# Cloud Based Automated Identification and Development to Provide Compatibility and Security for Cross Browser in Web Application

**Roshne M K[1*], Shaikh Afreen Md Sardar[2], Tulsi K[3] , Varshini Dayanidhi C[4] , vinod H [5]**

[1,2,3,4,5]Department of Computer Science, East West Institute of Technology, Bengaluru, India
.

*Abstract*— A good Website is more than just something to look at, it is functional interactive and flawless. As technologies are becoming smart so we need to be smarter enough to utilize them. With the rapid evolution of web technologies, the complexity of web applications has also grown up. Specially making a web application that works well with cross browser is a great challenge. Clearly, cross-browser means something works with all versions of all browsers to have existed since the web began. By this paper we have pointed out some reasons why applications behave or appear differently in different browsers because if you know the cause, you can get a solution.

*Keywords*—*Cloud computing ,Cross browser compatibility, Data security*

## I. INTRODUCTION

### INTRODUCTION TO CLOUD COMPUTING

Cloud computing is a model for enabling convenient on demand network access to a shared pool of configurable computing resources.(e.g networks, servers, storage application and services) that can be rapidly provisioned and released with minimum management effort or service provider interaction. In the cloud computing there is no need to store data in the desktop or fixed location computer. You can store the data in a server and you can access the data in any remote location using of the internet topology. Cloud computing provides a large amount of data can be easily stored in the cloud. The advantages of using cloud computing are: i) reduce hardware and maintenance cost  ii) accessibility around the globe iii) flexibility and highly automated process.

### INTRODUCTION TO SPRING SECURITY

Spring Security is a powerful and highly customizable authentication and access-control framework. It is the de-facto standard for securing Spring-based applications.

Spring Security is a framework that focuses on providing both authentication and authorization to Java applications. Like all Spring projects, the real power of Spring Security is found in how easily it can be extended to meet custom requirements.

Spring Security OAuth provides support for using Spring Security with OAuth and OAuth2 using standard Spring and Spring Security programming models and configuration idioms.

### Features

- Support for OAuth providers and OAuth consumers
- Oauth (including two-legged OAuth, a.k.a. "Signed Fetch")
- OAuth 2.0

Applying security to an application is not for the faint of heart, and  OAuth is no exception.

OAuth for Spring Security is tightly tied to both technologies.

### INTRODUCTION TO REACT

React is a [JavaScript](#) library that aims to simplify development of visual interfaces.

Developed at Facebook and released to the world in 2013, it drives some of the most widely used code in the world, powering Facebook and Instagram among many, many other software companies.

Its primary goal is to make it easy to reason about an interface and its state in any point in time, by dividing the UI into a collection of components.

React is used to build single-page web applications, among with many other libraries and frameworks that were available before React came into life.

### A. **Less complex than other alternatives**

At the time when React was announced, Ember.js and Angular 1.x were the predominant choices as a framework. Both these imposed too many conventions on the code that porting an existing app was not convenient at all. React made a choice to be very easy to integrate into an existing project, because that's how they had to do it at Facebook in order to introduce it to the existing codebase. Also, those 2 frameworks brought too much to the table, while React only chose to implement the View layer instead of the full MVC stack.

### B. **Perfect timing**

At the time, Angular 2.x was announced by Google, along with the backwards incompatibility and major changes it was going to bring. Moving from Angular 1 to 2 was like moving to a different framework, so this, along with execution speed improvements that React promised, made it something developers were eager to try.

### C. **Backed by Facebook**

Being backed by Facebook obviously is going to benefit a project if it turns to be successful, but it's not a guarantee, as you can see from many failed open source projects by both Facebook and Google as an example.

## CHALLENGES

Decide number of browsers to be considering for cross browser testing. As we know it is not easy to test our web application on unreasonable number of browsers because complexity and hence the time and cost of testing a web application is directly proportional to the number of browsers on which the application is going to be tested.

