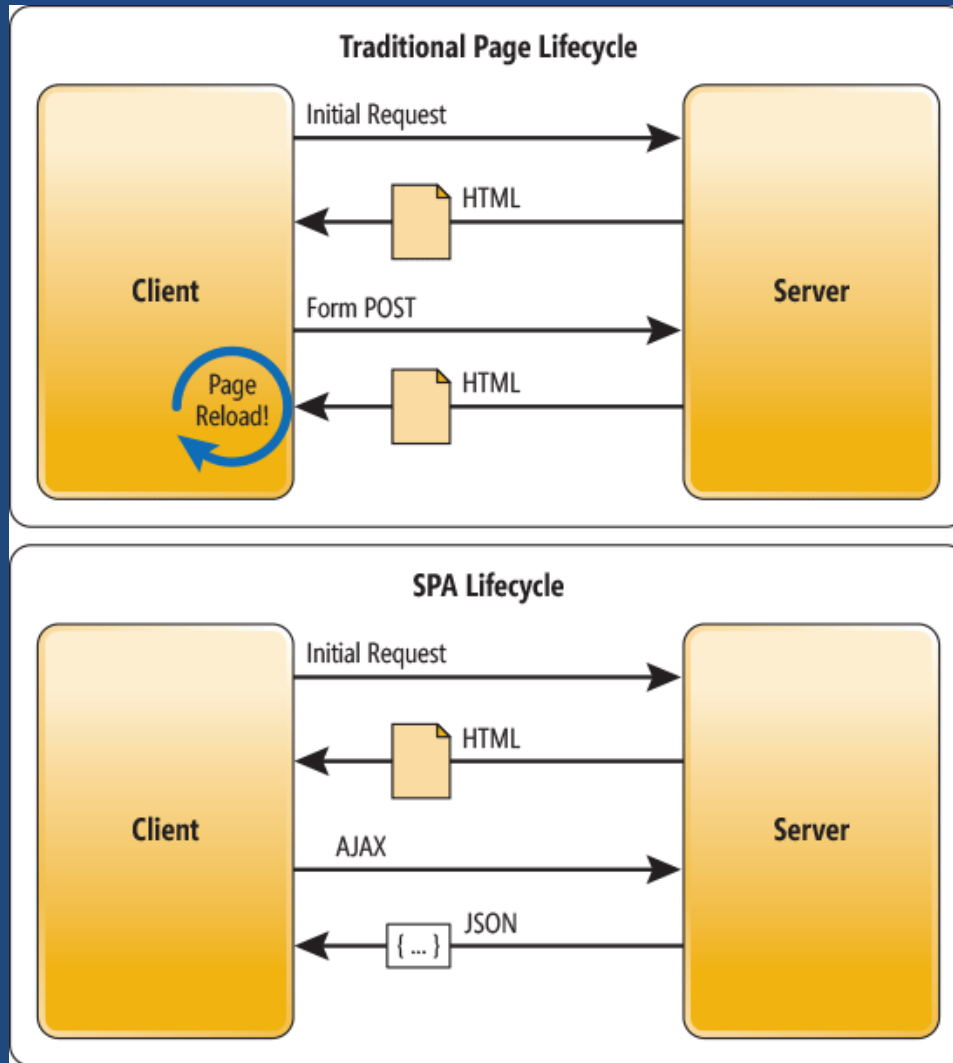
# What is a Single Page Application ?

- *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*

# Thin Server Architecture