C= (B* O + A) * T

C=Complexity

A=Third party components

B=Different Browsers used for AUT

O= Number of OS

T= Types of testing Performed

## II.RELATED WORK

This section examines spring framework for transactional model with Web Services. Spring Framework is an open source framework for managing complex enterprise application development which uses Inversion of Control (IOC) and Aspect Oriented Programming concepts. Its architecture is based on the Dependency Injection (DI) design pattern. The key benefit of this approach is that it enables the developers to build loosely coupled applications. It is much easier to use and more elegant. It has been getting more popular and adapted in wide range of projects by many industries. Service integration code is exposed as part of the programming interface, which gives application developers the flexibility to assemble services as needed. The flexible service assembly makes virtual objects, instead of real service objects into the application, which is better for unit testing. It uses declarative services using XML configuration files which are complex. However, it has its own restrictions. Since Spring Framework sits on top of the application servers and service libraries, it is more difficult to optimize the interaction between the framework and the services. There is no simple way to leverage clustering services in Spring application

Currently, web application developers render a given web page in different web browsers and manually inspect them for issues. Commercial tools can assist manual inspection by presenting a side by side rendering in two browsers . A research tool by Eaton and Memon predicts faulty html tags for a particular browser. However, it requires a lot of manual classification and only considers HTML tags, ignoring other client side components (e.g., CSS, JavaScript). Another tool by Tamm, identifies a class of browser rendering issues. However, it focuses only on a specific issue related to text elements. Moreover, it requires the re-rendering of the web page multiple times, making this technique very expensive.

## III. METHODOLOGY

METHODOLOGY FOR CROSS BROWSER COMPATIBILITY USING REACT

The react-dom package provides DOM-specific methods that can be used at the top level of your app and as an escape hatch to get outside of the React model if you need to. Most of your components should not need to use this module.

- render()
- hydrate()
- unmountComponentAtNode()
- findDOMNode()
- createPortal()

*Browser support*

React supports all popular browsers, including Internet Explorer 9 and

above, although some polyfills are required for older browsers such as IE 9 and IE 10.

## METHODOLOGY FOR CROSS BROWSER COMPATIBILITY USING SPRING BOOT REST

> ➢ **Constraints to follow when implementing rest APIs**

  - Client - Server : There should be a service producer and a service consumer.
  - The interface (URL) is uniform and exposing resources.
  - The service is stateless.
  - The service results should be Cacheable. HTTP cache, for example.
  - Service should assume a Layered architecture. Client should not assume direct connection to server - it might be getting info from a middle layer - cache.

> ➢ **Rest API introduces device independency (PORTFOLIO runs in mobile, tab, PCs, Laptops and smart TV's)**

METHODOLOGY FOR CROSS BROWSER COMPATIBILITY TESTING

We wish it were easy to cure browser display problems, but fixing them takes time.
Read the following steps to learn what you can do to make it easier.

**1. Set a Goal** : It's hard to build a Web page that displays perfectly on every version of every browser running on every compute, And doing so may require to leave out features that you really, really want to have on your Web page. Building a Web page that's compatible with Version 1.0 of every browser would mean building a blank page filled with plain text. So the first step to solving browser compatibility problems is to determine which browsers really matter to you.

**2. Avoid the Cutting Edge** : The Web is hip; it's hot and exciting; it's radical. So many Web designers feel they have to build cutting-edge features into their Web page. That's a bad idea, because cutting-edge features are rife with browser compatibility problems, not to mention the impact they have on your page load time. Web designers typically go through three stages of maturity: (1) I'm just learning; (2) I know it all, and I'm going to prove it by filling my site with cutting-edge features; (3) I've been burned by browser display problems, and only use what's compatible.

**3. Pay Attention to Browser Compatibility Report** : HTML errors are the leading cause of browser display problems. Making sure your Web pages are error free is one of the most important steps to solve browser display problems. That means running an HTML validator, like HTML Toolbox, over every page in the site.

**4. Validate the Pages** : Next to HTML errors, compatibility problems are the leading cause of browser display errors. We've already warned you about including cutting-edge features in your site, but compatibility dangers extend to all aspects of HTML. HTML Toolbox includes a Browser Compatibility report that will identify HTML tags and attributes that aren't compatible with the three most recent versions of Netscape Navigator and Internet Explorer. Check the report and avoid HTML tags that aren't compatible.

## IV. CONCLUSION AND FUTURE SCOPE

While Cross Platform approach help us building robust applications, the problem with cross browser compatibility to some extent remains a pain. We turn to its parent ecosystem, the biggest benefit of using React native is that it is similar to React and even Preact so if you want you can use this to your advantage. While building a Web App you can leverage the predefined set up and save yourself from the hard-work. It comes with the PWA setup too, use service workers without any additional burden.

It even offers brilliant features like live reload, that allow you to update or change the source code on the go. It is really impressive as it brings a certain sense of freedom that other frameworks/libraries simply don't offer.

In addition React implements a totally different DOM system which is independent of the browser. The implementation is done in order make the application cross browser compatible. Memory leakage is less when you use React native which directly results in improved performance.

Addition to this SPRING boot gives us device independence and REST full service. which makes this the best combination of micro-services which are reliable and fast and efficient.

## REFERENCES

[1] S. Willium, "*Network Security and Communication*", IEEE Transaction, Vol.**31,** Issue.**4**, pp.**123-141**, **2012**. For Journal
[2] R. Solanki, "*Principle of Data Mining*", McGraw-Hill Publication, **India**, pp. 386-398, 1998. For Book
[3] M. Mohammad, "*Performance Impact of Addressing Modes on Encryption Algorithms*", In the Proceedings of the 2001 IEEE

International Conference on Computer Design (ICCD 2001), Indore, USA, pp.542-545, 2001. For Conference

[4] S.K. Sharma, "*Performance Analysis of Reactive and Proactive Routing Protocols for Mobile Ad-hoc –Networks*", International Journal of Scientific Research in Network Security and Communication, Vol.**1,** No.**5**, pp.**1-4**, **2013**.

[5] S.L. Mewada, "*Exploration of Efficient Symmetric AES Algorithm*", International Journa of Computer Sciences and Engineering, Vol.**4**, Issue.**11**, pp.**111-117**, **2015**.

[6] A. Mardin, T. Anwar, B. Anwer, "*Image Compression: Combination of Discrete Transformation and Matrix Reduction*", International Journal of Computer Sciences and Engineering, Vol.**5,** Issue.**1**, pp.**1-6**, **2017**.

[7] H.R. Singh, "*Randomly Generated Algorithms and Dynamic Connections*", International Journal of Scientific Research in Network Security and Communication, Vol.**2,** Issue.**1**, pp.**231-238**, **2014.**

[8] Thomas L., "*A Scheme to Eliminate Redundant Rebroadcast and Reduce Transmission Delay Using Binary Exponential Algorithm in Ad-Hoc Wireless Networks*", International Journal of Computer Sciences and Engineering, Vol.**3,** Issue.**8**, pp.**1-6**, **2017**.

[9] C.T. Lee, A. Girgensohn, J. Zhang, "*Browsers to support awareness and Social Interaction,*" Computer Graphics and Applications, Journal of IEEE Access , Vol.**24,** Issue.**10**, pp.**66-75**, **2012.** doi: 10.1109/MCG.2004.24

[10] Lin C., Lee B., "*Exploration of Routing Protocols in Wireless Mesh Network*", In the Proceedings of the 2015 IEEE Symposium on Colossal Big Data Analysis and Networking Security, Canada, pp.**111-117**, **2015**.

[11] S. Tamilarasan, P.K. Sharma, "*A Survey on Dynamic Resource Allocation in MIMO Heterogeneous Cognitive Radio Networks based on Priority Scheduling*", International Journal of Computer Sciences and Engineering, Vol.**5,** No.**1**, pp.**53-59**, **2017**.

**Authors Profile**

Roshne M K is pursuing her 8 semester B.E in Computer science and engineering at East West Institute of Technology,Bengaluru,India. Her area of interest includes Network Security.

**Shaikh Afreen Md Sardar**is pursuing her 8 semester B.E in Computer science and engineering at East West Institute of Technology,Bengaluru,India. Her area of interest includes Network Security.

Varshini Dayanidhi C is pursuing her 8 semester B.E in Computer science and engineering at East West Institute of Technology,Bengaluru,India. Her area of interest includes Network Security.

Tulsi K is pursuing her 8 semester B.E in Computer science and engineering at East West Institute of Technology,Bengaluru,India. Her area of interest includes Network Security.

Vinod H N got M.Tech degree in Computer Science, Bengaluru, India. He is currently working as Associate Professor in the Department of CSE,EWIT. His area of interest includes Network Security.